United States District Court,
E.D. Pennsylvania.

SYNTHES (USA),
Plaintiff.
v.
SMITH & NEPHEW, INC,
Defendant.

Feb. 4, 2008.

Background: Owner of patents directed to different types of bone plating systems for repairing bone fractures filed infringement action against competitor. Competitor filed motion for partial summary judgment.

Holdings: The District Court, Joyner, J., held that:
(1) term "studs" meant portions along side edges of plate's lower surface that provided reduce contact areas;
(2) term "open sections" meant undercuts in plate's lower surface that extended transversely through plate's side edge or side wall between screw holes; and
(3) phrase "less than about 2%" was impermissibly indefinite.

Motion granted in part and denied in part.

6,623,486, 7,128,744. Construed.

Brian M. Poissant, Jones Day, New York, NY, Brian M. Rothery, Charles E. Cantine, Kevin C. Ecker, Robert Hardman, Stroock & Stroock & Lavan LLP, New York, NY, Robert W. Hayes, Robert R. Reeder, Edward C. Tompsett, Cozen O'Connor, Philadelphia, PA, Brent P. Ray, Jones Day, Chicago, IL, for Plaintiff.

Gregory N. Stillman, Hunton & Williams LLP, Brent L. Vannorman, Norfolk, VA, Rodger L. Tate, Hunton & Williams LLP, Bradley T. Lennie, Washington, DC, Thomas E. Zemaitis, Pepper, Hamilton & Scheetz, Elizabeth S. Campbell, Pepper Hamilton LLP, Philadelphia, PA, for Defendant.

MEMORANDUM AND ORDER

JOYNER**, District Judge.**

At issue is the construction of disputed terms and phrases used in U.S. Patent No. 5,053,036 ("the '036 patent"), U.S. Patent No. 6,623,486 ("the '486 patent"), and U.S. Patent No. 7,128,744 ("the '744 patent"). The parties seek construction of eleven terms or phrases from the '036 patent, five terms or phrases from the '486 patent, and five terms or phrases from the '744 patent. Currently before the court are the parties' claim construction briefs in which they seek to have the Court construe various claim terms of those patents pursuant to Markman v. Westview Instruments, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). We

held a Markman hearing on July 12, 2007. Also before this Court is Defendant's Motion for Partial Summary Judgment of Invalidity for indefiniteness which relates to claims 35 through 52 of the '036 patent.

After considering the parties' positions, the Court construes the terms at issue and rules on Smith & Nephew's Motion for Partial Summary Judgment of Invalidity of claims 35 through 52 of the '036 patent for indefiniteness, which presents issues that are intertwined with claim construction. The constructions adopted by the court are outlined below. For the reasons set forth below, Defendant's Motion for Partial Summary Judgment is GRANTED IN PART and DENIED IN PART.

I. BACKGROUND

A. Factual Background

Plaintiff Synthes (U.S.A.) is the sole owner by assignment of the three patents in suit, which are directed to different types of bone plates or "bone plating systems" for repairing bone fractures. Synthes accuses Defendant Smith & Nephew, Inc. of infringing these patents in its manufacturing and selling of its "Contour Plus" and "PERI-LOC" bone plates.

The '036 Patent

The '036 patent, which issued on October 1, 1991, is directed to a "Point Contact Bone Compression Plate" which, like other bone compression plates, is intended to stabilize and axially compress broken bones. Compression plates are usually constructed from biologically compatible materials such as titanium alloys, and are provided with screw holes to accept the bone screws, which attach the plate to the bone. At the time of implantation, the bone plate is positioned against the bone, spanning the fracture, and holes for the screws are pre-drilled into the bone. The screws are then inserted through the holes in the plate and threaded to the bone, thereby coupling the plate to the bone.

Compression plates were generally known and used before the '036 patent, but according to Synthes, these "prior art" bone plates suffered from the problem that they contacted the underlying bone over most of the area of the plate's lower surface. This purportedly resulted in restricted blood circulation directly beneath the plate, which increased the chance of infection and slowed the healing process. An asserted advantage of the plate disclosed in the '036 patent is that it reduced bone contact by having a lower surface shaped with cutouts between the screw holes and a concave lower surface having a radius smaller than that of the bone. This structure creates "studs" on the outside edge of the plate and reduces the amount of the bottom surface that comes into contact with the bone. The '036 patent also directs that this reduced-contact compression plate could be provided with self-compressing screws, which result in the bone fragments being axially moved or compressed together.

The '486 and '744 Patents

The '486 patent, which issued on September 23, 2003, and the '744 patent, which issued on October 31, 2006, are also directed to a "Bone Plating System" intended for use in stabilizing and axially compressing broken bones. The '744 patent is a continuation of the '486 patent, and thus they share virtually identical specifications. These patents reference prior art bone plates that make use of "locking" screws, which have threaded heads that mate with corresponding threading on the surface of the plate hole, thus establishing a fixed connection between the screw and bone plate. However, plates using only this type of screw "have a limited capability to compress bone fragments" ('486 patent, Col. I ll. 58-59). Other plates in the prior art only made use of "non-locking" screws, which were useful in bringing the broken pieces of bone closer together. However, non-locking screws are not capable of maintaining the same fixed connection as locking screws, and thus loosen over time due to the fact that body movements would cause the angular relationship between screw and bone plate to change. The '486 and '744 patents were directed to curing these

deficiencies by providing for more than one type of screw hole in each bone plate.

The '486 and '744 patents also describe features that reduce contact between the plate and the bone. In particular, they provide for cut-out spaces in the lower surface of the plate and/or a trapezoidal shaped cross section at regions in the plate.

B. Procedural Background

On January 7, 2003, Synthes filed this suit against Smith & Nephew alleging infringement of the '036 patent, which had originally issued on October 1, 1991 with 15 claims. Smith & Nephew then filed a Request for Reexamination by the United States Patent & Trademark Office (USPTO), which was granted on April 24, 2003. Synthes then amended claims 1 through 4, 6, and 8 through 14, and added claims 16 through 58. On April 24, 2007, the USPTO issued a reexamination certificate indicating that these claims, in addition to claims 7 and 15, were patentable under the requirements of 35 U.S.C. s. 112. FN1

FN1. Only original claim 5 was cancelled as a result of the reexamination.

On November 13, 2006, Synthes filed its Amended Complaint against Defendant, alleging infringement of the amended '036 patent as well as the '486 and ' 744 patents. Smith & Nephew filed its Answer and Counterclaims on December 5, 2006, requesting declaratory judgments that its products do not infringe the three patents-in-suit, that the three patents-in-suit are invalid, and that the '486 and '744 patents are unenforceable due to inequitable conduct during prosecution.

II. ANALYSIS

A. Legal Standard

[1] [2] [3] Claim construction is a matter of law to be determined by the court. Markman, 517 U.S. at 372, 116 S.Ct. 1384. It has long been recognized in patent law that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed.Cir.2004). Generally, claim language is accorded its "ordinary and customary meaning," which is "the meaning that the term would have to a person of ordinary skill in the art" of the invention's field. Phillips v. AWH Corp., 415 F.3d 1303, 1312-13 (Fed.Cir.2005). However, our determination of the "ordinary meaning" of a particular claim term does not occur in a vacuum; rather, "we must look at the ordinary meaning in the context of the written description and the prosecution history." Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1319 (Fed.Cir.2005). Because patentees often use terms idiosyncratically, where a claim term's ordinary meaning is not readily apparent we must look to "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean." Innova, 381 F.3d at 1116. Those sources include "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." Id. The Federal Circuit has instructed that "[t]he sequence of steps used ... in consulting various sources is not important; what matters is for the court to attach the appropriate weight to be assigned to those sources in light of the statutes and policies that inform patent law." Phillips, 415 F.3d at 1324.

Of particularly instructive value are the claims themselves, which "provide substantial guidance as to the meaning of particular claim terms." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). In particular, "the context in which a term is used in the asserted claim term can be highly instructive." Phillips, 415 F.3d at 1314. Comparing the term at issue to other claims in the patent may be particularly useful, as claim terms are "normally used consistently throughout the patent," and thus, "[d]ifferences among claims can also be a useful guide in understanding the meaning of a particular claim."

