

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTUITIVE SURGICAL, INC.,
Petitioner,

v.

ETHICON LLC,
Patent Owner

IPR2019-00991
U.S. Patent No. 8,602,287 B2

**PATENT OWNER ETHICON LLC'S
NOTICE OF APPEAL UNDER 37 C.F.R. § 90.2(a)**

Pursuant to 35 U.S.C. §§ 141–144, 319 and 37 C.F.R. § 90.2(a), notice is hereby given that Patent Owner Ethicon LLC (“Ethicon”) appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision (Paper No. 43) (the “Final Written Decision”), in IPR2019-00991, entered on November 25, 2020, by the United States Patent and Trademark Office, Patent Trial and Appeal Board (the “Board”), and from all orders, decisions, rulings, and opinions antecedent to the Final Written Decision. The public version of the Final Written Decision (Paper No. 48, entered on January 12, 2021) is attached hereto as Exhibit A.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Ethicon further indicates that the issues on appeal may include, but are not limited to, the Board’s determination that claims 13-15, 17, and 18 of U.S. Patent Number 8,602,287 have been shown to be unpatentable under 35 U.S.C. § 103 in view of the grounds of unpatentability identified in the Board’s Final Written Decision, challenges to any findings supporting the determination, the Board’s failure to properly consider evidence of record, the Board’s legal and factual errors in undertaking the obviousness analysis, the Board’s failure to consider Ethicon’s arguments in support of patentability, the Board’s procedural errors including its failure to strike and/or exclude certain of Petitioner’s arguments and evidence and the Board’s failure to provide Ethicon an opportunity to offer rebuttal argument and evidence, the

Board's findings that conflict with the evidence of record and are not supported by substantial evidence, the Board's failure to provide Ethicon with sufficient due process, the Board's failure to provide Ethicon with just compensation, the constitutionality of the Administrative Patent Judges, and other issues decided adversely to Ethicon.

Simultaneous with this submission, a copy of this Notice of Appeal is being filed through the Patent Trial and Appeal Board End to End ("PTAB E2E") System. In addition, a copy of the Notice of Appeal, along with the required docketing fee, is being filed with the Clerk of Court for the United States Court of Appeals for the Federal Circuit.

Dated: January 27, 2021

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that, in addition to being filed electronically through the PTAB E2E System, the original version of Patent Owner Ethicon LLC's Notice of Appeal, has been sent via Federal Express on January 27, 2021, to the Director of the United States Patent and Trademark Office, at the following address:

Director of the United States Patent and Trademark Office
c/o Office of the General Counsel
United States Patent and Trademark Office
Madison Building East, Room 10B20
600 Dulany Street
Alexandria, VA 22314-5793

The undersigned also certified that a true and correct copy of Patent Owner Ethicon LLC's Notice of Appeal and the required filing fee, were filed electronically via CM/ECF on January 27, 2021, with the Clerk of Court for the United States Court of Appeals for the Federal Circuit.

The undersigned also certifies that a true and correct copy of Patent Owner Ethicon LLC's Notice of Appeal was served on January 27, 2021, via electronic mail, upon the following counsel of record for Petitioners Intuitive Surgical, Inc.:

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EXHIBIT A

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Paper 48
Date: January 12, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTUITIVE SURGICAL, INC.,
Petitioner,

v.

ETHICON LLC,
Patent Owner.

IPR2019-00991
Patent 8,602,287 B2

Before JOSIAH C. COCKS, ZHENYU YANG, and
JOHN E. SCHNEIDER, *Administrative Patent Judges*.

YANG, *Administrative Patent Judge*.

JUDGMENT

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

Granting-in-Part, Dismissing-in-Part, and Denying-in-Part
Patent Owner's Motion to Exclude (Paper 37)
37 C.F.R. § 42.64(c)

Granting-in-Part, Denying-in-Part without Prejudice
Patent Owner's Motion to Seal (Paper 15)
37 C.F.R. § 42.55

Granting-in-Part, Denying-in-Part without Prejudice to Patent Owner
Petitioner's Motion to Seal (Paper 24)
37 C.F.R. § 42.55

Granting Patent Owner's Motion to Seal (Paper 34)
37 C.F.R. § 42.55

I. INTRODUCTION

A. *Background and Summary*

Intuitive Surgical, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) seeking an *inter partes* review of claims 13–15, 17, and 18 of U.S. Patent No. 8,602,287 B2 (Ex. 1001, “the ’287 patent”). We instituted trial to review the challenged claims. Paper 6 (“Dec.”). Thereafter, Ethicon LLC (“Patent Owner”) filed a Response to the Petition (Paper 16, “PO Resp.”), Petitioner filed a Reply (Paper 25), and Patent Owner filed a Sur-Reply (Paper 34). The parties also filed Patent Owner’s Identification of Allegedly New Arguments in Petitioner’s Reply and Petitioner’s Response Thereto (Paper 32), and briefed the issue whether we should exclude certain arguments in Petitioner’s Reply and evidence in support thereof (Papers 37, 39, 40). An oral hearing for this proceeding was held on September 10, 2020, and a transcript of that hearing is of record. *See* Paper 42 (“Tr.”).

The Board has jurisdiction under 35 U.S.C. § 6 and issues this final written decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons provided below, and based on the evidence and arguments presented in this proceeding, we conclude Petitioner has established by a preponderance of the evidence that claims 13–15, 17, and 18 of the ’287 patent are unpatentable.

B. *Related Matters*

According to the parties, Patent Owner asserted the ’287 patent against Petitioner in *Ethicon LLC v. Intuitive Surgical, Inc.*, Case 1:18-cv-1325 (D. Del.). Pet. 2; Paper 5, 2.

C. *The ’287 Patent*

The ’287 patent is directed to a motor-driven surgical cutting and fastening instrument that comprises an end effector, an electric motor, and a

motor control circuit. Ex. 1001, Abstract. Figure 1, reproduced below, depicts a surgical instrument according to the '287 patent:

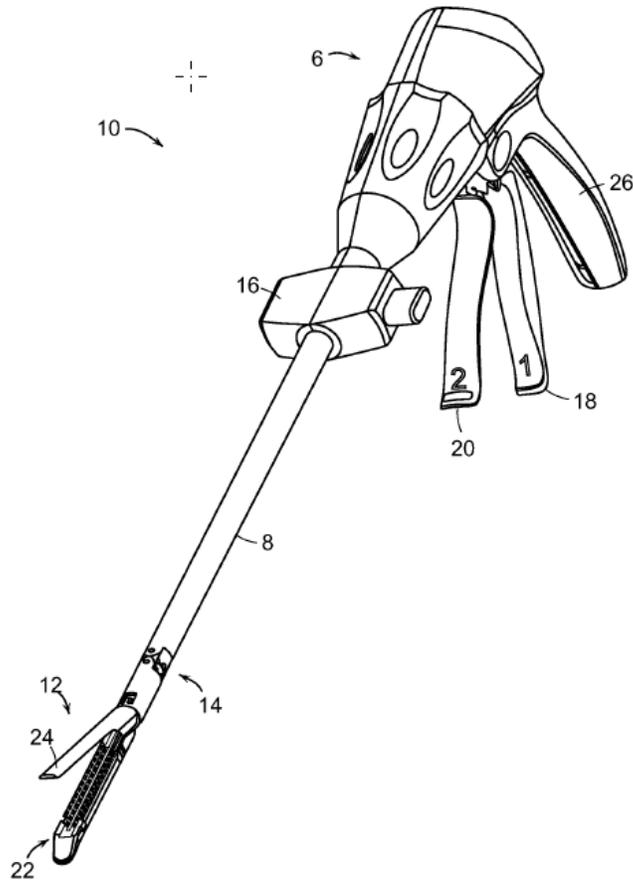


FIG. 1

Figure 1 of the '287 patent depicts a motor-driven surgical cutting and fastening instrument 10. Ex. 1001, 3:6–7. Surgical instrument 10 comprises handle 6, shaft 8, and articulating end effector 12 pivotally connected to shaft 8. *Id.* at 3:16–18.

Figure 3 of the '287 patent is reproduced below:

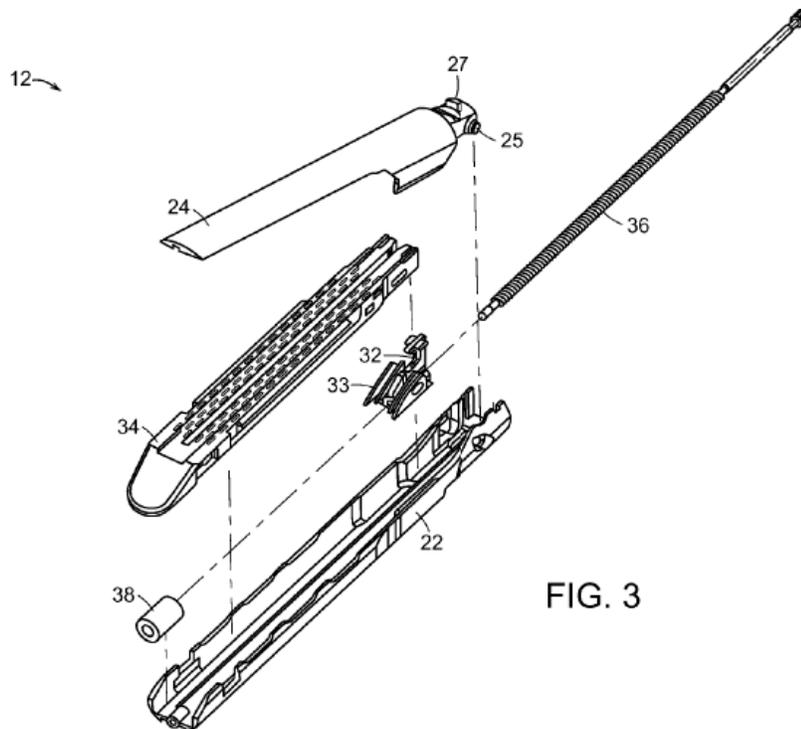


FIG. 3

Figure 3 is an exploded view of end effector 12. *Id.* at 4:22. End effector 12 includes channel 22, anvil 24, cutting instrument 32, sled 33, staple cartridge 34 that is removably seated in channel 22, and helical screw shaft 36. *Id.* at 4:24–27. Cutting instrument 32 may be, for example, a knife. *Id.* at 4:28.

