

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF VIRGINIA
Norfolk Division

BIEDERMANN TECHNOLOGIES
GmbH & CO. KG,

Plaintiff,

v.

Case No. 2:18cv585

K2M, INC. and K2M GROUP
HOLDINGS, INC.,

Defendants.

OPINION AND ORDER

This matter is before the Court following a Markman hearing, conducted for the purpose of construing eighteen disputed claim terms of the patents-in-suit. After careful consideration of the briefs submitted by the parties and the arguments advanced at the Markman hearing, the Court issues the following Opinion and Order detailing the claim constructions in this case.

I. FACTUAL AND PROCEDURAL HISTORY

At issue in this case are multiple related patents held by plaintiff Biedermann Technologies GmbH & Co. KG, ("Plaintiff"): U.S. Patent No. 9,814,595 ("the '595 patent"), U.S. Patent No. 10,130,485 ("the '485 patent"), U.S. Patent No. 6,736,820 ("the '820 patent"), U.S. Patent No. 8,945,194 ("the '194 patent"), U.S. Patent No. 9,566,093 ("the '093 patent"), U.S. Patent No. 8,123,784 ("the '784 patent"), U.S. Patent No. 8,828,060 ("the '060 patent"),

U.S. Patent No. 9,895,173 ("the '173 patent"), U.S. Patent No. 9,572,600 ("the '600 patent"), and U.S. Patent No. 9,597,121 ("the '121 Patent"). All of the patents-in-suit relate to medical devices intended primarily for use in spinal surgery. As outlined in the parties' briefs and as argued at the Markman hearing, the eighteen disputed claim terms are associated with the following devices: (1) "multi-walled placeholders" used to replace vertebrae or vertebral discs; (2) "bone screws," also referred to as "pedicle screws," designed to pivot in at least one direction by an enlarged angle; (3) an "anchoring element" attached to a bone screw designed to connect to a "rod," some of which utilize a "square thread" screw to secure the rod; and (4) a bone anchoring device utilizing a moveable "pressure member."

On June 11, 2019, this Court issued an Order granting, in part, a motion filed by K2M, Inc. and K2M Group Holdings, Inc. ("Defendants") addressing the number of terms to be construed by the Court, thereby allowing a total of fourteen terms to be construed. ECF No. 50. After Markman briefs were filed, the parties were instructed to file briefs addressing the propriety of consolidating the above referenced civil action (2:18cv585) with a second case filed by Plaintiff against Defendants asserting infringement of the '121 patent. ECF No. 66. After briefing, the Court consolidated the cases, and supplemental Markman briefs were submitted by the parties addressing four additional disputed terms

to be addressed during the consolidated Markman hearing. ECF Nos. 76, 84, 86, 91-92.

On December 17, 2019, the Court held a Markman hearing as to all eighteen disputed claim terms. After careful review of the briefs and materials submitted by the parties, the record before the Court, and counsel's argument at the Markman hearing, the Court has determined that the constructions set forth in Part III of this Opinion and Order shall apply to the disputed claim terms.

II. CLAIM CONSTRUCTION PROCEDURE

In Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996), the United States Supreme Court succinctly explained the basis for, and importance of, claim construction. Put simply, "[v]ictory in an infringement suit requires a finding that the patent claim covers the alleged infringer's product or process, which in turn necessitates a determination of what the words in the claim mean." Id. at 374 (internal quotation marks and citation omitted). Determining the proper interpretation of disputed claim terms "is an issue for the judge, not the jury." Id. at 391.

A. Claim Construction Principles

In evaluating the meaning/scope of a patent claim prior to conducting an infringement analysis, "[i]t is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en

banc) (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004)). Claim construction therefore must begin with the Court looking to “the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). The Federal Circuit has repeatedly stated that “the words of a claim ‘are generally given their ordinary and customary meaning,’” which is the “meaning that the term would have to a person of ordinary skill in the art in question [(“POSA”)] at the time of the invention.” Phillips, 415 F.3d at 1312-13 (quoting Vitronics, 90 F.3d at 1582). This “provides an objective baseline from which to begin claim interpretation” and is predicated on “the well-settled understanding that inventors are typically persons skilled in the field of the invention and that patents are addressed to and intended to be read by others of skill in the pertinent art.” Id. at 1313. As further explained by the Federal Circuit:

It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed. Such person is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field. The inventor’s words that are used to describe the invention—the inventor’s lexicography—must be understood and interpreted by the court as they would be understood and interpreted by a person in that field of technology. Thus the court starts the decisionmaking process by reviewing the same resources as would that person, viz., the patent specification and the prosecution history.

Id. (quoting Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed. Cir. 1998)). While claim interpretation must be approached from the perspective of a POSA, the "task of comprehending" the claim terms is "not always a difficult one," and "[i]n some cases the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.'" Acumed LLC v. Stryker Corp., 483 F.3d 800, 805 (Fed. Cir. 2007) (quoting Phillips, 415 F.3d at 1314). Finally, when construing claim terms and phrases, the court cannot add or subtract words from the claims or appeal to "abstract policy considerations" to broaden or narrow their scope. SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1339 (Fed. Cir. 2005); see also Quantum Corp. v. Rodime, PLC, 65 F.3d 1577, 1584 (Fed. Cir. 1995) (observing that "it is well settled that no matter how great the temptations of fairness or policy making, courts do not redraft claims").

B. Types of Evidence to Be Considered

As indicated above, claim construction must begin with an examination of "the claims themselves," which provide "substantial guidance as to the meaning of particular claim terms." Phillips, 415 F.3d at 1314; see Vitronics, 90 F.3d at 1582. The claims themselves, "both asserted and unasserted," can be "valuable

sources of enlightenment as to the meaning of a claim term," in part because "claim terms are normally used consistently throughout the patent." Phillips, 415 F.3d at 1314. Furthermore, "[d]ifferences among claims" can also be enlightening. Id. "For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Id. at 1314-15.

"The claims, of course, do not stand alone," but rather, they "must be read in view of the specification, of which they are a part.'" Id. at 1315 (quoting Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)); see Multiform Desiccants, 133 F.3d at 1478 ("The best source for understanding a technical term is the specification from which it arose, informed, as needed, by the prosecution history."). The specification, as required by statute, describes the manner of making and using the patented invention, and therefore, "claims must be construed so as to be consistent with the specification." Merck & Co. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1371 (Fed. Cir. 2003); see 35 U.S.C. § 112 (requiring that the specification describe an invention in "full, clear, concise, and exact terms"). The Federal Circuit and Supreme Court have thus long emphasized the specification's important role in claim construction, noting that, usually, the specification "is dispositive," as it is "the

single best guide to the meaning of the disputed term.” Phillips, 415 F.3d at 1315 (quoting Vitronics, 90 F.3d at 1582).

In some instances the specification will, either directly or by implication, “reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess.” Id. at 1316; see Trustees of Columbia Univ. in City of New York v. Symantec Corp., 811 F.3d 1359, 1364 (Fed. Cir. 2016). The specification may also “reveal an intentional disclaimer, or disavowal, of claim scope.” Phillips, 415 F.3d at 1316. In those situations, it is again the inventor’s disavowal that is dispositive of the claim construction. Id. “To disavow claim scope, the specification must contain expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” Cont’l Circuits LLC v. Intel Corp., 915 F.3d 788, 797 (Fed. Cir.), cert. denied, 140 S. Ct. 648 (2019) (quoting Retractable Techs., Inc. v. Becton, Dickinson & Co., 653 F.3d 1296, 1306 (Fed. Cir. 2011)).

In addition to the claims and specification, the “intrinsic record” governing claim construction also includes the prosecution history, if it is in evidence, which consists of the complete record of the proceedings before the United States Patent and Trademark Office (“PTO”), including the prior art cited during the examination of the patent and any subsequent reexaminations. Phillips, 415 F.3d at 1317. The prosecution history “provides

evidence of how the PTO and the inventor understood the patent," and it "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Id. (citations omitted). "At the same time, because prosecution history represents an ongoing negotiation between the PTO and the inventor, 'it often lacks the clarity of the specification and thus is less useful for claim construction purposes.'" Trading Techs. Int'l, Inc. v. eSpeed, Inc., 595 F.3d 1340, 1352 (Fed. Cir. 2010) (quoting Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1401 (Fed. Cir. 2008)).

The Court may also examine "extrinsic" evidence, which includes "all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Markman, 52 F.3d at 980. For example, dictionaries may be consulted as they are "often useful to assist in understanding the commonly understood meaning of words," and "[a] dictionary definition has the value of being an unbiased source 'accessible to the public in advance of litigation.'" Phillips, 415 F.3d at 1322 (quoting Vitronics, 90 F.3d at 1585). However, the Federal Circuit cautions that "'a general-usage dictionary cannot overcome art-specific evidence of the meaning' of a claim term." Id. (quoting Vanderlande Indus. Nederland BV v.

Int'l Trade Comm'n, 366 F.3d 1311, 1321 (Fed. Cir. 2004)).¹ Additionally, because definitions across dictionaries vary, and because more than one definition may be provided in a single source, courts must be careful to ensure that a patent claim does not "rise or fall based upon the preferences of a particular dictionary editor, or the court's independent decision, uninformed by the specification, to rely on one dictionary rather than another." Id. Thus, "while extrinsic evidence 'can shed useful light on the relevant art,' [the Federal Circuit has] explained that it is 'less significant than the intrinsic record in determining "the legally operative meaning of claim language.'" Id. at 1317 (quoting C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 862 (Fed. Cir. 2004)).

Guided by the foregoing principles, the Court turns to individually addressing each of the eighteen disputed claim terms.

¹ In Phillips, the Federal Circuit, sitting en banc, criticized the approach taken in Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193 (Fed. Cir. 2002), a case in which the court placed great emphasis on dictionary definitions. Phillips, 415 F.3d at 1319-20. The Phillips opinion reaffirmed the approach used in Vitronics, Markman, and Innova as the proper approach for claim construction, but acknowledged that there was "no magic formula" for claim construction, meaning that a district court is not "barred from considering any particular sources . . . as long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence." Id. at 1324 (emphasis added).

III. ANALYSIS OF THE DISPUTED CLAIM TERMS

A. '595 and '485 patents (the "placeholder" patents)

The '595 and '485 patents are both titled "Multi-Walled Placeholder," and, as summarized in the patent "Abstract," are directed at:

A placeholder for vertebrae or vertebral discs includes a tubular body, which along its jacket surface has a plurality of breakthroughs or openings for over-growth with adjacent tissue. The placeholder includes at least a second tubular body provided with a plurality of breakthroughs and openings at least partially inside the first tubular body. The first and second tubular bodies can have different cross-sectional shapes, can be are [sic] arranged inside one another by press fit or force fit or can be connected to each other via connecting pins and arranged side by side to one another in the first body.

'595 patent, Abstract. There are four disputed claim terms associated with the placeholder patents.

1. "wall"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - or alternatively, "a structure that separates two regions"

Defendants: "a structural element with two surfaces that divides a space"

Court: "a structural wall, as contrasted with merely one surface/side of a wall"

b. Discussion

As illustrated by the parties' arguments at the Markman hearing, the crux of the parties' construction dispute turns on whether the use of the word "wall" within several claims at issue

refers to a three-dimensional wall with a "thickness," or whether such term includes a "wall surface." Stated a little differently, it appears that the dispute can be framed as whether the "multi-wall" placeholder claimed in both patents at issue actually has to have at least two distinct structural walls, or whether a single "wall," with two opposing sides/surfaces, qualifies as a "multi-walled" placeholder as set forth in the claims.