Id.

[4] Claims must also be read "in view of the specification, of which they are a part." Id. at 1315. The Federal Circuit has stressed the importance of considering the specification, which it has called "the single best guide to the meaning of a disputed term." Vitronics, 90 F.3d at 1582. The specification, in which the patentee provides a description of her invention, "may reveal a special definition given to a claim term ... that differs from the meaning it would otherwise possess." Phillips, 415 F.3d at 1316. If such a "special definition" is indicated by the specification, "the inventor's lexicography governs." Id. On the other hand, the specification may also "reveal an intentional disclaimer, or disavowal, of claim scope by the inventor," in which case again "the inventor's intention, as expressed in the specification, is regarded as dispositive." Id.

The intrinsic evidence which aids us in construing claim terms also includes the patent's prosecution history. *See* id. at 1317. This type of evidence "consists of the complete record of the proceedings before the [Patent and Trademark Office (PTO)] and includes the prior art cited during the examination of the patent." Id. The prosecution history may be useful in claim construction analysis because, like the specification, it "provides evidence of how the PTO and the inventor understood the patent." Id. However, the Federal Circuit has cautioned against placing too much weight on the prosecution history, which "represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation." Id. Nevertheless, it may be particularly useful in determining "whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Id. (citing Vitronics, 90 F.3d at 1582-83); *see also* Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed.Cir.2005) ("The purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution.").

Finally, extrinsic evidence, such as expert testimony and dictionary definitions, may be considered in construing claim terms, though the Federal Circuit has warned that it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." Id. at 1318. It is within the court's discretion to consider extrinsic evidence; however, we must keep in mind its inherent flaws, as "it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." Id. at 1319.

B. Disputed Claim Terms and Phrases

1. '036 Patent

a. "Lower surface"

The phrase "lower surface" appears in every claim of the '036 patent. Each claim recites a plate having, *inter alia,* "a longitudinal axis, an upper surface, a lower surface," and a "plurality of screw holes." The basic disagreement between the parties as to the meaning of "lower surface" is over whether it includes the area of the screw holes. Because the claims explicitly restrict the plate to having a "bone contact area" of less than five percent of the "total area of the lower surface of the plate," whether the screw holes are included in the "lower surface" affects the outer limits of the plate's "bone contact area." Synthes asserts that the holes should be included and proposes that "lower surface" should be construed as "the undersurface of the plate." Smith & Nephew seeks a narrower reading, proposing that the phrase be construed as "the underside surface of the bone compression plate which does not include the area of any holes."

The plain meaning of the word "surface" implies the actual existence of physical matter, not its absence. *See* Webster's New Riverside Dictionary II, p. 1165 (Riverside Pub. Co., ed.1994) (defining "surface" first as "the exterior face of an object" and then as "a *material* layer constituting such an exterior face"). Indeed, it

is far from clear how a hole-which is defined by the absence of the material surrounding it-can have a "surface" if it has no physical existence. With this in mind, we examine the claims, specification, and prosecution history to determine if the patentee nevertheless understood "lower surface" to include the screw holes in addition to the actual material of which the plate is made. First, the claim language and the surrounding context of the claims themselves provide little assistance in determining whether the patentee included the screw holes in the phrase "lower surface." Synthes contends that the very fact that the claim language does not explicitly exclude the screw holes suggest that this omission was intentional. However, as Smith & Nephew points out, in the claims themselves the screw holes are enumerated separately from the upper and lower surfaces, rather than as an included part of those aspects of the bone plate. Contrary to Synthes's position, this would imply that the screw holes were in fact not understood to be an implied part of the term "lower surface."

The specification similarly does not provide any evidence that the meaning of "lower surface" was meant to include the screw holes. The Detailed Description makes reference to the "underside" of the plate in explaining that the "undersurface is shaped so as to permit contact with the bone only at points 23" (referring to accompanying Figure 3), and explains that the underside is arched "at a transverse curvature of smaller radius than that of bone's outer contour." These mentions of the term clearly do not indicate any intention in the specification to define the term "lower surface" as including the holes. In fact, if anything, they only underscore that the "surface" was understood to be the physical manifestation of the plate that could be manipulated into particular shapes to reduce bone contact. The Summary of the Invention only reinforces this notion; it describes the plate as having "an elongated body having an upper surface and a lower surface [and] a plurality of screw holes traversing said body *between said surfaces* to attach the plate to a bone." Again, the screw holes are listed separately from the "lower surface" and appear to have been understood to be the absence of the plate material, traveling through the entirety of the plate and having no actual existence at the "surface" level.

[5] Finally, there is nothing in the prosecution history that evidences an understanding that "lower surface" was understood to include screw holes. FN2 We can find nothing in the intrinsic evidence to contradict the ordinary implication of the patent claims that the term "lower surface" includes only that material which is actually physically present in the device. Accordingly, we adopt Smith & Nephew's proposed construction for the term and find that "lower surface" means "the underside surface of the bone plate which does not include the area of any holes."

FN2. Synthes points to a portion of the prosecution history seeming to indicate that the patent examiner understood "under side of the plate" to be synonymous with "lower surface." However, there is no disagreement that "lower surface" refers to the underside of the plate, and this sheds no light on the inclusion or exclusion of the screw holes.

b. "Studs"

Like the phrase "lower surface," the term "studs" appears in every independent claim of the '036 patent. FN3 Each claim recites "studs for bone contact" that are formed on the sides of the lower surface of the plate and usually defined by the geometry of the plate's underside. Plaintiff requests that the court construe "studs" as "the portions along the side edges of the lower surface of the plate, defined by the combination of the open sections and the concave lower surface, that provide reduced contact areas." Defendant, however, believes the term has a narrower meaning, arguing "studs" should be defined as "pointed tips located along the outer edges of a bone compression plate that extend from the lower surface of the plate and that permit only point contact." As both parties acknowledge that the "studs" can only be formed on the outer edge of the undersurface of the plate, the essence of their disagreement about the meaning of the term is whether they are limited to "pointed tips ... [permitting] only point contact."

FN3. The only exception is Claim 15, which describes removable "clips" rather than "studs."

Beginning with the language of the claims themselves, the context of the surrounding claims fails to support Defendant's assertion that "studs" must be limited to "pointed tips." First of all, the only mention of the word "point" in the claims is in claim 7, which provides for "support studs attached to the lower surface of the plate at the sides of said lower surface, ... said studs providing bone contact at *selected points* along the sides of said plate" (emphasis added). Though far from determinative of the issue, the fact that this limitation of the studs being at certain "points" appears in one claim and not the others suggests that it was not intended to be a part of the general definition of the term. Furthermore, virtually every other independent claim containing the term "studs" has the limitation-added during the PTO reexamination requested by Smith & Nephew-that "the studs for bone contact [be] less than 5% of the total area of the lower surface of the plate." Limiting the studs in question to "pointed tips" that provide only "point contact" would make this five-percent boundary on the stud-size completely superfluous. Thus, the context of the claims themselves strongly supports Plaintiff's construction and suggests that "studs" should not be limited to "pointed tips."

Turning to the specification, Defendant argues that the patentee defined studs as "pointed tips" by (1) titling the patent "*Point Contact* Bone Compression Plate," and (2) providing a description and drawings that show the studs as tapering to a point. In particular, Defendant notes that the specification, referring to accompanying Figures 3 and 4, explains that "[t]he undersurface of the plate is shaped so as to permit contact with the bone *only at points 23*" (emphasis added). According to Defendant, the plate shown in Figure 3 and referred to by the specification also appears to have studs that taper to a point where they meet the bone, and when combined with the written description, this is evidence that the patentee meant to disavowother "non-pointed" structures. Plaintiff responds by arguing that the portion of the Description cited by Defendant and its accompanying illustrations indicate only one particular embodiment of the invention, and a person skilled in the art would understand that the invention described would encompass more than just "pointed" studs.

