

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

ROGER P. JACKSON, M.D.,

Plaintiff,

v.

SEASPINE HOLDINGS CORPORATION,

Defendant.

Civil Action No. 20-1784-RGA

MEMORANDUM OPINION

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ANDREWS, U.S. DISTRICT JUDGE:

Before me are Plaintiff Dr. Jackson's Motion for Partial Summary Judgment (D.I. 218), Dr. Jackson's Motion to Exclude Certain of Defendant's Patent Non-Infringement Opinions and Defendant's Patent Damages Opinions (D.I. 219), and Defendant SeaSpine's Motion for Summary Judgment and to Exclude the Testimony of Brian Becker (D.I. 221). I have reviewed the briefing for these motions. (D.I. 220, 222, 246, 248, 261, 262). I heard oral argument on August 5, 2026. For the reasons set forth below, Dr. Jackson's motion for summary judgment is granted-in-part, denied-in-part, and dismissed as moot in part, his motion to exclude certain expert testimony is granted-in-part and denied-in-part, SeaSpine's motion for summary judgment is granted-in-part and denied-in-part, and its motion to exclude Dr. Becker's testimony is granted-in-part and denied-in-part.

I. BACKGROUND

In his Third Amended Complaint, Dr. Jackson alleges that SeaSpine's Mariner, Malibu, and Newport products infringe twelve patents.¹ (D.I. 165 at 2). At issue in these motions are U.S. Patent Nos. 7,377,923 ("the '923 patent"); 10,588,667 ("the '667 patent"); 8,540,753 ("the '753 patent"); 10,278,740 ("the '740 patent"); 10,952,777 ("the '777 patent"); 10,722,273 ("the '273 patent"); and, 9,808,292 ("the '292 patent") (together, "the Asserted Patents").² (D.I. 165; D.I. 220 at 1 n.1). The Asserted Patents generally relate to systems of spinal implants used to fixate or align a patient's vertebrae with an elongated rod. (D.I. 165 at 2). Dr. Jackson argues that each

¹ As noted in footnote 2, Dr. Jackson is now only asserting seven of the twelve patents. For the history relating to why the other five are no longer asserted, *see* D.I. 276.

² Dr. Jackson asserts that SeaSpine's Mariner product infringes claims 1 and 14 of the '753 patent, claims 1 and 4 of the '923 patent, claim 1 of the '667 patent, claim 1 of the '740 patent, claim 1 of the '777 patent, claim 39 of the '273 patent, and claim 25 of the '292 patent. (D.I. 220 at 5–6). Dr. Jackson argues SeaSpine's Malibu and Newport products each infringe claim 25 of the '292 patent. (*Id.* at 6).

accused product is part of a posterior spinal implant assembly system used to secure an elongated rod to at least one vertebra of a patient via a closure top. (D.I. 220 at 2).

II. LEGAL STANDARD

A. Summary Judgment

“The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” FED. R. CIV. P. 56(a). The moving party has the initial burden of proving the absence of a genuinely disputed material fact relative to the claims in question. *Celotex Corp. v. Catrett*, 477 U.S. 317, 330 (1986). Material facts are those “that could affect the outcome” of the proceeding. *Lamont v. New Jersey*, 637 F.3d 177, 181 (3d Cir. 2011) (quoting *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986)). “[A] dispute about a material fact is ‘genuine’ if the evidence is sufficient to permit a reasonable jury to return a verdict for the nonmoving party.” *Id.* The burden on the moving party may be discharged by pointing out to the district court that there is an absence of evidence supporting the non-moving party’s case. *Celotex*, 477 U.S. at 323.

The burden then shifts to the non-movant to demonstrate the existence of a genuine issue for trial. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586–87 (1986); *Williams v. Borough of West Chester*, 891 F.2d 458, 460–61 (3d Cir. 1989). A non-moving party asserting that a fact is genuinely disputed must support such an assertion by: “(A) citing to particular parts of materials in the record, including depositions, documents, electronically stored information, affidavits or declarations, stipulations . . . , admissions, interrogatory answers, or other materials; or (B) showing that the materials cited [by the opposing party] do not establish the absence . . . of a genuine dispute” FED. R. CIV. P. 56(c)(1). The non-moving party’s evidence

“must amount to more than a scintilla, but may amount to less (in the evaluation of the court) than a preponderance.” *Williams*, 891 F.2d at 460–61.

When determining whether a genuine issue of material fact exists, the court must view the evidence in the light most favorable to the non-moving party and draw all reasonable inferences in that party’s favor. *Scott v. Harris*, 550 U.S. 372, 380 (2007); *Wishkin v. Potter*, 476 F.3d 180, 184 (3d Cir. 2007). If the non-moving party fails to make a sufficient showing on an essential element of its case with respect to which it has the burden of proof, the moving party is entitled to judgment as a matter of law. *See Celotex Corp.*, 477 U.S. at 322.

B. Infringement

A patent is directly infringed when a person “without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent.” 35 U.S.C. § 271(a). Determining infringement is a two-step analysis. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). First, the court must construe the asserted claims to ascertain their meaning and scope. *Id.* The trier of fact must then compare the properly construed claims with the accused infringing product. *Id.* This second step is a question of fact. *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998). The patent owner bears the burden of proving infringement by a preponderance of the evidence. *SmithKline Diagnostics, Inc. v. Helena Lab’ys Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988).

C. Obviousness-Type Double Patenting

The prohibition against obviousness-type double-patenting is a “judicially-created doctrine stem[ming] from 35 U.S.C. § 101, which provides that an inventor may obtain ‘a patent’ (*i.e.*, a single patent) for an invention.” *Allergan USA, Inc. v. MSN Lab’ys Priv. Ltd.*, 111 F.4th 1358,

1366–67 (Fed. Cir. 2024). “The doctrine’s primary goal is to prevent an unjustified timewise extension of patent exclusivity beyond the life of a patent.” *Id.* at 1357.

“The obviousness-type double patenting analysis involves two steps: First, the court construes the claims in the earlier patent and the claims in the later patent and determines the differences. Second, the court determines whether those differences render the claims patentably distinct.” *Abbvie Inc. v. Mathilda & Terence Kennedy Inst. of Rheumatology Tr.*, 764 F.3d 1366, 1374 (Fed. Cir. 2014) (cleaned up) (internal quotation omitted). While obviousness of the asserted claim as compared to the reference claim is assessed considering the prior art, *In re Longi*, 759 F.2d 887, 893 (Fed. Cir. 1985), the written description of the earlier patent “cannot be used as though it were prior art,” *Gen. Foods Corp. v. Studiengesellschaft Kohle mbH*, 972 F.2d 1272, 1281 (Fed. Cir. 1992). “A later claim that is not patentably distinct from, i.e., is obvious over or anticipated by, an earlier claim is invalid for obviousness-type double patenting.” *Abbvie*, 764 F.3d at 1374 (cleaned up) (internal quotation omitted). “The second part of this analysis is analogous to the obviousness inquiry under 35 U.S.C. § 103 in the sense that if an earlier claim renders obvious or anticipates a later claim, the later claim is not patentably distinct and is thus invalid for obviousness-type double patenting.” *UCB, Inc. v. Accord Healthcare, Inc.*, 890 F.3d 1313, 1323 (Fed. Cir. 2018).

“Obviousness-type double patenting is an issue of law premised on underlying factual inquiries.” *Novartis AG v. Ezra Ventures LLC*, 909 F.3d 1367, 1372 (Fed. Cir. 2018). A challenger must prove invalidity based on obviousness-type double patenting by clear and convincing evidence. *Otsuka Pharm. Co. v. Sandoz, Inc.*, 678 F.3d 1280, 1289–90 (Fed. Cir. 2012).

D. Indefiniteness

“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Where “different approaches to measurement are involved” in the indefiniteness inquiry, “the patent and prosecution history must disclose a single known approach or establish that, where multiple known approaches exist, a person having ordinary skill in the art would know which approach to select.” *Dow Chem. Co. v. Nova Chems. Corp. (Can.)*, 803 F.3d 620, 630 (Fed. Cir. 2015).

Indefiniteness is a question of law that may depend on subsidiary factual findings based on intrinsic evidence, *i.e.*, “the patent claims and specifications, along with the patent’s prosecution history,” and extrinsic evidence, “for example, to understand the meaning of a term in the relevant art at the relevant time.” *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1339–40 (Fed. Cir. 2015). “Regardless of whether a subsidiary factual finding plays a small or large role in the ultimate conclusion about the meaning of the patent term, the ultimate question of construction will remain a legal question.” *Id.* at 1340 (cleaned up). “[D]efiniteness . . . is amenable to resolution by the jury where the issues are factual in nature.” *BJ Servs. Co. v. Halliburton Energy Servs., Inc.*, 338 F.3d 1368, 1372 (Fed. Cir. 2003).

E. Written Description

The written description requirement contained in 35 U.S.C. § 112 requires that “the description must clearly allow persons of ordinary skill in the art to recognize that the inventor invented what is claimed.” *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (cleaned up). “In other words, the test for sufficiency is whether the disclosure of

the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Id.* “When determining whether a specification contains adequate written description, one must make an ‘objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art.’” *Bos. Sci. Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1366 (Fed. Cir. 2011) (quoting *Ariad*, 598 F.3d at 1351).

The written description inquiry is a question of fact. *Ariad*, 598 F.3d at 1351. Although it is a question of fact, “[c]ompliance with the written description requirement . . . is amenable to summary judgment in cases where no reasonable fact finder could return a verdict for the non-moving party.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1307 (Fed. Cir. 2008). “A party must prove invalidity for lack of written description by clear and convincing evidence.” *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 682 (Fed. Cir. 2015).

F. Prosecution Laches

Prosecution laches is an equitable affirmative defense. *Hyatt v. Hirshfeld*, 998 F.3d 1347, 1359 (Fed. Cir. 2021). The Federal Circuit has explained:

Prosecution laches may render a patent unenforceable when it has issued only after an unreasonable and unexplained delay in prosecution that constitutes an egregious misuse of the statutory patent system under a totality of the circumstances. Finding an unreasonable and unexplained delay in prosecution includes a finding of prejudice.

Id. at 1359–60 (internal quotations omitted).

G. Marking

35 U.S.C. § 287(a) provides,

Patentees . . . may give notice to the public that the [patented article] is patented. . . . In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice.

It is the plaintiff's burden to plead and prove actual notice. *See Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1366 (Fed. Cir. 2017). The alleged infringer "bears an initial burden of production to articulate the products it believes are unmarked 'patented articles' subject to § 287." *Id.* at 1368. Once the alleged infringer meets its burden of production, "the patentee bears the burden to prove the products identified do not practice the patented invention." *Id.*

H. *Daubert*

Federal Rule of Evidence 702 sets out the requirements for expert witness testimony and states:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if the proponent demonstrates to the court that it is more likely than not: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert's opinion reflects a reliable application of the principles and methods to the facts of the case.

Fed. R. Evid. 702. The Third Circuit has explained:

Rule 702 embodies a trilogy of restrictions on expert testimony: qualification, reliability and fit. Qualification refers to the requirement that the witness possess specialized expertise. We have interpreted this requirement liberally, holding that "a broad range of knowledge, skills, and training qualify an expert." Secondly, the testimony must be reliable; it "must be based on the 'methods and procedures of science' rather than on 'subjective belief or unsupported speculation'; the expert must have 'good grounds' for his o[r] her belief. In sum, *Daubert* holds that an inquiry into the reliability of scientific evidence under Rule 702 requires a determination as to its scientific validity." Finally, Rule 702 requires that the expert testimony must fit the issues in the case. In other words, the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact. The Supreme Court explained in *Daubert* that "Rule 702's 'helpfulness' standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility."

By means of a so-called “*Daubert* hearing,” the district court acts as a gatekeeper, preventing opinion testimony that does not meet the requirements of qualification, reliability and fit from reaching the jury. *See Daubert* (“Faced with a proffer of expert scientific testimony, then, the trial judge must determine at the outset, pursuant to Rule 104(a) [of the Federal Rules of Evidence] whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.”).

Schneider ex rel. Estate of Schneider v. Fried, 320 F.3d 396, 404–05 (3d Cir. 2003) (footnote and internal citations omitted).³

III. DISCUSSION

A. Summary Judgment Motions

1. Direct Infringement by SeaSpine and Surgeons

Dr. Jackson seeks partial summary judgment that, assuming the limitations of the asserted claims are proved, SeaSpine and the surgeons who use the accused products would both be direct infringers. (D.I. 220 at 3). First, Dr. Jackson argues that there is no dispute that SeaSpine, and those under SeaSpine’s direct control, directly infringed by making, using, selling, and offering to sell the accused products. (*Id.* at 4–5). Second, Dr. Jackson argues that both SeaSpine and the surgeons who use SeaSpine’s products directly infringed by assembling and using the products. (*Id.* at 3–5).

SeaSpine responds by arguing that Dr. Jackson has not cited any authority to support his argument that summary judgment of direct infringement can be granted prior to a technical infringement finding. (D.I. 248 at 3). SeaSpine argues that Dr. Jackson has failed to establish that it or the surgeons using the accused products would directly infringe every asserted claim in every instance an accused product is used. (*Id.* at 3–5). As support, SeaSpine points to portions of Dr.

³ The Court of Appeals wrote under an earlier version of Rule 702. Subsequent amendments affect the substance of the rule, but I do not think they alter the applicability of the quoted discussion.

Jackson's motion to identify lingering questions regarding who is responsible for constructing the devices and potential non-infringing use of devices outside of surgical procedures. (*Id.* at 4, 6–7).

As Dr. Jackson has admitted that SeaSpine sales representatives sometimes assemble the products (*see* D.I. 220 at 4–5), and that the products are sometimes not used for surgical purposes (*see id.* at 4), there are genuine disputes of material fact regarding who infringed each asserted claim and when. On top of this, Dr. Jackson has not attempted to argue that SeaSpine or any surgeon directly infringed each and every one of the asserted claims. Thus, Dr. Jackson has not met his burden of demonstrating that there is no genuine dispute of material fact. Dr. Jackson's motion for summary judgment of direct infringement is denied.

2. Knowledge of the Asserted Patents

Dr. Jackson moves for partial summary judgment of SeaSpine's notice of the asserted patents. (D.I. 220 at 5). Dr. Jackson argues, "SeaSpine admits it was aware of the '753 Patent, '923 Patent, '667 Patent, and '292 Patent at least by June 2018, the '740 Patent and '273 Patent on September 15, 2020, and the '777 Patent and '143 Patent on April 5, 2021." (*Id.* (internal citations omitted)). SeaSpine "disputes that this is an appropriate topic for summary judgment," but notes that it "does not intend to contradict its interrogatory responses at trial." (D.I. 248 at 16 n.3).

The dates which Dr. Jackson argues SeaSpine had knowledge of the asserted patents are based on SeaSpine's interrogatory responses. SeaSpine does not intend to contradict its responses, and SeaSpine does not argue that the dates identified in Dr. Jackson's motion differ from its interrogatory responses. As such, there is no genuine dispute of material fact that SeaSpine had knowledge of the asserted patents by the dates Dr. Jackson provided. While SeaSpine argues that this is not an appropriate topic for summary judgment (*id.*), SeaSpine does not argue why. "[A]rguments raised in passing (such as, in a footnote), but not squarely argued, are considered waived." *John Wyeth & Bro. Ltd. v. CIGNA Intern. Corp.*, 119 F.3d 1070, 1076 n.6 (3d Cir. 1997).