According to the '287 patent, in operational use, closure trigger 18 may be actuated first. *Id.* at 4:8–9.

When the closure trigger 18 is actuated, that is, drawn in by a user of the instrument 10 toward the pistol grip portion 26, the anvil 24 may pivot about the pivot point 25 into the clamped or closed position. If clamping of the end effector 12 is satisfactory, the operator may actuate the firing trigger 20, which causes the knife 32 and sled 33 to travel longitudinally along the channel 22, thereby cutting tissue clamped within the end effector 12. The movement of the sled 33 along the channel 22 causes the staples of the staple cartridge 34 to be driven through the severed tissue and against the closed anvil 24, which turns the staples to fasten the severed tissue.

Id. at 4:34–45.

The '287 patent acknowledges that surgical staplers existed in the art. *Id.* at 1:12–43. Specifically, the '287 patent incorporates by reference U.S. Patent No. 6,978,921 (“Shelton,” Ex. 1015), because it “provides more details about such two-stroke cutting and fastening instrument.” *Id.* at 4:47–51.

The '287 patent also discloses an electric motor disposed in the handle for actuating the cutting instrument. *Id.* at 1:63–64, 6:13–14. According to the '287 patent, in operation, when an operator of instrument 10 pulls back firing trigger 20, the motor “forward rotate[s] at, for example, a rate proportional to how hard the operator pulls back the firing trigger 20.” *Id.* at 7:45–47. The forward rotation of the motor causes a series of movements of various components, and ultimately, “the knife 32 and sled 33 are caused to traverse the channel 22 longitudinally, thereby cutting tissue clamped in the end effector 12.” *Id.* at 7:47–57.

The '287 patent acknowledges that motor-driven endocutters were known in the art. *Id.* at 1:44–52. “In such devices, a motor powers the cutting and fastening action of the instrument.” *Id.* at 1:44–46.

According to the '287 patent, the rotation of the motor is controlled by a motor control circuit, which comprises a power source connected to the motor, and a current control circuit connected to the power source. *Id.* at 1:65–2:1, 7:44–45, 7:60–65. The '287 patent discloses that

The current control circuit may vary the current supplied to the motor, and consequently, the output torque supplied by the motor, such that the motor has at least (i) a first, low power operational mode for a first portion of a cutting stroke cycle of the cutting instrument, and (ii) a second, high power operational mode for a second portion the cutting stroke cycle of the cutting instrument.

That way . . . the motor can start out at a low power mode at the beginning of the cutting stroke to provide a soft start quality. After the initial soft start, the motor can ramp up to full power for the majority of the cutting stroke, but then transition to a lower power mode before and shortly after the cutting reverses direction. In addition, the motor may transition from a high power mode to a low power mode before the cutting instrument reaches its final, or home, position when it is being retracted.

Id. at 2:2–19.

Figure 11 of the '287 patent is reproduced below:

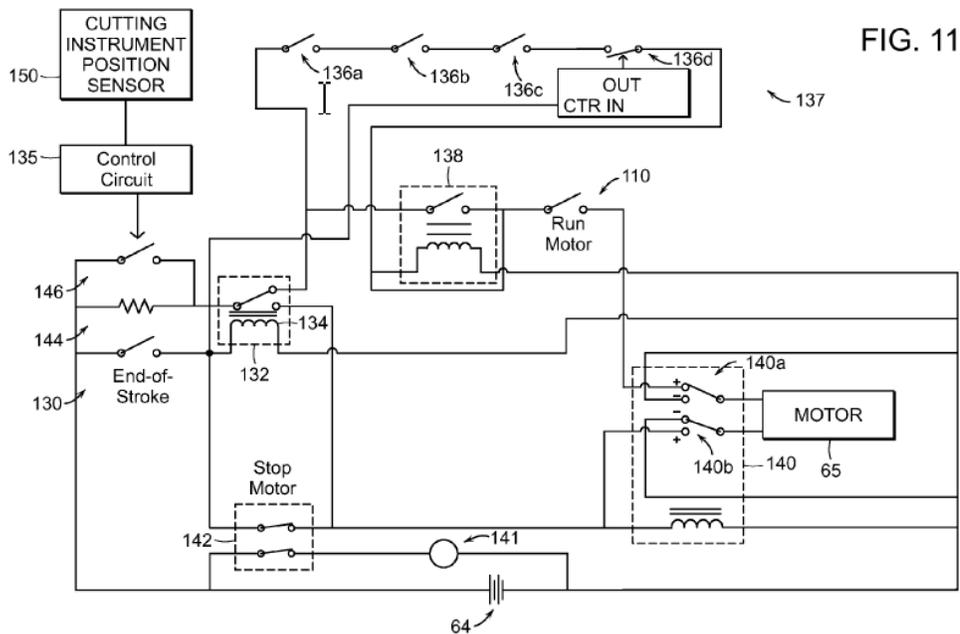


Figure 11 is a schematic diagram of the motor control circuit according to the '287 patent. *Id.* at 9:6–7. The circuit includes resistive element 144 and switch 146 connected in parallel, with the paralleled elements connected in series with single pole, double throw relay 132. *Id.* at 9:24–26. Switch 146 is controlled by a control circuit that is responsive to cutting instrument position sensor 150. *Id.* at 9:28–30. The control circuit “may open the switch 146 when the cutting instrument 32 is (i) very near to the beginning of its stroke and (ii) very near to the end of its stroke.” *Id.* at 9:31–34.

With the switch 146 open, current flows through the resistive element 144, and then through the relay 132, the relay 138, the run motor sensor switch 110, to the motor 65. Current flowing through the resistive element 144 reduces the magnitude of the current delivered to the motor 65, thereby reducing the power delivered by the motor 65. Thus, when the cutting instrument 32 is (i) very near to the beginning of its stroke or (ii) very near to the end of its stroke, the power delivered by the motor 65 is reduced. Conversely, once the cutting instrument 32 moves sufficiently far from its beginning point or end of stroke point, the control circuit 148 may close the switch 146, thereby shorting the resistive element 144, thereby increasing the current to the motor 65, thereby increasing the power delivered by the motor.

Id. at 9:38–51.

The '287 patent states that this “soft” start quality (1) limits the sudden jerking start; (2) reduces the likelihood of the motor overpowering the cartridge lockout mechanism; and (3) eases reversal of the motor direction. *Id.* at 12:33–41.

D. Illustrative Claims

Among the challenged claims, claims 13 and 17 are independent. Claim 13 is illustrative of the subject matter and is reproduced below:

13. A surgical instrument, comprising:
an end effector comprising a firing element, wherein the firing element is configured to move along a firing path, and wherein the firing path comprises:
an initial position; and
an end-of-stroke position;
an electric motor, wherein the electric motor drives the firing element in a first direction along the firing path when the electric motor is rotated in a first rotational direction; and
a control circuit for controlling the electric motor, wherein the control circuit is configured to switch between a plurality of operational modes during rotation of the electric motor in the first

rotational direction, and wherein the plurality of operational modes comprises:

a first operational mode, wherein the control circuit operates in the first operational mode when the firing element is positioned within a first range of positions along the firing path, wherein the first range of positions is positioned between the initial position and a second range of positions, and wherein a first amount of current is supplied to the electric motor during the first operational mode; and

a second operational mode, wherein the control circuit operates in the second operational mode when the firing element is positioned within the second range of positions along the firing path, wherein the second range of positions is positioned between the first range of positions and the end-of-stroke position, wherein a second amount of current is supplied to the electric motor during the second operational mode, and wherein the second amount of current is greater than the first amount of current.

Claim 17 is similar to claim 13, but further requires the surgical instrument to comprise “a sensor that detects a condition of the firing element indicative of the position of the firing element along the firing path.”

E. Instituted Grounds of Unpatentability

We instituted trial to determine whether claims 13–15, 17, and 18 of the '287 patent are unpatentable based on the following grounds:

Claims Challenged	35 U.S.C. §¹	References
13–15, 17, 18	103	Swayze, ² Smith ³
13–15, 17, 18	103	Swayze, McInnis ⁴
13–15, 17, 18	103	Zemlok, ⁵ Whitman ⁶
13–15, 17, 18	103	Zemlok, Milliman, ⁷ Whitman

In support of its patentability challenge, Petitioner relies on the Declarations of Gregory S. Fischer, Ph.D. (Exs. 1003, 1023). Patent Owner relies on the Declaration of William Cimino, Ph.D. (Ex. 2005).

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102, 103, and 112, effective March 16, 2013. Because the application from which the '287 patent issued was filed before this date, the pre-AIA version of §§ 102, 103, and 112 applies.

² Swayze et al., U.S. Pat. App. Pub. No. 2007/0175956 A1, published August 2, 2007 (Ex. 1005).

³ Smith et al., U.S. Pat. App. Pub. No. 2007/0270790 A1, published November 22, 2007 (Ex. 1004).