Having carefully considered the parties' arguments, the Court finds that the intrinsic record establishes that "wall," as that term is used in the '485 and '595 patents, necessarily refers to a three dimensional structure with a "thickness" and not merely a "wall surface." Such finding is not based on limiting the scope of the claims to the exemplary embodiments discussed in the specification, but rather, is based on reading the claim terms and the specification as a whole, to include the "abstract,"² the "background" summarizing known prior art that covers different forms of "tubular" placeholders, and the patent "summary" describing fitting several tubular bodies within each other "such that a multi-wall placeholder" is formed. While the patent "summary" surely does not act as an express "limit" on the breadth

² A statement in an "abstract," if sufficiently clear, can "operate as a clear expression of manifest exclusion"; however, "this section of a patent speaks generally to the invention and, much like the syllabus of an opinion, sets forth general information about the document's content, which is described in more detail in the remainder of the document." Innova/Pure Water, 381 F.3d at 1121.

of the claim terms, it is illustrative of the concept of "multi-wall."

Beginning first with the claim language, it is clear to the Court that the '595 claims themselves would reveal to a POSA that the claimed "wall" is a three-dimensional structure with a "thickness" to it, as illustrated by dependent Claims 18, 21, and 29 of the '595 patent (discussing "wall thicknesses"). Additionally, both independent claims of the '595 patent discuss the "open space between the inner and outer walls," and while an open space between wall surfaces may be possible, read in context, such limitation further supports the contextual interpretation of "wall" as requiring a complete structure, not a mere surface. '595 patent, Claims 1, 26. Furthermore, dependent Claim 2 discusses an "end wall" in clear reference to an entire three-dimensional wall, and dependent Claim 33 discusses "each of" the outer wall and inner wall, which in context further supports the interpretation that they are separate structures with a thickness, not separate "surfaces" of the same wall.

The claim terms of the '485 patent also demonstrate that the claimed "wall" is a three-dimensional structure with thickness that is "connected" to the other claimed walls comprising the multi-walled placeholder. The first independent claim expressly requires: (1) "an inner wall defining an inner cavity" and "an outer wall positioned around the inner wall"; (2) "a connecting

portion . . . keeping the inner and outer walls spaced apart from one another,"; (3) wall "openings" extending "through the inner wall to the inner cavity"; and (4) a connecting portion that is "separable from the inner and outer walls" and that connects such walls by extending "into both the inner and outer walls." '485 patent, Claim 1 (emphasis added); see also id. at Claim 14 (requiring "connecting portions" that "keep the inner and outer walls spaced apart from one another" and openings in the inner wall that "connect the space between the inner and outer walls with the inner cavity"). Such claim language reveals on its face that the references to "inner" and "outer" walls refers to the entire inside wall, or the entire outside wall, not merely the innermost, or outermost, surface of a single wall. Id. at Claim 1; cf. Regents of Univ. of Minnesota v. AGA Med. Corp., 717 F.3d 929, 935 (Fed. Cir. 2013) (affirming the district court's determination that the claim language requiring first and second "disks" to be "connected" or "joined" is properly construed as requiring "discrete structures," further noting that such "separateness requirement" is fully supported by the specification, which "never teaches an embodiment constructed as a single piece" and instead teaches the contrary).

To the extent such claim language is viewed as insufficient to establish that the claimed "walls" must be multi-surfaced structures, dependent Claim 7 expressly references a connector

"extending completely through the outer wall and past an outer surface of the outer wall," clearly demonstrating that the claimed "wall" is different from a mere "wall surface." '485 patent, Claim 7 (emphasis added). Such language illustrates that the inventor knew how to, and did in fact, refer differently to a "wall surface" when intending to reference a mere surface. The fact that the claim term "wall" must reference a three-dimensional structure is further illustrated by the fact that dependent Claim 16 discusses a "third wall" positioned around and spaced apart from the "outer wall," that includes "openings" that extend through the third wall and, with the proper alignment, create a "pathway" that extends "from the inner cavity through the inner wall, the outer wall, and the third wall to the outside of the placeholder." Id. at Claim 16. The concept of a placeholder having an odd number of "walls" makes little sense if a "wall" means "wall surface," as the "third wall" surface would necessarily require at least a "fourth wall" surface in order to constitute a structure that could be "positioned around" the other two walls and separate them from the "outside of the placeholder." The fact that Claim 16 requires that a diamond-shaped opening extend unobstructed all the way from the inner cavity, through the first wall, through the second wall and through the third-wall to the outside of the placeholder would reveal to a POSA that the "third-wall" is not merely a wall surface, but a separate structure with thickness.

The above understanding of what constitutes a "wall," as opposed to a "jacket surface" or "wall surface," is supported by, and further bolstered by, the specification, which discusses the "wall thickness" of the tubular bodies in the present invention and how it may be varied to achieve different goals. See, e.g., '595 patent, 2:61-67; 3:1-4; 5:26-31. The specification of both patents also repeatedly refers to a "jacket surface" when discussing one surface of the "tubular body," thus distinguishing the surface of the wall from the entire wall.³ See, e.g., '485 patent, 3:52-59; 4:33-35; 5:9-14.

To be clear, the Court does not find that the patentee "disclaimed" the full breadth of the "ordinary meaning" of the word "wall," but instead finds that the intrinsic record plainly reveals that the terms "wall" and "multi-walled" as used throughout the specification, as well as the term "wall" as stated in the claims themselves, reflects the ordinary concept of a "wall" as a structure with "thickness," as contrasted with a "wall surface." Stated differently, the Court does not seek to constrain the ordinary meaning of "wall" to a subset of its ordinary meaning, but rather, finds that, based on the context of the claims and specification, Plaintiff should not be allowed to expand the

³ It also bears noting that every figure in the specification depicting a "wall" depicts a three-dimensional wall with a thickness, and while drawings of exemplary embodiments are not alone controlling, the relevant drawings are consistent with the analysis set forth above and provide further context for the proper scope of the claim term "wall."

ordinary meaning of the word to include and cover a mere "wall surface," because nothing in the intrinsic record supports such a reading. See Trustees of Columbia Univ., 811 F.3d at 1363 ("The only meaning that matters in claim construction is the meaning in the context of the patent.").

Although the intrinsic record reveals that the claim term "wall" refers to a structure with thickness, and not a "wall surface," the Court finds it inappropriate to adopt a construction that arbitrarily defines the number of "surfaces" that a wall must have, or whether such surfaces must be "opposing" (as was proposed in an earlier construction advanced by Defendants).⁴ See Acumed LLC, 483 F.3d at 805 ("The task of comprehending [claim terms] is not always a difficult one," and in some cases claim construction "involves little more than the application of the widely accepted meaning of commonly understood words.") (quotation marks and

⁴ A rectangular 5mm thick solid metal wall could have an inside and outside surface, as well as top and bottom surfaces, and surfaces on each end, revealing far more than two "surfaces." Additionally, a 5mm thick wall that has a flat outside surface and a wave-like, but angular, inside might have any number of "surfaces" and might not have a surface "opposing" the flat outside surface. The Court therefore finds that additional limitations regarding the number of surfaces could merely confuse the scope of this term, and are unnecessary to clarify the easily understood concept of a structural "wall." The Court adopts the construction set forth above in order to clarify, without extraneous limitations, that the claimed structural wall is not to be confused with a mere "wall surface," and in rejecting both parties' proposals, the Court notes that: (1) a "plain and ordinary" construction "may be inadequate when a term has more than one 'ordinary' meaning," O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008); and (2) the Court follows the Federal Circuit's instruction to construe disputed claims "only to the extent necessary to resolve the controversy," Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999).

citation omitted). In order to avoid erroneously identifying the number of "surfaces" a wall must have, the construction adopted by the Court requires that the claimed "wall" must have multiple surfaces, and be a complete structural element, not merely one side of a structural element.

2. "at or in a region of the [first/second] end of the placeholder"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "a region at or near an end of the placeholder"

Defendants: "localized at or near the longitudinal end of the placeholder"

Court: plain and ordinary meaning

b. Discussion

The instant dispute involves the location of one or more claimed "connecting portions," to include "end walls" that act as connecting portions joining the multiple walls of the placeholder. '595 patent, Claims 1, 26. Plaintiff asserts that this disputed term requires no construction and should be afforded its plain and ordinary meaning, or alternatively, rephrased slightly to the extent further clarity is required. Defendants argue that the term "localized" should be added to clarify that the claimed end-wall connectors exist only at or near the longitudinal ends of the placeholder. Defendants and Plaintiff do not otherwise offer materially different proposals.

It appears undisputed that the claim language "at or in a region of" refers to somewhere "at or near" the referenced longitudinal end of the placeholder, and no further construction is required to clarify such facially obvious (and undisputed) interpretation of the claim language. As to the propriety of adding Defendants' proposed limitation "localized," it appears to the Court that such limitation is not found in the claims or taught in the specification. Therefore, upon consideration of the parties' written and oral arguments, the Court finds that adopting such additional limiting phrase is unnecessary, and may be inconsistent with the patent claims and the rules of construction.

As the Court noted at the Markman hearing, the claim language surrounding the disputed term in Claim 1 indicates that there must be "at least one connecting portion comprising an end wall, . . . at or in a region of the first end of the placeholder." '595 patent, Claim 1 (emphasis added). In rejecting Defendants' proposed "localized" limitation, the Court does not disagree with Defendants' contention that "[i]f a structure is found in an entirely different region of the placeholder, it is not located or arranged in the region claimed." ECF No. 59, at 7. However, where a wall is "located" in a given device, to include where it starts and stops, is a question more appropriate for a factfinder's infringement analysis, not a question that should be resolved

through a Markman construction adopting limitations that are not suggested by the intrinsic record.⁵

Finding that Defendants fail to demonstrate why the word "localized" should be added to restrict the scope of the claim language, the Court adopts a plain and ordinary construction, which clearly refers to an area at or near the longitudinal end of the placeholder. The Court's resolution of this issue through expressly rejecting Defendants' proposal is sufficient to "resolve" the dispute as to the proper interpretation of the instant claim. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1360 (Fed. Cir. 2008) ("When the parties raise an actual dispute regarding the proper scope of these claims, the court, not the jury, must resolve that dispute."); Finjan, Inc. v. Secure Computing Corp., 626 F.3d 1197, 1206-07 (Fed. Cir. 2010) (finding "no O2 Micro problem" where the district court not only

⁵ It appears that two "thick" end walls, each with an outer surface at or near the opposing longitudinal ends of the placeholder, may not be deemed to be "localized" at or near the longitudinal ends due to their thickness, but could otherwise be fully consistent with the plain and ordinary meaning of the disputed claim terms, as well as the descriptions in the specification (which do not in any way limit the thickness of the end walls). Because nothing in the claims or specification suggest a limitation on the thickness of end walls, there is no valid basis for making a legal finding that the limitation "localized" must be added to the construction of "at or near." Rather, it is for a factfinder to determine as part of an infringement analysis when an end wall is so "thick" such that it is no longer an "end wall" that is found "at or near" the longitudinal end of the placeholder. See Acumed LLC, 483 F.3d at 806 (rejecting an argument asserting that the district court's Markman ruling excluding "sharp angles" should have specified "precisely how 'sharp' is too sharp," noting that "a sound claim construction need not always purge every shred of ambiguity" and that the "resolution of some line-drawing problems—especially easy ones like this one—is properly left to the trier of fact") (emphasis added).

adopted a "plain and ordinary meaning" construction, but also rejected the defendant's attempt to import a limitation into the disputed claim language). Defendants, of course, may argue to the jury that an allegedly infringing device with an "end wall" that extends far away from the longitudinal end of the placeholder is not an end wall located at or near the longitudinal end of the placeholder based on the facts before the jury.

3. "arranged at a plurality of different axial positions"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "set at more than one position along the longitudinal axis"

Defendants: "localized at multiple distinct axial positions"

Court: "arranged at more than one different axial position"

b. Discussion

The instant dispute, like the previous dispute, involves the required location of "connecting portions" that connect the inner and outer walls of the placeholder. One needs to look no further than the relevant claim language to determine that the connecting portions must be located at more than one different position along the longitudinal axis. '485 patent, Claim 12. In fact, neither party disputes such requirement. The dispute is whether the claim language "different axial positions" mandates "separate and distinct" positions as argued by Defendants. Defendants' argument, however, like their argument for the prior disputed term,

is not based on the intrinsic record,⁶ nor any extrinsic evidence. Rather, Defendants simply argue that the "ordinary" meaning of the word "different" means "separate and distinct." Plaintiff challenges such construction, arguing that it would improperly exclude a hypothetical placeholder with rows of connectors of some length that "overlap" to a degree, but with the first row of connectors clearly "higher" along the longitudinal axis than the second row of connectors.