Therefore, summary judgment of SeaSpine's knowledge of the patents at the dates specified is granted. (Dr. Jackson may describe the knowledge element as a stipulated fact in the proposed pretrial order.).

3. Undisputed Elements of the '923, '667, '740, '777, '273, and '292 Patents

Dr. Jackson seeks partial summary judgment on various elements of six of the seven patents in dispute. (D.I. 220 at 14–24). To make these arguments, Dr. Jackson relies on his infringement expert Dr. Errico's analysis of the claim elements that Dr. Errico identifies as not disputed by SeaSpine's expert. (D.I. 224-1, Ex. A at 4–5; *see* D.I. 224-12, Ex. A-11). SeaSpine responds by arguing that Dr. Jackson has the burden of proving infringement, including the approximately forty claim elements Dr. Jackson argues are undisputed. (D.I. 248 at 13–14). SeaSpine argues that while some of the elements identified by Dr. Jackson may not be directly disputed, the elements are parts of larger disputes in the respective claims. (*Id.* at 14–15).

An absence of active debate on some elements of a claim, particularly when other elements of the claim are actively disputed, does not indicate there is no genuine dispute of material fact. It is Dr. Jackson's burden to prove infringement. His summary judgment briefing on the "undisputed elements" attempts to circumvent that burden. Dr. Jackson's briefing relies almost exclusively on Dr. Errico's report to argue these elements are undisputed; for many of the elements in his report, Dr. Errico does not cite any evidence showing that SeaSpine's products meet a given element. All of the "undisputed" elements are a part of larger disputes in the accused claims. Even for the elements SeaSpine does not currently dispute, SeaSpine correctly notes that it may dispute an "undisputed element" as it ultimately may end up relating to the disputed portions of the claims. Dr. Jackson has not attempted to argue why these elements within the disputed claims can (or should) be determined now despite the larger disputes in the claims.

Dr. Jackson is free to work with SeaSpine to stipulate that these elements are undisputed. However, Dr. Jackson is not entitled to summary judgment simply because his expert said these specific portions of disputed claims are undisputed. Thus, I deny Dr. Jackson's motion for summary judgment on the "undisputed elements" of the '923, '667, '740, '777, '273, and '292 patents.

4. Obviousness-Type Double Patenting of the '753 and '777 Patents

Dr. Jackson moves for summary judgment that claim 1 of the '777 patent is not invalid for obviousness-type double patenting. (D.I. 218 at 1, D.I. 218-1 at ¶ 6; *see* D.I. 220 at 24–25).⁴ SeaSpine moves for summary judgment that claims 1 and 14 of the '753 patent and claim 1 of the '777 patent are invalid for obviousness-type double patenting. (DI. 221 at 1; *see; see* D.I. 222 at 25–35).

There are four patents relevant to the obviousness-type double patenting arguments. Dr. Jackson is the sole inventor on all four of them. The first one, U.S. Patent No. 6,368,321 ("the '321 patent"), issued on April 9, 2002. Dr. Jackson filed the application for the second one, U.S. Patent No. 6,964,666 ("the '666 patent"), on April 9, 2003, and it issued on November 15, 2005. The '666 patent has an identical disclosure to that of the '321 patent. The '666 patent did not claim any priority to the '321 patent; when issued, the '666 patent was "subject to a terminal disclaimer." The '753 patent application was a continuation-in-part of the '666 patent but not of the '321 patent; the application was filed October 5, 2004, and it issued nine years later. The '777 patent application was a continuation of the '753 patent, which was filed August 6, 2009, and issued twelve years later.⁵

⁴ Dr. Jackson asserts in a footnote that the same analysis applies to the '753 patent. (D.I. 220 at 25 n.10). The cursory assertion in a footnote means the argument as to the '753 patent is waived.

⁵ Its exact date of issuance is March 23, 2021. According to the expert report of SeaSpine's damages expert, the '777 patent expired April 9, 2023. (D.I. 226-1, Ex. 13 at ¶ 1). When Dr.

SeaSpine argues that the '753 patent claims the same apparatus as the '321 patent and that claims 1 and 14 of the '753 patent are patentably indistinct from claim 1 of the '321 patent. (D.I. 222 at 28–32). SeaSpine makes the same argument that claim 1 of the '777 patent is patentably indistinct from the '321 patent. (*Id.* at 32–35). As the '753 and '777 patents did not claim priority from the '321 patent, SeaSpine argues that summary judgment of obviousness-type double patenting is appropriate because the '753 and '777 patents improperly extended Dr. Jackson's "monopoly" created by the '321 patent by nearly six years. (*Id.* at 25). In response, Dr. Jackson presents a set of arguments explaining the differences between the patents and reiterates the same arguments as in his motion for summary judgment on obviousness-type double patenting. (D.I. 246 at 24–31).

Dr. Jackson argues that summary judgment of no obviousness-type double patenting is appropriate for two reasons. (D.I. 220 at 24–30). First, Dr. Jackson argues that SeaSpine's obviousness-type double patenting argument is improper because it combines elements from multiple claims into one "super claim" to argue that the claims of the patents are not distinct. (*Id.* at 24–25). Second, Dr. Jackson argues that SeaSpine's theory improperly relies on the specification of the earlier '321 patent. (*Id.* at 25; D.I. 246 at 29–30). SeaSpine responds by arguing that its obviousness-type double patenting theory is based on a correct application of the law and supported factually by its expert's opinions. (D.I. 248 at 18–21).

SeaSpine, as the "moving party seeking to invalidate a patent at summary judgment[,] must submit such clear and convincing evidence of invalidity so that no reasonable jury could find otherwise." *Eli Lilly & Co. v. Barr Lab'ys, Inc.*, 251 F.3d 955, 962 (Fed. Cir. 2001). Dr. Jackson,

Jackson's damages expert, in early 2025, wrote a report estimating damages, approximately 60% of the royalty base was outside the time period when the '777 patent was in force. (D.I. 223-4, Ex. 24 at Table 6C).

as the “moving party seeking to have a patent held not invalid at summary judgment[,] must show that [SeaSpine], who bears the burden of proof at trial, failed to produce clear and convincing evidence on an essential element of a defense upon which a reasonable jury could invalidate the patent.” *Id.*

a. Step One

The first step of an obviousness-type double patenting analysis involves construing the claims of the earlier ‘321 patent and the later ‘753 or ‘777 patent to determine the differences between a claim in the earlier patent and a claim in the later patent. *Abbvie*, 764 F.3d at 1374. This step addresses Dr. Jackson’s argument regarding improper “super claims” and reliance on the ‘321 patent’s specification; if obviousness-type double patenting is met or rests on factual disputes after the claims are construed without improper reliance on the earlier patent’s specification or “super claims,” then Dr. Jackson’s argument fails.

SeaSpine argues that the two patents are rendered invalid for obviousness-type double patenting based on claim 1 of the ‘321 patent. (D.I. 248 at 19). Claim 1 of the ‘321 patent states:

1. A swivel head bone screw for surgical implantation; said screw composing:
 - a) a shank having an axis of rotation with a lower threaded portion coaxial with said axis and adapted for implantation into a vertebra; said shank having an upper portion opposite said lower threaded portion; said upper portion having a second thread located thereon;
 - b) a head having a channel adapted to receive a rod member therein; said head including a lower chamber sized and shaped to receive said shank upper portion;
 - c) said head having a threaded first bore communicating between said chamber and an exterior of said head; said bore being sized, shaped and threaded so as to threadably receive said shank upper portion therethrough; said shank upper portion operably passing through said bore and into said chamber during installation and said shank upper portion being swivelable relative to said head when fully in said chamber to allow said head to be captured by but swivelable relative to said shank;
 - d) said head having a threaded second bore intersecting with said chamber; and
 - e) a threaded set screw operably threadedly received in said second bore and

being urgeable⁶] against said shank upper portion when said shank upper portion is located in said chamber in order to lock said upper portion in position relative to said head.

(’321 patent, col. 6, line 55–col. 7, line 14) (footnote added). This claim requires:

- A shank with (1) a lower portion adapted for implantation into a vertebra and (2) an upper portion with a thread. (*Id.* at col. 6, lines 57–61).
- A head having (1) a threaded bore being sized, shaped and threaded so as to threadably receive said shank upper portion and (2) a chamber connected to the bore. (*Id.* at col. 6, line 62–col. 7, line 2).
- Assembly of the shank and head together such that the threaded shank passes through the threaded bore into the chamber of the head. (*Id.* at col. 7, lines 3–4).
- An intermediary position in which (1) the upper portion of the shank is fully in the chamber of the head and (2) the upper portion of the shank and the head are swivelable relative to each other. (*Id.* at col. 7, lines 5–7).
- A locking mechanism that uses (1) a second threaded bore in the head that intersects with the chamber and (2) a set screw threaded through the second bore and against the shank. (*Id.* at col. 7, lines 8–12).
- A final position in which the shank is locked in position relative to the head. (*Id.* at col. 7, lines 13–14).

Represented by its elements, claim 1 of the ’321 patent requires a shank (A), a head (B), assembly of the head and shank (C), a swivelable position (D), a locking mechanism (E), and a final locked position (F). The elements can be represented as ABCDEF.

⁶ “Urgeable” is not a word one will find in many dictionaries.

i. Claim 1 of the '753 Patent

SeaSpine argues that the limitations in claim 1 of the '753 patent are not patentably distinct from claim 1 of the '321 patent. (D.I. 222 at 28). Claim 1 of the '753 patent states:

1. A polyaxial bone screw assembly for implantation in a human comprising:
 - a) an elongate shank having a body for fixation to a bone and a capture structure extending from the body, the capture structure having a first helically wound guide and advancement structure; and
 - b) a head having an upper opening and a base with an inner surface defining a base cavity and a lower opening communicating with cavity having a second helically wound guide and advancement structure sized and shaped to rotatingly mate with the first guide and advancement structure, the capture structure being disposed and captured in the cavity upon operable mating and rotation of the first guide and advancement structure with the second guide and advancement structure until the first guide and advancement structure becomes disengaged from the second guide and advancement structure, the capture structure having a first orientation wherein the capture structure is disposed in the cavity and the shank body is swivelable relative to the head, and a second orientation, wherein the capture structure is in a non-threadedly mated frictional engagement with the second guide and advancement structure so that the shank cannot swivel relative to the head and wherein the shank capture structure can only be threadedly loaded into the cavity through the lower opening.

('753 patent, col. 12, line 50–col. 13, line 8). This claim requires:

- A shank with (1) a body for fixation into a bone and (2) a capture structure with a helically wound guide and advancement structure. (*Id.* at col. 12, lines 52–55).
- A head having a base and an upper portion. The base having (1) a lower opening with a second helically wound guide and advancement structure and (2) a cavity connected to the lower opening. (*Id.* at col. 12, lines 56–61).
- The first helically wound guide and advancement structure that is located on the shank's capture structure mating with the second helically wound guide and advancement structure on the head's lower opening, with the mating occurring until the guide and advancement structures disengage from each other. (*Id.* at col. 12, lines 61–66).

- The mating resulting in the assembly of the shank and head together such that the shank's capture structure is in the head's cavity. (*Id.* at col. 12, lines 61–62).
- A first position in which (1) the capture structure of the shank is fully in the cavity of the head and (2) the shank body is swivelable relative to the head. (*Id.* at col. 12, line 65–col. 13, line 2).
- A locking mechanism created by non-threaded frictional engagement. (*Id.* at col. 13, lines 4–5).
- A final position in which the shank cannot swivel relative to the head. (*Id.* at col. 13, lines 5–6).

Overall, the elements of Claim 1 of the '753 patent include a head, a shank, mating of the head and shank resulting in the assembly of the components, a position in which the head and shank are combined and swivelable, a locking mechanism, and a final locked position. I now examine these elements compared to the elements of claim 1 of the '321 patent.

The “shank” element of claim 1 of the '753 patent and the “shank” element of claim 1 of the '321 patent claim the same thing: a portion of the shank for implantation into a bone and another portion for attaching to the head. While the '753 patent uses the term “capture structure” to explain the portion of the shank designed to connect to the head, there is no difference from the '321 patent which describes the “upper portion” of the shank functioning in the same way. Thus, the “shank” element of this claim can be represented by the same element “A” as the '321 patent.

The “head” element is also the same between the two patents' claims. Although the terminology between the patents differs, both claims require there to be a lower opening attached to a cavity or chamber. Dr. Jackson argues that the “guide and advancement structure” of the '753 patent differs functionally and structurally from the “threaded first bore” of the '321 patent. (D.I.

246 at 27). I disagree. The '753 patent describes the “threaded first bore” as being “sized and shaped to rotatably mate with the first guide and advancement structure” located on the shank. ('753 patent, col. 14, lines 11–13). Similarly, the '321 patent describes the “threaded first bore” as “being sized, shaped and threaded so as to threadably receive said [threaded] shank upper portion.” ('321 patent, col. 7, lines 1–2). Both the guide and advancement structure and the threaded first bore function by facilitating the connection of the head and shank. Thus, the “head” element of claim 1 of the '753 patent can be represented by element “B.”

Like the '321 claim, claim 1 of the '753 patent requires the assembly of the shank and head. As part of the assembly, both claims require the upper portion/capture structure of the shank to pass through the lower opening of the head. Dr. Jackson argues that the '753 patent includes an additional element of “interactions” between the guide and advancement structures on the shank and head. (D.I. 246 at 26). I do not believe “interactions” adds any distinct element from the assembly described in the '321 patent. The '321 patent describes the head as “threadably receiv[ing]” the threaded shank. ('321 patent, col. 7, lines 1–2). Both patents’ claims require the same mating interaction. Nor is there a new element added by the '753 patent’s descriptions of the guide and advancement structures “disengaging” from each other. After describing the shank being threadably received into the threaded first bore, the '321 patent describes the upper portion of the shank “passing through” the bore and into the chamber. ('321 patent, col. 7, lines 1–4). As the '321 patent places the threads in the bore and not the chamber (*id.* at col. 6, line 66–col. 7, line 4), the threads must disengage when the upper portion passes through to the chamber. Therefore, while the '321 patent does not explicitly describe the “disengagement” of the threads, the threads must disengage from each other to complete the assembly of the shank and head. The “assembly of the head and shank” element can be represented by element “C” in claim 1 of the '321 patent.

The next element describes the ability for the shank to swivel relative to the body when the two components are assembled. The “swivel” element of claim 1 of the ’753 patent can be represented by the same element “D” as the ’321 patent.

The next element is the locking mechanism. The ’753 claim describes a different locking mechanism than the second bore and screw method described in the ’321 patent. Instead of locking through direct contact with screws, claim 1 of the ’753 uses “frictional engagement.” (’753 patent, col. 13, lines 3–5). I believe this difference in mechanism must be represented as a unique claim element, element “G.” However, I do not believe the frictional engagement locking method and the direct contact locking mechanism are mutually exclusive;⁷ a shank that is locked by screws making direct contact may also be secondarily locked by the friction between the threads.

The last element is the final, non-swivelable position once the components are locked together. There is no difference between this “locked” element and element “F” of the ’321 patent.

Thus, the elements of claim 1 of the ’753 patent may be represented as ABCDGF, with locking mechanism “G” being non-mutually exclusive with locking mechanism “F.” The difference in the two locking mechanisms is the only distinction that must be evaluated between these two claims in the second part of the analysis.

ii. Claim 14 of the ’753 Patent

SeaSpine argues that the limitations in claim 14 of the ’753 patent are not patentably distinct from claim 1 of the ’321 patent. (D.I. 222 at 28). Claim 14 states:

14. A polyaxial bone screw assembly for implantation in a human bone comprising:

⁷ The “mutually exclusive” analysis is in response to Dr. Jackson’s arguments that certain claim elements must be distinct from similar elements claimed by another patent because the things that are claimed are mutually exclusive. For example, Dr. Jackson argues that the locking mechanism of the ’321 patent is mutually exclusive with the locking mechanisms of the ’753 and ’777 patents, and thus the locking mechanism of the ’321 patent cannot be the same element as the locking mechanisms of the ’753 and ’777 patents. (See D.I. 246 at 27).