⁴ McInnis, U.S. Pat. No. 4,346,335, issued August 24, 1982 (Ex. 1006).

⁵ Zemlok et al., U.S. Pat. App. Pub. No. 2009/0090763 A1, published April 9, 2009 (Ex. 1007).

⁶ Whitman et al., U.S. Pat. No. 6,793,652 B1, issued September 21, 2004 (Ex. 1009).

⁷ Milliman et al., U.S. Pat. No. 6,953,139 B2, issued October 11, 2005 (Ex. 1008).

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) (2018).

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 skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *KSR*, 550 U.S. at 406.

In an obviousness analysis, “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.” *KSR*, 550 U.S. at 418, *see also id.* (“[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)

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

B. Claim Construction

In an *inter partes* review, a claim term “shall be construed 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), including construing the claim 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.” 37 C.F.R. § 42.100(b); *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”) (citations omitted). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner proposes that we construe the term “firing element.” Pet. 9–10. According to Petitioner, “[t]his term invokes pre-AIA 35 U.S.C. § 112, ¶ 6 because it claims a function without disclosing sufficient structure for performing that function.” *Id.* at 9. Petitioner argues that “[t]he functions recited in the claims are firing and moving along a firing path,” and “[t]he corresponding structure is cutting instrument/knife 32.” *Id.* at 10.

For purposes of the Decision to Institute, we adopted Petitioner’s proposed construction, because it was supported by the ’287 patent and the Declaration of Dr. Fischer. Dec. 9. In its Response, Patent Owner states that it “does not agree that these constructions are proper, but applies them [t]herein.” PO Resp. 14.

In its Reply, Petitioner reiterates that “[t]he term ‘firing element’ in each challenged claim is a means-plus-function limitation and the corresponding structure is cutting instrument 32.” Reply 3. Petitioner, however, further argues that the cutting instrument 32 must include a “threaded opening.” *Id.* at 5 (citing Ex. 1001, 5:35–39).

Patent Owner contends that Petitioner’s addition of “threaded opening” is an improper, new argument that is outside of the scope of the Reply. Paper 28, 2; Paper 32. According to Patent Owner, Petitioner did not assert in the Petition that a threaded opening is a necessary feature of the firing element; in fact, the phrase “threaded opening” appears nowhere in the Petition. Sur-reply 1–2. Patent Owner asks us to reject this “untimely claim construction argument.” *Id.* at 2. We do not need to resolve this dispute because, even if we consider Petitioner’s allegedly new argument, we are not persuaded that the cutting instrument requires the additional feature of a “threaded opening.”

Under the statute, a means-plus-function claim “shall be construed to cover the corresponding structure, materials, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112 ¶ 6. The challenged claims require, and the parties do not dispute, that the function of the “firing element” is “to move along a firing path.” Ex. 1001, 18:60, 19:42; Pet. 10; Sur-reply 3. We must, therefore, identify “the structure in the written description necessary to perform that function.” *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). The parties do not dispute, and we agree, that the structure necessary to perform the recited function is cutting instrument/knife 32. Pet. 10; PO Resp. 14. The parties, however, dispute whether the knife must include a “threaded opening:” Petitioner says yes, whereas Patent Owner says no. Reply 5; Sur-reply 6. We find Patent Owner’s argument more persuasive.

Petitioner relies on the embodiment of Figure 3, in which a “helical screw shaft 36 may interface a threaded opening (not shown) of the knife 32 such that rotation of the shaft 36 causes the knife 32 to translate distally or proximally (depending on the direction of the rotation) through the staple

channel 22.” Ex. 1001, 5:35–39; Reply 5 (emphasizing that cutting instrument 32 “includes a ‘threaded opening’ that interfaces with a rotatable helical screw shaft 36 to generate the claimed movement”); Tr. 8:24–25 (arguing that “for this embodiment, the only way item 32 moves forward is through the threaded opening”).

The ’287 patent states that helical screw shaft 36 *may* interface a threaded opening of knife 32. Ex. 1001, 5:35–36. We agree with Patent Owner this language suggests that “a threaded opening is [an] optional structure.” *See* Sur-reply 3.

More importantly, the ’287 patent includes other embodiments of the knife with no threaded opening. *See* Ex. 1001, Figs. 20, 23; *see also* Sur-reply 3–5 (arguing that in each alternative embodiment shown in Figures 20 and 23, the knife has no threaded opening and the effector has no helical screw shaft).⁸ Petitioner does not dispute this. *See* Tr. 8:23 (acknowledging “there are other embodiments”), 9:1–3 (“They do have other embodiments with other -- with the knife bar, but that’s a different embodiment.”).

“When multiple embodiments in the specification correspond to the claimed function, proper application of § 112, ¶ 6 generally reads the claim element to embrace each of those embodiments.” *Micro Chem.*, 194 F.3d at 1258. Because the ’287 patent discloses alternative embodiments of cutting

⁸ The ’287 patent states that “U.S. Pat. No. 6,978,921 [‘Shelton,’ Ex. 1015], entitled ‘Surgical stapling instrument incorporating an E-beam firing mechanism,’ which is incorporated herein by reference in its entirety, provides more details about such two-stroke cutting and fastening instruments.” Ex. 1001, 4:47–51. In discussing the embodiments of Figures 20 and 23 of the ’287 patent, Patent Owner relies on the teachings in Shelton. Sur-reply 5 & n.3.

instrument/knife, we decline to limit the cutting instrument/knife to require a threaded opening. *See id.* at 1259 (“Because alternative structures corresponding to the claimed function were described, the district court incorrectly limited ‘weighing means’ to the specific structures of the preferred embodiment.”); *see also Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 1369 (Fed. Cir. 2005) (concluding that the district court erred in construing the term “cutting means” because it did not account for additional embodiments, and instructing that a proper construction must “[a]ccount[] for all structure[s] in the specification corresponding to the claimed function . . . and, of course, equivalents of these structures”). At the hearing, counsel for Petitioner concedes this point. *See* Tr. 13 (“I’m not saying threaded opening is required in the claim construction.”).

In sum, for the term “firing element,” we reiterate that the recited function is “to move along a firing path,” and the corresponding structure is cutting instrument/knife 32. Because a threaded opening is not necessary for the knife to move along a firing path, we decline to restrict the cutting instrument/knife 32 to require a threaded opening. *See Micro Chem.*, 194 F.3d at 1258 (instructing that the statute does not permit “incorporation of structure from the written description beyond that necessary to perform the claimed function”); *see also* Sur-reply 3 (arguing that “the claim is directed to the structure that moves—*not* the structure that *causes* it to move”).

C. Prior-Art Status of Smith and Zemlok

Petitioner points out that the earliest priority of the ’287 patent is September 23, 2008. Pet. 4; *see also* Ex. 1001, code (63). Smith, a U.S. patent application publication, was published on November 22, 2007. Ex. 1004, code (43). Zemlok, also a U.S. patent application publication, claims priority to a provisional application filed on October 5, 2007.

Ex. 1007, code (60). Thus, Petitioner alleges that Smith qualifies as prior art under 35 U.S.C. § 102(a),⁹ and Zemlok qualifies as prior art under § 102(e). Pet. 4.

With newly executed declarations from two co-inventors, corroborating contemporaneous records of the invention, and other supporting evidence, Patent Owner argues that the inventors of the '287 patent “conceived of the claimed invention prior to the effective dates of Smith and Zemlok and diligently thereafter worked towards reduction to practice.” PO Resp. 20. As a result, Patent Owner contends that neither Smith nor Zemlok qualifies as prior art. *Id.* at 20–21. We find Patent Owner’s argument persuasive.

An inventor may antedate a § 102(a) or § 102(e) reference by showing that the invention was conceived before the effective date of the reference, followed by reasonably continuous diligence until the constructive reduction to practice. *Purdue Pharma L.P. v. Boehringer Ingelheim GMBH*, 237 F.3d 1359, 1365 (Fed. Cir. 2001). Issues of diligence concern the period just preceding the effective date of the adverse reference, to the constructive reduction to practice. *In re Steed*, 802 F.3d 1311, 1317 (Fed. Cir. 2015). In this case, Patent Owner must show conception before October 5, 2007, the earlier effective date of the two prior-art references, and reasonably continuous diligence from just before that date to September 23, 2008, the earliest priority date of the '287 patent.

⁹ Smith published from an application filed in February, 2007. Ex. 1004, code (22). It claims priority to several provisional applications filed in 2006. *Id.*, code (60). Petitioner, however, does not argue that Smith qualifies as prior art under § 102(e). thus, the effective date of Smith is November 22, 2007.

I. Prior Conception

“[T]he test for conception is whether the inventor had an idea that was definite and permanent enough that one skilled in the art could understand the invention.” *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994). Conception must include every feature of claimed invention. *Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985). An inventor must prove conception by corroborating evidence, preferably by showing a contemporaneous disclosure. *Burroughs Wellcome*, 40 F.3d at 1228.

Patent Owner asserts that the inventors of the '287 patent “conceived of the claimed invention no later than [REDACTED], as demonstrated by a series of invention disclosures and a design specification created by the inventors.” PO Resp. 24 (citing Ex. 2003 ¶¶ 15–26; Ex. 2004 ¶¶ 9–19; Exs. 2011, 2014–2016, 2166). As support, Patent Owner provides a detailed claim chart, mapping each claim limitation to its evidence of conception. *Id.* at 26–35. Petitioner does not dispute, and after reviewing the record, we agree with, Patent Owner’s accounting of all but one claim limitation. Thus, we focus our discussion only on the disputed limitation “firing element,” and adopt Patent Owner’s claim chart (and the supporting evidence cited by Patent Owner) regarding those other limitations as our own findings.