Having considered both parties' arguments, the Court rejects Defendants' invitation to read into the claims an extraneous requirement that artificially limits the scope of such claims, finding that Defendants have not illustrated a valid basis for doing so, either in the intrinsic record or the extrinsic record. The Court adopts the construction "arranged at more than one different axial position" simply to clarify that "plurality" means more than one, and to ensure that the word "different" is retained as Plaintiff's alternative construction improperly excludes such word. The Court notes that there is no need to include the clarification "along the longitudinal axis" in the construction of

⁶ Defendants do argue that the specification only describes and shows diagrams with connectors at "separate and distinct" axial positions. However, nothing in the specification "disparages" aligning the connectors in a way that differs from the exemplary diagrams, and it is "improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." Openwave Sys., Inc. v. Apple Inc., 808 F.3d 509, 514 (Fed. Cir. 2015) (quotation marks and citation omitted).

this term because such requirement immediately follows the disputed claim language in Claim 14 of the '485 patent, which is the only asserted claim identified by the parties as containing the disputed term. Whether a device alleged to infringe has connectors at "different" locations is a factual question to be determined by the factfinder. See Acumed LLC, 483 F.3d at 806.

4. "diamond-shaped"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "shaped substantially like a diamond"

Defendants: "four-sided shape with opposite sides parallel, the shape having different length and width"

Court: shaped like a diamond, which includes a rotated square with one vertical diagonal and one horizontal diagonal

b. Discussion

The instant dispute involves the shape of openings in the walls of the placeholder. It is undisputed that references in the claims and specification of the two patents at issue to "diamond shaped" or "square shaped" (or other geometrically shaped) openings include shapes with rounded corners, and thus, the permissible shape of the claimed openings are not limited to the "true" named geometric figure. The construction dispute before the Court involves whether a cutout/opening in the shape of a square rotated 45 degrees from its "typical" orientation, such

that its diagonals are vertical and horizontal, qualifies as a "diamond shaped" opening.

Defendants contend that to be "diamond shaped," a four-sided cutout/opening must comport with what Defendants argue is the "common understanding" of a diamond, that is, that a diamond's height is different than its width (meaning that the shape does not have right angles). Plaintiff, in contrast, argues that a rotated square is commonly referred to as a "diamond," that a POSA would view a cutout in the shape of a rotated square as a diamond-shaped opening, and that the word "shaped" suggests additional flexibility regarding the named geometric term. After carefully considering the parties' arguments, the Court finds that Defendants' position, largely grounded in an exemplary figure in the specification that offers a visual example of a "diamond shaped" opening, fails to demonstrate that it is proper to import a strict geometric limitation for the word "diamond" (if one even exists) that is not found in the intrinsic record or supported by extrinsic evidence.

The claims themselves offer no insight into the proper breadth of the claim term "diamond shaped," and it is the Court's understanding that "diamond" is not a true mathematic/geometric shape. With no helpful guidance from the claims, the next step is to examine the specification to determine whether any clarity is provided therein. The specification of both patents at issue, on

more than one occasion, suggests that the claimed "diamond" shape is the same as a "rhombus" shape, and it appears beyond dispute that the geometric definition of a "rhombus" includes a square. That said, as highlighted by Defendants, the specification describes multiple potential shapes that can be used in different embodiments, and lists "square" and "diamond" separately, suggesting that they may have a different scope. The resulting question, therefore, is whether an opening in the shape of a rotated "square," with horizontal/vertical diagonals, is appropriately categorized as a "diamond."

Notwithstanding Defendants' arguments to the contrary, this Court agrees with Plaintiff that the orientation of the cut-outs at issue would matter to a POSA (as well as an ordinary person not skilled in the art) when determining whether the shape of a cut-out in the placeholder is fairly described as "diamond shaped." While a row of squares orientated in their "typical" orientation (two horizontal sides and two vertical sides) is technically also a row of rhombuses, neither a POSA that has read the specification, or an ordinary person not skilled in the art, would consider such openings to be "diamond shaped" merely because they are technically "rhombuses." In contrast, nothing in the intrinsic record suggests that a row of square openings rotated 45 degrees such that they are turned on point, with horizontal and vertical diagonals, would not be appropriately interpreted as either "diamond shaped" or

"rhombus shaped" openings. Therefore, while Defendants are correct that the specification separately lists "square" and "diamond (rhombus)" when discussing permissible shapes for openings, the Court disagrees with Defendants' contention that the intrinsic record reveals that orientation does not matter when categorizing the shape of openings in the placeholder's walls.⁷ Orientation may not matter to a mathematician discussing true geometric shapes, but in context, would matter to a POSA reading a patent that describes geometric and non-geometric shapes that, in most embodiments, will be arranged in a pattern of similarly shaped cutouts.

In addition to pointing to the specification, Defendants reference what they assert is the "common understanding" of the claim term "diamond." ECF Nos. 54, at 13; 59, at 12. However, it appears to the Court that Defendants advance an overly narrow view of the "common" understanding. In the Court's view, the "common understanding" of such term reveals that orientation matters

⁷ The Court has considered, and rejects, Defendants' contention that a different part of the specification discussing the shapes of tubular bodies viewed from above (and not the shapes of openings in the side of tubular bodies), see '485 patent, 3:25-34, is sufficient to demonstrate that orientation of the openings/cutouts is irrelevant and/or that references to "diamond" necessarily require a different length and width. As discussed herein, Defendants rely on comparative inferences that can arguably be drawn from the specification, and while the logic behind Defendants' position appears sound, the inference/implication Defendants seek to draw from the specification is not clearly conveyed by the intrinsic record when read as a whole, and it is not proper to import a limitation from the specification when it is only arguably supported by indirect inferences flowing from a discussion of an entirely different aspect of the patent.

greatly, and frequently distinguishes a "square" from a "diamond" in common usage, a fact that is borne out by dictionary definitions of the word "diamond." See Webster's Third Int'l Dictionary (1981) ("a square or rhombus-shaped configuration usu. having a distinctive orientation (as by having a diagonal perpendicular to the horizontal)"); Oxford English Dictionary (2d ed. 1991) ("a rhomb (or a square) placed with its diagonals vertical and horizontal"); Cambridge Dictionary (online) ("a shape with four straight sides that meet to form two wide and two narrow angles, or a square placed with a corner at the bottom") (emphasis added).⁸

Another example of such term's "common" usage is the fact that a baseball infield is routinely referred to as a "diamond," with such description a result of orientation given that all four bases are located at ninety degree angles (making the infield a rotated square).

To the extent Defendants contend that Plaintiff acted as its own lexicographer to restrict the meaning of the claim term

⁸ The Court acknowledges that a review of additional dictionaries reveals that certain sources define "diamond" as requiring a shape with angles that are differing, and a Markman construction should not be based on the arbitrariness of which dictionary is selected. Phillips, 415 F.3d at 1322. The Court, however, does not cite to the above dictionaries to establish the "proper" definition of the disputed claim term, but rather, cites to them in response to Defendants' contention that the "common understanding" of such term is narrow, with the cited definitions illustrating a substantially broader understanding recognized by multiple well-established sources. Cf. 3M Innovative Properties Co. v. Tredegar Corp., 725 F.3d 1315, 1325 (Fed. Cir. 2013) (citing TI Grp. Auto. Sys. (North Am.), Inc. v. VDO North Am., L.L.C., 375 F.3d 1126, 1138 (Fed. Cir. 2004) for the proposition that "absent other limiting circumstances, a patentee is entitled to the full breadth of claim scope supported by the words of the claims and the written description").

"diamond shaped," the Court rejects such contention, finding instead that, when read in context, the specifications' listing of numerous permissible shapes, including diamond, circular, square, rectangular, hexagonal, oval, octagonal and "other suitable shapes," was intended to illustrate the vast array of permissible shapes in various embodiments (permissible when allowed for by the claims). '485 patent, 13:44-53. Such expansive list does not suggest an effort to strictly "define" the difference between a square and diamond/rhombus.⁹ Moreover, the fact that some of the shapes listed in the specification may "overlap" from a mathematical perspective (a square is not only a square, but also a rhombus and a rectangle) is not enough, in this Court's view, to evidence an intent to read the term "diamond" in the restrictive manner proposed by Defendants. Similarly, the fact that two exemplary diagrams depict a diamond with a greater height than width does not limit the scope of the claim term "diamond" to such exemplary illustrations, '485 Patent Figs. 14, 30, particularly when there is no described benefit, or claimed differing characteristics, between a rhombus shape with vertical and horizontal diagonals that are of similar, but slightly different lengths, and a rhombus with vertical and horizontal diagonals of

⁹ In fact, the precise language in the specification describing the illustration of the diamond-shaped opening merely states that one permissible shape is "the diamond shape (rhombus) of FIG. 30." '485 patent, 13: 46-47. Such language does not in any way suggest that Figure 30 defines the outer bounds of the scope of what is meant by "diamond-shaped."

identical length. Stated another way, because the various figures of different shaped cutouts depicted in the specification do not include a rotated square, the specification does not resolve, directly or by implication, whether a row/pattern of such cut-outs are appropriately classified as "diamond shaped."

To be clear, the Court's task, as stated at the outset, is not to determine the "common understanding" of the term diamond to the ordinary person (or the ordinary baseball fan), but rather, is to examine the term from the view of an ordinary person skilled in the art. With the understanding that "diamond" does not have defined geometric properties, that such word is used in the specification in conjunction with the geometric term "rhombus," and the fact that the word "diamond" is "commonly" used to include both rhombuses with different lengths and widths, and squares (which are rhombuses) when they are turned on their points, the Court finds that Defendants fail to demonstrate that this Court should interpret the term "diamond-shaped" narrowly to restrict it from its broader "ordinary" meaning. Defendants' position, while well argued, fails to effectively demonstrate any reason why a POSA would interpret this term differently from the meaning that would be given to it by an "ordinary" person not skilled in the art, a meaning that would be impacted by the orientation of the

pattern of cutouts.¹⁰ Considering an extrinsic example supporting such finding that exists within the art, at the Markman hearing, Plaintiff supported its interpretation of what "diamond shaped" means to a POSA by pointing to a diagram of a placeholder that Plaintiff represented as being one of Defendants' own design documents (Defendants did not challenge such representation). Such diagram expressly labels the cutouts pictured therein as a "diamond side cut pattern," and the illustration of the placeholder appears to depict squares with rounded corners rotated such that their diagonals are vertical and horizontal. Pl.'s Markman Slide 35 (attached as Exhibit 1 to this Opinion and Order).

Accordingly, based on the parties' filings and in-court presentations, the Court finds that a POSA would have no basis to arbitrarily import a "differing diameter" requirement such that a pattern of square-shaped openings turned on their points with vertical and horizontal diagonals would fall outside the claim requirement of a "diamond-shaped" opening. Cf. Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1358 (Fed. Cir. 2004) ("Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled

¹⁰ While the word "rhombus" is used in the specification in an apparent effort to clarify what is meant by the term "diamond," nothing in the specification indicates that a "diamond-shaped" opening must meet the precise mathematical definition of a "rhombus," to the contrary, as indicated above, the parties do not dispute that rounded corners are permitted by the patent. Moreover, to be clear, a square is in fact a type of rhombus.

to the full scope of its claim language.”). The Court, therefore, rejects Defendants’ proposed construction as improperly importing an extraneous limitation not supported by the intrinsic, or extrinsic, record.¹¹ The Court likewise rejects Plaintiff’s efforts to add the nebulous word “substantially” to the Markman construction. Plaintiff offers no valid extrinsic or intrinsic justification for rewriting the claim to expand the breadth of what should be considered “diamond-shaped.” Moreover, in the Court’s view, adding the broad term “substantially” offers little guidance to the factfinder for differentiating between a qualifying and non-qualifying shape.