Despite Defendant's urging to the contrary, the specification provides little, if any, support for its proposed construction of the term "studs." First, the Federal Circuit has stated that importing limitations from a preferred embodiment to restrict the meaning of a claim term is a disfavored practice. *See* Taskett v. Dentlinger, 344 F.3d 1337, 1340 (Fed.Cir.2003) ("Though it is true that we must read a claim in light of the specification, rarely will we limit the claim to the preferred embodiments described in that specification."). This is largely because "[t]he law does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention." SuperGuide Corp. v. DirecTV Enters., 358 F.3d 870, 880 (Fed.Cir.2004). Here, we cannot follow Defendant in reading the limitations from one particular embodiment into the meaning of the word "stud" especially where, as we have noted, it contradicts the context of the surrounding claim language. Indeed, even the specification itself recites that the "area of contact with the bone is reduced to the minimum practicable. Preferably this is less than 5% of the total area of the lower surface of the plate and most preferably less than 2%." If the patentees intended to claim *only* studs limited to "pointed tips," they surely would not have included this language, which implies that the stud size can be varied to achieve the "minimum practicable" area of bone contact.

Furthermore, even if we ignored the Federal Circuit's teachings on use of the specification, the patentees' use of the word "point" in the description provides only weak support-at best-for Defendant's construction. As an initial matter, we note that the word "point" itself is open to interpretation, as it can refer either to "a sharp or tapered end" or "a position, place or locality." *See* Webster's, *supra,* p. 908. We agree that Figure 4 does appear to illustrate that "point 23" as diagramed indicates a "sharp or tapered end" to the stud. However, in Figure 3, the number 23 is linked by a line to the *bone,* rather than the stud, suggesting that "point" refers to the "place or locality" on the bone where the "reduced contact" is made (as opposed to

making contact all along the bone, as some prior art plates did). This inference is further supported by Figure 5, which demonstrates another embodiment of the invention that is described as having "studs." Here, although it is not mentioned in the accompanying description, "point 23" again appears to refer in the illustration to the bone, rather than the stud. In light of a use of the word "point" that is at best ambiguous as to whether it refers to the size and shape of the stud, we cannot agree with Defendant that the patentees disavowed studs of other shapes and sizes in the specification. FN4

FN4. For the same reason, the title of the patent-"Point Contact Bone Compression Plate"-provides only marginal support for Defendant's position. Though Defendant urges that the title indicates that the studs are "pointed," the use of the word "point contact" could also refer to the fact that the plate claimed by the '036 patent is intended to make contact only at certain places on the bone.

Thus we turn to the prosecution history, which is cited selectively by both parties to support their respective constructions. During prosecution of the patent, the patentees originally used the term "contact elements," rather than "studs," and their claims were rejected by the PTO. In response, the patentees changed that language to "individual contact elements shaped to provide tips of minimum surface area." Defendant argues that in making this choice, the patentees disclaimed any broader interpretation of the word "studs." However, Defendant ignores the fact that the "tips of minimum surface area" language was also dropped, and instead the patentees completely changed course and defined the studs by the geometry of the plate, as the claims now show. Thus, the evidence cited by Defendant is merely a part of the "ongoing negotiation" process with the PTO, and not an indication that the patentees intended to disclaim particular subject matter.

Both Plaintiff and Defendant also point to diagrams from prior art patents showing bone plates with different types of bone contact features. The "Kummer patent," cited by Plaintiff, shows a bone plate with "a plurality of discrete, generally rectangular biologically absorbable spacers," while the "Judet patent," cited by Defendant, shows a bone plate with "studs" that appear to have pointed tips in one diagram. It is argued that each of these provided the basis for rejection of the patentees' claims at some point in the process, and thus the patent examiner understood "studs" to mean either having "pointed tips" or having non-pointed tips. However, we have a hard time finding support for either party's proposed construction in the cited portions of the prosecution history. Both parties refer mainly to particular Figures and illustrations in the prior art patents, and the cited language from the patent examiner is, at best, weak evidence of how he understood the term "studs." Thus, we find that the prosecution history is ambiguous as to the parties' proposed construction.

[6] Reading the term "studs" in light of the surrounding context of the claims themselves, the specification, and the prosecution history, we find that the patentees did not intend to limit the "studs" only to "pointed tips" which provide "point contact." Accordingly, we adopt Plaintiff's construction and define the term "studs" to mean "the portions along the side edges of the lower surface of the plate, defined by the combination of the open sections and the concave surface, that provide reduce contact areas."

c. "Studs for bone contact extending downwards from the lower surface of the plate and below the side walls"

The phrase "studs for bone contact extending downwards from the lower surface of the plate and below the side walls" appears in claims 35, 45, 53, and 55 of the '036 patent. Plaintiff asserts that this phrase should have its own construction and proposes that it be defined as "the portions of the lower surface of the plate that extend below the side walls for contacting bone." FN5 This proffered construction largely repeats the plain language of the claim term itself, such that Plaintiff essentially asks that we define "studs" as "the portions ... for contacting bone." Yet Plaintiff has provided no reason why we should construe the term "studs" differently in this context than in other claims, and in fact simply references its own earlier

arguments about how to construe"studs." We see no reason why the phrase "studs for bone contact extending downwards from the lower surface of the plate and below the side walls" should be construed independently from other phrases using the word "studs." As in the other claims reciting "studs," the "studs for bone contact extending downwards from the lower surface ... and below the side walls" are formed by a combination of the curved lower surface of the plate and "undercuts" in the lower surface and serve the same purpose-providing reduced contact with the bone. Accordingly, we decline to construe this phrase. The meaning of "studs" that we have already outlined above applies equally to all the claims incorporating it.

FN5. Strangely, Plaintiff only suggests that the term in claim 35 requires construction, though it is used almost identically in claims 45, 53, and 55. However, Plaintiff has not explained why the term means something different in claim 35, particularly in light of the Federal Circuit's instructions that claim terms are "normally used consistently throughout the patent," Phillips, 415 F.3d at 1314.

d. "The intersection of surfaces formed by said cut out sections and the concave lower surface of the plate forming studs for bone contact"

[7] Referring to certain "arcuate cut out sections" addressed in greater detail below, claim 14 further describes "the intersection of surfaces formed by said cut out sections and the concave lower surface of the plate forming studs for bone contact." Plaintiff proposes that this phrase simply means "The studs are formed along the side edges of the plate by the intersection of the cut out sections and the concave lower surface of the plate." Consistent with its proffered construction of "studs," Defendant asserts that the "intersection of surfaces" term in claim 14 should be defined as the "intersection of the cut out sections and the concave lower surface of the plate forming pointed tips located along the outer edges of a bone compression plate and that permit only point contact." The parties agree that the disagreement over how to construe the phrase boils down to whether "studs" should be interpreted to mean "pointed tips ... that permit only point contact." As we have already rejected that interpretation of the word "studs," we adopt Plaintiff's proposed plain-language construction of the term. Once again, this phrase also incorporates our adopted construction of the term "studs" as discussed above.

e. "Open sections along the side edges of the plate between the screw holes"; "Open sections lying between the elongated screw holes"

Independent claims 1 and 9 of the '036 patent recite plates having, *inter alia,* "open sections along the side edges of the plate between the screw holes" which, in combination with other features, form the "studs" for bone contact. FN6 Claim 35 recites a plate having, *inter alia,* "open sections lying between elongated screw holes" along the side walls of the plate which, along with other plate features, also form studs for bone contact.FN7 The parties agree that these phrases should be construed as having the same meaning. Plaintiff proposes that they should be defined as "undercuts in the lower surface of the plate that extend transversely through a side edge or side wall of the plate between the screw holes." Defendant proffers a construction for the two phrases of "arch-shaped openings along the outer edges of the bone compression plate located between the plate's screw holes." The main dispute between the parties over these phrases is whether "open sections" are limited to "arch-shaped openings." Defendant's construction also differs from Plaintiff's in that it does not explicitly require the "open sections" to be part of the lower surface of the plate.