In addressing the limitation “firing element,” Patent Owner points to Innovation Disclosure 13847, dated [REDACTED] (Ex. 2011), Innovation Disclosure 14068, [REDACTED] (Ex. 2016), and Shelton, a patent issued to Patent Owner in 2005, and incorporated into the challenged '287 patent (Ex. 1015). Below, we reproduce a portion of the table provided by Patent Owner in its briefing, outlining in one column the relevant claim

language related to the “firing element” and, in the other column, Patent Owner’s alleged conception evidence.

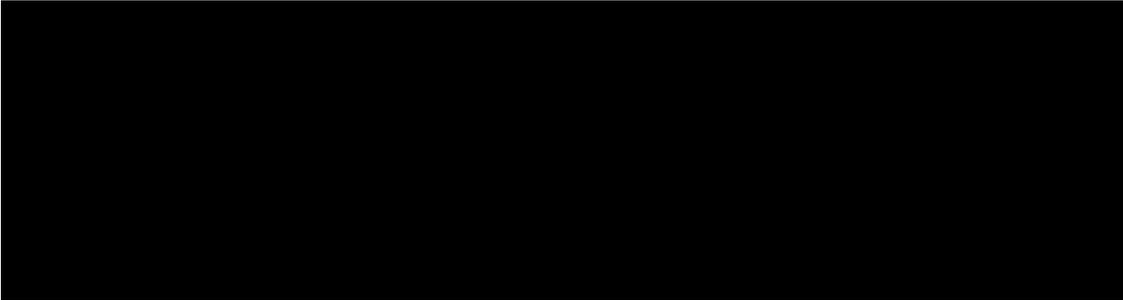
Claim (287 Patent)	Evidence of Conception
<p>13.2/17.2 comprising a firing element, wherein the firing element is configured to move along a firing path,</p>	<p>Ethicon’s endocutters comprised a firing element that moves along a firing path as of [REDACTED]. Disclosures from [REDACTED] make clear that a firing element, in some embodiments a knife, configured to move along a firing path was conceived as of [REDACTED] and included in the endocutters referenced in the innovation disclosures describing the claimed features:</p> <p>Ex. 2016 [REDACTED]</p> <p>Ex. 2016.001 [REDACTED]</p> <p>Ex. 2011.001 [REDACTED]</p> <p>See Ex. 1015, 5:26-29 and Fig. 1 (2006 patent assigned to Ethicon describing a “surgical stapling and severing instrument 10 [that] incorporates an end effector 12 <i>having an E-beam firing mechanism</i> (“firing bar”) 14...”).</p>

PO Resp. 28 (table (partial) indicating evidence allegedly corroborating prior invention related to the “firing element” limitations).

Petitioner contends that such evidence does not demonstrate prior conception because the corresponding structure of the means-plus-function

term “firing element” is cutting instrument 32, which includes a “threaded opening.” Reply 3–7. We are not persuaded by Petitioner’s argument.

Exhibit 2011, one of the Innovation Disclosures Patent Owner relies on to establish prior conception, discloses:



Ex. 2011, 1.

In our view, the knife in Exhibit 2011 is the corresponding structure of the limitation “firing element,” because it performs the recited function “to move along a firing path.” We recognize this disclosure does not mention a threaded opening. But, as discussed above in the claim-construction section, we decline to restrict the cutting instrument/knife to require a threaded opening. As a result, we are persuaded that Patent Owner has produced sufficient evidence to show prior conception of the claimed invention, with an embodiment with a “firing element” that does not include a threaded opening.

Petitioner contends that “[w]hen a claim contains ‘means plus function’ limitations, the conceived invention must not only include the claimed function, but it must also include the various ‘means’ for performing the functions disclosed in the patent-in-suit.” Reply 3 (citing *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998); *Diasonics, Inc. v. Acuson Corp.*, 1993 WL 248654, at *16 (N.D. Cal. June 24, 1993)). The cases Petitioner relies on do not support its contention here.

Indeed, the page of *Ethicon* that Petitioner cites does not even mention “means plus function,” and thus, could not support Petitioner’s contention. *See Ethicon*, 135 F.3d at 1460. Elsewhere, *Ethicon* addressed a means-plus-function limitation and stated that “[t]he contributor of any disclosed means of a means-plus-function claim element is a joint inventor as to that claim.” *Id.* at 1463. Petitioner has not sufficiently explained how *Ethicon* provides guidance on the issue of conception here.

*Diasonics*¹⁰ states that “in order to establish a prior invention date, there must be a permanent idea of the complete invention—including means plus function—in the mind of the inventor on that date.” 1993 WL 248654, at *16. There is no dispute that conception must include every claimed limitation, including the means-plus-function limitation. Here, Patent Owner has produced documents showing the prior conception of the claimed invention, with a knife that does not have a threaded opening as the corresponding structure of the limitation “firing element.”

According to Petitioner, the district court in *Diasonics* held that a document the patent owner there relied on failed to show conception because “the claims contained means-plus-function limitations and the means disclosed in the patent did not appear” therein. Reply 3 (citing *Diasonics*, 1993 WL 248654, at *16¹¹). Petitioner’s characterization of *Diasonics* is not incorrect; but it is incomplete.

In *Diasonics*, the patent owner argued that a memorandum of Dr. Beaver, a co-inventor, demonstrated conception. 1993 WL 248654,

¹⁰ *Diasonics* is an opinion of a district court, and thus, not a binding authority in this proceeding.

¹¹ Although Petitioner cites page 16 of *Diasonics* here, in fact, the discussion appears somewhere else in the opinion.

at *18. On a means-plus-function limitation, the court found “Beaver’s approach was to reduce the B-mode line density, not the frame rate. The patented approach, on the other hand, reduces the frame rate.” *Id.* at *19. It is within this context that the court stated that:

The patentees specifically chose to reduce the frame rate, *not* to reduce the line density, as their patented method of embodiment. Thus, this means or structure of the operative method of the invention is an essential part of the protected invention, and therefore must have been pictured in the minds of the inventors to prove a prior invention.

Id. (emphasis added).

In contrast, the inventors in this case did not choose a knife with a threaded opening to the exclusion of one without. Instead, the ’287 patent discloses both embodiments. *See* Ex. 1001, Figs. 3, 20, 23. Petitioner recognizes so. *See* Tr. 8:23 (acknowledging “there are other embodiments”), 9:1–3 (“They do have other embodiments with other -- with the knife bar, but that’s a different embodiment.”). Thus, *Diasonics* is inapposite here.

At the hearing, counsel for Petitioner argued that “[p]riority date can only go back to when you show all the corresponding structures, and that is actually described well in the *Automotive Technologies International v. Delphi* case, which for some reason, it’s not a West Law cite in our briefing.”¹² Tr. 13:21–23. We, again, are not persuaded by Petitioner’s argument.

First, *Automotive Technologies International* is an opinion of a district court, and thus, not a binding authority in this proceeding.

¹² Petitioner cites the *Automotive Technologies International* case only in its Opposition to Patent Owner’s Motion to Exclude, and not in any merits briefing. Paper 39, 9.

Second, that case addresses whether claims issued from a continuation-in-part application are entitled to the priority date of a parent application. *Auto. Techs. Int'l, Inc. v. Delphi Corp.*, 776 F.Supp.2d 469, 487 (E.D. Mich. 2011). Specifically, the district court discussed the written description and enablement requirements for a means-plus-function claim. *Id.* at 490. The issue in this *inter partes* review, however, is prior conception, which is not addressed in *Automotive Technologies International*. Petitioner has not sufficiently explained the relationship between the law on conception, and the law on written description and enablement requirements. Thus, it is unclear whether the holding in *Automotive Technologies International* would apply here.

Third, the district court stated that “each and every embodiment or corresponding structure of a claimed invention must be present in a parent’s specification in order for the patent that issued from the continuation-in-part to satisfy the enablement and written description requirements of § 112.” *Id.* at 491. It did so after reviewing four Federal Circuit cases. *Id.* at 490–91. Neither the district court’s analysis nor the underlying cases cited therein, however, appear to control the result here.

In the first case, the court construed a means-plus-function claim to cover a *single* corresponding structure. *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1425 (Fed. Cir. 1997).

In the second case, the court held that the means-plus-function claim was not entitled to the priority of a parent because “none of the corresponding structures appeared in the specification.” *Lucent Techs., Inc. v. Gateway, Inc.*, 543 F.3d 710, 719 (Fed. Cir. 2008).

In the third case, the court held that the means-plus-function claim, which had two corresponding structures, was entitled to the earlier priority

date, because both structures were enabled by the parent's specification, even though one of them only appeared in the background section, and even though the background section contained disparaging remarks about this mechanism. *Callicrate*, 427 F.3d at 1374–75.

The fourth case does not involve any means-plus-function claim. *Anascape, Ltd. v. Nintendo of Am., Inc.*, 601 F.3d 1333 (Fed. Cir. 2010). There, the court held that claims that include controllers having multiple input members are not entitled to the priority of an earlier application, which describes only a controller having a single input member. *Id.* at 1340–41.

In sum, Petitioner has not referred us to any on-point authority, either binding or persuasive, to support its argument that Patent Owner must show all embodiments of the corresponding structure, including a cutting instrument/knife with a threaded opening, to demonstrate prior conception. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (holding that in an *inter partes* review, the burden of persuasion is on the petitioner, and “that burden never shifts to the patentee”). Thus, we are persuaded that Patent Owner has produced sufficient evidence to show conception of the claimed invention no later than [REDACTED].