In light of the issues with both proposed constructions, the Court finds that the parties’ dispute is best resolved by adopting a construction similar to Plaintiff’s proposal but without the word “substantially,” with further clarifying language to confirm that the unsupported limitation sought by Defendants is not to be read into the claim.

B. '820, '194, '093, '784, '060, and '173 patents

The '820, '194, '093, '784, '060, and '173 patents are titled “Bone screw,” “Anchoring Element for use in Spine or Bone Surgery

¹¹ The Court also notes that there are other obvious problems with Defendants’ proposed construction, because as currently written, it would not only cover most rectangles, but would cover an un-rotated rectangle in its typical orientation (the sides being horizontal and vertical). A rectangular opening with a different length and width: (1) is not a rhombus, nor is it appropriately described as “rhombus-shaped”; and (2) is not within a POSA’s understanding of a “diamond shaped” opening.

. . . ,” or “Element with a Shank and a Holding Element Connected to it for Connecting to a Rod.” While these patents cover various advancements in the field, they generally pertain to a bone screw or similar bone anchoring element with a “U-shaped” recess for receiving a “rod” used to connect multiple bone screws/anchoring elements, which is necessary to perform spinal fusion and other types of spinal surgery. The disputed claim terms across such patents are set forth below.

5 & 6. “first bore” and “second bore” (‘820, ‘194, ‘093 patents)

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning – alternatively, “a first [second] hole or opening that communicates with the second [first] bore”

Defendants: “a first [second] cylindrical passageway”

Court: “a first [second] hole/passageway”

b. Discussion

The instant dispute centers on the interpretation of the claim term “bore,” and after reviewing the parties’ arguments, the Court finds that such term would be construed in the same manner by an “ordinary person” (i.e. a juror) as it would by a POSA when read in the context of the relevant patents. The Court expressly rejects Plaintiff’s effort to define such term as merely an “opening” because the claimed bore, i.e., a hole or passageway,

necessarily must have depth.¹² The Court also rejects Plaintiff's effort to rewrite the claim language to add the requirement that the first bore and second bore must "communicate" with each other, as such purported requirement is a separate issue from the proper scope of the claim term "bore." Moreover, as noted by Defendants, Plaintiff's proposal to add such requirement appears to be an improper effort to read a limitation expressly claimed in the '194 and '093 patents into the '820 patent even though the '820 patent does not include such limiting language. Irrespective of the "purpose" of Plaintiff's proposal, it is rejected by the Court pursuant to claim construction principles.

The Court likewise rejects Defendants' effort to require that the first or second "bore" must necessarily be "cylindrical." It should be noted at the outset that neither the claim terms themselves nor the specification clearly require a "cylindrical" bore. Defendants, however, argue that only a cylinder has a single "diameter," and that a single diameter is implied by the fact that the claim language references the "diameter" of the second bore as being smaller than the diameter of the screw head, but larger than the diameter of the threaded section of the screw. See, e.g.,

¹² Plaintiff conceded such point at the Markman hearing, by stating: (1) "it has plain meaning, it's [a] hole, the fact that it has some length is not disputed, because it is a hole in a three-dimensional object"; and (2) "my understanding is that they want passageway in there to denote that there's some length to the hole, to the bore, and that's -- we think that that's fine, that a person skilled in the art would understand you're making a hole in a three-dimensional object and so you're going to have some length to the hole." ECF No. 110, at 96.

'820 patent, Claim 1. After carefully considering such argument, the Court is not convinced that the implication argued by Defendants would lead a POSA to conclude that the first and second bore must necessarily be cylindrical. First, as argued by Plaintiff, both the specification and the claims expressly disclose an "edge bounding the free end of the second bore" having an asymmetric construction, which would appear to cover an embodiment wherein at least a portion of the bore may be of a non-cylindrical shape. See, e.g., '820 patent, 1:53-55. Second, Defendants fail to demonstrate that a POSA would conclude that all non-cylindrical shapes (such as a regular octagon) have more than one "diameter." Third, some of the independent claims reference the "first bore" without any limitations associated with, or references to, a "radius" or "diameter." See, e.g., id. at Claim 1. Considering all of such factors, the Court rejects Defendants' effort to read "cylindrical" into the construction of the word "bore" each and every time that it is used across the disputed patent claims.

For the reasons outlined above, the Court adopts a construction of "a first [second] hole/passageway," which clarifies the depth requirement but does not read in the "cylindrical" limitation proposed by Defendants.¹³ While the

¹³ To the extent that other surrounding claim language requires a certain identified bore to have a "diameter" of a certain comparative size, it is

Court's construction was not initially proposed by either party, Plaintiff's counsel indicated at the Markman hearing that Plaintiff had "no objection" to such construction. Markman Tr. 97, ECF No. 110.

7. ***"when viewed relative to the axis of the first bore, the edge bounding the free end of the second bore is asymmetric"***
('820 patent)

a. **Proposed Constructions & Court Ruling**

Plaintiff: plain and ordinary meaning - alternatively, "the edge bounding the free end of the second bore is not symmetric with respect to the longitudinal axis of the first bore"

Defendants: "when reviewed relative to the axis of the first bore, the edge bounding the free end of the second bore is not symmetrical around the edge's entire perimeter"

Court: plain and ordinary meaning

b. **Discussion**

The instant dispute turns on whether the claim term requiring an "asymmetric" edge should be redefined as "not symmetrical around the edge's entire perimeter." The Court finds that Defendants fail to demonstrate that such construction is appropriate as it appears that one form of asymmetry expressly described in the specification and claims of the '820 patent involves a second bore that can have a circular and symmetrical edge, but the claimed asymmetry is achieved because such bore does not "line up" with the first bore, thus creating an asymmetry when the second bore is

for the factfinder to determine whether an allegedly infringing device has such a diameter.

viewed relative to the axis of the first bore. '820 patent, 3:11-17; Claim 4. Defendants' construction would appear to misstate such asymmetry, and it is therefore rejected.

Alternatively, even assuming that Defendants' proposed construction is technically accurate and does not conflict with the offset bore embodiment, Defendants fail to illustrate why their proposed additional language ("around the edge's entire perimeter") is needed to clarify, or that it effectively clarifies, the concept of asymmetry when the claimed asymmetry is relative to the axis of another bore/hole. Cf. C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 863 (Fed. Cir. 2004) (discussing, and appearing to concur with, the plaintiff's concession that "merely rephrasing or paraphrasing the plain language of a claim by substituting synonyms does not represent genuine claim construction"); Am. Patent Dev., Corp. v. Movielink, LLC, 604 F. Supp. 2d 704, 716 (D. Del. 2009) (rejecting the plaintiff's proposed construction as "merely a verbose paraphrasing of the claim language that otherwise offers little to assist one of skill in the art in understanding the claims"); Encap LLC v. Oldcastle Retail Inc., No. 11-C-808, 2012 WL 2339095, at *9 (E.D. Wis. June 19, 2012) ("Claim construction is not intended to allow for needless substitution of more complicated language for terms easily understood by a lay jury."). In short, the Court agrees with Plaintiff's contention that the concept of "asymmetry," as

applicable in the context of the '820 patent, is adequately explained by the claims and specification, and that no construction of this "plain and ordinary" language is warranted.

8. "a plane going through the edge" ('820 patent)

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "a plane intersecting at least a portion of the edge"

Defendants: "plane extending along the entire edge of the second bore"

Court: plain and ordinary meaning

b. Discussion

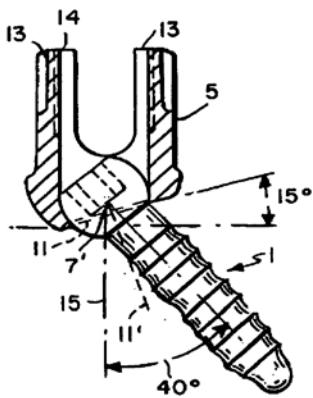
As with some of the other disputed claim terms, the parties' proposed constructions appear to seek to impermissibly limit (Defendants) or broaden (Plaintiff) the plain meaning of relatively easily understood terms, as contrasted with identifying a legitimate need to "clarify" or "explain what the patentee covered by the claims." O2 Micro, 521 F.3d at 1362. The Court rejects Defendants' proposed construction seeking to inject the "entire edge" of the second bore as a limitation because nothing in the intrinsic record suggests that adding the word "entire" is appropriate, as the claim language at issue references "a normal to a plane" not a normal to the plane. '820 patent, Claim 3 (emphasis added). To the extent Defendants are seeking to include the "entire edge" in the construction in reference to the entire bottom of the U-shaped receiver (that is, the area that begins at

the left most point of the bottom of the receiver pictured in Figure 3 and ends at the right most point), nothing in the '820 patent appears to limit the scope of the claimed invention to an "edge" at a consistent inclined angle from the left most point of the bottom of the receiver to the right most point.

Considering Plaintiff's "alternative" construction seeking to clarify the meaning of the disputed claim term, the Court rejects such proposal as improperly broadening the ordinary meaning of the claim language by adding "at least a portion of" the edge. As argued by Defendants, inserting such phrase could be interpreted as only requiring that the claimed plane intersect a single point on one "side" of the second bore, which could potentially allow an infinite number of planes oriented in virtually any direction. The phrase "intersecting at least a portion" (i.e., making contact at as little as one point) is inconsistent with the claim requirement that the plane go "through the edge."

Because neither proposed construction is supported by the claims, the specification, or other intrinsic or extrinsic evidence, the Court adopts a "plain and ordinary" meaning of this term, which is sufficiently clear to convey the requirement that there must be a plane resulting from an angled asymmetry, also referred to as a "chamfer," '820 patent, 3:7-10, that goes through the edge bounding the free end of the second bore. While Figure 3 of the '820 patent depicts one embodiment with such a plane: (1)

nothing in the '820 patent indicates that such diagram is the only possible configuration with an inclined plane going "through" the edge; and (2) such figure is a two dimensional drawing that does not effectively portray the entirety of the cylindrically constructed receiving part.¹⁴ Although it is difficult to visualize the difference between a qualifying plane and a non-qualifying plane in the abstract (particularly when only provided with two-dimensional drawings from a single vantage point), Defendants fail to demonstrate that the '820 patent requires, in all instances, that the chamfer create a plane that extends "along the entire edge" of the second bore. No construction is necessary to restate, limit, or expand the ordinary meaning of this disputed



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FIG. 3

Figure 3 arguably illustrates a plane going through "the entire edge" bounding the free end of the second bore. However: (1) it is unclear from the drawing whether the left side of the "edge" is inclined at all, let alone inclined at the same angle as the right side; and (2) even if this illustration meets Defendants' proposed limitation, Figure 3 is merely an illustration of one embodiment of an apparatus with a plane going through the edge, and should not, without clearer language disclaiming scope, be used to artificially limit the claim language, which only requires that a plane going "through the edge" that bounds the free end of the second bore meet the other listed claim requirements.

claim term, which provides a different manner to achieve the claimed asymmetry (an angled chamfer at the bottom of the receiving part) than the device described in the first embodiment (a circular countersink, such as the one made in the direction of the arrow labeled "9" in Figure 2).¹⁵ '820 patent, 2:49-55. Having rejected both parties' proposals that impermissibly seek to broaden, or narrow, the reach of the disputed claim language, the Court concludes that whether an allegedly infringing device (a three-dimensional object subject to a physical examination) has an angled plane going "through" the edge bounding the free end of the second bore is a question for the factfinder.