- a) an elongate shank having a body for fixation in a bone and a capture structure extending from the body, the capture structure having a top and a radially outer surface with a first helically wound guide and advancement structure: and
- b) a head having a base and a top portion, the head top portion having an open channel, the base having a lower opening with a second helically wound guide and advancement structure therein that is sized and shaped to rotatingly mate with the first guide and advancement structure, the base further having a cavity openly joined to the opening, the channel communicating with the cavity, the cavity communicating with an exterior of the base through the opening, during assembly the capture structure being positionable in the cavity upon operable rotation of the first guide and advancement structure with the second guide and advancement structure until a disengagement between the first and second guide and advancement structures occurs such that the capture structure is substantially in the cavity and the shank body is exterior of the cavity whereby the shank capture structure can only be loaded into the head from below through the opening and thereafter locked in position relative to the head, the first and second guide and advancement structures configured for frictional engagement when the capture structure is urged toward the opening without rotation while the capture structure is within the head such that the shank body is locked in a fixed angular position with respect to the head.

(’753 patent, col. 14, lines 1–31). This claim requires:

- A shank with (1) a body for implantation into a bone and (2) a capture structure having a radially outer surface with a helically wound guide and advancement structure. (*Id.* at col. 14, lines 3–7).
- A head having (1) a lower opening with a second helically wound guide and advancement structure and (2) a cavity connected to the lower opening. (*Id.* at col. 14, lines 8–15).
- The first helically wound guide and advancement structure that is located on the shank’s capture structure mating with the second helically wound guide and advancement structure on the head’s lower opening. (*Id.* at col. 14, lines 16–18). The mating occurs until the guide and advancement structures become disengaged from each other. (*Id.* at col. 14, lines 18–21).

- The mating resulting in the assembly of the shank and head together such that the shank's capture structure is in the head's cavity. (*Id.* at col. 14, lines 21–23).
- During assembly, the capture structure being positionable in the cavity. (*Id.* at col. 14, lines 16–17).
- A locking mechanism created by frictional engagement when the capture structure is pushed towards the opening of the head. (*Id.* at col. 14, lines 26–28).
- A final position in which the shank body is fixed relative to the head. (*Id.* at col. 14, lines 30–31).

The elements of claim 14 of the '753 patent closely align with the elements of claim 1 of the same patent. These elements include a head, a shank, mating of the head and shank resulting in the assembly of the components, a position in which the capture structure is positionable in the head, a locking mechanism, and a final locked position. I now examine these elements compared to the elements of claim 1 of the '321 patent.

The “shank” element of claim 14 adds a description of the capture structure, requiring it to have a “top” and a “radially outer surface.” ('753 patent, col. 14, lines 5–6). Instead of changing or adding something unique to the capture structure, claim 14 merely specifies a narrower set of features, all of which are covered by claim 1 of the '321 patent, for the upper portion of the shank detailed. As such, I find that the “shank” element of claim 14 of the '753 patent may be represented by element “A.”

The “head” element of claim 14 has the same requirements as claim 1 of the same patent. Thus, the “head” element of claim 14 may be represented as element “B.”

The “assembly” element of claim 14 is nearly identical to the “assembly” element in claim 1 of the '753 patent. The main difference is that claim 14 describes the capture structure as

“substantially in the cavity” after the disengagement of the two guide and advancement structures. (’753 patent, col. 14, line 22). This difference, however, does not create a different element from claim 1 of the ’321 patent. Claim 14 assembles the shank and head together by twisting the upper portion/capture structure of the shank into the lower opening of the head. (*Id.* at col. 14, lines 16–20). Claim 14 further describes rotating the shank and head together until the guide and advancement structures disengage. (*Id.*). This indicates that the shank has been fully assembled with the head. Upon assembly, “the shank body is exterior of the cavity,” the same as it is in the ’321 claim. (*Id.* at col. 14, lines 22–23). There is no reason to distinguish this full assembly of the shank into the head from the previously addressed assemblies. Therefore, the “assembly” element may be represented as element “C.”

Instead of allowing for “swivelable” movement of the shank and head prior to locking, claim 14 describes that “during assembly the capture structure [is] positionable in the cavity upon operable rotation of the [guide and advancement structures] until a disengagement between [the guide and advancement structures].” (’753 patent, col. 14, lines 16–21). I believe the meaning of “positionable” is distinct from “swivelable.” “Swivel” indicates a particular form of movement whereas “position” indicates a more general form of movement. However, I do not believe that “positionable” is mutually exclusive with “swivelable.” The “positionable” element of claim 14 can be represented as element “H.”

Claim 14 describes the frictional locking element the same way as claim 1 of the ’753 patent. Thus, claim 14’s frictional locking element can be represented by element “G.”

Claim 14 describes the final assembly of the locked shank as in “a fixed angular position with respect to the head.” (’753 patent, col. 14, lines 30–31). “Fixed” implies the shank is

“locked.” “Angular position with respect to the head” means the shank is locked relative to the head. There is no difference between this element and element “F” of the ’321 patent.

Thus, claim 14 of the ’753 patent can be represented by elements ABCHGF. This claim differs from claim 1 of the ’321 patent by allowing positionable movement prior to locking (H) of the head and shank rather than swivelable movement (D) and by including a frictional locking method (G) rather than a direct contact locking mechanism (E). Neither element H or G is mutually exclusive with element D or E, respectively.

iii. ’777 Patent

SeaSpine argues that the limitations in claim 1 of the ’777 patent are not patentably distinct from claim 1 of the ’321 patent. (D.I. 222 at 32). Claim 1 of the ’777 patent states:

1. A pivotal bone screw assembly for securing an elongate rod to a bone of a patient via a closure top, the pivotal bone screw assembly comprising:

a shank having a first longitudinal axis, a capture structure at a proximal end, and a body extending distally from the capture structure with an anchor portion configured for fixation to the bone, the capture structure having a partially spherical lower surface and a top end with a tool engagement structure formed therein; and

a head member having a second longitudinal axis, a base defining a cavity communicating with a bottom of the head member through a lower opening, and a pair of upstanding arms extending upward from the base to define an upwardly-open channel extending perpendicular to the second longitudinal axis and configured to receive the elongate rod, the upwardly-open channel communicating with the cavity and having parallel opposed interior surfaces with a discontinuous inner thread formed therein, the cavity having an inner surface configured to pivotably engage the partially spherical lower surface of the capture structure so as to provide for pivotal motion between the head member and the shank when the capture structure is received therein prior to a locking of the elongate rod in the upwardly-open channel via the closure top,

wherein at least a partial thread is cut into the lower opening of the head member and configured to provide for assembly of the shank into the head member prior to the pivotal engagement between the partially spherical lower surface of the capture structure and the inner surface of the cavity.

(’777 patent, col. 13, lines 8–38). This claim requires:

- A shank with (1) an anchor portion for implantation into a bone and (2) a capture structure with a partially spherical lower surface and a tool engagement feature on the top. (*Id.* at col. 13, lines 11–16).
- A head having (1) a base with a lower opening connected to a cavity, the opening having at least a partial thread and (2) arms extending from the base, with said arms having internal parallel surfaces containing a discontinuous thread. (*Id.* at col. 13, lines 16–26, 33–34).
- The assembly of the capture structure of the shank into the cavity of the head. (*Id.* at col. 13, lines 30–31).
- The assembly allowing pivotal motion between the partially lower spherical surface of the shank and the cavity of the head. (*Id.* at col. 13, lines 26–29).
- A locking mechanism that uses a closure top. (*Id.* at col. 13, lines 31–32).
- A final position in which there is no pivotal motion between the shank and head. (*Id.*).

Claim 1 of the '777 patent sets out six elements: a shank, a head, assembly of the shank and head, pivotal movement of the shank in the head, top closure for locking, and a final locked position. I now examine these elements to determine whether they represent the same elements as those in claim 1 of the '321 patent.

Claim 1 of the '777 patent describes the shank as having a portion for fixation to a bone and a portion with a capture structure. ('777 patent, col. 13, lines 11–14). The claim then describes the capture structure as having a partially spherical lower surface and a top with a tool engagement structure. (*Id.* at col. 13, lines 14–17). As with claim 14 of the '753 patent, specific features of the capture structure do not add or change anything from the description of the shank in the '321 patent. Instead, they simply specify a particular option permitted by the capture structure in the

'321 patent. Thus, I find the “shank” element of claim 1 of the '777 patent may be represented by the same element “A” as the '321 patent.

Both claims in the '777 and '321 patent describe the head as having an upper and lower portion, with the lower portion containing a hole leading to a cavity/chamber. However, the '777 patent describes “at least a partial thread” on the bottom opening of the head instead of the “threaded” description contained in the '321 patent. ('777 patent, col. 13, line 33). Although the words “at least a partial” is not used to describe the “threaded” opening of the '321 patent’s head, claim 1 of the '321 patent does not specify the extent to which the bottom opening must be threaded. Therefore, I do not believe the inclusion of the words “at least a partial” changes much. Claim 1 of the '777 patent also describes the upper portions of the head with different language than the '321 patent. As Dr. Jackson points out (D.I. 246 at 27), the '777 patent describes the upper portion of the head as “a pair of upstanding arms extending upward from the base to define an upwardly-open channel.” ('777 patent, col. 13, lines 19–21). The '321 patent describes the upper portion of the head simply as “a channel.” ('321 patent, col. 6, line 63). Despite this difference, the channel of both claims is designed to “receive [a/the elongated] rod.” (*Id.*; '777 patent, col. 13, lines 22–23). Nothing in claim 1 of the '321 patent, or the patent as a whole, indicates that the chamber must be comprised of a single or any specific number of “arms.”⁸ The '777 patent’s requirement for a pair of arms represents one permissible form of the '321 patent’s chamber located in the upper portion of the head. The '777 patent further describes the pair of arms having “a discontinuous inner thread.” ('777 patent, col. 13, lines 25–26). Although claim 1 of the '321 patent does not include this requirement, discontinuous threads fall within the claimed

⁸ Dependent claim 4 (depending from claim 3, which depends from claim 1) states, “said head includes a pair of spaced arms having facing threads sized and shaped to threadably receive said plug.” ('321 patent, col. 7, lines 24–26).

element.⁹ As such, any threading meets this claim element. Overall, claim 1 of the '777 patent describes the same “head” element “B” as the '321 patent.

Like claim 1 of the '321 patent, the '777 patent explains that the capture portion of the shank is passed through the lower opening of the head to assemble the shank and head together. ('777 patent, col. 13, lines 17–19, 33–35). Thus, the assembly element of claim 1 of the '777 patent can be represented as element “C.”

After assembly, there is “pivotable” movement between the shank and head prior to locking. (*Id.* at col. 13, lines 29–31). “Pivot” indicates movement around a point. A movement may be limited to a specific range or direction and still be “pivotable.” On the other hand, “swivel” indicates a rotational movement. Although I think there are times a movement may be classified as both pivotable and swivelable, I believe the “pivotable” motion of this claim differs from the “swivelable” motion of the '321 patent. As such, the “pivotable” element of this claim is represented as element “I.”

Claim 1 of the '777 patent explains that the shank and head are pivotable “prior to locking of the elongated rod in the upwardly-open channel via the closure top.” ('777 patent, col. 13, lines 30–31). This claim requires that the locking is accomplished with a closure top placed in the top of the head above the rod. This method of locking does not describe frictional engagement or direct contact with screws. However, the claim is broad enough to include locking through frictional engagement or direct contact caused by the insertion of the rod and closure structure. As such, the locking mechanism of this claim can be represented as element “J,” which is non-mutually exclusive with the locking elements E of the '321 patent or G of the '753 patent.

⁹ As noted in the previous footnote, dependent claim 4 in the '321 patent supports this. ('321 patent, col. 7, line 25).

Claim 1 of the '777 patent provides for pivotal motion between the shank and head until the locking structure is engaged. Unlike claim 1 of the '321 patent, this claim does not include a description of the final position as the shank being locked relative to the head. However, as locking removes the ability for the shank and head to pivot and the shank is assembled into the head, locking creates a final position in which the shank is positioned relative to the head. Thus, the final locked position of this claim can be represented as element "F."

The elements of claim 1 of the '777 patent can be represented as ABCIJF. This differs from claim 1 of the '321 patent in two ways. First, this claim uses a "pivotal" movement "I" instead of a "swivelable" movement "D." Second, this claim locks through a closure structure "J" rather than a direct locking with screws "E." Neither of these changes are mutually exclusive with the original elements in claim 1 of the '321 patent.

b. Step Two

As the three claims at issue have slight differences from the elements in claim 1 of the '321 patent, I move to the second step of the obviousness-type double patenting analysis. The second step looks at "whether those differences [identified in the first step,] render the claims patentably distinct." *Abbvie*, 764 F.3d at 1374. Across the three patent claims at issue here, there are four differences from claim 1 of the '321 patent. These four differences are: (1) the frictional locking in claims 1 and 14 of the '753 patent, (2) the positional motion in claim 14 of the '753 patent, (3) the pivotal motion in claim 1 of the '777 patent, and (4) locking with a closure structure in claim 1 of the '777 patent.

In the second step of the analysis, "a double patenting of the obviousness type rejection is analogous to [a failure to meet] the non-obviousness requirement of 35 U.S.C. § 103, except that the patent principally underlying the double patenting rejection is not considered prior art." *In re*

Longi, 759 F.2d 887, 892 n.4 (Fed. Cir. 1985) (internal quotation omitted). “While the ultimate question of patent validity is one of law, the § 103 condition . . . lends itself to several basic factual inquiries.” *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) (internal citation omitted); *see also Otsuka Pharm.*, 678 F.3d at 1290. These inquiries include “the scope and content of the prior art are to be determined[,] differences between the prior art and the claims at issue are to be ascertained[,] the level of ordinary skill in the pertinent art resolved” and certain “secondary considerations” that may serve as “indicia of obviousness or nonobviousness.” *Graham*, 383 U.S. at 17–18; *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415–22 (2007).

As the party moving for summary judgment of invalidity based on obviousness-type double patenting, it is SeaSpine’s burden to identify the non-disputed facts necessary for this analysis. *Celotex*, 477 U.S. at 330. While SeaSpine’s obviousness argument for each difference is supported by its expert Dr. Drewry’s report (*see* D.I. 222 at 28–35; D.I. 223-3, Ex. 10 at ¶¶ 1321–62, 1609–65), Dr. Jackson has identified conflicting opinions in his expert Dr. Oxland’s report (*see* D.I. 246 at 25–27; D.I. 247-1, Ex. B at ¶¶ 72–147). The parties have not had the chance to fully argue their patentability theories for each different element between the claims.¹⁰ Therefore, SeaSpine’s motion for summary judgment of invalidity based on obviousness-type double patenting is denied.