FN6. Specifically, Claim 1 recites that the lower surface of the compression plate, "being arched concavely transversely to the longitudinal axis of the plate, in combination with open sections along the side edges of the plate between the screw holes, said open sections, with the concave lower surface of the plate, form[s] studs along the side edges of the lower surface for contact with a bone ...."

Claim 9 recites a plate comprising, *inter alia,* a "lower surface being arched concavely transversely to the longitudinal axis of the plate, in combination with open sections along the side edges of the plate between the screw holes, said open sections forming concavities in the lower surface of the plate, and said open sections, in combination with the concave undersurface of the plate, forming studs for bone contact along the side edges of the lower surface of the plate ...."
FN7. Specifically, Claim 35 recites a compression plate featuring, *inter alia,* "side walls joining the upper and lower surfaces, the side walls including open sections extending transversely there-through, forming undercuts in at least a portion of the concave lower surface of the plate, the open sections lying between elongated screw holes with the compression plate if viewed in a direction looking toward one of the side walls ... wherein the undercuts, in combination with the concave arching of the lower surface of the plate, form studs for bone contact ...."

[8] Plaintiff's broader construction finds support in the language of the claims themselves. As an initial matter, the adjective "arch-shaped" does not appear in claims 1, 9, or 35 as a descriptor for the "open sections" terms in question. The adjectives "arch-shaped" or "arcuate" do appear, however, in numerous *other* places in the claims, which would imply that the "open sections" not having such a description were intended to have a broader meaning. Claim 14, for instance, recites a plate with "arcuate cut out sections" analogous in geometric position to the "open sections" in claims 1, 9 and 35.FN8 Furthermore, claims 19, 29, 38 and 48, which depend from independent claims with the unmodified term "open sections," claim plates with "at least one of the open sections having an arcuate shape." Because claim terms are "normally used consistently throughout the patent," Phillips, 415 F.3d at 1314, that the term "open sections" is given the added limitation of "arcuate" in several dependent claims suggests that it was meant to have a broader meaning elsewhere. Claim 38 is particularly probative in this respect, as it depends from claim 35, which is one of the specific claims at issue. "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." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed.Cir.2004). This presumption is "especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." SunRace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1303 (Fed.Cir.2003). The only difference between claims 35 and 38 is that the dependent claim adds the very limitation that Defendant seeks to read into the independent claim-that the open sections must be arch-shaped. Accordingly, Defendant's proposed construction limiting "open sections" to only "arch" or "arcuate" shapes is contradicted by the claims themselves. Plaintiff's broader construction finds much greater support when the different claims are compared to each other.

FN8. Defendant acknowledges the symmetry between these "arcuate cut out sections" and the "open sections" in other claims, as it argues that these phrases should be construed in the same way. We address the construction of the term "arcuate cut out sections" in greater detail below.

[9] Defendant asserts, however, that in the specification of the ' 036 patent, the plate is described only as having "arches" and no other types of "open sections." Thus, according to Defendant, the patentee has disavowed other types of "open sections" by failing to disclose them in the written description. We disagree. We have already noted that the Federal Circuit has cautioned against importing limitations from a preferred embodiment to restrict the meaning of a claim term. "We do not import limitations into claims from examples or embodiments appearing only in a patent's written description, even when a specification describes very specific embodiments of the invention or even describes only a single embodiment, unless the specification makes clear that 'the patentee ... intends for the claims and the embodiments in the specification to be strictly coextensive.' " JVW Enters., Inc. v. Interact Accessories, Inc., 424 F.3d 1324, 1335 (Fed.Cir.2005) (quoting Phillips, 415 F.3d at 1323). The specification of the '036 patent does not at all

indicate that the claims and embodiments are meant to be "strictly coextensive." The Summary of the Invention describes only a plate with "a plurality of contact elements extending from the lower surface for contacting bone during attachment of the plate to the bone." The part of the written description using the word "arches" explains just *one* way of achieving this:

In a *preferred embodiment,* this is achieved by arching the underside of the plate 24 at a transverse curvature of smaller radius than that of the bone's outer contour 25. In the longitudinal direction ... the underside of the plate is also shaped with a plurality of arches 26 between the screws 22.

'036 patent, Col. 2 ll. 61-67 (emphasis added). The specification makes clear that the arches are part of a particular embodiment, and never states that this embodiment is meant to be "coextensive" with the claims- if anything, it states the opposite, referring explicitly to a "preferred embodiment." Thus, we cannot agree with Defendant that the specification compels the conclusion that "open sections" can only mean "arch-shaped openings," especially when the language of the claims themselves contradicts such a reading.

Finally, there is no evidence in the prosecution history that the patentees disavowed all but "arch-shaped" openings. In fact, Defendant has not even attempted to argue that the prosecution history supports its construction. Accordingly, we agree with Plaintiff that "open sections" should not be construed to be limited only to "arch-shaped openings."

[10] We turn next to whether the "open sections" must be on the "lower surface" of the plate, an issue which Defendant did not address in its briefs. There is sufficient intrinsic evidence to support the conclusion that the "open sections" must be made in the lower surface of the bone plate. The claims themselves indicate that the studs are formed by an intersection of the open sections and the "concave lower surface" of the plate, which implies that the open sections must also be made on the lower surface. Furthermore, the specification explains that the '036 patent covers a bone plate with "a plurality of contact elements *extending from the lower surface* for contacting the bone ...." Accordingly, we adopt Plaintiff's proposed construction for "open sections," and find that this term is properly defined as "undercuts in the lower surface of the plate that extend transversely through a side edge or side wall of the plate between the screw holes."

f. "Open sections forming concavities in the lower surface"

In addition to claiming "open sections along the side edges of the plate between the screw holes," claim 9 goes on to state "said open sections forming concavities in the lower surface of the plate ...." Defendant asserts that this language should be construed identically to the previously construed "open sections" and again proffers the construction "arch shaped openings along the outer edges of the bone compression plate located between the plate's screw holes." Plaintiff acknowledges that the patentee's use of the modifier "forming concavities in the lower surface of the plate" means that the "open sections" described by this term would be arch shaped, and asserts that the main dispute here is that Defendant's construction does not require that the concavity be formed in the lower surface (P. Resp. p. 33). Plaintiff argues that the plain meaning of the phrase compels a construction of the phrase as simply "the undercuts form concave spaces in the lower surface."

The phrase in question here must be read in the context of the surrounding claim language. This phrase clearly refers to the same "open sections" we discussed in construing the term "open sections along the side edges of the plate between the screw holes," because it immediately follows that term with "*said* open sections forming concavities in the lower surface of the plate." The use of the word "said" to connect these two phrases demonstrates that the patentee understood them to refer to the same "open sections" on the plate. We have already explained that the language of the claim mandates that the "open sections" be in the lower surface of the plate, and thus apply that reasoning equally to the term at issue here. Accordingly, we agree with Plaintiff that the "open sections forming concavities in the lower surface" must, for obvious

reasons, be part of the lower surface, and that Defendant's construction mysteriously omits this requirement.

Plaintiff's proffered construction, however, is overly broad because it fails to recognize that the "open sections" must also be along the side edge of the plate and between the screw holes. The immediately preceding phrase to which " *said* open sections forming concavities" refers makes clear that the open sections are "along the side edges of the plate between the screw holes." Furthermore, claim 9 goes on to state that "said open sections, in combination with the concave undersurface of the plate, form[ ] studs for bone contact *along the side edges* of the lower surface of the plate." Adopting Plaintiff's rather broad construction would not be consistent with the surrounding claim language, which clearly contemplates that the open sections be located on the "side edge" of the plate and "between the screw holes."