9. "a rod for connecting to the shaft, the rod having a pre-determined diameter" ('784 patent)

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "any one rod in the receiving part having a fixed diameter"

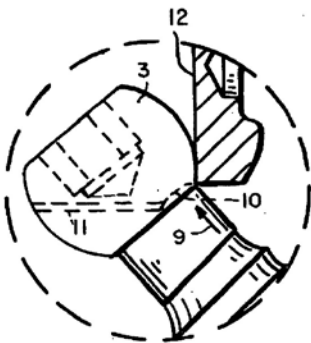


FIG. 2

¹⁵ The circular countersink depicted on the right side of the receiving part (labeled 10), is, at least in one embodiment, made in the direction indicated by arrow 9, and is notably different from the angled chamfer cutout that creates an incline for a plane to extend through, as depicted in Figure 3. Put simply, one type of asymmetry is a countersink (which may be circular) made from the bottom, and likely angled up and in, and the other asymmetry is an angled "chamfer" cutout made from the side.

Defendants: "one, and only one, rod having a given diameter for connecting to the shaft"

Court: "a rod for connecting to the shaft, the rod having a diameter selected in advance"

b. Discussion

The parties' claim construction dispute centers on whether the anchoring element of the '784 patent should be interpreted as being strictly limited to only accepting a connecting "rod" of a single precise diameter. After carefully reviewing the parties' arguments and the language of the '784 patent, to include the specification, the Court finds that Plaintiff's proposed alternative construction seeks to improperly expand the scope of the disputed claim, whereas Defendants' proposed construction seeks to artificially limit its scope to a single precisely sized rod.¹⁶

The Court agrees with Defendants that it is clear from the '784 patent's specification that at least one preferred embodiment is described as accepting only one sized rod, see, e.g., '784 patent, 3:18-20; however, nothing in the claim language or specification requires that the claimed rod of a "predetermined diameter" must always be "one and only one" sized rod in all

¹⁶ This Court agrees with Plaintiff's position that extrinsic evidence in the form of statements excerpted from the specification of a completely different patent that was issued after the '784 patent that broadly characterize "typical" bone anchoring devices in the field as being limited to accepting one-sized rod "sheds no light[, or virtually no light,] on whether the claims of the ['784 patent] are limited" to a bone anchoring device that only accepts a rod of one specific diameter. Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1211 (Fed. Cir. 2002).

embodiments. Rather, the claims only require: (1) that the diameter of the rod is determined in advance; and (2) the rod of a pre-determined acceptable diameter, once inserted into the receiving device, would satisfy the other claim requirements setting forth required comparative predetermined measurements. Stated a little differently, the fact that there are other patent requirements establishing comparative measurements that are taken in reference to the rod, and the fact that such measurements must be "determined in advance," does not call for the Court to redefine the easily understood requirement that the rod itself must have a diameter that is determined "in advance" (which presumably means at the time of manufacturing). Rather, whether such separate claim requirements are satisfied is a matter to be taken up by the factfinder when determining whether an allegedly infringing device actually meets the limitations recited in the claims. Although the ability to accept two differently sized rods is clearly not "taught" by the specification as an advantage of the '784 patent, neither the '784 patent, or any cited prosecution history, appear to exclude the possibility that covered embodiments be manufactured to accept, for example, both a 4.75 mm rod as well as a 5.0 mm rod, as long as both rods satisfy the other claim requirements that mandate specific pre-determined comparative distances measured in reference to such rod. See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111,

1117 (Fed. Cir. 2004) (“[E]ven where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.”) (internal quotation marks and citation omitted).

Further illustrating the fact that the '784 patent does not evidence an intent to only cover a receiver capable of accepting a single precisely sized rod, when describing a first embodiment, the specification states that the “U-shaped” recess of the receiving part is constructed so that it is “dimensioned just large enough for rod **100** to be inserted and held by the channel.” '784 patent, 3:18-20. Such embodiment-specific limitation appears to require that only one-sized rod could be used. However, such embodiment-specific limitation is not repeated in the claims, nor is it described as a necessary element for all embodiments. Rather, the '784 specification goes on to describe other embodiments, to include an embodiment with a pressure element that has its own “U-shaped recess **37** whose dimensions are such that the rod **100** can be inserted and is held therein.” Id. at 5:42-45. That fact that the recess in the pressure element is not described as being dimensioned “just large enough” for the rod to be inserted, but only requires that the recess allow the rod to be “held therein,” suggests an absence of the “just large enough” requirement because the patentee clearly knew how to describe such

limitation when it was intended.¹⁷ For the reasons outlined above, the Court rejects Defendants' effort to limit the construction of "predetermined diameter," to always mean that one and only one precisely sized compatible rod can be used.¹⁸

As outlined above, the Court rejects both parties' constructions, and adopts a construction very similar to the actual claim language, offering only the added clarification that "predetermined diameter" means a specific diameter that is "determined in advance." See IGT v. Bally Gaming Int'l, Inc., 659 F.3d 1109, 1118 (Fed. Cir. 2011) (finding that the district court properly applied a "plain meaning" interpretation of the claim term "predetermined event" as "the occurrence of one or more conditions chosen in advance") (emphasis added); see also Lamoureux v. AnazaoHealth Corp., 669 F. Supp. 2d 227, 252 (D. Conn.

¹⁷ The Court freely admits its lack of knowledge as to the measurement "system" typically used in the industry; however, the scope of the patent claims should not be dictated by current industry practices or products, but are instead defined by the claim terms. In probing the parties' dispute, the Court considers the fact that a 3/16 inch rod and a 5 mm rod would have similar but different diameters, yet Defendants fail to demonstrate that the term "rod with a predetermined diameter" should be read to necessarily exclude an embodiment with a pressure element dimensioned such that both a 3/16 inch rod, and a 5 mm rod, "can be inserted and held therein" with the pressure element forming "a base in which the rod is supported." '784 patent, 5:42-48. Whether a specific anchoring element is constructed to receive two similarly size rods yet still meets the other requirements of the identified "pre-determined" distances is a question for the factfinder.

¹⁸ In addition to the above, it is notable that the specification teaches that the pressure element is a separate structure from the receiving part that "can be inserted in the receiving part from the upper end." '784 patent, 5:32-35. Nothing in the intrinsic record appears to prevent the claimed receiver from accepting two different pressure elements with slightly different U-shaped recesses to support/hold the rod, each designed to accept a slightly differently sized rod.

2009) ("The Court finds that one of ordinary skill in the art would construe 'predetermined distance' as 'a measurement that is specified or determined beforehand.'"). Although the adopted construction was not initially proposed by the parties, Plaintiff's counsel indicated at the Markman hearing that Plaintiff had no objection to a construction requiring "a rod having a diameter selected in advance." ECF No. 110, at 127.

10. "an angle of 90 degrees" ('060 and '173 patents)

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "an approximately 90 degree angle formed with the central axis"

Defendants: "an angle of exactly 90 degrees"

Court: plain and ordinary meaning

b. Discussion

The instant dispute, in simple terms, is whether a claimed 90 degree angle needs to be 90 degrees, and the Court easily concludes that neither parties' proposed Markman construction is necessary to clarify that the angle at issue must be 90 degrees. The Court therefore finds that no construction is necessary beyond "plain and ordinary meaning," with the adoption of such construction constituting an express rejection of Plaintiff's contention that an angle of "approximately 90 degrees" is enough to satisfy this claim requirement. The Court agrees with Defendants that Plaintiff elected this clearly stated measurement during patent prosecution

in order to overcome prior art, and it did so without invoking any broadening language such as "about" or "approximately." See Cobalt Boats, LLC v. Brunswick Corp., 773 F. App'x 611, 616 (Fed. Cir. 2019) ("Where a precise value is included in the claim without a term such as 'about,' we interpret the claim language as imposing a strict numerical boundary, absent evidence that such a construction would be inconsistent with the intrinsic evidence.").

While a review of the parties' arguments suggests that Plaintiff may have previously had the chance to overcome prior art by drafting its claim to require an angle of "approximately 90 degrees" or an angle "between 88 and 92 degrees," Plaintiff did not pursue such course, but instead clearly included the precise measurement of "90 degrees" in its claim terms, and it clearly stated during the prosecution of the '060 patent that the "key limitation" has always been "a flat thread that has two flanks, both enclosing an angle of 90 degrees." ECF No. 56-3, at 4. Put simply, Plaintiff is bound by its election to take such position during patent prosecution. See Norian Corp. v. Stryker Corp., 432 F.3d 1356, 1361-62 (Fed. Cir. 2005) (explaining that: (1) "there is no principle of patent law that the scope of a surrender of subject matter during prosecution is limited to what is absolutely necessary to avoid a prior art reference"; (2) "it frequently happens that patentees surrender more through amendment than may have been absolutely necessary to avoid particular prior art"; and

(3) the Federal Circuit holds “patentees to the scope of what they ultimately claim, and . . . [has] not allowed them to assert that claims should be interpreted as if they had surrendered only what they had to”) (emphasis added).

The Court therefore finds that the claim language expressly requiring an enclosed angle of 90 degrees actually requires an enclosed angle of 90 degrees, a finding that is rather unremarkable in this Court’s view. See K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1364 (Fed. Cir. 1999) (“That the applicant could possibly have added [less restrictive] terms . . . to create a patentable distinction with the asserted prior art is simply irrelevant to [the court’s] claim construction task” because “[c]ourts do not rewrite claims” and must “give effect to the terms chosen by the patentee.”). Notably, even if some ambiguity in claim scope can be said to exist based solely on an examination of the language of the claims and specification, Defendants have carried their burden to demonstrate a “clear and unmistakable” disclaimer of threads that enclose angles greater than, or less than, 90 degrees. Trivascular, Inc. v. Samuels, 812 F.3d 1056, 1063 (Fed. Cir. 2016). In reaching such conclusion, the Court agrees with Defendants that the subsequent claim language permitting cross sections of the threads to be “substantially rectangular,” as well as the related reference to the permissibility of “rounded corners,” does not modify the clear requirement that the angle enclosed by these

threads must still be 90 degrees. '060 patent, 3:35-44. Although the Court largely agrees with Defendants' position on this term, the Court declines to adopt Defendants' proposed construction importing the word "exactly," as such word is unnecessary to clarify the fact that the claim covers angles enclosing 90 degrees.

C. '600 patent

The '600 patent is titled "Bone Anchoring Device" Such patent covers a surgical anchoring device similar to those discussed above, and focuses on the utilization of a "pressure element" that is insertable into the receiving part of the bone anchoring device, and manufactured such that the pressure element is moveable within the receiving part after it is inserted.

11. "restrict upward movement"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "hindering or limiting movement in the upward direction"

Defendants: "restricts, but does not fully prevent upward movement"

Court: "hindering or limiting movement in the upward direction"

b. Discussion

The parties' dispute involves whether the claimed feature that "restricts upward movement" of the "pressure element" that is movable within the U-shaped recess of the receiving part, as asserted in Claims 1, 6, 13, and 26 of the '600 patent, is

permitted, at some point, to fully prevent upward movement. After carefully considering the language of the disputed claim terms and the specification, as well as the prosecution history, the Court finds that Plaintiff's proposed alternative construction is appropriate to clarify how a person of ordinary skill in the art would interpret the word "restrict" as used in the asserted claims of the '600 patent. Such construction is consistent with how the word "restrict" would likely be interpreted by an ordinary person that is not skilled in the art, but the Court finds that a clarification is appropriate to ensure that the disputed claim language is appropriately given its "full scope," which covers both hindering and limiting, depending on the context in which such term is used. Middleton, Inc. v. Minnesota Mining & Mfg. Co., 311 F.3d 1384, 1389 (Fed. Cir. 2002).

It appears to the Court that the limitation that Defendants seek to add through the Markman process (i.e., that "restrict" necessarily means it can never fully prevent movement) is not dictated by the claim language or the specification. Importantly, nothing in the claims suggests that there cannot be a "prevention" of further upward movement at some position beyond the "first position," which is the position where the claimed spring element "engages" the wall "to restrict," but at least initially, not fully prevent upward movement. '600 patent, Claim 1.