Despite the denial of SeaSpine’s motion, SeaSpine may have legally sound arguments improperly combining claims or relying on specifications. The success of SeaSpine’s arguments

¹⁰ There are slight differences in how the parties and their experts identified the claim elements. Likewise, my analysis of the claim elements slightly diverges from how the parties analyzed the elements. I believe that both experts have opinions in their reports relevant to their respective patentability arguments for each claim element at issue in the second step. However, based on the variation in how the claim elements were identified and discussed, it is not clear how the expert opinions relate to each other or my analysis of the elements. The application of the experts’ patentability opinions to the specific claim elements at issue is the type of underlying factual dispute that must be fully resolved before I can rule on the ultimate question of law.

rests on the factual background that has yet to be argued by either party. As such, Dr. Jackson's motion for summary judgment of no obviousness-type double patenting is denied.

5. Infringement of the '753 Patent

Dr. Jackson argues that he is entitled to summary judgment that Defendant's Mariner product infringes claims 1 and 14 of the '753 patent. (D.I. 220 at 6). Dr. Jackson argues that SeaSpine disputes only whether the Mariner product infringes three claim elements, one element of claim 1 and two elements of claim 14. (*Id.* at 6–7). The disputed claim elements are (1) the second orientation,¹¹ (2) the capture structure,¹² and (3) locking when urged towards the opening.¹³ (D.I. 220 at 6–7; D.I. 224-12, Ex. A-11 at 4–5). Dr. Jackson argues that these disputes are legal, not factual, disputes. (D.I. 220 at 7). SeaSpine responds by arguing that the first and third dispute are factual issues. (D.I. 248 at 7–13). SeaSpine does not address the supposed “capture structure” dispute.¹⁴ (*See id.*).

a. Second Orientation

At issue in the first dispute is claim 1's requirement for a “second orientation” of the capture structure. Dr. Jackson argues that the claim limitation is met by “any type of locking of

¹¹ “[A] second orientation, wherein the capture structure is in a non-threadedly mated frictional engagement with the second guide and advancement structure so that the shank cannot swivel relative to the head.” ('753 patent, col. 13, lines 2–6).

¹² “[T]he capture structure having a partially spherical lower surface and a top end with a tool engagement structure formed therein.” ('753 patent, col. 14, lines 5–7).

¹³ “[T]he first and second guide and advancement structures configured for frictional engagement when the capture structure is urged toward the opening without rotation while the capture structure is within the head such that the shank body is locked in a fixed angular position with respect to the head.” ('753 patent, col. 14, lines 26–31).

¹⁴ SeaSpine argues that its expert's opinion does not contradict the Court's construction of “capture structure.” (D.I. 248 at 11). SeaSpine's argument does not respond to Dr. Jackson's infringement argument. SeaSpine does not attempt to refute Dr. Jackson's characterization of Mariner's infringement of the capture structure element. SeaSpine has waived its arguments on this issue. In any event, in light of my decision that there is a dispute of material fact about the “locked when urged towards the opening” element, resolution of the “capture structure” element is unnecessary.

the screw so long as the locked ‘second orientation’ has the capture structure . . . in a non-threadedly mated frictional engagement with the second guide and advancement structure.” (D.I. 220 at 12). Dr. Errico, one of Dr. Jackson’s experts, opines that the Mariner product meets this limitation as it has a first orientation where the shank can swivel within the head, and a second orientation in which the pressure created by the closure structure and washer lock the shank relative to the head. (D.I. 262 at 12). SeaSpine argues that the Mariner product does not have a second orientation in which it locks; the Mariner’s locking depends on the presence of the washer used in its locking mechanism, not any particular orientation.¹⁵ (D.I. 248 at 7–9). SeaSpine argues that the dispute whether the Mariner product meets the plain and ordinary meaning of the “second orientation” element is a factual dispute. (D.I. 248 at 11–12).

No one requested that I construe the terms “first orientation” and “second orientation.” (See D.I. 111). Terms that are not construed get their plain and ordinary meaning. The plain and ordinary meaning of “orientation” is “the state of being oriented,” which “broadly” means “arrangement, alignment.”¹⁶ As used in the patent, “first orientation” and “second orientation” are used simply to describe the pre- and post-locking relationships of the head, shank, and capture structure. All that the usage of “orientation” requires is that the first orientation be different from

¹⁵ During oral argument, SeaSpine clarified that its argument contains two separate parts. First, SeaSpine’s “orientation” argument is based on its position that the ’753 patent requires the head and a shank to be in a particular relationship relative to each other (i.e., the “second orientation”) to lock. SeaSpine argues that the Mariner product does not meet this limitation because the Mariner can lock with the assembled head and shank in any relationship to each other. Second, SeaSpine’s “locking mechanism” argument (also referred to as the “so that” argument during oral argument) is based on SeaSpine’s understanding that the patent requires frictional engagement between the head and capture structure to cause the locking. SeaSpine argues the Mariner product does not meet this limitation because the downward force from the pressure washer causes the locking in the product.

¹⁶ *Orientation*, Merriam Webster, <https://www.merriam-webster.com/dictionary/orientation> (last updated May 31, 2026).

the second orientation. Claim 1 requires that there is a “second orientation, wherein the capture structure is in a non-threadedly mated frictional engagement with the second guide and advancement structure so that the shank cannot swivel relative to the head.” (’753 patent, col. 13, lines 2–6). Stated differently, there is a “second orientation” if “the capture structure is in a non-threadedly mated frictional engagement with the second guide and advancement structure so that the shank cannot swivel relative to the head.”

The use of “so that” in the claim represents the causal connection between the frictional engagement and the locking, not a connection between the second orientation and the locking.¹⁷ Nothing in the claim 1 “second orientation” element requires the shank’s inability to swivel relative to the head to occur due to a specific position of the capture structure relative to the head.¹⁸ SeaSpine argues that a product using a washer in the locking process cannot meet the second orientation element because “the specification does not characterize inserting a washer to lock a capture structure as creating a second ‘orientation’ in which the capture structure is locked.” (D.I. 248 at 9). However, this argument improperly imports a limitation from the specification; nothing in claim 1 prevents another component, such as a pressure washer, from being involved in the locking.

¹⁷ A portion of Dr. Gall’s report implies that “so that” is used as a causal connection between the second orientation and the locking. (See D.I. 225-10, Ex. 10 at ¶ 251; *see also* D.I. 248 at 9). Dr. Gall’s implied reading is erroneous. It is only accomplished by truncating the relevant claim language.

¹⁸ Dr. Gall’s report implies that the ’753 patent’s locking is accomplished by some intermediate step (“a force being applied to the top of the capture structure”). (D.I. 225-10, Ex. 10 at ¶ 253). Maybe true, but this does not create a disputed material fact. The force being applied to the top of the capture structure cause the frictional engagement, which is all that is required.

SeaSpine does not dispute that “the capture structure is in a non-threadedly mated frictional engagement with the second guide and advancement structure” when it is locked.¹⁹ (See D.I. 248 at 7–13). Instead, SeaSpine’s arguments focus on the last portion of the claim element requiring frictional engagement to result in the locking of the head and shank. SeaSpine’s arguments rest on the fact (which is not disputed) that a washer is the part that prevents the Mariner’s shank from swiveling relative to the head; it is undisputed that there is no arrangement of the Mariner’s head and capture structure that will result in locking without the washer. (D.I. 225-10, Ex. 10 at ¶¶ 251–52). However, the presence of the washer does not create a dispute of material fact. As addressed above, claim 1 does not require the particular “second orientation” arrangement of the head and capture structure to result in the locking; nor does the claim exclude frictional engagement that is accomplished with a washer. The claim only requires that the shank and head have an unlocked arrangement and an arrangement where frictional engagement results in locking. Since SeaSpine’s arguments are based on a misunderstanding of “second orientation,” SeaSpine has not presented any dispute of material fact.²⁰ Thus, I grant Dr. Jackson’s motion for summary judgment that SeaSpine’s Mariner product meets the elements of claim 1 of the ’753 patent.

¹⁹ In its briefing, SeaSpine notes that “frictional engagement does not lock the Mariner shank head when it is urged toward the opening.” (D.I. 248 at 9 (citing Dr. Gall’s report at D.I. 225-10, Ex. 10 at ¶¶ 257–58)). The cited portion of Dr. Gall’s report is directed at claim 14, not claim 1, and is based on claim 14’s requirement that “the capture structure is urged toward the opening.” (’753 patent, col. 14, line 28). Claim 1 does not contain a similar requirement. Thus, the cited portion of Dr. Gall’s report does not support SeaSpine’s argument about Claim 1.

²⁰ SeaSpine’s noninfringement argument for claim 1 of the ’753 patent is focused on the “second orientation” theory supported by the opinion of its expert Dr. Gall. (D.I. 248 at 8–13). As discussed below, Dr. Gall’s “second orientation” opinion is excluded as impermissible claim construction. (See *infra* Section III.B.1.C). Dr. Gall does not offer any other noninfringement argument for claim 1. (See D.I. 225-10, Ex. 10 at ¶¶ 240–54).

b. Locking When Urged Towards the Opening

This dispute relates to the element of claim 14 requiring frictional engagement between the first and second guide and advancement structures when the shank body is urged towards the opening of the head. Dr. Jackson's expert Dr. Errico opines that the Mariner product meets this requirement because the downward push of the capture structure creates friction between the first and second guide and advancement structures, and the friction locks the shank in a fixed position relative to the head. (D.I. 220 at 10, citing D.I. 224-1, Ex. A at ¶¶ 158–61, 177–80; D.I. 262 at 10). SeaSpine responds by arguing that its expert Dr. Gall explains that the locking of the Mariner product is not caused by frictional engagement or the capture structure being urged towards the opening. (D.I. 248 at 8, citing D.I. 225-10, ¶¶ 255, 257–58).

How the Mariner product locks (i.e., if the downward urging of the capture structure causes the frictional engagement used to lock the Mariner product) is a question of fact. As the parties have presented contrary expert opinions on this issue, there is a genuine dispute of material fact. Thus, Dr. Jackson's motion for summary judgment of infringement of claim 14 of the '753 patent by SeaSpine's Mariner product is denied.

6. Non-Infringement and Invalidity of the '923 Patent

Dr. Jackson argues SeaSpine infringes claims 1 and 4 of the '923 patent. (D.I. 220 at 14). Claim 4 depends from claim 1.

SeaSpine seeks summary judgment of invalidity and of non-infringement only in relation to claim 4. (D.I. 221 at 1; *see* D.I. 222 at 2–9).²¹ The relevant claims state:

1. A variable angle spinal screw assembly adapted to be secured to a vertebra for providing an adjustable securement of a fixation rod across at least two vertebrae, said assembly comprising:

²¹ Presumably, if SeaSpine were right about its invalidity argument, which is that the language "substantially spherical" is indefinite, claim 1 would fall for the same reason, since the language is in claim 1.

- a pedicle screw having a *substantially spherical head portion*, a threaded shaft portion and a tool engagement surface defined by the head portion for use in driving the screw into a vertebra;
 - a body member for receiving *said head portion* of said screw therein and defining an opening in an inner end thereof for the extension of said shaft portion of the screw therethrough, a pair of opposed parallel slots therein for receiving a portion of the fixation rod therebetween, a curvilinear interior surface disposed about said opening for abutting and mating with *said substantially spherical head portion* of said screw so as to allow variable angular movement of said body member with respect to said pedicle screw while maintaining said interior surface of said body member in mating contact with *said head portion* of said screw;
 - a locking cap releasably securable within said body member such that said cap bears against the portion of a fixation rod disposed between said slots to secure the rod within said assembly; and
 - a keyed interface between said pedicle screw and said body member whereby said pedicle screw can be inserted into the vertebra and said body member subsequently disposed about *said substantially spherical head portion* of said screw such that *said head portion* abuts and mates with said curvilinear interior surface of said body member to provide said variable angular movement of said body member with respect to said screw;
- wherein said keyed interface comprises a first threaded surface in said body member about said opening in said inner end thereof and a second threaded surface on *said head portion* of said screw, said first threaded surface being adapted to threadably engage said second threaded surface such that said screw can be inserted into the vertebra and said body member threaded onto and over *said head portion* of said screw to position said curvilinear interior surface of said body member such that said interior surface can abut and mate with *said head portion*.

('923 patent, col. 8, line 28–col. 9, line 4 (as amended by the Certificate of Correction) (relevant terms italicized)).

4. The assembly of claim 1 including a bushing locatable within said body member outwardly adjacent *the head portion* of said screw, said bushing defining a seat for said portion of the fixation rod and a bifurcated skirt for abutting *said head portion* of said screw upon said locking cap pressing against said portion of the fixation rod whereby the force exerted on *the head portion* of the screw is distributed *about said head portion*.

('923 patent, col. 9, lines 24–31 (relevant terms italicized)).

a. Indefiniteness of “Substantially Spherical”

SeaSpine argues that claim 4 of the '923 patent is invalid because the term “substantially spherical” is indefinite. (D.I. 222 at 2). SeaSpine argues that nothing in the intrinsic record provides an objective boundary of “substantially” such that a person of ordinary skill in the art (POSA) could determine what is within the scope of “substantially spherical.” (*Id.* at 3). Dr. Jackson responds that courts regularly find “substantially” and other terms of degree to be definite when read in the context of the patent. (D.I. 246 at 4–5). Dr. Jackson argues that the patent provides the necessary context for the POSA to understand what “substantially” means. (*Id.* at 5–8).

“Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014). The Court of Appeals has held that the use of “substantially” in certain patents is not indefinite. *See Tinnus Enters., LLC v. Telebrands Corp.*, 846 F.3d 1190, 1206 (Fed. Cir. 2017); *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).²² Here, the intrinsic evidence provides “objective boundaries for those of skill in the art.” *Interval*, 766 F.3d at 1371.

The way claim 1 of the '923 patent describes the “substantially spherical” head allows a POSA to understand that the head, while spherical, is not necessarily a perfectly round or smooth object. Part of this description explains that the “substantially spherical” head contains “a tool engagement surface” ('923 patent, col. 8, lines 33–34), and a “threaded surface on said head

²² SeaSpine does not respond to Dr. Jackson’s citations to *Tinnus* and *Sonix* with any appellate cases holding that the use of “substantially” was indefinite. While I note the lack of such citation, the lack does not resolve the issue since the indefiniteness of a term is context-dependent.

portion of said screw” (*id.* at col. 8, lines 63–64). These explanations provide a description of the non-spherical aspects of the head. The claims also provide the boundaries for what is included in “substantially spherical.” The “substantially spherical” head must fit within the “curvilinear interior surface” of the receiving body member portion of the device. (*Id.* at col. 8, line 41). In the receiving portion, the “substantially spherical” head must be capable of “variable angular movement . . . while maintaining said interior surface of said body member in mating contact with said head portion.” (*Id.* at col. 8, lines 44–47). These explanations provide the minimum bounds for how “spherical” the head must be by describing certain requirements the head must meet. Taken together, these descriptions provide the context for a POSA to understand the objective boundaries of “substantially spherical” as used in the claim.

The ’923 patent’s specifications provide additional information for a POSA to understand those objective boundaries. For example, the detailed description of the preferred embodiment describes:

The pedicle screw 12 preferably employed in assembly 10 has a spherical head 20 defining a slot 22 therein used to drive the screw into the bone. The rounded surface 24 defined by the lower portion of screw head 20 rests upon and mates with a rounded interior surface 26 formed in the inner or lower end of the body member 14 of the assembly 10 so as to form a modified ball joint that provides the desired variable angular movement of the body member with respect to the embedded pedicle screw.

(’923 patent, col. 4, lines 39–47). This passage explains how the spherical head has a “slot” which makes it not perfectly round, while also describing how the spherical head must be round enough to fit into the interior surface of the device and to function as a “modified ball joint”²³ in it. Figures 1 and 2 provide an illustration of the preferred embodiment. Two alternative embodiments describe a similar set up where a rounded head is not a perfect sphere due to “threads” (*id.* at col.