[11] Because both Plaintiff's and Defendant's proffered constructions leave out important elements of the properly defined term, we must supply a definition that remedies their omissions. Accordingly, we find that "open sections forming concavities in the lower surface" is defined as "undercuts along the side edges of the lower surface of the plate which are located between the screw holes and which form arch-shaped spaces in the lower surface."

g. "Arcuate cut out sections"

Unlike claims 1, 9, and 35, claim 14 does not contain any mention of "open sections." Instead, claim 14 recites "arcuate cut out sections between the [screw] holes, said arcuate sections forming concavities in the lower surface of the plate." As with the claims reciting "open sections," claim 14 instructs that these "arcuate cut out sections" intersect with the "concave lower surface of the plate" to form "studs for bone contact." There is no dispute that these "cut out sections" must be arch-shaped. The main disagreement between the parties is over whether the "arcuate cut out sections" must be located on the side edge of the plate. Defendant asserts that the context of the surrounding claim language compels such an interpretation, and argues that the phrase "arcuate cut out sections" should be construed as "arch shaped openings along the outer edges of the bone compression plate." Plaintiff contends that nothing in the claim language limits the "arcuate cut out sections" to a location on the outer edges of the plate, and proffers a construction for the phrase of "arch-shaped undercuts in the lower surface of the plate." We note that Plaintiff's construction restricts the "cut out sections" to the lower surface of the plate, while Defendant's construction contains no such limitation. Thus, we must decide whether the "arcuate cut out sections" recited by claim 14 must be located on the lower surface of the plate, and if so, whether they must be located on the side edges of the lower surface.

As an initial matter, the cut out sections clearly must be located in the lower surface of the plate. After reciting a plate with "arcuate cut out sections between the [screw] holes," claim 14 goes on to explain that these "arcuate cut out sections form[ ] concavities *in the lower surface* of the plate." We can conceive of no explanation-and Defendant has not offered one-for how concavities could be formed in the *lower* surface if the "arcuate cut out sections" were made in the upper surface or elsewhere on the plate. Mandating that the cut out sections be on the lower surface is also consistent with the specification, which makes clear that it is the bottom or underside of the plate which is shaped to have "contact elements extending from the lower surface for contacting bone."

The only remaining question is whether the "arcuate cut out sections" must be on the side or outer edge of the lower surface of the plate. We agree with Defendant that they must be so defined. Claim 14 recites a plate whose lower surface is "arched concavely, transversely to the longitudinal axis," in line with the specification's indication that the plate is designed to contact the bone only along the edges in order to reduce plate-to-bone contact. On the plate recited by claim 14, the places of intersection between this transversely concave lower surface with the "arcuate cut out sections" are where the "studs for bone contact" are formed. We have already found-and Plaintiff actually admitted in its briefs-that the "studs"

must be located on the "side edges" of the plate. If the studs are, by definition, formed on the *side edge* of the lower surface, then the "arcuate cut out sections" intersecting with the plate's transverse concavity must also be located on the side edge of the lower surface. Were we to exclude the "side edge" limitation from the definition of "arcuate cut out sections," then claim 14 would-up to the point at which the "studs" are mentioned-cover a plate with studs elsewhere on the lower surface, because they could be formed by "arcuate cut out sections" made in the middle of the plate. Even by Plaintiff's own admission, however, such a plate was not claimed by the patentees because the "studs" must be formed on the side edge of the lower surface.

[12] The specification and prosecution history are of little help in determining whether the "arcuate cut out sections" can be anywhere other than the side edges. We note, however, that the specification explains that a major disadvantage of prior art plates was that much (if not all) of their undersurface would contact and cause "friction" with the bone, and thus inhibiting healing. In contrast with the prior art explained (and diagramed), the plates described in the specification of the '036 patent all appear to have their contact elements on the *side edge* of the lower surface. While we must not import limitations from these specification embodiments into the claims, *see* Taskett, 344 F.3d at 1340, they do provide support for what is already apparent in the language of claim 14-that the "arcuate cut out sections" must be located on the side edge of the plate to form the "studs for bone contact." Accordingly, we find that "arcuate cut out sections" must be defined as "arch shaped undercuts along the outer edges of the lower surface of the plate."

h. "Self-compressing screw holes"; "self-compression screw holes"

Claims 26, 45, 53, and 55 recite a bone plate having, *inter alia,* a plurality of "self-compressing" or "self-compression" screw holes, spaced apart along the longitudinal axis. The "self-compressing screw hole" is not further defined or described in the claims themselves. The written description section of the specification, however, indicates that the plate "may be constructed with one or more self-compressing screw holes of the type described in U.S. Pat. No. Re. 31,628 [the '628 patent]." Defendant argues that this disclosure specifically defines the term "self-compressing screw hole." Borrowing language directly from the Summary of the Invention in the '628 patent, Defendant thus proffers a construction of "screw holes formed with a slot that is elongated in the direction of the longitudinal axis of the plate so that the plate will be shifted relatively along this axis when the threaded securing screws are inserted there through and into the bone part." Plaintiff contends, though, that the '628 patent merely provides an *example* of a self-compression screw hole, and that the court should not import limitations from an example in the specification into the claims. Plaintiff therefore argues that the term should be construed more broadly, as "a screw hole which is shaped such that, when it is engaged by the underside of the screw head, it will result in an axial displacement of the bone plate relative to the bone."

As we have already noted, the claim language itself provides no guidance as to the meaning of the term "self-compressing screw hole." The specification, however, states that the invented bone plate may include one or more self-compression screw holes of a specific type-that is, the type disclosed in the '628 patent. An examination of the prosecution history reveals that the patent examiner determined that term "self-compressing hole," which appeared in original claim 10, was indefinite. After that objection was made, the specific disclosure regarding the '628 patent was added to the specification. The patentees thus had the opportunity to define "self-compressing screw hole" in a broader fashion, but chose to specifically define it by reference to the *particular* screw hole recited by the '628 patent. Plaintiff cannot now attempt to claim a broader definition after the inventors "limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be." Phillips, 415 F.3d at 1317.

[13] Accordingly, we will adopt Defendant's construction of "self-compression screw holes" and "self-compressing screw holes." Those terms will be defined as "screw holes formed with a slot that is elongated in the direction of the longitudinal axis of the plate so that the plate will be shifted relatively along the axis

when the threaded securing screws are inserted there through and into the bone part."

i. "Bone contact area"

Independent claims 35 and 45 further recite bone plates with "studs for bone contact" having a "bone contact area less than 5% of the total area of the lower surface of the plate." Defendant argues that the term "bone contact area" is insolubly ambiguous and thus runs afoul of the definiteness requirement found in 35 U.S.C. s. 112 para. 2.FN9 As a result, Defendant has moved for partial summary judgment of invalidity of claims 35 through 52, all of which incorporate the term.FN10 Plaintiff asserts that a person of ordinary skill in the art would understand the term "bone contact area" to mean "the area defined by the bottom surface area of the 'studs for bone contact.' " Because the term is amenable to construction, Plaintiff argues, it is not indefinite and thus claims 35 through 52 are not invalid.

FN9. Paragraph 2 of 35 U.S.C. s. 112 requires a patent to "conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

FN10. "Summary judgment is as appropriate in a patent case as in any other." Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd., 731 F.2d 831, 835 (Fed.Cir.1984). Summary judgment is proper "if there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law." Fed.R.Civ.P. 56(c). An issue is genuine only if there is sufficient evidentiary basis on which a reasonable jury could find for the non-moving party, and a factual dispute is material only if it might affect the outcome of the suit under governing law. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). The moving party has the burden of showing that there are no genuine issues of material fact that would permit a reasonable jury to find for the non-moving party. Celotex Corp. v. Catrett, 477 U.S. 317, 323, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986). In conducting our review, we view the evidence in the light most favorable to the non-moving party and draw all reasonable inferences in that party's favor. *See* Crown Operations Int'l, Ltd. v. Solutia, Inc., 289 F.3d 1367, 1375 (Fed.Cir.2002).