Similarly, the specification suggests that the limiting language proposed by Defendants is improper because the specification discusses both embodiments in which further upward movement is always permitted beyond the initial "restriction," and embodiments in which upward movement at some point may be fully prevented. Specifically, some embodiments are described as having a pressure element that is configured to "allow insertion and removal of the pressure element" because its "detent" is symmetric (such as being "shaped as a portion of a sphere"). Id. at 5:7-14 (emphasis added); 5:41-49. In contrast, other embodiments indicate that the use of an asymmetric detent will "allow insertion but prevent removal of the pressure element," although it is possible that removal may still be accomplished "using a specific tool." Id. at 4:38-47; see Hill-Rom Servs., Inc. v. Stryker Corp., 755 F.3d 1367, 1379 (Fed. Cir. 2014) ("A construction that would exclude the preferred embodiment is rarely, if ever, correct and would require highly persuasive evidentiary support.") (internal quotation marks and citation omitted).

Turning to the prosecution history, as argued by Plaintiff, it is first notable that Defendants do not rely on statements disclaiming scope made by the patentee during prosecution, but rather, rely on an examiner's amendment/stated reason for allowance. Importantly, "an examiner's unilateral statement does not give rise to a clear disavowal of claim scope by the

applicant," Alfred E. Mann Found. for Sci. Research v. Cochlear Corp., 841 F.3d 1334, 1341 (Fed. Cir. 2016); rather, the Court should consider what the patentee argued in order to overcome the prior art. Here, there is no indication in the prosecution history before the Court that the patentee overcame prior art by arguing, or even suggesting, that the claimed "restriction" on upward movement could not "fully prevent" upward movement at some point after it allows a degree of upward movement beyond the initial point of engagement. Moreover, there is evidence suggesting that the patentee contemporaneously disagreed with the accuracy of the examiner's comments, ECF 62-5, and the longer of the two comments made by the examiner is arguably more clear in identifying the distinguishing feature as allowing further upward movement beyond the point of engagement, ECF No. 56-6, at 7.

Accordingly, the Court rejects Defendants' proposed construction as: (1) seeking to transform a PTO examiner's stated reason for allowance into the patentee's purported disclaimer of claim scope; and (2) seeking to extend the examiner's statement beyond what was stated by the examiner in order to create a new limitation regarding what can, or more correctly, what cannot occur at some point "beyond" the initial limitation (but not initial prevention) on upward movement.¹⁹ Plaintiff does not appear to

¹⁹ While the Court agrees with Defendants that the prosecution history reveals that Plaintiff disclaimed a "full-stop" at the first position in

dispute the fact that all claims at issue in this case use the word "restrict" to illustrate that the pressure element must be movable upward beyond the first position/first point of engagement, but these same claims are silent as to whether, at some point after engagement occurs, and after additional upward movement is permitted, the claimed spring element cannot "fully prevent" upward movement. Notably, because the claimed invention is described as a device "comprising" the required limitations (to include the initial hindering, but not preventing, upward movement), neither the claim language, nor the claim language as informed by the prosecution history, should be read to mandate the absence of a complete prevention of upward movement caused by a surface of the pressure element engaging the wall of the receiving part after the pressure element has been moved upward beyond the first point of engagement. See Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc., 246 F.3d 1336, 1348 (Fed. Cir. 2001) ("In the parlance of patent law, the transition "comprising" creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements.").

order to distinguish the prior art, nothing indicates a clear disavowal of a full stop at some point after additional upward movement occurs beyond the engagement that occurs at the first position.

For these reasons, Defendants fail to demonstrate that Plaintiff clearly and unambiguously disavowed an interpretation of the word "restricts" such that the term does not encompass both: (1) initially hindering but not fully preventing upward movement, and later allowing further upward movement; and (2) initially hindering but not fully preventing upward movement, but at some later point fully preventing further upward movement. See Middleton, Inc. v. Minnesota Mining & Mfg. Co., 311 F.3d 1384, 1389 (Fed. Cir. 2002) ("The meaning of patent terms depends on the usage of those terms in context by one of skill in the art at the time of application.") (emphasis added). The Court rejects Defendants' proposed construction as improperly seeking to narrow the scope of the claim language through impermissible reliance, and possible misinterpretation, of the examiner's comments, and adopts Plaintiff's proposed alternative construction, which effectively clarifies that the word "restricts" should be given the "full breadth" of its common meaning.

12. "engages a wall of the receiving part defining the recess that extends into the at least one leg"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "conformed to make contact with a wall of the receiving part defining the recess that extends into the at least one leg"

Defendants: "engages a wall of the receiving part within the recess that extends into the at least one leg"

Court: plain and ordinary meaning

b. Discussion

The parties' dispute turns on the proper interpretation of the phrase "a wall . . . defining the recess." Upon review, the Court interprets Defendants' proposed construction as seeking to add an extraneous limitation not found in the intrinsic record, as Defendants attempt to redefine the phrase "the wall . . . defining the recess" so that it is limited to the portion of such wall that falls "within the recess." As reflected in several diagrams included in the parties' Markman briefs and slides, the parties' disagreement includes a dispute over how to interpret the "wall . . . defining the recess" in a hypothetical embodiment with an "overhang," with Defendants arguing that such overhanging "corner" falls outside the recess identified in the claims.

Defendants appear to rely on the overhang hypothetical in an effort to limit the disputed term to only the sub-part of a continuous horizontal wall that does not extend beyond the lower inside wall of the receiving part;²⁰ that is, they seek to exclude the "overhanging" portion of the horizontal wall by adding the language "within the recess." Plaintiff rejects such construction as improperly rewriting claim terms, proposes a "plain and ordinary" construction, and focuses its argument on the fact that

²⁰ This Court labels such wall as "horizontal" solely for clarity in that such wall is horizontal in all of the diagrams contained within the parties' Markman briefs and slides. Nothing in the patent itself appears to expressly require that such wall be horizontal. Similarly, the Court's use of the word "vertical" to reference the inside wall of the receiving part is merely for clarity in reference to the parties' diagrams.

multiple described embodiments appear to require engagement at the corner of the horizontal wall defining the recess. See ECF No. 61, at 24 (presenting argument and illustrations of "overhang" hypothetical). Plaintiff, however, at times appears to argue that the vertical wall above the recess, that is, the inner wall of the leg of the receiving part that would be unchanged even if there was not a "recess" below it in such leg, also "defines the recess." Plaintiff alternatively proposes a construction that does not clarify the required place of engagement, but instead, redefines engagement as "making contact."

Having considered both parties' proposals, the Court rejects Defendants' proposed construction as improperly redefining the disputed claim term without a valid basis in the claim language, the specification, or any other intrinsic or extrinsic evidence. First, it is unclear whether a POSA (or an ordinary factfinder) would even conclude that the horizontal wall forming the corner of the overhang is "outside" the recess as posited by Defendants, because in the hypothetical overhang embodiment raised by the parties, the entire section cut into the wall of the leg of the receiving part is "recessed" from the upper inside wall of the leg. Second, even assuming that the horizontal part of the corner of a hypothetical overhang is properly categorized as "outside" the recess, nothing in the claim language requires that engagement occur "within" the recess, but rather, the pressure element must

engage "a wall of the receiving part defining the recess that extends into the . . . leg." '600 patent, Claim 1 (emphasis added). While the Court will not be drawn into an infringement analysis at the Markman stage, the Court's Markman review reveals that Defendants offer no valid argument for redefining "the wall defining the recess" as the wall "within the recess" so as to read out engagement with any portion of the continuous horizontal wall that "defines" the recess cut into the leg. Rather, based on the context of the claim language,²¹ as supported by the specification, it is clear that the plain and ordinary meaning of the term "wall defining the recess" means what it says - the entire wall defining the recess that extends into the leg, not merely a subpart of such wall as identified by Defendants.²²

In addition to rejecting Defendants' efforts to redefine such term, the Court rejects Plaintiff's suggestion that engagement with the vertical wall of the leg of the receiving part that is "above" the corner created by the recess constitutes engagement

²¹ The fact that independent Claim 26 indicates that a surface of the spring element that "extends radially outward" must only engage "a first portion of a wall of the receiving part defining the recess that extends into the . . . leg" further supports this Court's resolution of this dispute. '600 patent, Claim 26 (emphasis added).

²² Plaintiff aptly argues that several exemplary embodiments in the specification appear to rely on engagement that is taught as occurring at the "corners" created by the horizontal walls defining the recess. ECF No. 61, at 24. Absent the re-drafting of the claim requirements sought by Defendants, the entirety of the "horizontal" wall in the hypothetical overhang arrangement posited by the parties is still one of the walls defining the recess that extends into the leg of the receiving part.

with a wall "defining" the recess. Frankly, the Court is unsure whether Plaintiff persists in such argument as Plaintiff has not proposed a construction suggesting that such vertical wall, which would be unchanged even if there were not a recess, somehow "defines" the recess. The Court's adoption of a plain and ordinary construction is deemed sufficient to avoid such a reading of the claim terms (to the extent that it is even proposed) and is also a rejection of Plaintiff's "alternative" construction that fails to add clarity regarding the point of engagement and potentially expands the scope of the word "engages." To the extent that engagement of an allegedly infringing device occurs right at the "corner" where the horizontal wall defining the recess meets the vertical wall forming the inside wall of the leg into which the recess extends, the factfinder will have to carefully examine the facts to determine whether engagement is occurring with the horizontal wall defining the recess that extends into the leg.

13. "the surface of the spring element at the engagement is inclined relative to a central axis of the pressure element such that the pressure element is movable upwards past the first position"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "a spring element with a surface that is slanted relative to the central axis of the pressure element which allows upward movement of the pressure element past the first position"

Defendants: "the surface of the spring element at the engagement is inclined relative to a central axis of the

pressure element to enable movement of the pressure element upwards past the first position"

Court: plain and ordinary meaning

b. Discussion

The parties' dispute turns on the scope of the phrase "such that," with Defendants asserting that this simple language should be rewritten to require a purpose -- "to enable." In response, Plaintiff argues that no construction is necessary, or alternatively, "such that" should be interpreted in context to mean "which allows."

A review of the parties' arguments and the intrinsic record reveals that Defendants have offered no valid basis for a construction that rewrites this disputed claim language, nor do Defendants highlight any apparent ambiguity or confusion in the inherently simple claim language as it is written. The Court therefore rejects Defendants' proposal as an attempt to redraft the claim language to restrict the broad term "such that" to a more restrictive term "to enable."²³ Finding that the dispute is resolved by rejecting Defendants' proposal, the Court agrees with Plaintiff's primary contention that the term should be given its plain and ordinary meaning.

²³ To the extent the "reason" Defendants offer for their proposal is to "clarify" that a similar design with a similar function should be deemed outside the scope of the claim, such issue is appropriately addressed as part of an infringement analysis.

14. "first position/first position relative to the receiving part"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - alternatively, "a position"

Defendants: "a position where a surface of the spring element is in engagement with the receiving part within the recess"

Court: plain and ordinary meaning

b. Discussion

Consistent with Defendants' interpretation of the phrase "defining the recess," (see disputed Markman term 12 above), Defendants seek to add limiting language to the construction of this disputed term to require engagement "within the recess" rather than requiring engagement with the wall defining the recess. The Court rejects such construction for the same reasons outlined above.

Outside of Defendants' efforts to import the phrase "within the recess," the remainder of Defendants' proposed construction of this disputed term appears accurate. However, additional adjacent claim language that is not excerpted herein already clearly indicates that "first position" is a position of the pressure element where the surface of the spring element engages a wall defining the recess, and thus, no further construction is necessary. The Court, therefore, resolves this dispute by rejecting Defendants' proposal and adopting a "plain and ordinary"

construction that does not add any new limitations to the otherwise clear claim language.