²³ Neither party has offered any evidence or arguments regarding what a “modified ball joint” is or how spherical it must be.

6, line 64) or “eight contact surfaces” (*id.* at col. 7, line 23) for various forms of insertion, but the head is round enough to allow for movement as a ball joint with the receiving body member. (*See id.* at col. 6, line 54–col. 7, line 54, Figs. 11 & 13).

The asserted claims make it clear that the head must be “substantially spherical” because of contact surfaces that prevent it from being a perfectly round sphere. The claims and the specification illustrate that the head must be spherical enough to fit into the rounded receiving portion and to rotate as a ball joint within the specific receiving portion. Thus, the intrinsic evidence provides the bounds of “substantially spherical” as used in the ’923 patent. SeaSpine’s motion for summary judgment of indefiniteness is denied.

b. Whether Mariner has a “Substantially Spherical” Head

SeaSpine argues that the Mariner product does not infringe the asserted claim of the ’923 patent because it does not have a “substantially spherical head.” (D.I. 222 at 6). SeaSpine argues that the Mariner product does not meet either of Dr. Jackson’s experts’ definitions of “substantially spherical,” with one definition requiring 30% or more of the head to be spherical and the other definition having classified other products with a flattened top as a “hemisphere at best.” (*Id.* at 6–7).²⁴ SeaSpine further argues that Dr. Jackson’s expert Dr. Errico used an incomplete version of the Mariner product from the manufacturing process to complete his analysis. (*Id.* at 8). SeaSpine argues that analysis of the incomplete version is meaningless because the accused product is the final Mariner screw; without analyzing the final screw, SeaSpine argues, there is no evidence that the Mariner product has a “substantially spherical” head. (*Id.* at 8–9). In response, Dr. Jackson cites evidence from both parties that, he argues, at a minimum demonstrates a genuine dispute in material fact. (D.I. 256 at 9–12).

²⁴ I note that I would not allow an expert to define “substantially spherical.”

Whether the Mariner product has a “substantially spherical” head is a question of fact. A reasonable jury could come to different conclusions whether the final²⁵ Mariner product meets this element. I believe there is a genuine factual question regarding whether the final Mariner product meets the limitation. As there is a genuine dispute of material fact, SeaSpine’s motion for summary judgment is denied.

7. Non-Infringement of the ’667 Patent

SeaSpine moves for summary judgment that the Mariner product does not infringe claim 1 of the ’667 patent. (D.I. 222 at 9). Claim 1 of the ’667 patent states:

1. A spinal screw assembly for securing a fixation rod to a bone via a closure, the spinal screw assembly comprising:
 - a screw having a longitudinal axis, *a screw head*, and *an integral anchor portion* extending downward from the screw head for fixation to the bone, the screw head having an upper curvilinear surface, a lower curvilinear surface adjacent the anchor portion, and an outer surface between the upper curvilinear surface and the lower curvilinear surface, the outer surface having a first guide and advancement structure formed therein;
 - a body member having a base with a cavity, an upper portion with a channel for receiving the fixation rod, and an axial bore centered around a longitudinal axis, the axial bore communicating with the channel and with a bottom of the base through a lower opening, the cavity having a reduced cross-section adjacent the lower opening to prevent the screw head from exiting the cavity through the lower opening, the lower opening having a second guide and advancement structure formed therein and threadably mateable with the screw head first guide and advancement structure; and
 - a bushing positionable within the body member and engageable with the screw head,wherein *the screw head outer surface is in pivotal engagement with a surface on the reduced cross-section when the screw is disposed within the body member axial bore, with the anchor portion extending downward through the lower opening*, so as to allow variable angular movement of the screw relative to the body member prior to a locking of the assembly via the closure.

(’667 patent, col. 8, line 50–col. 9, line 13) (relevant portion emphasized).

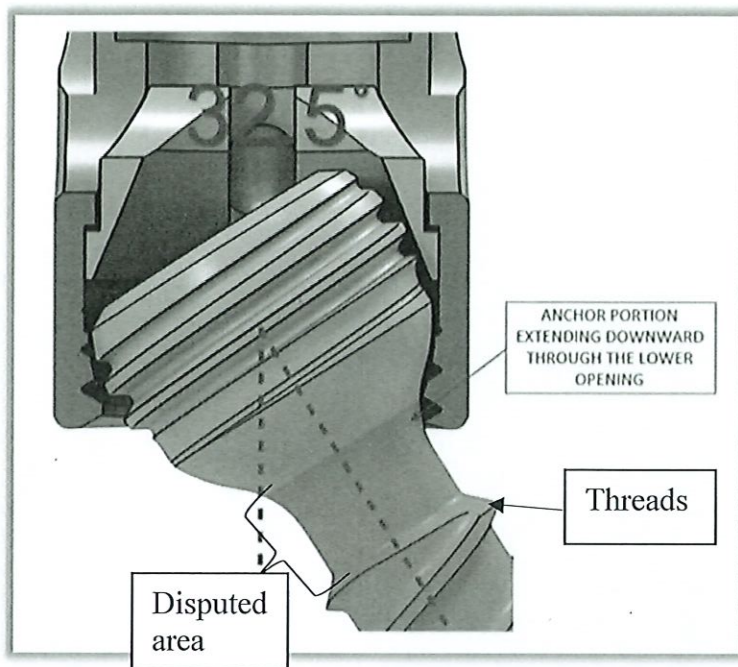
²⁵ I do not now need to decide whether evidence relating to the non-final Mariner product is relevant.

SeaSpine notes that the claim requires (1) a screw head and (2) “an integral anchor portion extending downward from the screw head for fixation to the bone.” (D.I. 222 at 9). SeaSpine argues that the claim requires the “anchor portion” to “extend[] downward through the lower opening’ when ‘the screw head outer surface is in pivotal engagement with a surface on the reduced cross-section.” (*Id.* (quoting ’667 patent, col. 9, lines 6–11 (emphasis deleted))). SeaSpine argues that the Mariner product’s screw head, not the anchor portion, extends through the lower opening. (*Id.* at 9–10).

Dr. Jackson responds by arguing that SeaSpine’s position requires a “hyper-technical” construction of the claim that would render it inconsistent with the preferred embodiment identified in the patent. (D.I. 246 at 12–13). Dr. Jackson argues that there is a factual dispute about where the “screw head” ends and where the “integral anchor portion” begins. (*Id.* at 13). Dr. Jackson identifies evidence that supports his understanding of the claim and his identification of the claimed components in the Mariner product. (*Id.* at 14).

This dispute centers on where the dividing line is between the “screw head” and the “integral anchor portion.” Both parties use the same annotated figure from Dr. Errico.²⁶:

²⁶ Dr. Errico’s diagram includes an annotation identifying the “anchor portion.” I have added annotations (the black annotations) indicating where I believe the threads are and where the disputed area is.



(D.I. 222 at 11; D.I. 246 at 14 (“disputed area” and “threads” annotations added)). Specifically, the parties dispute the characterization of the area below the screw head that is received in the body member (the blue portion in the figure) and above the threads on the anchor (the purple part of the figure).

Claim 1 describes the screw head as “having an upper curvilinear surface, a lower curvilinear surface adjacent the anchor portion, and an outer surface between the upper curvilinear surface and the lower curvilinear surface, the outer surface having a first guide and advancement structure formed therein.” (’667 patent, col. 8, lines 55–59). This section of the claim clearly identifies the “screw head” as the portion between the two curvilinear surfaces. Nothing in the claim requires the “anchor portion” to start at the threads. It would contradict the claim language to include the portion of the screw beneath the lower curvilinear surface as a part of the head simply because it does not have threads. Thus, there is a genuine dispute of material fact whether the Mariner product has an anchor portion that extends through the lower opening. SeaSpine’s motion is denied.

8. Non-Infringement of the '273 Patent's Shoulder Limitation

SeaSpine moves for summary judgment that the Mariner product does not infringe claim 39 of the '273 patent because it does not have an “upper portion defining a U-shaped channel with a pair of inner sidewall surfaces’ where ‘at least . . . one sidewall surface[] includ[es] a discontinuous downward-facing shoulder” (D.I. 222 at 12 (quoting '273 patent, claim 39)). SeaSpine presents two arguments based on two possible “shoulders” of the Mariner product.

Claim 39 states:

39. A bone anchor assembly for securing an elongate rod to a bone of a patient, the bone anchor assembly comprising:
- a shank having a proximal capture portion and an anchor portion extending distally from the capture portion configured for fixation to the bone;
 - a receiver having a longitudinal axis, *an upper portion defining a U-shaped channel with a pair of inner sidewall surfaces* configured to receive the elongate rod therebetween, and a lower portion defining a cavity communicating with the U-shaped channel and with a bottom opening, the upper portion of the receiver including a guide and advancement structure, *at least one of the pair of inner sidewall surfaces including a discontinuous downward-facing shoulder* pre-formed therein between the guide and advancement structure and the bottom opening; and
 - a pressure, (sic) insert sized and shaped to be positioned downwardly within the receiver into a first position, the pressure, (sic) insert having at least one upward-facing contact surface and being rotatable about the longitudinal axis into a second position that locates the at least one upward-facing contact surface at least partially under the discontinuous downward-facing shoulder of the receiver to prevent the pressure insert from moving back up within the receiver.

('273 patent, Certificate of Correction, p. 4)(emphasis added).

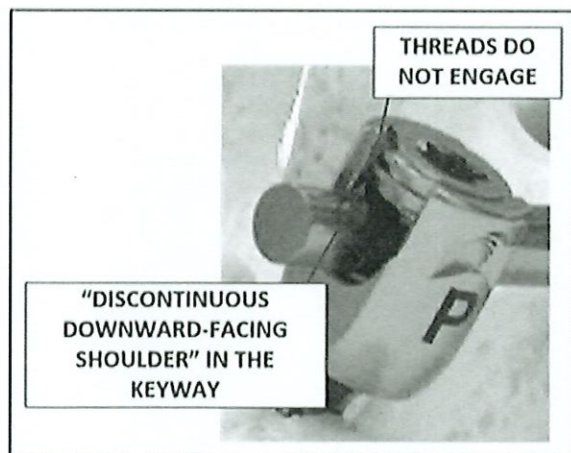
a. Non-Infringement Based on the “Bottom-Thread Theory”

SeaSpine first addresses infringement based on what it calls Dr. Jackson’s “bottom thread theory.” This theory identifies a structure near the threads of the guide and advancement structure on the Mariner product as the “shoulder.” SeaSpine argues that the Mariner product cannot infringe under this theory because the portion of the Mariner product that Dr. Jackson identifies as the “shoulder” is a part of the thread, and the thread is a part of the “guide and advancement

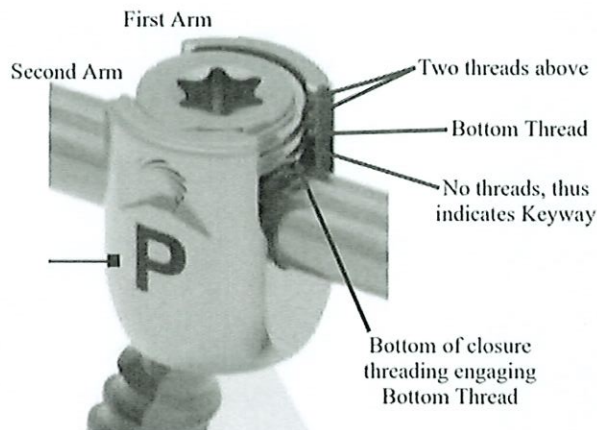
structure.” (D.I. 222 at 12–13). A “shoulder” that is part of the guide and advancement structure cannot infringe, SeaSpine argues, because my *Markman* opinion explained that “the shoulder is not part of the guide and advancement structure” since “[t]he shoulder cannot be between the guide and advancement structure and the bottom opening if it is part of the guide and advancement structure.” (*Id.* at 12 (citing D.I. 131 at 10)).

Dr. Jackson responds that the structure his expert Dr. Errico identifies as the “shoulder” is the “keyway” structure of the Mariner product, not the guide and advancement structure. (D.I. 246 at 15). Dr. Jackson argues that the keyway cannot be a part of the threads (and thus a part of the guide and advancement structure) because it can never engage with the threads. (*Id.* at 16).

There is no genuine dispute of material fact. Evaluating the evidence in the light most favorable to Dr. Jackson as the non-moving party, the evidence clearly shows that the keyway structure identified by Dr. Jackson is part of the guide and advancement structure’s threads. Dr. Jackson does not dispute that the portion he identifies as the keyway/shoulder is aligned with, and a part of, the threads that make up the guide and advancement structure. Instead, Dr. Jackson offers the following annotated picture of the Mariner product:



(D.I. 246 at 16). Dr. Jackson argues that the annotated picture shows that the bottom thread is not a part of the guide and advancement structure because the rod blocks the cap from engaging with the bottom thread. (*Id.*). However, SeaSpine directly refutes Dr. Jackson’s argument by offering its own annotated picture of the Mariner product:



(*See* D.I. 261 at 10). SeaSpine argues that this picture demonstrates that the cap can engage with the bottom thread while the rod is in place. (*Id.*). While this conflicting evidence may appear to involve an issue of disputed material fact, it does not. Dr. Jackson’s evidence, that it is possible to show the cap not engaging with the bottom thread, does not refute SeaSpine’s evidence that it is possible to show the cap engaging with the bottom thread. SeaSpine’s evidence is enough to preclude Dr. Jackson’s argument that the cap can never engage with the last thread. Summary judgment of non-infringement based on the “bottom thread theory” is granted.

b. Non-Infringement Based on the “Continuous Shoulder Theory”

Dr. Jackson’s second infringement theory relies on a “shoulder” lower in the receiver. SeaSpine calls this theory the “continuous shoulder theory.” SeaSpine argues that the Mariner product cannot infringe under the continuous shoulder theory because the structure Dr. Jackson identifies as a “shoulder” does not meet the claim limitation requiring it to be “discontinuous” or in the sidewalls. (D.I. 222 at 14).

Dr. Jackson responds that SeaSpine's "understanding" of the receiver is "hyper[-]technical." (D.I. 246 at 17). Dr. Jackson argues that "'discontinuous' is not limited to interruptions by the U-shaped channel" and "could include being discontinuous from the side wall because it would be projected out into that center cavity and would not be continuous with the inner side wall." (D.I. 246 at 17 (internal quotation omitted)). Dr. Jackson argues that the claim only requires that the shoulder be located on the inside of the receiver, somewhere below the guide and advancement structure but above the bottom opening. (*Id.*).

There is no genuine dispute of material fact. Claim 39 explains that there are a "pair of side inner sidewall surfaces" and "at least one of the pair . . . includ[es] a discontinuous downward-facing shoulder." ('273 patent, certificate of correction, p. 4). The claim requires that the receiver has an upper portion and a lower portion. (*Id.*). The claim states there is "an upper portion defining a U-shaped channel with a pair of inner sidewall surfaces configured to receive the elongate rod therebetween." (*Id.*). The claim separately states there is "a lower portion defining a cavity communicating with the U-shaped channel and with a bottom opening." (*Id.*). It is not a "hyper-technical understanding" to recognize that the claim identifies the sidewalls as part of the upper portion and identifies the cavity as part of the lower portion.

The claim requires that the shoulder be on at least one sidewall surface. By using the term "pair," the claim is also clear that there are two separate sidewall surfaces. The claim requires a U-shaped channel for a rod to pass through, with "the inner sidewall surfaces configured to receive the elongated rod therebetween." (*Id.*). The claim language requires the shoulder to be located on the discontinuous sidewall portion of the receiver, not within the continuous cavity.