[14] [15] [16] Because 35 U.S.C. s. 282 accords a statutory presumption of validity to a patent, a challenger to that patent bears the burden of proving by clear and convincing evidence that a patent is invalid. Monsanto Co. v. Scruggs, 459 F.3d 1328, 1336-37 (Fed.Cir.2006). "Determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." Exxon Research & Eng'g Co. v. U.S., 265 F.3d 1371, 1376 (Fed.Cir.2001). That determination is made by inquiring into whether "the claims at issue are sufficiently precise to permit a potential competitor to determine whether or not he is infringing." Id. However, a claim is not indefinite "merely because it poses a difficult issue of claim construction." Id. Rather, if the meaning of a claim "would reasonably be understood by persons of ordinary skill [in the art] when read in light of the specification," the claim is not invalid due to indefiniteness. Energizer Holdings, Inc. v. Int'l Trade Comm'n, 435 F.3d 1366, 1371 (Fed.Cir.2006). Accordingly, as we do with the other claims at issue in this case, we apply ordinary claim construction principles to determine how a person of ordinary skill in the art would understand the term "bone contact area." *See* Datamize, LLC v. Plumtree Software, 417 F.3d 1342, 1348 (Fed.Cir.2005) ("In the face of an allegation of indefiniteness, general principles of claim construction apply."); *see also* Phillips, 415 F.3d at 1314-18 (outlining the types of evidence to be considered in claim construction and the weight to be accorded to each).

[17] We agree with Plaintiff that the term "bone contact area" refers to a measurable, structural feature of the bone plate and thus is not "insolubly ambiguous." Beginning with the claims themselves, the term "bone contact area" clearly refers to the "studs for bone contact," and not the hypothetical bone on which the plate is to be attached. Independent claims 35 and 45 specify that those studs are formed as a result of the

geometry of the plate. The "lower surface" of the plate is first arched transversely, so that the plate would only contact the bone on its outer edges (as we have already discussed in construing "studs"). Next, portions of the side edge of the lower surface are cut out (as we have already discussed in construing the various iterations of "open sections") so that the "studs" remain as the only part of the plate designed to make contact with the bone-this results in the "reduced contact" that is the crucial goal of the invention. Nowhere in claims 35 or 45 does the '036 patent refer to how the plate is to be implanted on the bone, or otherwise reference the hypothetical bone to which the plate might be attached. Those claims are thus directed only to the structure of the plate, and so they imply that the "bone contact area" is a measurement of the *plate* rather than of the portion of the bone to which it is affixed. The manner in which the geometric features of the plate are defined also indicates that it is the underside of the studs that is designed to make contact with the bone, as the studs are essentially carved out of the "lower surface" that would otherwise be contacting the bone.

The specification also indicates that the "bone contact area" is the area of the plate designed to touch the bone. Referring to figures 3 and 4 accompanying the specification, the written description describes how the lower surface of the plate is curved and shaped so that "the only contact between plate and bone is at points 23." Again, the specification indicates that it is the *underside* of the plate which is shaped and carved out so that it is only the studs that make contact with the bone. The diagrams in figures 3 and 4 support the inference that it is thus the underside of the studs that make contact with the bone, as the shaded areas indicating the bone-plate contact (at points 23) are directly beneath the underside of each stud. The written description goes on to state: "The area of contact with the bone is reduced to the minimum practicable. Preferably this is less than 5% of the total area of the lower surface of the plate and most preferably less than 2%." Having immediately followed an explanation of how the studs are formed by the geometry of the plate, "area of contact" here clearly refers to a portion of the plate, not the bone.

Finally, Plaintiff produced expert testimony by a person skilled in the art of bone plate design and development that supports its construction of the term "bone contact area." Plaintiff's expert opined that, in light of the rest of the patent including the specification, that term clearly referred to the bottom surface area of the studs formed as a result of the plate geometry. He also attested that as it constituted a physical geometric feature of the bone plate, the "bone contact area" provided definitive limitations as to what is claimed by the patent. While we do not give as much weight to this testimony as we do to other sources of evidence, it does support what the intrinsic evidence already indicates-that the term "bone contact area" is meant to be understood as the bottom surface area of the studs for bone contact.

Defendant also produced expert testimony by a person skilled in the relevant art opining that the term "bone contact area" is insolubly ambiguous because there is no standard way to measure the area of contact between the plate and the bone, and no method of measurement is provided in the patent. Defendant's expert, however, erroneously assumed that the term "bone contact area" meant that the *bone* had to be measured, rather than the plate. As we have already discussed, when read in the context of the surrounding claim language and the specification, "bone contact area" clearly refers to the part of the plate itself that is designed to contact the bone. That is a measurement that is not victim to the subjectivity of individual surgeons using the device about which Defendant's expert warned.

Because it is supported by the intrinsic evidence and expert testimony by a person skilled in the art, we will adopt Plaintiff's construction of the term "bone contact area." The term is thereby construed as "the area defined as by the bottom surface area of the studs for bone contact." Accordingly, because it is capable of construction, the term is not indefinite under 35 U.S.C. s. 112. Defendant has not carried its burden in proving that the term makes the claims incorporating it invalid, and thus Defendant's Motion for Summary Judgment of invalidity as to this term is DENIED.

j. "Less than about 2%"

Claims 36, 54, and 56 further limit independent claims 35, 53, and 55, respectively by reciting that the "bone contact area" or the "studs for bone contact" must be "less than about 2%" of the lower surface of the bone plate. Though this term was not initially identified for construction, Defendant has moved for summary judgment of invalidity of the three claims incorporating it on the grounds that the term is indefinite. Defendant argues that there is no way of determining what numerical values would fall with the ambit of "*about* 2%," there is also no way of knowing what percentages are "less than" that amount, and thus no way of knowing whether a competing product is infringing.

[18] [19] The function of the claims is to delineate the scope of the invention, and thus "the purpose of the definiteness requirement is to ensure that the claims delineate the scope of the invention using language that adequately notifies the public of the patentee's right to exclude." Datamize, 417 F.3d at 1347. In other words, claims must be "sufficiently precise to permit a potential competitor to determine whether or not he is infringing." Morton Int'l, Inc. v. Cardinal Chem. Co., 5 F.3d 1464, 1470 (Fed.Cir.1993). We agree with Defendant that "less than about 2%" does not sufficiently inform a potential competitor about what would infringe claims 36, 54, and 56 of the '036 patent. The ratio of the studs or bone contact area to the area of the plate's lower surface is a crucial aspect of the invention in the '036 patent, which is directed specifically towards a plate that minimizes bone contact. The phrase "less than about 2%" is clearly directed at that essential feature, yet it is impossible to tell exactly what constitutes "about 2%." For example, a competitor whose plate has a bone contact area-to-lower surface area ratio of 2.5%, or even 3% or 4%, would not know if he is infringing because there is no indication how much above the 2% threshold the claims at issue actually include. There is no evidence at all in the intrinsic evidence that the word "about," when applied to the ratio of studs-to-plate surface, has an accepted meaning. Nor does it appear that some type of statistical deviation would apply where a tangible device such as the bone plate here is concerned. Plaintiff has also offered no explanation or testimony by experts or the patentees as to why the words "about 2%" would be used, especially when other claims in the '036 patent (specifically claims 6 and 58) and the written description in the specification omit the vague "about" and simply recite a ratio of "less than 2%." Accordingly, because it does not "adequately notif[y] the public of the patentee's right to exclude," Datamize, 417 F.3d at 1347, the term "less than about 2%" is indefinite. Claims 36, 54, and 56 are thus invalid for failing to satisfy the definiteness requirement of 35 U.S.C. s. 112. Defendant's Motion for Summary Judgment of invalidity as to this particular term is GRANTED.

2. '486 Patent

a. "Second hole"; "Second plate hole"

Independent claims 1, 14, 16, 17 and 18 of the '486 patent each recite a bone plate having:

an upper surface;

a bone-contacting surface;

at least one first hole passing through the upper and bone-contacting surfaces and having a thread; and

at least one second hole passing through the upper and bone-contacting surfaces

'486 Patent, Cols. 7-10. The parties disagree as to the meaning of the term "second hole." FN11 Plaintiff seeks a broad construction of the term and asserts that it should be defined as "a second type of hole different from the first type." Defendant, however, argues that "second hole" should be interpreted as meaning "a hole that is not threaded (i.e. does not have any threads)." The parties agree that "second hole" cannot have the same meaning as the phrase "first hole." FN12 Our task, then, in construing this term is to determine whether the "second hole" on each claimed bone plate *must* be non-threaded.