D. '121 patent

The '121 patent is titled "Bone Anchoring Device," and covers a surgical anchoring device similar to those previously described herein. As set forth in Part I above, the alleged infringement of the '121 patent was initially the subject of a separate lawsuit between Plaintiff and Defendants (2:19cv325), but such case was consolidated with the earlier-filed patent infringement case between the same parties (2:18cv585). ECF No. 76.

15. "inner wall"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning - "i.e. inner surface of a structure"

Defendants: "a substantially continuous structure extending along the surface of a bore"

Court: plain and ordinary meaning

b. Discussion

The parties' dispute involves whether the "inner wall" of the receiving part of the bone anchoring device claimed in the '121 patent, a wall that exerts a "holding force" on the pressure member when it is inside the receiving part, must be a "substantially

continuous structure.”²⁴ Defendants seek to add the “substantially continuous” limitation, but offer no compelling argument for requiring a “substantially continuous” inner wall. Notably, Defendants fail to point to any statements in the specification suggesting a need for such facially narrower construction, nor do they point to disavowal or other guidance from the prosecution history, instead merely arguing that such construction is “consistent” with embodiments described in the specification. Because the embodiments in the specification are described as merely examples of various ways that a covered device could be constructed, such embodiments do not operate to restrict the full scope of the claim terms. Moreover, as argued by Plaintiff, it appears that the “set screw” embodiment illustrated in Figure 14, described in the specification, ‘121 patent, 8:1-32, and claimed in dependent Claim 10, reflects a covered device that may lack a “substantially continuous” inner wall because the screw can be moved inward to hold the pressure member such that the set screw is no longer aligned with the rest of the inner wall. Defendants’ failure to explain from where it chose the limitation “substantially continuous,” nor explain why a POSA would adopt

²⁴ At the outset, the Court notes that the interpretation of the term “inner wall” in the ‘121 patent is markedly different from the claim term “wall” in the ‘595/’485 placeholder patents based on the context in which such term is used in each patent. The context of the placeholder patents requires that the “inner wall” is a separate structural wall, whereas the context of the ‘121 patent clearly reveals, and the parties do not appear to dispute, that the “inner wall” refers to the inner surface of the described wall.

such understanding, supports rejection of Defendants' proposed limitation on this otherwise easily understood term.²⁵

With no "continuity" limitation restricting the concept of "inner wall" apparent from the claim terms, and no limiting language in the specification nor highlighted disavowal in the prosecution history, the Court agrees with Plaintiff that a "plain and ordinary" construction is appropriate for this easily understood term.

16. "holding force"

a. Proposed Constructions & Court Ruling

Plaintiff: no construction required, term defined by the claims

Defendants: "a frictional force that substantially restricts movement of the pressure member"

Court: no construction required

b. Discussion

Defendants seek to construe the claim language "holding force" to include two limitations not expressly set forth in the claim language: (1) "a frictional force," (2) that is strong enough to "substantially restrict[]" movement. Defendants argue that the embodiments in the specification support such limiting language,

²⁵ The Court notes its agreement with Plaintiff's contention that Defendants' proposal would likely add ambiguity to the scope of the claim terms because adding the word "substantially" without any intrinsic guidance regarding the bounds of such term injects confusion as to the difference between structures that would, and would not, qualify as an "inner wall."

first arguing that the specification reveals that the only type of force that could create the claimed "holding force" is "friction" because the force is described in the patent as being created by an "interference fit." Second, Defendants argue that the "strength" of the frictional force must necessarily be "substantial" in order to accomplish the required results of restricting the movement of the pressure member. Defendants do not effectively describe the contours of the proposed word "substantial," nor do they demonstrate that such purportedly clarifying term would reduce jury confusion regarding the scope of the disputed claim term "holding force."

Plaintiff disputes the need for any clarification of the claim language "holding force", contending that the scope of the claim term "holding force" is fully defined by the context of the surrounding language in Claims 1 and 33, further arguing that it is improper to import limiting language from exemplary embodiments in the specification. Plaintiff further argues that adding the word "substantially" injects needless confusion.

i. "frictional force"

As to the propriety of limiting the breadth of the claimed "holding force" to "a frictional force," a review of the entirety of the '121 patent suggests that the claimed "holding force" should not be redefined to be expressly limited to only "frictional" forces. First, when examining the two asserted independent claims

(Claims 1 and 33), the claim language reveals that the patentee chose to use the word "friction" when describing how the screw head is temporarily held in position, but chose not to use the term "friction" when describing the "holding force" that temporarily keeps the pressure member in a first position. '121 patent, Claim 1. The claim language therefore suggests that "when the inventor wanted to restrict the claims to require the use of a [frictional holding force], he did so explicitly." Kara Tech. Inc. v. Stamps.com Inc., 582 F.3d 1341, 1347 (Fed. Cir. 2009).

Second, a comparison of the language of independent Claim 1 with the language of dependent Claims 2 and 3 further suggests that the term holding force was intended to have a broader meaning than "frictional force," and absent evidence to the contrary, should be afforded its full scope. See Home Diagnostics, 381 F.3d at 1358 (explaining that patentee is entitled to the "full scope" of the claim language, absent "clear disavowal"). Notably, Claim 2 requires "a radial force that generates friction," and Claim 3 requires a pressure member that forms an "interference fit with the receiving part." '121 patent, Claims 2, 3. The fact that such additional limitations are not required to be present in Claim 1 raises further questions as to whether the "holding force" described in Claim 1 must necessarily be a "frictional force." See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004) ("As this court has frequently stated, the presence of

a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim."); United States v. Telectronics, Inc., 857 F.2d 778, 784 (Fed. Cir. 1988) (finding that the "district court erroneously construed claim 1 so that its limitations are the same as dependent claim 2").

Third, consistent with the discussion immediately above, the Court rejects Defendants' efforts to rely on exemplary embodiments in the specification requiring an "interference fit" in an effort to demonstrate that the holding force must be frictional. Importantly, not only is an "interference fit" included in the claims as a dependent claim, '121 patent, Claim 3, but the specification also describes a "set screw" embodiment and a "crimping" embodiment that are both expressly described as differing from the "first embodiment" because "there is no interference fit connection between the receiving part . . . and the pressure member," id. at 8:6-9, 8:38-44 (emphasis added).

Fourth, and finally, the Court rejects Defendants' argument that the "frictional force" limitation is appropriate because all of the embodiments in the specification reference the existence of a frictional force, to include the "set screw" and "crimping" embodiments. Id. at 8:26-27; 8:52-54. "To be sure, the specification repeatedly discusses" a frictional force in all five of the "detailed embodiments in the patent." Kara Tech., 582 F.3d

at 1347. "This is not enough, however, to limit the patentee's clear, broader claims," because the "claim language read in the context of the specification does not require that [the holding force is only a frictional force, and] the patentee did not act as his own lexicographer or disavow claim scope." Id.; see Hill-Rom Servs., 755 F.3d at 1373 (explaining that while there are "no magic words that must be used," in order to "deviate from the plain and ordinary meaning of a claim term to one of skill in the art," the intrinsic record must evidence a "clear intent to do so"). Because it "is the claims that define the metes and bounds of the patentee's invention," as contrasted with the "specification embodiments," and because the claimed "holding force" is described in differing ways, the Court finds that there is no valid basis to "import a limitation from the specification into the claims" to require that the holding force is strictly limited to a "frictional force." Kara Tech., 582 F.3d at 1347-48; see Cont'l Circuits LLC v. Intel Corp., 915 F.3d 788, 797 (Fed. Cir.), cert. denied, 140 S. Ct. 648 (2019) (acknowledging the "difficulty in drawing the fine line between construing the claims in light of the specification and improperly importing a limitation from the specification into the claims," and explaining the importance of keeping in mind that the "purposes of the specification are to teach and enable those of skill in the art to make and use the

invention and to provide a best mode for doing so") (internal quotation marks and citations omitted).

Expounding on the above, the Court has substantial doubts regarding the accuracy of Defendants' contention that the only type of force envisioned in the '121 patent is "frictional." Although the undersigned judge is not "skilled in the art" and admittedly lacks expertise in this field, the Court notes that independent Claims 1, 24, and 29 all describe a force created by the interaction between the "outer surface of the pressure member" and "a portion of the inner wall of the receiving part that is directed towards the bore axis." '121 patent, Claims 1, 24, 29 (emphasis added). This certainly is consistent with the frictional force described in numerous places in the specification. However, in contrast, independent Claim 33 describes a holding force "wherein at least part of the holding force" acting on the pressure member is "directed radially relative to the bore axis," and dependent Claim 34 adds back the limiting language found in independent Claims 1, 24, and 29, that is, that "a portion of the inner wall of the receiving part that exerts the holding force on the outer surface of the pressure member is directed towards the bore axis." Id. at Claims 33, 34 (emphasis added). The fact that independent Claim 33 only requires "at least part of the holding force" to act in the specified direction and the fact that the limiting language regarding the relative direction of the wall

portion that exerts the holding force appears only in dependent Claim 34 suggest, at a minimum, that the entire holding force required by independent Claim 33 need not be "frictional." Id. (emphasis added); see InterDigital Commc'ns, LLC v. Int'l Trade Comm'n, 690 F.3d 1318, 1324-25 (Fed. Cir. 2012) (discussing the "doctrine of claim differentiation," the presumption created, and the requirement of "strong contrary evidence" to overcome such presumption).

Reviewing the specification to determine if any other "type" of force is taught or otherwise mentioned, the Court notes the existence of an embodiment with "projections" on the pressure member that are described as first being compressed, and then "elastically" expanded, when they reach "grooves" within the receiving part. '121 patent, 7:54-64. While no experts have testified as to such subject, the "force" described in the specification associated with such projections would appear to be accurately characterized as a "compression force" or "elastic force"—or possibly a "normal force" after being snapped into a groove that limits movement—rather than a "frictional force." Notably, Figures 11a and 11b of the '121 patent depict two projections in a groove/recess that visually appear to prevent upward movement by a means other than friction.²⁶ For all of these

²⁶ The Court does not suggest that the embodiment pictured in Figures 11a and 11b does not rely on friction as a "holding force"; to the contrary,

reasons, considered collectively, Defendants fail to demonstrate that the proposed "frictional force" limitation properly defines the scope of the claimed "holding force."

ii. "substantially restricts movement"

The Court similarly rejects Defendants' efforts to read the extraneous limitation "substantially restricts movement," into the disputed claim term. It does not appear that the phrase "substantially restricts" is ever used in the specification, and the required restriction on movement is adequately described in the claim language such that further clarification/limitation is unnecessary. Accordingly, in the absence of a suggestion from the intrinsic record that such redrafting of the claims is appropriate, and in the absence of any apparent "confusion" that results from the claim language in its current form, Defendants fail to demonstrate that the construction "substantially restricts" is needed or appropriate. See K-2 Corp., 191 F.3d at 1364 ("Courts do not rewrite claims; instead, [they] give effect to the terms chosen by the patentee."). Furthermore, adding the word "substantially" would appear to create, rather than remedy, ambiguity/confusion regarding the scope of the claim terms. See E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d

friction is also relied on as illustrated by the part of the pressure member labeled as 65b" on Figure 11b. The point in referencing such figures is merely to illustrate the fact that the patent includes illustrations that depict another type of "holding force" (although apparently not a holding force that will allow further upward movement in the precise design depicted in the exemplary embodiment pictured in Figures 11a and 11b).

1430, 1433 (Fed. Cir. 1988) (discussing the impropriety of reading "extraneous limitations" into the claims, something that occurs when "a limitation [is] read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim") (emphasis added). The Court therefore rejects both of Defendants' proposed limitations, and agrees with Plaintiff that because the contours of the disputed term are sufficiently described in the claims, no further construction is needed.