2. Diligence

“The diligence requirement implements the principle that, to antedate a reference, the applicant must not only have conceived the invention before the reference date, but must have reasonably continued activity to reduce the invention to practice.” *ATI Techs. ULC v. Iancu*, 920 F.3d 1362, 1369 (Fed. Cir. 2019). “A patent owner need not prove the inventor *continuously* exercised reasonable diligence throughout the critical period; it must show there was *reasonably continuous* diligence.” *Perfect Surgical Techniques*,

Inc. v. Olympus Am., Inc., 841 F.3d 1004, 1009 (Fed. Cir. 2016). An inventor’s testimony regarding reasonably continuous diligence must be corroborated by evidence. *Brown v. Barbacid*, 436 F.3d 1376, 1380 (Fed. Cir. 2006). A variety of activities may corroborate an inventor’s testimony of diligence and such corroborating evidence is considered “as a whole” under a rule of reason. *Id.*

Patent Owner argues that its employees “diligently pursued reducing the claimed invention to practice from the critical period spanning just before Zemlok was filed on October 5, 2007 until the constructive reduction to practice of the claimed invention on September 23, 2008.” PO Resp. 35–36 (footnote omitted). Based on the declarations of a co-inventor (Ex. 2003) and the attorney who prepared the application to which the ’287 patent claims priority (Ex. 2008), and numerous other supporting documents (Exs. 2011, 2014–2016, 2020, 2024, 2026, 2032–2036, 2038–2047, 2050, 2053, 2054, 2056, 2059, 2061, 2067, 2128, 2144, 2148, 2151, 2153, 2154, 2157, 2159, 2165, 2161, 2170, 2173, 2185, 2203, 2206, 2215, 2200, 2220, 2223, 2224, 2226, 2227, 2229–2260, 2266), Patent Owner summarizes each month of diligence in the critical period to demonstrate the extensive work done on reducing the claimed invention to practice. *Id.* at 37–46. Patent Owner also provides a diligence calendar (Ex. 2007), “a calendar of the 12-month period that lists on a day-to-day basis the evidence that supports diligence.” *Id.* at 37.

Petitioner asserts that “as with conception,” Patent Owner’s evidence does not demonstrate diligence in working on a surgical stapler with cutting instrument 32, which requires a threaded opening. Reply 7. As discussed above, we decline to restrict the cutting instrument/knife 32 to require a threaded opening. As a result, and after reviewing the record, we are

persuaded that Patent Owner has produced sufficient evidence showing reasonably continuous diligence in the critical period in reducing the claimed invention to practice.

3. *Antedating Smith and Zemlok*

Petitioner contends that Patent Owner cannot antedate Smith because, under Patent Owner’s apparent construction, the inventors of the ’287 patent derived the claimed invention from Smith. Reply 9–13 (“Section 131 declarations are inappropriate where, as here, ‘the subject matter relied upon is prior art under pre-AIA 35 U.S.C. 102(f).^{[13]’”) (quoting MPEP § 715). We are not persuaded.}

“Derivation is shown by a prior, complete conception of the claimed subject matter and communication of the complete conception to the party charged with derivation. Communication of a complete conception must be sufficient to enable one of ordinary skill in the art to construct and successfully operate the invention.” *Hedgewick v. Akers*, 497 F.2d 905, 908 (C.C.P.A. 1974) (citations and footnote omitted). “[M]ere proof of motive and opportunity (e.g. access) is not sufficient to carry the burden of proving derivation.” *Id.*

Petitioner argues that “the Smith applicants conceived every limitation of the challenged claims” under Patent Owner’s apparent construction of “firing element” (Reply 9), and “communicated their conception to the ’287

¹³ Petitioner clarifies that it does not seek to rely on derivation *per se* to challenge the claims. *See* Tr. 17:10–15 (“So what we’re saying about derivation is not – we’re not using 102(f). What we’re saying is they can’t show prior invention, because it’s clear that they knew about Smith and Smith gave them everything that they’re now claiming is within the claims if you assume that you don’t need the helical drive screw with the right opening, because Smith doesn’t have that.”).

patent applicants prior to their alleged conception” (*id.* at 12). Evidence of the record, however, does not support Petitioner’s argument.

According to Petitioner, “the ’287 patent applicants admit in their invention disclosure forms to already having knowledge of Smith’s concept at the time of their alleged conception.” *Id.* As support, Petitioner relies on two innovation disclosures (Exs. 2014, 2015) because both refer to [REDACTED]
[REDACTED] *Id.* (quoting Ex. 2014). But Smith was submitted to the patent office on February 12, 2007 (Ex. 1004, code (22)), more than [REDACTED] before the two innovation disclosures were created and witnessed. *See* Exs. 2014, 2015. Petitioner does not persuade us that Smith, which had already been filed, was [REDACTED]
[REDACTED] in Exhibits 2014 and 2015.

Petitioner also points out that a co-inventor of the ’287 patent testified that “Exhibit 2014 acknowledges the research done by another [Patent Owner] Ethicon team on a ‘soft’ start featuring utilizing variation in the number of battery cells in the circuits.” Reply 12 (quoting Ex. 2003 ¶ 18). Again, Petitioner merely assumes, without evidence, that the other team is the Smith team. Moreover, the same inventor specifically testified that he was not aware of the work performed by the Smith team. *See* Ex. 1021, 16:15–19.

Petitioner further argues that a Concept Selection Summary authored by another co-inventor of the ’287 patent, [REDACTED]
[REDACTED] Reply 12 (citing Ex. 2048, 3–4). To demonstrate derivation, Petitioner must show a prior, complete conception of the claimed subject matter, not just a feature. *Hedgewick*, 497 F.2d at 908. In addition, the Concept Selection Summary is dated [REDACTED] (Ex. 2048, 1), more than [REDACTED] after the

██████████ conception of the claimed invention. As such, Exhibit 2048 cannot constitute evidence of “[c]ommunication of a complete conception,” even if the prototype described therein includes every limitation of the challenged claims. *See Hedgewick*, 497 F.2d at 908. Petitioner also does not refer us to any other evidence to support, or persuasively argue, that the prototype design was communicated to the inventors of the ’287 patent before the conception of the claimed invention. In other words, Petitioner’s derivation argument is not sufficiently supported by evidence.

In sum, Patent Owner has produced sufficient evidence to show conception of the claimed invention no later than ██████████ and reasonably continuous diligence from just before that date to September 23, 2008, the earliest priority date of the ’287 patent. Thus, Smith and Zemlok, with November 22, 2007 and October 5, 2007 as their effective dates, respectively, do not qualify as prior art.

4. *Anticipation by Smith*

Petitioner contends, for the first time in Reply, that under Patent Owner’s apparent construction, Smith anticipates the challenged claims. Reply 13. We do not consider this argument because it is not raised in the Petition, and thus, beyond the proper scope of the Reply. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018) (holding that it is the petition that “is supposed to guide the life” of the proceeding). Indeed, it would have been an error for us to institute an *inter partes* review based on a ground not advanced in a petition (*see Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1335 (Fed. Cir. 2020)), let alone to decide in a final written decision a ground not in either the Decision to Institution or the Petition.

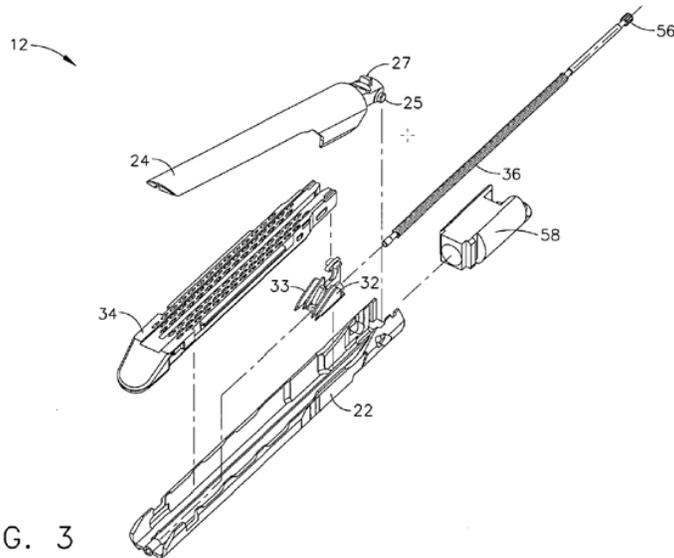


FIG. 3

Figure 3 of Swayze is an exploded view of end effector 12. *Id.* ¶ 49. End effector 12 includes channel 22 and anvil 24 pivotally attached to the channel. *Id.* It also includes moveable cutting instrument 32 for cutting an object positioned between the anvil and the channel. *Id.* Cutting instrument 32 may be, for example, a knife. *Id.* End effector 12 further includes sled 33, staple cartridge 34 removably seated in the channel, and helical screw shaft 36. *Id.*

Swayze teaches that

When the closure trigger 18 is actuated, that is, drawn in by a user of the instrument 10, the anvil 24 may pivot about the pivot point 25 into the clamped or closed position. If clamping of the end effector 12 is satisfactory, the operator may actuate the firing trigger 20, which . . . causes the knife 32 and sled 33 to travel longitudinally along the channel 22, thereby cutting tissue clamped within the end effector 12. The movement of the sled 33 along the channel 22 causes the staples . . . of the staple cartridge 34 to be driven through the severed tissue and against the closed anvil 24, which turns the staples to fasten the severed tissue.