FN11. Claim 17 also recites that the "shaft portion" of the claimed bone plate has "both first and second plate holes." The parties appear to agree that "second plate hole" should be interpreted identically to "second hole," and thus our construction of "second hole" will apply equally to both terms.

FN12. The parties have agreed that "first hole" is simply defined as "a first type of hole."

The language of the claim itself is somewhat ambiguous as to whether the "second hole" must be non-threaded. The words "non-threaded" or "non-locking" do not appear anywhere in the relevant claims. Plaintiff argues that because the claims specifically say the first hole must be "threaded," the absence of a similar "non-threaded" descriptor when reciting the "second hole" indicates that the patentee understood the term to include more than simply non-threaded holes. Conversely, Defendant points out that the claims also recite "first" and "second" screws that correspond to the first and second holes, respectively, and that the "second screw" has a non-threaded head. The "first screw" in each claim is described as having *both* a threaded shaft and a threaded head (for locking the screw into the threaded hole). The second screw, by contrast, is described as having only "a shaft with a thread for engaging bone and a head ...." According to Defendant, by reciting a threaded shaft but a head without any description, the patentee was describing the "second screw" as having threads *only* on the shaft, leaving the head non-threaded. Following Defendant's reasoning, this would mean that the corresponding "second hole" would also not be threaded, so that it could accept a screw with a non-threaded head. Without further support, Defendant's argument regarding the language describing the "first and second screws" is mere speculation, however, and provides little help in understanding whether the second hole *must* be non-threaded. Plaintiff's observation that the word "non-threaded" is conspicuously absent from the claims would seem to apply equally to the recitation of the "second screw," and the fact that the claim language is silent as to the *head* of the second screw only reinforces the ambiguity about the "threadedness" of the second hole.

Although the claim language itself does not answer the question of whether the "second hole" must be non-threaded, the specification strongly contradicts Plaintiff's arguments for a broad construction of the term. By asserting that it is not required that the second holes be non-threaded, but that they need only be different from the first, threaded holes, Plaintiff in essence argues that the second holes can simply be a *different type* of threaded hole. The specification makes clear, however, that the patentees intended to invent a bone plate with the stated advantage of *combining* threaded and non-threaded holes.

As an initial matter, we note that the specification makes clear that screws with a threaded head are deemed "locking screws," because the head mates with the screw hole to fasten the plate to the screw.FN13 Similarly, screws with a *non*-threaded head generally are "non-locking screws." FN14 The specification indicates that the bone plate system covered by the ' 486 patent was intended to accommodate both locking and non-locking screws. For instance, at the very outset of the specification, the "Field of the Invention" section states that "[t]he present invention is directed to a bone plating system for fracture fixation, and in particular to a system including a bone plate having plate holes for both locking and non-locking screws." ' 486 patent, Col. 1, ll. 10-12. Next, in the "Background" section, the ' 486 patent explains the "deficiencies of the prior art" that the invention seeks to overcome, and notes that at least one of the prior art plate systems did not obtain "the long term benefits of combining non-locking screws with locking screws."

FN13. Specifically, the Description section, referring to the exemplary illustration in Figure 2, explains that "[i]n general ... any surgical screw that has a head with threads can be used as long as head is of an appropriate size and geometry for select plate holes of the bone plate and threads mate with the threads of the plate holes."

FN14. The Description, referring to the exemplary illustration in Figure 1, explains that "[i]n general ... any surgical screw that has a non-threaded head of an appropriate size and geometry for select plate holes of the bone plate can be used."

The Description section of the specification also supports a finding that the patentees intended the two types of holes to be "threaded" and "non-threaded." Before any specific embodiments are explained, the Description section begins by stating "The bone plating system according to the present invention includes a bone plate, non-locking screws, and locking screws." This supports Defendant's interpretation of the claim language regarding the "first screw" and "second screw," because it separately enumerates two distinct types of screws that are to be used with the invention. As the claim language (as well as the Summary of the Invention in the specification) makes clear, those two types of screws are to "remain seated *in their respective holes* for substantially as long as the bone is implanted" (emphasis added). That language implies that, just as the locking screw must have a corresponding threaded hole (so that the threaded head can mate with the threaded hole), the non-locking screw must have a corresponding non-threaded hole that is differentiated from the threaded, locking hole and screw combination.

Furthermore, every single embodiment disclosed in the Description contains both threaded and non-threaded holes for receiving locking and non-locking screws, respectively. We are aware that in general we must not import limitations from these specification embodiments into the claims, *see* Taskett, 344 F.3d at 1340, particularly where the specification states that other embodiments may be devised by persons skilled in the art. However, the specificationof the '486 patent also states that "the appended claims are intended to cover all such modifications and embodiments which come *within the spirit and scope* of the present invention." As we have already noted, the intended "spirit and scope" of the '486 patent is limited to a bone plate system that maximizes the advantages gotten from combining locking and non-locking screws and screw holes. The claims cannot be interpreted as exceeding that purview-particularly, we note, where it is the stated advantage over the prior art. None of the embodiments disclosed in the specification exceed that scope, as they all combine locking with non-locking screw holes. Thus, the fact that those embodiments all describe the "second hole" as some type of non-threaded hole simply supports what is made apparent by the rest of the specification-that the patentees understood the "second hole" to be a non-threaded hole that could accept a non-locking screw. FN15

FN15. We note that the specification in the '486 patent differs from that in the '036 patent because there is ample evidence of the patentee's intent to define "second hole" in a particular way outside the embodiments themselves. By contrast, when we considered the meaning of the term "studs" in the '036 patents, there was no evidence outside of the preferred embodiments that the patentees intended to restrict them to "pointed tips."

[20] In sum, we find that the claims, when read together with the specification, indicate that the patentee intended the "second holes" to be non-threaded. Accordingly, we adopt Defendant's construction for the term, and define "second hole" as "a hole that is not threaded (i.e. does not have any threads)."

b. "Head portion configured and dimensioned to conform to a metaphysis of bone"; "Shaft portion configured and dimensioned to conform to a diaphysis of bone"

The bone plate directed by independent claims 1, 14, 16, 17 and 18 of the ' 486 patent is also described as having "a head portion configured and dimensioned to a metaphysis of a bone" and a "shaft portion configured and dimensioned to conform to a diaphysis of a bone." FN16 The parties say they disagree about the meaning of "configured and dimensioned to conform" in each of these phrases from the claims, but their

proposed constructions do nothing to clarify what the *patentee*'s intention was, or how a person skilled in the art would understand the disputed language. Plaintiff asserts that "head portion configured and dimensioned to conform to a metaphysis of a bone" should be construed as "the head portion is shaped to correspond generally to the contours of the metaphysis of the bone." Defendant, meanwhile, asserts that the same phrase should be construed as "the end of the bone plate that is curved to fit the contours of the metaphysis of the bone." The crux of the proposed definitions is that Plaintiff believes "configured and dimensioned to conform" is properly construed as "shaped to correspond generally" while Defendant believes it should mean "curved to fit."

FN16. The word "metaphysis" generally describes the widened end portion of a long bone, while the "diaphysis" is the shaft portion of a long bone.

A court need not construe every single disputed term, and we decline to do so here. "Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement." U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed.Cir.1997). Neither party has explained how its proffered definition would be any clearer for a juror than the plain language of term in the claim itself. Plaintiff argues that the term must allow for the plate's user to adapt or bend the plate for implantation onto specific, uniquely shaped bones. But the plain meaning of the terms already allows for that phenomenon, because "configured and dimensioned to conform" is directed to how one skilled in the art would make the plate, not how a hypothetical surgeon would later manipulate it in individual cases. Plaintiff has not explained why the plain language would prevent later "adaptation" to unique bone structures, and replacing those words with "shaped to correspond generally" would do nothing to further clarify for the jury what the claims cover-in fact, the ambiguity of "generally" may actually make its meaning *less* clear.