Dr. Jackson does not dispute that the "shoulder" in this theory is located in the cavity portion of the receiver. Taking the evidence in the light most favorable to Dr. Jackson as the non-

moving party, a “shoulder” located in the cavity cannot be in the upper portion or on a sidewall. Thus, summary judgment of non-infringement based on the “continuous shoulder theory” is granted.

9. Non-Infringement and Invalidity of the '292 Patent

Dr. Jackson asserts claim 25 of the '292 patent against the accused products.

SeaSpine moves for summary judgment of either invalidity or of non-infringement. (D.I. 221 at 1; *see* D.I. 222 at 20, 22). Claim 25 of the '292 patent states:

25. A cannulated polyaxial bone anchor assembly implantable in a bone and for mechanically coupling a stabilization member to the bone, the cannulated polyaxial bone anchor assembly comprising:

- a bone screw comprising:

- a first proximal end, a first distal end, and *a central opening* extending along a first central longitudinal axis of the bone screw between the first proximal end and the first distal end, *the central opening* extending to a top and a bottom of the bone screw and being closed laterally by *parallel internal surfaces* along at least a distal length of the bone screw and as exiting the first distal end at the bottom of the bone screw and the first proximal end at the top of the bone screw, the first proximal end comprising a radiused upper surface; and

- an implant portion extending from the first proximal end towards the first distal end, the implant portion comprising an external helically wound thread for implantation into the bone;

- a head member comprising:

- a second proximal end and a second distal end, the head member defining a second central longitudinal axis from the second proximal end to the second distal end; and

- a channel extending through the head portion perpendicularly to, and intersecting, the second central longitudinal axis and configured to receive the stabilization member to be mechanically coupled to the bone;

- a distal opening at the second distal end centered about the second central longitudinal axis; and

- a chamber in communication with the channel and the distal opening, the chamber pivotally receiving the first proximal end therein as the implant portion extends from the distal opening so that the first central longitudinal axis is orientable coaxially with the second central longitudinal axis and at any of a plurality of angles relative to the second central longitudinal axis; and

- a closure component to cooperate with the channel to retain the stabilization

member within the channel, and to maintain a current angle of the second central longitudinal axis relative to the first central longitudinal axis when urging the stabilization member toward the radiused proximal surface, wherein when the bone screw and head member are coupled together, the bone screw and head member are insertable together over a guide wire and implantable into the bone with only the stabilization member and the closure component remaining to be inserted into the head member channel.

(’292 patent, col. 14, lines 7–58) (emphasis added).

a. Written Description

SeaSpine argues that claim 25 of the ’292 patent is invalid for lack of written description related to the limitation requiring “a central opening” that is “closed laterally by parallel internal surfaces.” (D.I. 222 at 22). According to SeaSpine, no reasonable juror could find the claim to be sufficiently supported by the written description of the patent because “central opening” and “parallel internal surfaces” only appear in claim 25 and the general “cannulated bone screw” discussed in the specification does not provide any additional description. (*Id.* at 23–24). Dr. Jackson responds by arguing that Figure 20 provides sufficient description for a person of ordinary skill to understand claim 25’s requirements and to believe that Dr. Jackson had possession of the screw at the time of filing the patent application. (D.I. 246 at 19–22). Dr. Jackson further argues that the ’292 patent fully incorporated nine priority patents that each included a cylindrical opening with parallel internal surfaces. (*Id.* at 23–24). The incorporation of the priority patents, Dr. Jackson argues, further supports that he had possession of the screw when the patent application was filed. (*Id.* at 24).

Viewing the evidence in the light most favorable to Dr. Jackson as the non-moving party, I believe a person of ordinary skill in the art may rely on Figure 20 and/or the priority patents incorporated by reference to determine that Dr. Jackson had possession of the screw at the time of filing the patent application. Thus, there is a genuine dispute of material fact whether claim 25 of

the '292 patent has sufficient written description. SeaSpine's motion for summary judgment on is denied.

b. Non-Infringement

SeaSpine argues that none of the accused products—the Mariner, Malibu, and Newport screws—infringe the “parallel internal surfaces” element of claim 25 of the '292 patent. (D.I. 222 at 20–21 (quoting '292 patent, col. 14, line 17)). SeaSpine argues that the accused products all have circular cross-sections which cannot have parallel surfaces. (*Id.* at 21).

This issue may rest on the meaning of “parallel internal surfaces.” I have not construed the term. Since I think that it is possible that the internal surfaces of a cylinder could be described as “parallel” when considered from a lengthwise perspective, I believe there is a genuine dispute of material fact regarding whether the accused products infringe the '292 patent. Thus, I deny SeaSpine's motion for summary judgment of non-infringement.

10. Prosecution Laches

SeaSpine asserts a defense of prosecution laches. The factual basis for the defense is that in 2014 the USPTO mailed a Notice of Abandonment in regard to the '797 application; that application was revived in 2018 and is part of the priority chain for the '667 patent, which issued in 2020.²⁷ Similarly, in 2014, the USPTO mailed a Notice of Abandonment in regard to the '623 application; that application was revived in 2019 and later issued as the '777 patent in 2021. (D.I. 248 at 23–24). SeaSpine points out that the petitions for revival did not include any explanation for the delay and that the revival occurred after Dr. Jackson had initiated talks with SeaSpine regarding licensing other patents. (*Id.*).

²⁷ The '667 patent issued March 17, 2020. It expired May 19, 2024. (D.I. 226-1 Ex. 13 at 1).

Dr. Jackson argues that he should be granted summary judgment on SeaSpine’s affirmative defense of prosecution laches for the ’667 and ’777 patents. (D.I. 220 at 30). First, Dr. Jackson argues that two Supreme Court cases, *Petrella v. Metro-Goldwyn-Mayer*, 572 U.S. 663 (2014), and *SCA Hygiene Prods. Aktiebolag v. First Quality Baby Prods., LLC*, 580 U.S. 328 (2017), “undercut the doctrinal basis for an equitable defense within a statutory scheme, leaving it untenable for SeaSpine.” (*Id.* at 30–31). Second, Dr. Jackson argues that there is no dispute of material fact related to SeaSpine’s laches defense because SeaSpine has not identified any evidence to support its arguments. (*Id.* at 31). Dr. Jackson argues that the evidence shows that the delay in reviving the applications was unintentional. (*Id.* at 25–28, 30).

SeaSpine responds by arguing that the Federal Circuit has recently confirmed that prosecution laches remains a viable defense. (D.I. 248 at 22). SeaSpine argues that the timeline of events related to filing the patents creates a genuine dispute of material fact regarding its laches defense for the two patents. (*Id.* at 23–25).

SeaSpine cites *Google LLC v. Sonos, Inc.*, 2025 WL 2473258, at *6 (Fed. Cir. Aug. 28, 2025), to argue that the Federal Circuit has confirmed prosecution laches remains a viable defense. (D.I. 248 at 22). Although the Federal Circuit’s opinion in the recent *Google* case did treat prosecution laches as a valid defense, *see id.* at *6–7, the case is not precedential, it did not address the Supreme Court’s holding in either *Petrella* or *SCA Hygiene*, and, in any event, it reversed the district court’s determination that prosecution laches applied in that case. The Federal Circuit has, however, analyzed and upheld the validity of prosecution laches in the time since the Supreme Court cases. *See Hyatt v. Hirshfeld*, 998 F.3d 1347, 1359–67 (Fed. Cir. 2021); *see also Hyatt v. Stewart*, 148 F.4th 1376, 1382 (Fed. Cir. 2025); *Personalized Media Comms., LLC v. Apple, Inc.*, 57 F.4th 1346, 1354–57 (Fed. Cir. 2023). Thus, prosecution laches remains a viable defense.

“Prosecution laches requires proving two elements: (1) the patentee’s delay in prosecution must be unreasonable and inexcusable under the totality of circumstances and (2) the accused infringer must have suffered prejudice attributable to the delay.” *Personalized Media Commc'ns, LLC v. Apple Inc.*, 57 F.4th 1346, 1354 (Fed. Cir. 2023).

SeaSpine has identified evidence questioning the explanation for delay in filing the patents, the motives of the delayed filing, and the impact the delay had on SeaSpine. (D.I. 248 at 23–25). This is more than enough evidence to create a genuine dispute of material fact regarding the unreasonable and unexplained delay element and the prejudice element. As such, Dr. Jackson’s motion for summary judgment on SeaSpine’s prosecution laches defense is denied.

11. Marking Defense

Dr. Jackson argues that summary judgment is appropriate on SeaSpine’s marking defense because the statute does not apply to him directly and his license agreements require licensees to properly mark products using the patented technology. (D.I. 220 at 32). Dr. Jackson argues that SeaSpine cannot assert this defense based on products made by Dr. Jackson’s licensees because SeaSpine’s experts have not analyzed the third-party licensee’s products to determine if they were sold or practiced any asserted patent claim. (*Id.* at 32–33). SeaSpine responds that Dr. Jackson’s arguments improperly shift the burden and misstate the law. (D.I. 248 at 17–18).

“Pursuant to 35 U.S.C. § 287(a), a patentee who makes or sells a patented article must mark his articles or notify infringers of his patent in order to recover damages.” *Arctic Cat*, 876 F.3d at 1365. The marking requirement applies to “Patentees, and persons making, offering for sale, or selling.” 35 U.S.C. § 287(a). “Thus, licensees . . . and other authorized parties . . . must also comply.” *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1111 (Fed. Cir. 1996). “However, with third parties unrelated to the patentee, it is often more difficult for a patentee to ensure compliance with

the marking provisions.” *Id.* As such, “When the failure to mark is caused by someone other than the patentee, the court may consider whether the patentee made reasonable efforts to ensure compliance with the marking requirements.” *Id.* at 1111–12. Thus, Dr. Jackson, as the patentee, has an obligation to make reasonable efforts to ensure licensees are complying with the marking requirements.

“In the event of failure so to mark,” Section 287(a) states that “no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice.” 35 U.S.C. § 287(a). “For purposes of section 287(a), notice must be of ‘the infringement,’ not merely notice of the patent’s existence or ownership. Actual notice requires the affirmative communication of a specific charge of infringement by a specific accused product or device. *Amsted Indus. Inc. v. Buckeye Steel Castings Co.*, 24 F.3d 178, 187 (Fed. Cir. 1994). “As [the Federal Circuit has] long explained, the actual notice requirement of § 287(a) is satisfied when the recipient is informed of the identity of the patent and the activity that is believed to be an infringement, accompanied by a proposal to abate the infringement, whether by license or otherwise.” *Lubby Holdings LLC v. Chung*, 11 F.4th 1355, 1360 (Fed. Cir. 2021) (internal quotation omitted); *see also Lans v. Digital Equipment Corp.*, 252 F.3d 1320, 1227–28 (Fed. Cir. 2001) (requiring notice come from the patentee).

SeaSpine’s initial burden in its marking defense “is a low bar”; it “need only put the patentee on notice that he or his authorized licensees sold specific unmarked products which the alleged infringer believes practice the patent.” *Arctic Cat*, 876 F.3d at 1368. SeaSpine has met this burden by identifying Dr. Jackson’s licensee Alphatec Spine’s Arsenal, Invictus, Invictus MIS,

and Invictus OCT products as unmarked and practicing several of the asserted patents.²⁸ (*See* D.I. 248 at 17). “Once the alleged infringer meets its burden of production, however, the patentee bears the burden to prove the products identified do not practice the patented invention.” *Artic Cat*, 876 F.3d at 1368. Thus, it is Dr. Jackson’s burden to show compliance with the marking requirements.

Dr. Jackson argues that he “made reasonable efforts to ensure compliance with the marking requirements,” *Maxwell*, 86 F.3d at 1112, by including a provision in the licensing agreements requiring products to be marked. (D.I. 220 at 32–32). Dr. Jackson points to two licensing agreements, one with Alphatec Spine and another with Innovative Spine Technologies, to demonstrate that the agreements contained the provision. (*Id.* at 33).

“[C]ompliance with the marking statute . . . is a question of fact.” *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1339 (Fed. Cir. 2001). The Federal Circuit noted in a non-precedential opinion that it “do[es] not hold that bare evidence of a contractual provision requiring marking can never constitute reasonable efforts by the patentee to ensure that a licensee is marking the products properly.” *K&K Jump Start/Chargers, Inc. v. Schumacher Elec. Corp.*, 52 F. App’x 135, 141 (Fed. Cir. 2002). However, considering Dr. Jackson’s deposition testimony indicating a lack of enforcing the marking requirement (*see* D.I. 248 at 18 (citing D.I. 250-1, Ex. 5 at 119–25)), the circumstances do not foreclose all genuine disputes on whether a provision in a license agreement was a “reasonable effort[] to ensure compliance with the marking requirements.” *Maxwell*, 86 F.3d at 1112.

In his reply brief, Dr. Jackson offers three reasons why the Alphatec agreement does not create a marking requirement. (D.I. 262 at 16). First, Dr. Jackson argues that Alphatec did not sell any product practicing the ’753, ’740, ’273, or ’777 patents; therefore, Dr. Jackson argues,

²⁸ Dr. Jackson does not contest the sufficiency of SeaSpine’s identification of products and patents.

there was no requirement to mark any product. (*Id.*). This argument fails because “the patentee [Dr. Jackson] bears the burden to prove the products identified do not practice the patented invention.” *Arctic Cat*, 876 F.3d at 1368. Dr. Jackson bears the burden; he must present more than mere conclusory statements to be entitled to summary judgment. Second, Dr. Jackson argues that SeaSpine had actual notice of the ’923, ’667, and ’292 patents before he licensed them to Alphatec. (D.I. 262 at 16). Whether Dr. Jackson provided SeaSpine with actual notice under Section 287 is a different issue than whether products were properly marked; neither Dr. Jackson nor SeaSpine addressed actual notice in their prior arguments. “Arguments raised for the first time before a district court in a reply brief are deemed forfeited.” *In re Niaspan Antitrust Litig.*, 67 F.4th 118, 135 (3d Cir. 2023). Third, Dr. Jackson argues that SeaSpine has not shown the pre-2023 Alphatec products should have been marked with the ’923 or ’667 patents. (D.I. 262 at 16–17). This argument fails for the same reasons as the first; it is Dr. Jackson’s burden to show that the identified products do not practice the patents. *Arctic Cat*, 876 F.3d at 1368.

Dr. Jackson’s motion for summary judgment on SeaSpine’s marking defense is denied.

12. Inequitable Conduct Counterclaim and Defense, Prosecution Laches with respect to the ’740, ’273, and ’292 Patents, and Equitable Defenses of Unclean Hands, Waiver, Equitable Estoppel, and Acquiescence

SeaSpine has agreed not to pursue its inequitable conduct defense and counterclaim, its defense of prosecution laches with respect to the ’740, ’273, and ’292 patents, and its equitable defenses of unclean hand, waiver, equitable estoppel, and acquiescence. (D.I. 248 at 1–2). Thus, SeaSpine’s third affirmative defense of equitable defenses, eighth affirmative defense of inequitable conduct, and twenty-fifth counterclaim for inequitable conduct are dismissed with prejudice. SeaSpine’s tenth affirmative defense of prosecution laches is dismissed with prejudice

in part with respect to the '740, '273, and '292 patents. Dr. Jackson's motion for summary judgment related to these issues (D.I. 220 at 25–32) is dismissed as moot.