Id. Like the '287 patent, Swayze also incorporates Shelton by reference, and for the same reason, that is, Shelton “provides more details about such two-stroke cutting and fastening instrument.” *Id.*

Swayze also teaches that the handle of the instrument includes a motor for actuating the cutting instrument. *Id.* ¶¶ 25, 54. According to Swayze, “rotation of the motor 65 causes the main drive shaft assembly to rotate, which causes actuation of the end effector 12.” *Id.* ¶ 57.

In operation, when an operator of the instrument 10 pulls back the firing trigger 20, the sensor 110 detects the deployment of the firing trigger 20 and sends a signal to the motor 65 to cause forward rotation of the motor 65 at, for example, a rate proportional to how hard the operator pulls back the firing trigger 20. The forward rotation of the motor 65 . . . causes deployment of the knife 32 in the end effector 12. That is, the knife 32 and sled 33 are caused to traverse the channel 22 longitudinally, thereby cutting tissue clamped in the end effector 12.

Id. ¶ 61.

The instrument further includes a control circuit that “may calculate the stage of deployment of the knife 32 in the end effector 12. That is, the control circuit can calculate if the knife 32 is fully deployed, fully retracted, or at an intermittent stage.” *Id.* ¶ 109. “[W]hen the knife 32 is fully deployed (i.e., fully extended) . . . the control circuit may send a signal to the motor 65 to reverse direction to cause retraction of the knife 32.” *Id.* ¶ 112. And when the control circuit determines knife 32 is fully retracted, it “may send a signal to the motor 65 to stop rotation.” *Id.*

2. *McInnis*

McInnis teaches a motor controller for an electric motor. Ex. 1006, Abstract. Figure 3 of McInnis, as annotated by Petitioner, is reproduced below:

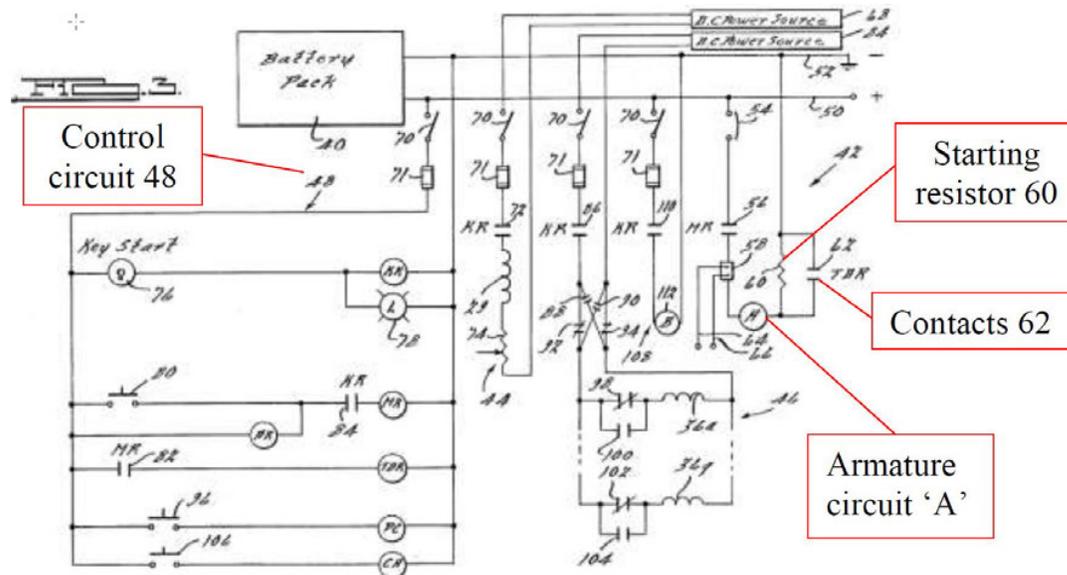


Figure 3 is a circuit diagram of a motor controller in accordance with McInnis. *Id.* at 5:31–32. According to McInnis,

The starting resistor 60 is connected in series with the armature circuit “A” to prevent a high inrush of current when the motor is started, as is conventional in the art. The contacts 62 are connected across starting resistor 60 to provide a short circuit across this resistor shortly after the motor is started. Contacts 62 are controlled by a time delay relay “TDR” in relay control circuit 48.

Id. at 5:56–63.

3. Analysis of Claim 13

Petitioner argues that “Swayze discloses a surgical instrument that is essentially identical to the surgical instrument disclosed in the ’287 patent, except that it does not disclose a conventional soft start circuit . . . in the motor control circuit.” Pet. 13 (citing Ex. 1003 ¶ 49). As support, Petitioner shows Figures 2, 3, and 11 of the ’287 patent and those of Swayze are substantially the same, except for the motor control circuit. *Id.* at 13–14.

Specifically, Petitioner contends that Swayze teaches a surgical instrument, comprising an end effector, and an electric motor, arranged as

recited in challenged claim 13. *Id.* at 27–30, 58. Petitioner further asserts that the combination of Swayze and McInnis teaches the motor control circuit, as recited in claim 13. Pet. 58–65. Petitioner points out that Swayze teaches a control circuit. *Id.* at 31–33 (citing Ex. 1005 ¶¶ 59, 60, 62, 67, 80, 81, 109, 112, Fig. 11), 58. The control circuit of Swayze, however, unlike the control circuit of the '287 patent, does not vary the current supplied to the motor. In other words, the control circuit of Swayze does not switch between different operational modes in the same manner as claimed.

Petitioner relies on McInnis for teaching a control circuit that “prevent[s] a high inrush of current when the motor is started, as is conventional in the art.” *Id.* at 59 (citing Ex. 1006, 5:56–62, Fig. 3). According to Petitioner, “the control circuit resulting from the combination of Swayze’s control circuit with McInnis’s soft start circuit (‘the Swayze/McInnis control circuit’) would be essentially identical to the control circuit disclosed in Figure 11 of the '287 patent.” *Id.* at 59–61. Petitioner argues this “modified control circuit switches between the low and high current modes during rotation of the motor and after it has been rotating for a preselected period of time.” *Id.* at 61 (citing Ex. 1003 ¶ 148; Ex. 1006 5:59–62, 6:55–57).

Patent Owner does not dispute these assertions. After reviewing the record, we agree with Petitioner and adopt Petitioner’s mapping of the limitations of claim 13 to the teachings of Swayze and McInnis as our own findings. *See* Pet. 58–61, 64–65. And we are persuaded, that the combination of Swayze and McInnis teaches or suggests each and every limitation of claim 13.

This, however, does not end our inquiry, because

where, as here, all claim limitations are found in a number of prior art references, the burden falls on the challenger of the patent to show by [a preponderance of the] evidence 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.

Pfizer, Inc. v. Apotex, Inc., 480 F.3d 1348, 1361 (Fed. Cir. 2007); *see also In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (the same).

Petitioner argues that one of ordinary skill in the art would have been motivated to combine the teachings of Swayze and McInnis, and would have had a reasonable expectation of success when doing so. Pet. 61–63. Patent Owner only counters that an ordinarily skilled artisan would not have been motivated to combine the endocutter of Swayze with the control circuit of McInnis. PO Resp. 59–66. After reviewing the record, we find Petitioner’s argument more persuasive.

Petitioner asserts that “[a] POSITA would have been motivated to modify Swayze’s control circuit to included McInnis’s soft start circuit for the reason provided in McInnis—*i.e.*, ‘to prevent a high in rush of current when the motor is started, as is conventional in the art.’” Pet. 61–62 (quoting Ex. 1006, 5:56–62). Citing Kothari,¹⁴ Petitioner lists several problems of a high in rush of current. *Id.* at 62 (citing Ex. 1013, 370–71). Petitioner also quotes Kastner¹⁵ to support the argument that “[s]oft-starting can also be

¹⁴ Kothari and Nagrath, *Electric Machines* (Fourth Ed., 2006), 370–75 (Ex. 1013).

¹⁵ Kastner, U.S. Pat. App. Pub. No. 2008/0298784 A1, published December 4, 2008 (Ex. 1014). The application for Kastner was filed on June 4, 2007, which predates the [REDACTED] conception date

useful in hand-held power tools” to “minimize fatigue and potential injury, while allowing greater control of the tool.” *Id.* (quoting Ex. 1014 ¶ 30).

Patent Owner argues that an ordinarily skilled artisan “would not have looked to McInnis to modify the control circuit of Swayze’s endocutter,” because McInnis is not analogous art. PO Resp. 59–61.¹⁶ We are not persuaded by this argument.

McInnis teaches that its invention “provides a novel motor controller, which is particularly advantageous when the motor is used to drive an electric vehicle.” Ex. 1006, 2:51–53, *see also id.* at 5:33–34 (“In the embodiment illustrated, motor controller 38 is intended for use in an electric vehicle.”). McInnis, however, states that “it will be appreciated by those skilled in the art that the motor controller may be suitably modified for other appropriate motor control applications.” *Id.* at 5:34–37.

Patent Owner contends that an ordinarily skilled artisan would have stayed within the field of endoscopic surgical devices, and would not have interpreted this statement “as an invitation to use McInnis circuit in a precision surgical instrument like that in Swayze.” PO Resp. 60. But the testimony of its expert is more equivocal. *See* Ex. 1020, 139:13–21 (Q: “Is it your opinion that a person of ordinary skill in the art would look only at prior art that describes endocutters or similarly minimally invasive surgical instruments?” A: “It’s my opinion that they would most likely look

established by Patent Owner. Thus, Kastner qualifies as prior art under § 102(e).

¹⁶ Patent Owner cites paragraphs 95 and 96 of the declaration of its expert, Dr. Cimino (Ex. 2005) as support. Those paragraphs, however, address the combination of Swayze and Smith, and not the combination of Swayze and McInnis. In fact, most, if not all, of the citations to the Cimino Declaration in this section appear to be incorrect.

predominantly in that area, but that’s not to say that they could [not] look outside of that area or would [not] look outside of that area.”).