17. "legs"

a. Proposed Constructions & Court Ruling

Plaintiff: "structures of the pressure member that define the sides of the surface that engages the rod"

Defendants: "elongated members that extend from the pressure member"

Court: "structures of the pressure member that extend from the rod receiving recess"

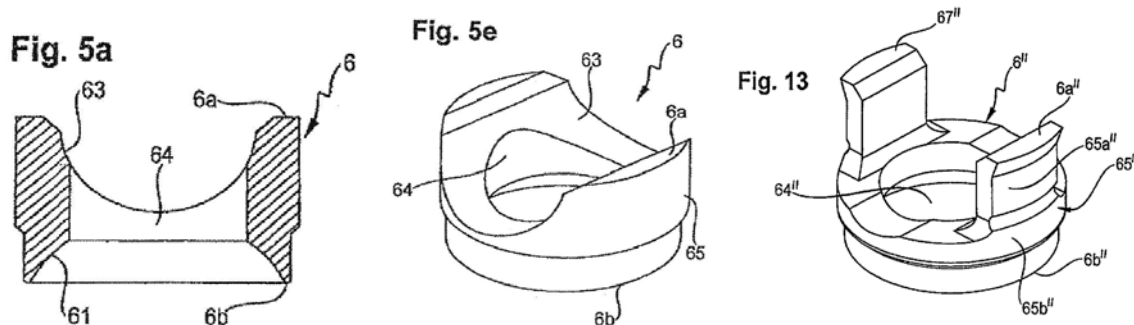
b. Discussion

Asserted Claims 18 and 33 of the '121 patent both describe the pressure member as having a "second surface for engaging the rod," which is a different surface from both the "outer surface" of the pressure member that interacts with the inner wall, and the "first surface" of the pressure member that engages the head of the bone anchoring element/screw. '121 patent, Claims 1, 18, 33. This "second surface" for engaging the rod is described in the

claims as "form[ing] two legs," *id.* at Claims 18, 33, and once the pressure member is inserted into the receiving part, the "legs" of the pressure member face the "first end" (the top in the relevant diagrams) of the receiving part, and in laymen's terms, the legs are the side portions of the cradle that holds the rod, *id.* at Claims 1, 33; Figs. 2, 3a, 5.

It appears that either parties' proposed construction would accurately describe the "legs" in most embodiments, with Defendants' proposal arguably still broad enough to reach the two "short" legged embodiments illustrated in the '121 patent.²⁷ However, Defendants' proposed construction remains problematic as the proposed requirement that the legs be "elongated" not only injects doubt into whether the shorter structures in Figures 5a and 5e would qualify as "legs," but could improperly read out other similar un-pictured embodiments with slightly shorter side structures that should properly be deemed "legs" as claimed in the patent.

²⁷ Figures 5a and 5e illustrate what can be described as "short" legs that extend upward on each side of the pressure member, whereas Figure 13 illustrate what can be described as "elongated" legs on each side.



On the other hand, Plaintiff's proposed construction also appears problematic as it risks an overbroad construction of this claim term that would not require structures that extend up from the rod receiving recess. While it appears from the parties' filings that "legs" is not a term of art with any special meaning in the field, both the patent itself and Plaintiff's own expert reference the "legs" of the pressure member in a manner consistent with the described "legs" of the receiver itself, to include references to the "free end" of the legs. See, e.g., '121 patent, 4:31-34; 7:54-54; ECF No. 87-2 ¶ 22-23. These references certainly reveal that the legs must have some identifiable length, but as Plaintiff correctly notes, no required dimensions are included in the patent, nor is there a requirement that the legs be "elongated."

In light of the above discussion and illustrations, the Court finds that Plaintiff's proposed construction risks being too broad and Defendants' risks being too narrow. Although the parties' proposed constructions are problematic, the Court still finds it necessary to construe such term, rather than adopt a "plain meaning" construction, because a plain meaning construction may not adequately resolve the parties' legal dispute, and the contours of the proper definition are not clearly apparent from common usage or the context of the specification (the specification does provide

some descriptions and illustrations of examples of "legs"). '121 patent, 4:31-34 & Fig. 4a.

The construction adopted by the Court includes elements of each parties' proposal, and as argued by Defendants, relies in part on statements made by Plaintiff's expert, who describes the legs as "extensions from the rod receiving recess." ECF No. 87-2 ¶ 23 (emphasis added). Such description is consistent with all diagrams in the specification, although such figures are, of course, only exemplary embodiments. The Court's construction also takes care not to place any artificial limits on a comparative requirement regarding the height versus the width of the claimed "legs," but instead endeavors to define the term to include not only the legs pictured in the specification, but also other embodiments with short "legs," noting that nothing in the intrinsic record creates a limitation on the required height of the "legs." Although the Court agrees with Plaintiff's contention that the intrinsic record lacks any requirement that the legs be "elongated," the claimed structure must still comport with the meaning of "legs" as understood by a POSA after reading the specification, which as Plaintiff's expert attests, requires identifiable structures on the sides of the rod receiving recess that extend toward the first end of the receiving part. Whether Defendants' allegedly infringing product(s) have structures that constitute "legs" is a question for the factfinder.

18. "upper side surface"

a. Proposed Constructions & Court Ruling

Plaintiff: plain and ordinary meaning

Defendants: the term is indefinite

Court: plain and ordinary meaning

b. Discussion

The parties' dispute turns on whether dependent Claim 35 is "indefinite" because it describes, without precise clarification, an "upper side surface" of the inner wall of the receiving part and an adjacent "lower side surface" of the inner wall. Defendants argue that the surrounding claim language does not explain which of several portions of the inner wall is being described as the "upper side surface," that the area Plaintiff identifies as the "upper side surface" is not in the "upper" half of the receiving part, and that the specification never uses the term "upper side surface" or "lower side surface." Defendants further contend that there are multiple surfaces in pictured embodiments that could be identified (or mistakenly identified) as an "upper side surface," and thus, the claim language lacks sufficient clarity to inform a POSA of what is being claimed. Plaintiff counters that a claim is permitted to be broad as long as it is not indefinite, further arguing that the disputed phrase is made up of easily understood words that, when "viewed in light of the specification . . . , inform those skilled in the art about the scope of the invention

with reasonable certainty." Nautilus, Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 910 (2014) (emphasis added).²⁸

"Because claims delineate the patentee's right to exclude, the patent statute requires that the scope of the claims be sufficiently definite to inform the public of the bounds of the protected invention, i.e., what subject matter is covered by the exclusive rights of the patent." Halliburton Energy Servs., Inc. v. M-I LLC, 514 F.3d 1244, 1249 (Fed. Cir. 2008). "Otherwise, competitors cannot avoid infringement, defeating the public notice function of patent claims." Id. (citation omitted). The "common thread" across the cases in which the Federal Circuit has found indefiniteness is claims being drafted in such a way that "a person of ordinary skill in the art could not determine the bounds of the claims." Id. Claims are not indefinite merely because claim construction presents a "formidable" task and the end result is "one over which reasonable persons will disagree." Id. (quotation marks and citation omitted). Although the Federal Circuit has "not endorsed a regime in which validity analysis is a regular component of claim construction," Phillips, 415 F.3d at 1327, when indefiniteness is asserted, the defendant has "the burden of proving indefiniteness by clear and convincing evidence," BASF

²⁸ As clarified by the Supreme Court, the Federal Circuit's prior "insolubly ambiguous" test no longer controls the indefiniteness analysis, with the updated test asking whether a patent's 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, 572 U.S. at 901.

Corp. v. Johnson Matthey Inc., 875 F.3d 1360, 1365 (Fed. Cir. 2017) (citing Biosig Instruments, Inc. v. Nautilus, Inc., 783 F.3d 1374, 1377 (Fed. Cir. 2015)).

Having carefully reviewed this issue, the Court finds that Defendants have not carried their burden to demonstrate indefiniteness. First, the disputed provision is in a dependent claim, and it therefore only covers devices that also contain all of the numerous limitations set forth in independent Claim 33. Of the devices that are configured consistent with the Claim 33 limitations, there is presumably a subset of embodiments that include an "upper side surface" configured to contact the pressure member and a "lower side surface" that is recessed, and a subset of embodiments that do not. The fact that the parties may have an infringement dispute over whether a given design satisfies this simply phrased dependent limitation does not render such claim "indefinite," even if there is a colorable dispute over precisely what "upper side surface" refers to. See Nautilus, 572 U.S. at 910 (explaining that the definiteness requirement "mandates clarity, while recognizing that absolute precision is unattainable").

Second, the Court rejects Defendants' contention that a POSA would not understand that, when read in context, the use of the phrase "upper side" is relative to the description of the "lower side." The fact that there is another area of the receiving part

even "higher" than the "upper side surface" where a fixation screw will ultimately be secured does not render the term "upper" inaccurate, indefinite, or otherwise ambiguous. This is particularly true because the upper side surface is discussed in reference to the pressure member, and the '121 patent clearly reveals that the pressure member will only be near the very "upper end" of the receiving part during insertion. Moreover, after reading the disputed claim term in the context of the surrounding claim language and specification, the Court easily rejects Defendants' suggestion that one or more of the screw threads located near the "first end" of the receiving part (the top of the diagrams) could be reasonably interpreted by a POSA to constitute the "upper side surface" or the "recess[]" below the "upper side surface" referenced in Claim 35.

Third, the Court notes that although Claim 35 arguably lacks precise terminology describing the location of the "upper side surface," the fact that it requires the pressure member to be "configured to contact the upper side service" strongly undercuts Defendants' position that any "mere contact" during the insertion of the pressure member with the area around the screw threads would also satisfy such limitation. In fact, when read in the context of the other claims and specification, the "configured to contact" language, contained within a patent directed primarily at a pressure member that is subject to a holding force, but still

movable within the bore of the receiving part, is sufficient to inform those skilled in the art "with reasonable certainty" that the surface of the receiving part being addressed is the area of the inner wall below the screw threads that interacts with the pressure member after insertion.²⁹

Finding that Defendants fail to demonstrate that the claimed "upper side surface," read in the context of the specification and the language in the linked independent and dependent claims, would not provide a POSA with reasonable certainty of the structure being described, the Court rejects Defendants' indefiniteness argument, further finding that no construction of this term is necessary at this time (no construction was proposed by either party).

²⁹ Plaintiff argues in its brief that the curved wall creating the "accommodation space" for the screw head, as illustrated in Figure 3a of the '121 patent, qualifies as the recessed "lower side surface." See ECF No. 86, at 15. While not expressly argued by Plaintiff, and not pictured in Figure 3a, the specification discusses different "recesses" at the lower end of the coaxial bore in certain embodiments, as it: (1) discloses two opposing recesses "in the inner wall of the coaxial bore 41" that "may extend . . . into the accommodation space" to facilitate the insertion and rotation of a "sleeve-like insert piece," '121 patent, 4:53-67 (emphasis added); and (2) indicates that the "inner diameter of the coaxial bore **41** does not need to be constant" and "may have different portions with different diameters," id. at 4:48-52 (suggesting the possibility of a recessed lower portion). It therefore appears that, consistent with Claim 35, the specification does discuss embodiments with an upper side surface and a lower recessed side surface, further describing the purpose of at least one type of "oppos[ing] recesses" in the lower end of the coaxial bore and identifying such recesses in Figure 4c (although such top-view diagram fails to effectively illustrate the recesses). Such descriptions would provide a POSA with further context for understanding Claim 35.

IV. CONCLUSION

For the reasons set forth in detail above, the Court issues this Opinion and Order adopting the above constructions for the disputed claim terms of the patents-in-suit.³⁰

The Clerk is **REQUESTED** to send a copy of this Opinion and Order to counsel of record for the parties.

It is so **ORDERED**.

/s/ 

Mark S. Davis

CHIEF UNITED STATES DISTRICT JUDGE

Norfolk, Virginia
April 22, 2020

³⁰ The Court notes for the record that the "tutorial" portion of the Markman hearing, as well as the Court's questions, took such a lengthy period of time that there was little, if any, oral argument as to several of the disputed claim terms. While this Court does not intend to revisit any of the above constructions, it reserves the right to do so if necessary for the proper resolution of this case.