B. Motions to Exclude

1. Dr. Jackson's Motion to Exclude Dr. Gall's Testimony

Dr. Jackson moves to exclude Dr. Gall's testimony analyzing claim construction and any infringement opinions that use inadmissible claim construction. (D.I. 220 at 33). Dr. Jackson identifies three of Dr. Gall's claim construction arguments.

a. "Variable Angular Movement"

I previously construed the term "variable angular movement" to have its plain and ordinary meaning. (D.I. 131 at 8–10). Dr. Gall opines,

In my opinion, the plain and ordinary meaning of "variable angle" to a POSITA refers to a multi-axial pedicle screw relationship in which the range of motion and possible angulations of the screw with respect to the receiver is not uniform, but "varies" depending on the angulation of the screw in a different axis. This can include limiting movement in at least one direction, and/or increasing the range of possible angles in at least one direction.

(D.I. 220-10 at ¶ 196). Dr. Jackson argues that Dr. Gall's opinion regarding infringement of claim 1 of the '923 patent uses SeaSpine's rejected claim construction proposal for the term.²⁹ (*Id.* at 33–34, citing D.I. 220-10 at ¶¶ 195–205). SeaSpine responds by arguing that Dr. Gall's explanation of the plain and ordinary meaning of the term does not contradict the Court's construction because his explanation does not "require" an extended movement. (*Id.* at 27–28).

In my *Markman* opinion, I explained, "I see no other basis for importing a limitation that Defendant acknowledges comes from the embodiments in the specification." (D.I. 131 at 9). This ruling simply rejected SeaSpine's attempt to use the specification to create a narrowing claim

²⁹ The rejected construction is "an extended range of motion in a lateral direction in addition to the pivotal range of motion available in all directions." (D.I. 131 at 8).

limitation. Although Dr. Jackson argues that Dr. Gall’s “not uniform” means “extended” (D.I. 262 at 14), they literally do not mean the same thing. Dr. Gall does not attempt to import limitations from the specification into his understanding of the plain and ordinary meaning. Dr. Gall does not offer an understanding that is different than the plain and ordinary meaning.³⁰ Dr. Gall’s opinion that the Mariner System does not infringe because it does not permit “variable angular movement” is not based on an impermissible claim construction. Therefore, Dr. Jackson’s motion to exclude Dr. Gall’s testimony related to the “variable angular movement” term is denied.

b. “Discontinuous Downward-Facing Shoulder”

Dr. Jackson seeks to preclude Dr. Gall’s testimony on the plain and ordinary meaning of the term “discontinuous downward-facing shoulder.” (D.I. 220 at 34–35). This term is part of the larger term “a discontinuous downward-facing shoulder pre-formed therein” that I construed as “a formation on the inner sidewall having a downward facing contact surface” during the *Markman* proceedings. (D.I. 131 at 10). Dr. Jackson argues that Dr. Gall’s opinion that the discontinuous downward-facing shoulder must have “a gap or space extending through the shoulder” is contrary to my construction of the broader term. (D.I. 220 at 35). SeaSpine responds by arguing that the parties raised two issues during claim construction—whether the shoulder must be recessed and whether the shoulder must be distinct from the guide-and-advancement structure—neither of which involved the meaning of “discontinuous.” (D.I. 248 at 28–29). SeaSpine argues that the meaning of “discontinuous” only became relevant after the initial *Markman* proceedings. (*Id.* at 29).

³⁰ Paragraph 197 of Dr. Gall’s report might be claim construction, but it is unnecessary to his understanding of “variable angular movement” and to his infringement opinion.

I agree with SeaSpine that my prior construction of the broader term did not address the meaning of the word “discontinuous.” (*See* D.I. 131 at 10–11). As I noted in my *Markman* opinion, “the parties identified two central issues [related to this term]: whether the shoulder must be ‘recessed’ relative to the inner sidewall and whether the shoulder must be ‘distinct from the guide and advancement structure.’” (*Id.* at 10). The meaning of “discontinuous” was not addressed in my construction. Dr. Gall may have a point that the construction I adopted no longer contains the word “discontinuous.” (D.I. 248 at 28). It is not Dr. Gall’s job, though, to revise my claim constructions in light of subsequent events or because of omissions in the construction.

I believe the best course in relation to this dispute is to conduct further claim construction proceedings. The current briefing is too cursory to be sufficient for that purpose. Thus, while I will exclude the opinion based on Dr. Gall’s claim construction, I do so without prejudice should I eventually decide that Dr. Gall’s construction is right.

c. Plain and Ordinary Meaning

Dr. Jackson argues that Dr. Gall impermissibly performs his own *Markman* analysis by relying on the specifications, preferred embodiments, prosecution history, and extrinsic evidence to understand various terms. (D.I. 220 at 35–36). Dr. Jackson identified six instances in which he argues Dr. Gall improperly performs a claim construction analysis: terms Dr. Jackson has labeled 923:1[A], 923:4, 753:1[F], 740:1[E], 292:1[A], and 292:25[B]. (*Id.*). SeaSpine responds by arguing that experts are permitted to review the intrinsic record to determine what a person of ordinary skill in the art would determine that a term means in the specific patent. (D.I. 248 at 32).

The construction of claims in light of the specification and prosecution history is a question for the court, not for the jury.³¹ *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 387 (1996). The Federal Circuit has “held that it is improper to argue claim construction to the jury because the risk of confusing the jury is high when experts opine on claim construction.” *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1337–38 (Fed. Cir. 2009) (internal quotation omitted). As such, “[e]xpert testimony based on an impermissible claim construction is properly excluded as irrelevant and on the basis that the evidence could confuse the jury.” *Liquid Dynamics Corp. v. Vaughan Co.*, 449 F.3d 1209, 1224 n.2 (Fed. Cir. 2006). These rules prohibiting parties from arguing claim construction in front of the jury apply to cases in which a court adopts the plain and ordinary meaning for a term. *See ATEN Int’l Co. v. Uniclass Tech. Co.*, 932 F.3d 1364, 1369–70 (Fed. Cir. 2019).

Dr. Jackson identifies six different instances³² of supposed claim construction in Dr. Gall’s report,³³ but Dr. Jackson only provides an argument in his brief for excluding three of the constructions. (D.I. 220 at 35–37). I only address the arguments made in the body of Dr. Jackson’s briefing because “arguments raised in passing (such as, in a footnote), but not squarely argued, are

³¹ “An expert’s testimony that a patent’s prosecution history supports his or her understanding of the plain and ordinary meaning of a claim term would likewise amount to arguing claim construction to the jury.” *See EMC Corp. v. Pure Storage, Inc.*, 2016 WL 775742, at *4 n.5 (D. Del. Feb. 25, 2026) (citing *Apple, Inc. v. Samsung Elecs. Co.*, 2014 WL 660857, at *5 n.3 (N.D. Cal. Feb. 20, 2014)).

³² These instances are labeled as terms 923:1[A], 923:4, 753:1[F], 740:1[E], 292:1[A], and 292:25[B]. (D.I. 220 at 35).

³³ In a footnote, Dr. Jackson also cites to D.I. 227-10, Ex. 52, which “identifies the claim elements and show[s] Dr. Gall’s additions and deletions to the plain claim language in bracketed red italics/strikethrough text” for each of the six terms. (D.I. 220 at 36 n.13). The cited exhibit contains a chart made by Dr. Jackson, with citations to Dr. Gall’s report and deposition, and Dr. Errico’s declaration. I ignore the chart for two reasons. One, there is no analysis that relates the information in the chart to Dr. Jackson’s argument made in his briefing to exclude Dr. Gall’s testimony. Two, the chart is essentially a page of argument that should be in the brief but cannot be there because it would then cause the brief to exceed the page limits. *See* DEL. L.R. 7.1.3(a)(4).

considered waived.”³⁴ *John Wyeth & Bro. Ltd. v. CIGNA Intern. Corp.*, 119 F.3d 1070, 1076 n.6 (3d Cir. 1997).

First, Dr. Jackson addresses Dr. Gall’s analysis of claim 1 of the ’753 patent. (D.I. 220 at 36). Dr. Gall has a non-infringement opinion for “claim element 1[F]” of that patent. The claim element is “the capture structure having . . . a second orientation, wherein the capture structure is in a non-threadedly mated frictional engagement with the second guide and advancement structure so that the shank cannot swivel relative to the head.” (D.I. 225-10, Ex. 10 at 123). Dr. Gall states that limitation 1[F] requires “that the ‘orientation[s]’ (first or second) of the capture structure cause or result in the ‘swivelable’ and ‘cannot swivel’ relationships with the head. (*Id.* at ¶ 241.). That is his understanding of the plain and ordinary meaning of the limitation. Dr. Jackson identifies multiple portions of Dr. Gall’s report, immediately following paragraph 241, that discuss patent history, prior art, and particular embodiments. (*Id.* (citing D.I. 225-10, Ex. 10 at ¶¶ 243–53)). SeaSpine responds by arguing that Dr. Gall’s report uses the intrinsic record to support his opinion on the plain and ordinary meaning of the claim term. (D.I. 248 at 34). I agree that the cited paragraphs (D.I. 225-10, Ex. 10 at ¶¶ 243–53) are simply claim construction (incorrect claim construction at that, *see supra* Section III.A.5.a), and not something about which I would permit him to testify. Thus, I will exclude Dr. Gall’s non-infringement opinion relating to claim element 1[F] of the ’753 patent.³⁵ I note that this is the only non-infringement opinion Dr. Gall has in relation to the ’753 patent.

³⁴ Thus, Dr. Jackson has waived his arguments related to terms 923:1[A], 923:4, and 740:1[E].

³⁵ The specific opinions that Dr. Jackson seeks to exclude are those set forth in ¶¶ 241–54 of Dr. Gall’s Rebuttal Report (D.I. 225-10 at 123–30). (*See* D.I. 219-1 at 1).

Second, Dr. Jackson argues that Dr. Gall's opinions on claim 1 of the '292 patent impermissibly read a claim limitation from the embodiment. (D.I. 220 at 36). Dr. Gall has a non-infringement opinion for "claim element 1[A]" of that patent.³⁶ The claim element is:

an anchor member comprising a first proximal end portion, a first distal end portion, and a central opening extending entirely through the anchor member along a first central longitudinal axis of the anchor member and opening onto a top end of the first proximal end portion and a bottom end of the first distal end portion[.]

(D.I. 225-10, Ex. 10 at 356). Dr. Gall states that "central opening . . . through the device" "requires that the cannulated channel terminate at the extreme proximal end of the anchor member and not at some point part way through the device." (*Id.* at ¶ 610). Dr. Jackson argues that this limitation is improper because it is only present in the specification and preferred embodiments. (D.I. 220 at 36). I agree that much of the cited portions of Dr. Gall's report is inadmissible claim construction. (*See* D.I. 225-10, Ex. 10 at ¶¶ 610–14). However, Dr. Gall's opinion on this claim element revolves largely around his understanding of whether the "tool socket" of the accused products meets the claim limitations of the patent. (*See id.* at ¶¶ 614–21). It is permissible for Dr. Gall to testify that he believes the tool socket feature does not meet the claim element because his opinion relies on his own analysis of the accused products' features. (*See id.* at ¶¶ 623–38). Thus, while I will exclude Dr. Gall's claim construction testimony (most of ¶¶ 610–14), I will not exclude his non-infringement opinion relating to 292:1[A].

Third, Dr. Jackson argues that Dr. Gall's opinions on "claim element 25[B]" of the '292 patent should be excluded. (D.I. 220 at 36). This claim element is "central opening . . . being

³⁶ Dr. Jackson's proposed order excluding testimony does not refer to 292:1[A] or to claim 1 of the '292 patent at all. (*See* D.I. 219-1 at 1–2). Nor does it refer to 292:25[B]. It does refer to 292:25[C] and it seeks to exclude ¶¶ 659–67 of Dr. Gall's Rebuttal Report. The briefing seeks to exclude ¶¶ 610–14 & 644–51 of the report. (D.I. 220 at 36).

closed laterally by parallel internal surfaces along at least a distal length of the bone screw.” (D.I. 225-10, Ex. 10 at 298). Dr. Gall states:

In my opinion, a POSITA would understand that the recitation of plural “surfaces” in the claim means that there must be two separate surface[s] that are oriented parallel to one another. Further, a POSITA would understand based on the plain reading of the claim language that “parallel internal surfaces” necessarily excludes a cylindrical surface.[] It is a basic fact of geometry, readily understood by a POSITA, that the surface of a cylinder is a single continuous surface having a single diameter. Further, a POSITA would not consider one part of a cylinder’s curved surface to be parallel with any other part of the surface as any such surfaces would intersect with all other surfaces since they are on the same circle of the diameter forming one continuous surface.

(*Id.* at ¶ 653). Dr. Jackson argues that Dr. Gall’s opinions should be excluded for claim element 25[B] for the same reasons as addressed for claim element 1[A]. (D.I. 220 at 36).

Like his opinion for claim 1 of the ’292 patent, Dr. Gall’s opinion on claim 25 begins with inadmissible testimony amounting to claim construction. (See D.I. 225-10, Ex. 10 at ¶¶639–43). Dr. Gall then provides a similar analysis as for claim 1 of the ’292 patent for why he believes the accused products’ tool socket prohibits the products from meeting claim element 25[B]. (See *id.* at ¶¶ 644–51). The opinion quoted above essentially recites the language of the claim and gives a reason, based on geometry, why the accused product does not meet the literal language of the claim. While Dr. Gall cannot testify to much of what is written in the report, his opinion relating to the failure to meet claim 25[B]’s requirement is permissible, and I will not exclude it.

2. Dr. Jackson’s Motion to Exclude Opinions of Dr. Woods

Dr. Jackson moves to exclude Dr. Woods’s opinions related to (1) the corrections to Dr. Becker’s damages calculations, and (2) the existence of non-infringing alternatives. (D.I. 220 at 37).

a. Corrections to Damages Calculations

During his deposition, Dr. Woods was asked to assess the opinions of Dr. Jackson's damages expert Brian Becker. (*Id.*). In response, Dr. Woods presented six "cases" for reducing Dr. Becker's damages. (*Id.*; D.I. 248 at 35). Dr. Jackson focuses on cases 1, 5, and 6, but argues that the cases are not separable from each other. (D.I. 220 at 37). Thus, Dr. Jackson argues, an issue in one case impacts all the cases. (*Id.*).

Case 1 relates to SeaSpine's marking defense. Dr. Jackson argues that this opinion does not reliably use the facts of the case because (1) Dr. Woods does not know where the dates used in case 1 came from and (2) SeaSpine has not presented any evidence to support its marking defense. (D.I. 220 at 38). SeaSpine responds by arguing that it has produced a declaration from Alphatec stating that, until August 30, 2023, Alphatec did not mark the products it produced under a license for the asserted patents. (D.I. 248 at 35; *see* D.I. 249-1, Ex. 4 at A0688–A0689). SeaSpine argues these details will be supported by evidence presented at trial. (*Id.*).

This lawsuit was filed December 30, 2020. The initial Complaint gave SeaSpine actual notice of the infringement allegations related to the '273, '753, '740, '923, '667, and '292 patents. (D.I. 1 at 15–21, 23–27; D.I. 1-1, Exs. 11–12, 14, 16–18). Dr. Jackson's First Amended Complaint, filed April 5, 2021, provided SeaSpine actual notice for the '777 patent. (D.I. 9 at 27–30; D.I. 9-1 at Exs. 21–22). Failure to mark is a disputed issue. If there was a failure to mark, it would appear that it would have a minimal impact on damages. (D.I. 226-1, Ex. 13 at ¶ 203). Whether Dr. Woods can make his damages point likely depends on other evidence that is not before me.³⁷

³⁷ The briefing and the cited portions of Dr. Woods's report are less than fulsome in explaining the assumptions that underlie case 1.