Moreover, a reference is analogous art even if it is not within the field of the inventor’s endeavor, so long as the reference is reasonably pertinent to the particular problem with which the inventor is involved. *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979). A reference is reasonably pertinent if “it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem.” *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). And “a reference can be analogous art with respect to a patent even if there are significant differences” between the reference and the patent. *Donner Tech., LLC v. Pro Stage Gear, LLC*, No. 2020-1104, 2020 WL 6554058, at *5 (Fed. Cir. 2020).

Patent Owner argues that the problem faced by the inventors of the ’287 patent is the “likelihood of the motor overpowering the cartridge lockout mechanism.” Sur-reply 22 (quoting Ex. 1001, 12:37–39). According to Patent Owner, “[l]imiting the power of the motor when the firing element passes through the lockout,” which is what Petitioner asserts as the problem faced by the inventors, “is the *solution* to the problem faced by the inventors.” *Id.* (cite Reply 23). We are not persuaded.

First, the ’287 patent describes more than one problem. *See* Ex. 1001, 12:33–37 (describing that the inventors also faced the problem of “sudden jerking start” caused by the motor “exert[ing] full load immediately”). In fact, in an innovation disclosure Patent Owner relies on to establish prior conception, a co-inventor of the ’287 patent described a problem to be solved as the [REDACTED] Ex. 2015, 1, *see also id.* (stating one goal is [REDACTED]). Second, evidence of the record suggests that “limiting the motor’s

ability to exert full load immediately” is, after all, as Petitioner asserts, a problem faced by the inventors of the ’287 patent. *See* Pet. 22; Reply 23. Indeed, in a different innovation disclosure Patent Owner relies on, another co-inventor described the “Problem to be Solved” as [REDACTED] Ex. 2014, 1. Thus, an ordinarily skilled artisan would have considered the solutions of others facing this same problem.

McInnis teaches a method of controlling the speed of the motor. Ex. 1006, Abstract. According to McInnis, “[t]he speed of a D.C. electric motor may be varied by changing the field strength of the motor, by changing the armature voltage, or by inserting a resistance in the armature circuit.” *Id.* at 1:9–12. In one embodiment, McInnis teaches “[t]he starting resistor 60 is connected in series with the armature circuit ‘A’ to prevent a high inrush of current when the motor is started, as is conventional in the art.” *Id.* at 5:56–59.

Dr. Fischer testifies that in an endocutter, an inrush of current can “lead to a jerking start or introduction of backlash, and reduce the user’s ability to control the device.” Ex. 1023 ¶ 58, *see also id.* ¶ 64 (testifying that “a POSITA would have understood that gyroscopic effects and a sudden jerking start could make the device more difficult to control and increase user fatigue, both of which are extremely undesirable in a surgical instrument”). We credit Dr. Fischer’s testimony to that effect. *See* Ex. 1014 ¶ 30 (stating that soft-starting can “minimize fatigue and potential injury, while allowing greater control of the tool”). As such, McInnis addresses at least one problem faced by the inventors of the ’287 patent. Thus, we find that McInnis is analogous art. *See KSR*, 550 U.S. at 402 (construing the scope of analogous art broadly and stating that “familiar items may have

obvious uses beyond their primary purposes, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle”).

Patent Owner also argues that an ordinarily skilled artisan would not have combined Swayze and McInnis because “Swayze’s circuit *already* prevents a high in-rush of current as the motor is started.” PO Resp. 61. The parties dispute this issue. *See id.* at 61–63; Reply 25; Sur-reply 23–24. It is undisputed, however, that Swayze’s mechanism Patent Owner refers to is not a soft-start mechanism.

Patent Owner further contends that the problems of high in rush of current listed in Kothari and relied on by Petitioner (*see* Pet. 62 (citing Ex. 1013, 370–71)) are inapplicable to an endocutter. PO Resp. 64–66. Patent Owner argues “Kothari explains that all motors “*except* for small and fractional-kW motors, must be started with external resistance included in [the] armature circuit to limit the starting current to safe values.” *Id.* at 64 (quoting Ex. 1013, 371) (emphasis and alteration added by Patent Owner). According to Patent Owner, an endocutter motor is a small or fractional kW motor, and thus, “does not need to be started with external resistance in the motor control circuit to limit a high in-rush of current.” *Id.* at 64–65.

We do not need to resolve these issues because, even if Patent Owner is correct on these points, we are still persuaded by Petitioner’s argument that an ordinarily skilled artisan would have understood that implementing a soft start is beneficial to, and thus, would improve an endocutter. *See* Pet. 62 (citing Ex. 1014 ¶ 30); Reply 23 (citing Ex. 1014 ¶ 30), 25–26 (citing Ex. 1014 ¶ 30; Ex. 1023 ¶¶ 57–64).

As the Supreme Court instructed,

If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, § 103 likely bars its patentability. Moreover, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person's skill.

KSR, 550 U.S. at 401.

Here, relying on *Kastner*, Petitioner asserts that “[s]oft-starting can also be useful in hand-held power tools” to “minimize fatigue and potential injury, while allowing greater control of the tool.” Pet. 62 (quoting Ex. 1014 ¶ 30); *see also* Ex. 1023 ¶ 64 (testifying that “a POSITA would have understood that gyroscopic effects and a sudden jerking start could make the device more difficult to control and increase user fatigue, both of which are extremely undesirable in a surgical instrument”). Patent Owner does not address this issue. We are persuaded that an ordinarily skilled artisan would have looked to *McInnis* because there are benefits of implementing a soft start in a known type of hand-held power tool, such as an endocutter. *See DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006) (holding that “an implicit motivation to combine exists . . . when the ‘improvement’ is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient”).

Patent Owner does not “suggest that the ’287 patent offered any unexpected advantages or went against conventional wisdom.” *See* Reply 24; *see also* Pet. 63 (citing Ex. 1003 ¶ 153) (arguing that “in combination, *McInnis*’s soft start circuit merely performs the same predictable function as it does separately . . . without significantly altering or

hindering the functions performed by Swayze’s surgical stapler”). Nor does Patent Owner argue that implementing a soft start is beyond an ordinary artisan’s skill level.¹⁷ *See* Pet. (citing Ex. 1003 ¶ 153) (arguing combining the teachings of Swayze and McInnis “would have been well within the[] abilities” of an ordinarily skilled artisan). Patent Owner does not dispute these contentions. After reviewing the record, we agree with Petitioner that an ordinarily skilled artisan would have had a reasonable expectation of success when combining the teachings of Swayze and McInnis. *See* Pet. 63.

In sum, the combination of Swayze and McInnis teaches or suggests each and every limitation of claim 13. An ordinarily skilled artisan would have had a reason to combine the teachings of Swayze and McInnis, and would have had a reasonable expectation of success when doing so. Thus, we are persuaded that Petitioner has demonstrated the obviousness of claim 13 over Swayze and McInnis by a preponderance of the evidence.

4. *Other Claims*

Petitioner argues that claims 14, 15, 17, and 18 of the ’287 patent also would have been obvious over Swayze and McInnis. Pet. 55–56, 65–66. Petitioner argues that Swayze teaches encoder 268 as the sensor required in claims 14 and 17. Pet. 55 (citing Ex. 1005 ¶¶ 109, 111–12), 57. Petitioner also contends that the control circuit “controls the electric motor to rotate in

¹⁷ Dr. Fischer testifies that an ordinarily skilled artisan “would have had the equivalent of a Master’s degree or higher in mechanical engineering, electrical engineering, biomedical engineering, or a related field directed towards medical electro-mechanical systems and at least 2-3 years working experience in research and development for surgical instruments.” Ex. 1003 ¶ 23. Patent Owner states that for purposes of this proceeding, it “does not contest Petitioner’s description of the level of ordinary skill in the art.” PO Resp. 26 n.1 (citing Ex. 1003 ¶ 23).

a second rotational direction (reverse) to move the firing element in a second direction (proximally) along the firing path, wherein the second direction (proximally) is different than the first direction (distally) and the second rotational direction (reverse) is different than the first rotational direction (forward),” as required in claims 15 and 18. *Id.* at 56 (citing Ex. 1005 ¶¶ 59, 62, 67, 81, 112), 58. Patent Owner does not argue these claims separately. After reviewing the record, we find Petitioner’s arguments persuasive.

Indeed, Swayze teaches that “[b]ased on the signals from the encoder 268, the control circuit may calculate the stage of deployment of the knife 32 in the end effector 12. That is, the control circuit can calculate if the knife 32 is fully deployed, fully retracted, or at an intermittent stage.” Ex. 1005 ¶ 109. Swayze also teaches that “[t]he reverse motor sensor 130, when activated, sends a signal to the motor 65 to reverse its rotation direction, thereby withdrawing the knife 32 of the end effector 12 following the cutting operation.” *Id.* ¶ 59.

As a result, we are persuaded Petitioner has demonstrated the obviousness of claims 14, 15, 17, and 18 over Swayze and McInnis by a preponderance of the evidence.

E. Other Grounds

Petitioner argues that claims 13–15, 17, and 18 of the ’287 patent would have been obvious over (1) Swayze and Smith, (2) Zemlok and Whitman, or (3) Zemlok, Whitman, and Milliman. Pet. 4. As explained above, we are persuaded by Patent Owner’s evidence and arguments antedating Smith and Zemlok. *See supra* II.C.3. Because Smith and Zemlok do not qualify as prior art, Petitioner has not shown by a preponderance of the evidence obviousness of the challenged claims as asserted in these three grounds.

III. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude “Paragraphs 11 through 38 of the supplemental declaration of Dr. Gregory Fischer (Ex. 1023), and the corresponding sections of [Petitioner]’s Reply (Paper 26) that rely on those paragraphs.” Paper 37, 1. According to Patent Owner, Petitioner “relies on Paragraphs 11–38 of Ex. 1023 to improperly attempt to introduce two new arguments that were not in the Petition into the proceeding: (1) a new claim construction for the term ‘firing element;’ and (2) a new ground of unpatentability—that Smith anticipates the 287 Patent.” *Id.*

As explained above in the claim-construction section, even if we consider the allegedly new argument (1), we reject Petitioner’s position that the “firing element” must include a threaded opening. *See supra* at II.B. Thus, we dismiss as moot Patent Owner’s Motion in this respect.

Regarding Petitioner’s argument that under Patent Owner’s “apparent construction, Smith anticipates the challenged claims” (Reply 13), as explained above, we agree with Patent Owner that it is not raised in the Petition, and thus, beyond the proper scope of the Reply. *See supra* at II.C.4.

Because a motion to exclude generally applies to inadmissible evidence (*see* Patent Trial and Appeal Board Consolidated Trial Practice Guide 79), we construe this aspect of the Motion as a Motion to Strike (*id.* at 80–81). We, thus, strike the portion of the Reply on this issue. *See id.* at 81 (“[W]here a reply clearly relies on a new theory not included in prior briefing, and where addressing this new theory during oral hearing would prejudice the opposing party, striking the portion of the brief containing that theory may be appropriate.”).

We, however, decline to strike paragraphs 18 to 38 of Dr. Fischer’s Supplemental Declaration (Ex. 1023) because they support not only the

anticipation argument, but also Petitioner's contention on derivation. Although we are not persuaded by the derivation argument (*see supra* at II.C.3.), evidence supporting that argument is not improper.

IV. MOTIONS TO SEAL

There is a strong public policy for making all information filed in an *inter partes* review open to the public, especially because the proceeding determines the patentability of claims in an issued patent and, therefore, affects the rights of the public. Generally, all papers filed in an *inter partes* review shall be made available to the public. *See* 35 U.S.C. § 316(a)(1); 37 C.F.R. § 42.14. Our rules, however, “aim to strike a balance between the public's interest in maintaining a complete and understandable file history and the parties' interest in protecting truly sensitive information.” Consolidated Patent Trial Practice Guide 19. Thus, a party may move to seal certain information (37 C.F.R. § 42.14); but only “confidential information” is protected from disclosure (35 U.S.C. § 326(a)(7)). Confidential information means trade secret or other confidential research, development, or commercial information. 37 C.F.R. § 42.2.

The standard for granting a motion to seal is “for good cause.” 37 C.F.R. § 42.54(a). The party moving to seal bears the burden of proof and must explain why the information sought to be sealed constitutes confidential information. 37 C.F.R. § 42.20(c).

Confidential information that is subject to a protective order ordinarily becomes public 45 days after final judgment in a trial. Consolidated Trial Practice Guide 21–22. There is an expectation that confidential information relied upon or identified in a final written decision will be made public. *Id.* A party seeking to maintain the confidentiality of the information may file a

motion to expunge the information from the record prior to the information becoming public. 37 C.F.R. § 42.56.

Patent Owner filed a Motion to Seal and for Entry of a Protective Order. Paper 15. Patent Owner represents that the parties have agreed to the provisions in the Stipulated Protective Order. *Id.* at 1, Attachment 1.

Patent Owner seeks to seal in their entirety Exhibits 2003, 2004, 2007–2153, 2155–2163, 2165–2182, 2184–2210, 2213–2264, 2266–2301, and 2303, as well as portions of the Cimino Declaration (Ex. 2005) and portions of the Patent Owner’s Response (Paper 17) that rely on those Exhibits. *Id.*

According to Patent Owner, “Exhibits 2007, 2010–2163, 2165–2210, 2213–2153, 2155–2182, 2184–2264, 2266, 2268–2301, and 2303 comprise technical documents of Patent Owner that contain confidential design information concerning surgical stapling technology.” *Id.* at 2. Petitioner asserts that “[t]hese exhibits detail in their entirety confidential and proprietary research and development information that, if publicly disclosed, would substantially harm Patent Owner’s competitive position in the surgical instrument industry and ongoing work directed to, *inter alia*, surgical staplers.” *Id.*

“Exhibits 2003, 2004, 2009, 2267 and 2299 comprise declarations from employees and a former employee of Patent Owner regarding the development of surgical stapling technology at [Patent Owner] Ethicon.” *Id.* at 3. According to Patent Owner, these Exhibits describe the content of “technical documents of Patent Owner containing confidential design information,” and “provide further confidential and proprietary research and development information of Patent Owner.” *Id.*

“Exhibit 2005 is a declaration from Patent Owner’s expert witness, Dr. William Cimino.” *Id.* at 4. “Exhibits 2008 is a declaration from the outside counsel, Mark Knedeisen, who prepared the patent application that led to” the ’287 patent. *Id.* at 3. According to Patent Owner, portions of these two exhibits, as well as Patent Owner’s Response “describe and include images of confidential and proprietary information from Exhibits 2138–2143, 2145–2148, 2150–2153, 2155–2157, 2162–2163, 2168–2170, and 2283.” *Id.* at 4, 5. Patent Owner has filed a redacted version of the Patent Owner’s Response (Paper 16) and the Cimino Declaration (Ex. 2005).

Petitioner filed a Motion to Seal its Reply to Patent Owner’s Response as well as Exhibits 1020, 1021, and 1023 “because they contain information which Patent Owner has designated ‘Confidential’ subject to the Protective Order previously stipulated in this proceeding.” Paper 24, 1. Exhibits 1020 and 1021 are deposition transcripts of Dr. Cimino and a co-inventor of the ’287 patent, respectively. Exhibit 1023 is the Supplemental Declaration of Dr. Cimino. Petitioner has filed a redacted version of the Reply (Paper 25) and the Cimino Supplemental Declaration (Ex. 1023).

Patent Owner filed an additional Motion to Seal portions of the Sur-Reply because they “describe and include quotations of confidential and proprietary information in Exhibits 1020, 1021, 1023, 2005, 2014, 2015, 2048, and 2265.” Paper 34, 2. Patent Owner has filed a redacted version of the Sur-reply (Paper 36).

Upon considering the content of the Papers and Exhibits the parties seek to seal, along with Patent Owner’s representations as to the confidentiality of the information, we determine that there is good cause for sealing in their entirety Exhibits 2007, 2010–2153, 2155–2163, 2165–2182, 2184–2210, 2213–2264, 2266, 2268–2298, 2300, 2301, and 2303, and the

redacted portions of Patent Owner's Response (Paper 17), Petitioner's Reply (Paper 26), Patent Owner's Sur-reply (Paper 35), and Exhibits 1023 and 2005.

We, however, deny without prejudice to seal in their entirety Exhibits 1020, 1021, 2003, 2004, 2008, 2009, 2267 and 2299. As explained above, these are deposition transcripts of Dr. Cimino and a co-inventor, and declarations of certain fact witnesses. No redacted public version was filed. Patent Owner is invited to, within 14 days of this Decision, file a renewed motion to seal any of these Exhibits. Together with the motion to seal, Patent Owner shall file a narrowly redacted public version of each document sought to be sealed. *See* Paper 7, 2–3 (“Redactions to documents filed in this proceeding should be limited to the minimum amount necessary to protect confidential information, and the thrust of the underlying argument or evidence must be clearly discernible from the redacted versions.”). In the absence of any action on the part of Patent Owner, at the expiration of 14 days from the date of this Decision, the documents-at-issue will be made available to the public.

The parties may, within 14 days of this Decision, jointly propose redactions for this Final Written Decision. In the absence of such proposal, at the expiration of 14 days from the date of this Decision, the entirety of the Final Written Decision will be made available to the public.

V. CONCLUSION¹⁸

After reviewing the entire record and weighing evidence offered by both parties, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 13–15, 17, and 18 of the '287 patent would have been obvious over the combination of Swayze and McInnis.

In summary:

Claims	35 U.S.C. §	References	Claims Shown Unpatentable	Claims Not shown Unpatentable
13–15, 17, 18	103	Swayze, Smith		13–15, 17, 18
13–15, 17, 18	103	Swayze, McInnis	13–15, 17, 18	
13–15, 17, 18	103	Zemlok, Whitman		13–15, 17, 18
13–15, 17, 18	103	Zemlok, Milliman, Whitman		13–15, 17, 18
Overall Outcome			13–15, 17, 18	

¹⁸ 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 ALA 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).

VI. ORDER

Accordingly, it is

ORDERED that claims 13–15, 17, and 18 of the '287 patent are held unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude is granted-in-part, denied-in-part, and dismissed-in-part;

FURTHER ORDERED that the Stipulated Protective Order (Paper 15, Attachment 1) is hereby entered;

FURTHER ORDERED that this Protective Order shall govern the conduct of the proceeding unless otherwise modified;

FURTHER ORDERED that Patent Owner's Motion to Seal (Papers 15) is granted-in-part and denied-in-part without prejudice;

FURTHER ORDERED that Petitioner's Motion to Seal (Paper 24) is granted-in-part and denied-in-part without prejudice to Patent Owner;

FURTHER ORDERED that Patent Owner's Motion to Seal (Paper 34) is granted;

FURTHER ORDERED that Patent Owner may file/renew its request to seal any confidential information as instructed in this Decision; and

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

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