Dr. Jackson argues that Dr. Woods's answers during his deposition indicated that he wasn't sure where the actual notice dates came from. (D.I. 220 at 38; D.I. 262 at 18). However, Dr. Woods is a damages expert; his expertise is in calculating damages, not in determining the applicability of legal doctrines concerning marking. Simply being unsure of how the dates were determined does not serve as grounds to exclude an expert from testifying to the damages calculated for a certain range of dates. I would expect that before Dr. Woods testifies there will either be a factual basis for his testimony, or there will not be. If the latter, I will exclude the testimony. But that is not a decision I can make now.

Dr. Jackson argues that case 5, which provides damages calculations in the event that SeaSpine infringes only one of the patent families, and case 6, which finds a 2% royalty rate on SeaSpine's sales, are not based on any reliable methodology. (D.I. 220 at 38). SeaSpine responds by explaining that Dr. Woods's case 5 is a response to Dr. Jackson's expert's failure to provide damages opinions in the event that less than all five asserted patent families are infringed. (D.I. 248 at 35). As such, SeaSpine argues that Dr. Woods's case 5 calculations use the same model that Dr. Jackson's expert uses to calculate damages for infringement of all five patent families.³⁸ (*Id.*). In response to Dr. Jackson's argument against case 6, SeaSpine explains that Dr. Woods's report and deposition outlines that he uses a 2% royalty rate based on his analysis of "at least 59

³⁸ Since the briefs were written, the "five patent families" have become four patent families. In December 2024, Dr. Errico described the five families as four families of one patent each and a fifth family of six patents. (D.I. 224-13, Ex. A-12 at ¶ 31). Seaspine's expert Dr. Woods summarized them similarly. (D.I. 226-1, Ex. 13 at ¶ 20). Seaspine's opening brief described the five patent families as three families of one patent each, one patent family of two patents, and one family of four patents. (D.I. 222 at 35-36). Plaintiff now asserts only eight patents. My best guess is that there are now four "patent families," and that they are two families of one patent each, one family of one or two patents, and one family of four or five patents. The usage of "patent families" here is different than in ordinary patent lingo. The four/five patent family includes patents that are unrelated to each other in that they do not have a common ancestor.

agreements” that SeaSpine entered with other surgeons. (*Id.* at 35–36). I find that SeaSpine’s explanations for cases 5 and 6 satisfy the requirements for Dr. Woods’s expert testimony.

Although Dr. Jackson argues that all six cases depend on each other (D.I. 220 at 37), he has not attempted to explain how. As such, Dr. Jackson has waived this argument.

The motion to exclude the testimony of Dr. Woods is denied.

b. Non-Infringing Alternatives

Dr. Woods offers, as part of his *Georgia-Pacific* analysis, opinions about the “utility and advantages” of the patents over the prior art. (D.I. 226-1, Ex. 13 at ¶¶ 152–61). The opinions are offered in response to Dr. Jackson’s expert’s opinion that consideration of this issue would “have an upward impact on the royalty rate . . . relative to Dr. Jackson’s other agreements.” (*Id.* at ¶ 152). Dr. Woods refers to the prior art and prior art products as “commercially acceptable non-infringing alternatives.”

Dr. Jackson argues that Dr. Woods’s analysis relies on evidence that does not support the existence of non-infringing alternatives. (D.I. 220 at 39). Dr. Woods’s cited evidence includes SeaSpine’s expert Mr. Drewry’s invalidity report and the deposition of SeaSpine’s technical witness Corey Gladieux. (*Id.* at 39–40). Dr. Jackson argues that Dr. Woods’s report shows that he is actually relying on undocumented conversations with Mr. Drewry. (*Id.* at 40). If Mr. Drewry has any opinions that there are commercially acceptable non-infringing alternatives, they are not disclosed as such in his report. Dr. Jackson argues that the portions of Dr. Woods’s opinion relying on Mr. Drewry’s undisclosed opinions should be excluded. (*Id.*). Further, if any portion of Mr. Woods’s non-infringing alternatives opinion is excluded, Dr. Woods’s entire *Georgia-Pacific* analysis should be excluded. (*Id.*).

SeaSpine responds by arguing that Dr. Woods's report contains his explanation of how the asserted patents are improvements over non-infringing alternative products that are available in the market and offer substantially the same benefits. (D.I. 248 at 36). SeaSpine argues that Dr. Woods's report is supported by references to Mr. Drewry's report that provides additional detail on prior art, including prior art that accomplished the same goals as the claimed devices. (*Id.*). SeaSpine argues that Dr. Woods should be permitted to testify to the rest of his *Georgia-Pacific* analysis even if the non-infringing alternatives portion is excluded. (*Id.* at 36).

Dr. Woods's report does not assert there were commercially available, non-infringing alternatives that accomplished every advantage of the asserted patents. (See D.I. 226-1, Ex. 13 at ¶¶ 156–60). Instead, his report simply states that there were “alternatives to the technology embodied in the Patents-in-Suit.” (*Id.* at ¶ 156). As the asserted patents covered improvements to well-known bone screws, the prior art includes devices that achieve some of the benefits of the asserted patents. It is proper for Dr. Woods to use Mr. Drewry's analysis as evidence to support his conclusion that non-infringing prior art, although lacking some advantages, existed as an alternative. The analysis is relevant to the *Georgia-Pacific* factor at issue. However, Dr. Woods will be limited to the opinions that he discloses in his report.

Dr. Woods's report clearly identifies when his opinion is based on conversations with Mr. Drewry or based on Mr. Drewry's report. The only citation to a conversation with Mr. Drewry, as opposed to citations to Mr. Drewry's report, is in support of one sentence that appears to be a summary of the more specific opinions disclosed in the other paragraphs of the report. Thus, since Dr. Woods's opinions rely on Mr. Drewry's report, Dr. Woods's testimony will be permitted.

Neither party cites any authority to support their positions on whether Dr. Woods may testify on his *Georgia-Pacific* analysis if a portion of it is excluded. I find no reason to exclude

the entirety of Dr. Woods's *Georgia-Pacific* analysis. As Dr. Jackson states in his briefing, "Dr. Woods provides no affirmative opinions on either the appropriate amount of damages or reasonably royalty rate." (D.I. 220 at 37). It appears that SeaSpine intends to present Dr. Woods's testimony to argue that damages should be lower than the amount to which Dr. Becker testifies. There is no need for Dr. Woods to have an admissible analysis on each of the *Georgia-Pacific* factors in order to counter specific aspects of Dr. Becker's analysis. Thus, Dr. Wood's testimony on the remaining *Georgia-Pacific* factors would be permitted even if he had no opinions at all on the disputed factor.

3. SeaSpine's Motion to Exclude Dr. Becker

SeaSpine seeks to exclude Dr. Jackson's damages expert Dr. Becker from testifying because Dr. Becker did not properly apportion damages. (D.I. 222 at 35). SeaSpine argues that Dr. Becker calculated damages based on royalty rates for patent families instead of the individual patents in dispute. (*Id.* at 37–38). SeaSpine argues that, if Dr. Becker is permitted to testify, his opinion on collateral sales should be excluded because Dr. Becker has not provided any basis for including collateral sales and thus has improperly combined those sales into the royalty base. (*Id.* at 39–40).

Dr. Jackson argues that Dr. Becker's calculations used comparable licensing agreements that provided a royalty rate based on the type of technology rather than on individual patents. (D.I. 246 at 36–38). As the licensing agreements for comparable technology established rates based on patent families, damages may properly be calculated according to patent families without a need to establish separate values for each patent licensed in an agreement. Dr. Jackson argues that a damages expert "may look to the combination of royalty base and royalty rate to reflect the value added by the patented feature and non-patented features." (*Id.* at 39). The inclusion of collateral

sales in the royalty base, Dr. Jackson argues, will be supported by testimony and documentary evidence. (*Id.*).

a. Patent-Family Analysis

In cases where an accused product contains both patented and unpatented components, damages must be apportioned to account only for the infringing features. *Omega Patents, LLC v. CalAmp Corp.*, 13 F.4th 1361, 1376 (Fed. Cir. 2021). However, “when a sufficiently comparable license is used as the basis for determining the appropriate royalty, further apportionment may not necessarily be required.” *Vectura Ltd. v. Glaxosmithkline LLC*, 981 F.3d 1030, 1040 (Fed. Cir. 2020). Dr. Becker relies on Dr. Jackson’s prior licensing agreements as the basis for a hypothetical negotiation; the prior licensing agreements license the rights to patent families, i.e., groups of patents covering the same specific technology. (D.I. 246 at 32). SeaSpine correctly notes that Dr. Jackson alleges infringement of specific claims of specific patents, not infringement of generic patent families. “For built-in apportionment to apply the license must be ‘sufficiently comparable’ in that ‘principles of apportionment were effectively baked into’ the purportedly comparable license.” *Omega Patents*, 13 F.4th at 1377 (quoting *Vectura*, 981 F.3d at 1041). Thus, what matters here is whether the prior licensing agreements for patent families is “sufficiently comparable” to a licensing agreement for the asserted claims at issue here.

“Assessing the comparability of licenses requires a consideration of whether the license at issue involves comparable technology, is economically comparable, and arises under comparable circumstances as the hypothetical negotiation.” *Bio-Rad Labs., Inc. v. 10X Genomics Inc.*, 967 F.3d 1353, 1372–73 (Fed. Cir. 2020). Dr. Jackson does not dispute that the prior license agreements were based on patent families rather than specific patents. Dr. Jackson argues that Dr. Becker’s decision to use the five patent families is properly based on Dr. Errico’s expert report

grouping the asserted patents into the respective families. (D.I. 246 at 32). Dr. Becker's opinion depends upon the correctness of the patents being properly placed into the various families.

Assuming the correctness of Dr. Errico's groupings, the admissibility of Dr. Becker's opinion depends upon the comparability of the asserted patent families and the patents included in prior licensing agreements. "Testimony relying on licenses must account for such distinguishing facts when invoking them to value the patented invention. Recognizing that constraint, however, the fact that a license is not perfectly analogous generally goes to the weight of the evidence, not its admissibility." *Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1227 (Fed. Cir. 2014). Dr. Becker's report attempts to explain the differences between the hypothetical negotiation and the prior licensing agreements by identifying patterns in the prior agreements. (D.I. 246 at 32; D.I. 247-15, Ex. 65 at 16–22). The prior agreements show that Dr. Jackson would license a patent family for the same rate ("typically near 3.0 percent" (D.I. 247-15, Ex. 65 at 18)) regardless of whether there was a single patent or multiple patents included in the family. (D.I. 246 at 36–37; D.I. 247-16, Ex. 66 at 37–38). This analysis of prior licensing agreements indicates that there is more to Dr. Becker's opinion than "merely . . . relying on [Dr. Jackson's] internal 'policy' without regard to comparability" to the hypothetical negotiation with SeaSpine. *Omega Patents*, 13 F.4th at 1379. It is the role of the jury to evaluate the differences between the prior agreements and the hypothetical negotiation. *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1212 (Fed. Cir. 2010); *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 856 (Fed. Cir. 2010). Thus, I believe that Dr. Becker analyzes the prior agreements for economic and technological comparability, and I will permit him to testify regarding his patent family analysis of damages.

b. Collateral Sales

A damages opinion may properly “take into account the impact of anticipated collateral sales of an admittedly noninfringing product line on the respective bargaining positions of the parties engaged in the theorized licensing negotiations.” *Deere & Co v. Int’l Harvester Co.*, 710 F.2d 1551, 1559 (Fed. Cir. 1983). To correctly value compensation for an invention, the Federal Circuit has “generally required that royalties be based not on the entire product, but instead on the smallest salable patent-practicing unit.” *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67 (Fed. Cir. 2021) (internal quotation omitted). There are two exceptions to this rule. First is the “entire market value rule.” “[T]he entire market value rule permits recovery of damages based on the value of a patentee’s entire apparatus containing several features when the patent-related feature is the basis for customer demand.” *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1549 (Fed. Cir. 1995) (internal quotation omitted). Second is to account for “convoyed sales.” “A patentee may recover lost profits on unpatented components sold with a patented item, a convoyed sale, if both the patented and unpatented products ‘together were considered to be components of a single assembly or parts of a complete machine, or they together constituted a functional unit.’” *Am. Seating Co. v. USSC Grp., Inc.*, 514 F.3d 1262, 1268 (Fed. Cir. 2008) (quoting *Rite-Hite*, 56 F.3d at 1550).

Dr. Jackson does not argue that Dr. Becker’s opinion is based on either exception. Instead, Dr. Jackson argues that Dr. Becker “present[s] the full range of possible collateral damages from no infringing collateral sales to all infringing collateral sales.” (D.I. 247-15, Ex. 65 at 5 n.15). Dr. Becker does not opine on what qualified as collateral or not; he relied entirely on Dr. Errico’s opinions identifying collateral sales. (D.I. 246 at 34; D.I. 247-1, Ex. 66 at 35). Notably, Dr. Becker’s report states:

The records I have seen provide limited information on the extent of the “tie-in” between the infringing products and the collateral sales—both scientifically and commercially. Without having documents clearly documenting the level of importance/tie-in of these patents/infringed products for the collateral sales, I opine that the level of tie-in could range from none to full. That is, collateral damages ranging from \$0.00 (no collateral products infringing) to \$1.40 million (all collateral products infringing).

(D.I. 247-15, Ex. 65 at 27). Accordingly, Dr. Becker does not present a conclusive opinion on collateral sales; he presents a range of possible calculations of unspecified collateral sales. His ultimate conclusion is fairly nebulous. As Dr. Becker explained, the possibility of collateral sales “can exert upward pressure on SeaSpine’s willingness to pay higher royalty rates” but that he “made no explicit adjustment for this factor for the primary royalty rates.” (D.I. 247-15, Ex. 65 at 27). Although the methods used by Dr. Becker may be reliable, the assertion that the impact could be anywhere from 0 to 100% (since he does not have sufficient information to determine a more specific range) is not an opinion that is helpful to the jury. It does not reliably depend on the facts of the case. Dr. Becker’s opinion on collateral sales is excluded.

IV. CONCLUSION

An appropriate order will issue.

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

ROGER P. JACKSON, M.D.,

Plaintiff,

v.

SEASPINE HOLDINGS CORPORATION,

Defendant.

Civil Action No. 20-1784-RGA

ORDER

For the reasons stated in the accompanying Memorandum Opinion, Dr. Jackson's Motion for Partial Summary Judgment (D.I. 218) is GRANTED-IN-PART and DENIED-IN-PART, Dr. Jackson's Motion to Exclude Certain of Defendant's Patent Non-Infringement Opinions and Defendant's Patent Damages Opinions (D.I. 219) is GRANTED-IN-PART, DENIED-IN-PART, and DISMISSED-AS-MOOT-IN-PART, and Defendant SeaSpine Holding Corporation's Motion for Summary Judgment and to Exclude the Testimony of Brian Becker (D.I. 221) is GRANTED-IN-PART and DENIED-IN-PART.

Defendant SeaSpine's third affirmative defense of equitable defenses, eighth affirmative defense of inequitable conduct, and twenty-fifth counterclaim for inequitable conduct are DISMISSED with prejudice. SeaSpine's tenth affirmative defense of prosecution laches is DISMISSED with prejudice in part with respect to the '740, '273, and '292 patents.

IT IS SO ORDERED.

Entered this 24th day of August, 2026


United States District Judge