Unlike Plaintiff's proposed construction, Defendant's proffered definition of "curved to fit the contours" at least appears in the patent itself. These words are taken directly from the specification, in which the description of two particular embodiments uses the words "curved to fit the contours" when describing the head portion of the plate. However, in no part of the specification do the patentees state that "configured and dimensioned to conform" is specifically defined as "curved to fit the contours" of the bone. We have already noted that without more evidence to support it, we will not import selected portions of descriptions of specific embodiments into the claims. *See* Taskett, 344 F.3d at 1340. Furthermore, even if we were to follow Defendant's strict use of the specification and accompanying figures, we would end up describing the shaft portion-which the illustrations clearly show to be straight-as "curved." Claim terms are "normally used consistently throughout a patent," Phillips, 415 F.3d at 1314, and thus replacing "configured and dimensioned to conform" with "curved to fit" in all instances would lead to strange results where the shaft portion of the plate is concerned. Defendant's proposed definition of "curved to fit," then, may actually confuse the jury more than the plainly adequate "configured and dimensioned to conform." The specification's description of the plate head as "curved" or "twisted" is simply one *example* of how the plate can be "configured and dimensioned to conform." The plain language of the claim clearly describes the "fittedness" of the plate to the bone contours-a feature with which Defendant seems particularly concerned-and neither Plaintiff's nor Defendant's proposed constructions would further clarify it for the jury. Accordingly, we give no construction to the phrases "head portion configured and dimensioned to conform to a metaphysis of a bone" and "shaft portion configured and dimensioned to conform to a diaphysis of a bone."

c. "Trapezoidal shaped cross section"

Claim 8 of the '486 patent and claims 12 and 39 of the '744 patent are directed to a bone plate having, *inter alia,* a "trapezoidal shaped cross-section" in regions between the plate holes. The specifications of the '486

and '744 patents explain that this feature helps minimize contact between the plate and the bone, which in turn reduces damage to blood supply and facilitates plate removal. In describing embodiments which make use of this feature, the specification of each patent refers to Figure 11, which provides an illustration of a "trapezoidal cross-section" of the bone plate between the holes. The parties essentially disagree over the relevance of this illustration in defining "trapezoidal cross-section." Defendant submits that it must be defined as "having the shape shown in the cross-hatched portion of Figure 11"-in other words, that it must match the illustration. Plaintiff, however, asserts that the illustration is but one example of what a "trapezoidal shaped cross-section" might look like, and offers that the term should be defined as "a cross-section with a shape similar to the cross-hatched portion of Figure 11."

Once again, the Defendant seeks to import a description of one particular embodiment to restrict the meaning of a claim term. However, the specification does not state that the specific embodiments and claim terms are coextensive. *See* JVW Enters., 424 F.3d at 1335 (noting that specific embodiments should not be read as coextensive with the claims unless specifically prescribed by the patentee). In fact, the specification of each patent states that "[w]hile it is apparent that the illustrative embodiments of the invention herein disclosed fulfill the objectives stated above, it will be appreciated that numerous modifications and other embodiments may be devised by those skilled in the art." Indeed, as Plaintiff points out, the term "trapezoidal shaped cross section" was understood by the patent examiner to include trapezoidal shapes similar to those found in other bone plates. Thus, one skilled in the art would not believe the "trapezoidal cross-section" recited in the claims is restricted to only that shape shown in Figure 11.

[21] Accordingly, we adopt Plaintiff's construction of the term, and find that "trapezoidal shaped cross-section" is defined as "a cross-section with a shape similar to the cross-hatched portion of Figure 11."

d. "An edge inclined at an angle to the upper surface toward the bone-contacting surface for displacing the bone plate **when engaged by the head of a second** bone screw**"**

Claim 9 of the '486 patent recites a bone plating system in which at least one of the second holes "has an edge inclined at an angle to the upper surface toward the bone-contacting surface for displacing the bone plate when engaged by the head of a second bone screw." Plaintiff proffers a construction for this phrase of "an angled ramp or oblique portion in the second hole that is sufficient to provide for displacement of the bone when engaged by the head of a second bone screw." In other words, Plaintiff asks the court to construe "an edge inclined at an angle to the upper surface toward the bone-contacting surface" as "an angled ramp or oblique portion in the second hole sufficient to provide for [bone] displacement." Defendant, however, contends that the claim language requires no construction, and we agree.

The Federal Circuit has noted that "[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." Phillips, 415 F.3d at 1314. With the phrase in question, we are presented with such a case. Claim 1, from which claim 9 depends, already explains that the "second hole" passes through the upper and bone-contacting (i.e. lower) surfaces. Thus, the plain language of claim 9 indicates that the "inclined edge" must be in the screw hole, extending from the upper to the lower surface. Plaintiff's proposed construction, which is taken directly from the description of a specific embodiment in the specification, merely explains this feature using other words and is not inherently clearer than the claim language. As we have already explained, we are reluctant to import language used to describe a specific embodiment into the claims when that embodiment is not clearly meant to be coextensive with the claims. There is no evidencein the specification or prosecution history that indicates the claim language should have anything other than its plain meaning. Accordingly, we decline to construe the phrase "an edge incline at an angle to the upper surface toward the bone-contacting surface for displacing the bone plate when engaged by the head of a second bone screw."

3. '744 PatentFN17

FN17. The parties initially identified four phrases from the '744 patent for construction. In its response brief, however, Defendant acknowledged that it is willing to adopt Plaintiff's constructions for two of them. First, claims 1, 24 and 53 recite a bone plate having, *inter alia* "a plurality of arched cut-outs extending transverse to the longitudinal axis of the plate." The parties now agree that this phrase should be construed as simply "a plurality of undercuts that have a shape like an arch, and that extend in a direction transverse to the longitudinal axis." Second, claim 24 also recites a plate that has a "thinner cross section in regions between the plate holes." The parties now agree that this term should be construed as "the thickness of the cross section of the plate at a region between the holes is less than other regions of the plate." We will adopt the agreed-upon constructions for these terms.

a. "A non-perpendicular angular orientation with respect to the plane defined by the upper surface of the plate"

Claims 27 and 51 of the '744 patent, which depend from claims 24 and 50, respectively, recite a bone plate wherein at least one of the holes on the head portion of the plate has a "non-perpendicular angular orientation with respect to the plane defined by the upper surface of the plate." According to the specification, the purpose of this feature is to arrange the locking screws, when attaching the plate to the bone, in a way that forces them to converge toward one another. This aids in affixing the plate to the bone. Plaintiff urges that the "angular orientation" of the hole must be essentially determined on a hole-by-hole basis, and thus proffers a construction of "forming an angle that is not at a right angle to the upper surface of the plate at the hole." Defendant contends that there is no support in the patent for adding the words "at the hole," and maintains that the claim language should simply be given its ordinary and customary meaning.

On its face, the claim language makes clear that the angular orientation of the hole is to be defined in relation to plane defined by the *upper surface* of the plate. Nowhere in the claims themselves did the patentee narrow that benchmark to only those parts of the upper surface that were "at the hole," and we cannot find anything else in the context of the claims to support Plaintiff's assertion that such a restriction should exist. The fact that the patentees had the opportunity to provide such a restriction but did not do so implies that they did not intend to include it.

Plaintiff argues, however, that the patentees specially defined the way the angular orientation is measured in the specification. Several of the drawings accompanying the written description depict angular measurements of numerous screw holes, and Plaintiff contends that they show that these measurements occur relative to the upper surface of the plate at the boundary of each hole. But as even Plaintiff acknowledges, the Federal Circuit has warned that "drawings [depicting the preferred embodiment] are not meant to represent 'the' invention or to limit the scope of coverage defined by the words used in the claims themselves." Varco, L.P. v. Pason Syst. USA Corp., 436 F.3d 1368, 1375 (Fed.Cir.1376). The drawings to which Plaintiff refers merely provide *examples* of how the angularorientation may be measured with respect to the upper surface of the plate. The rest of the specification-including the written description-is silent on whether the plane providing the basis for measuring angular orientation *must* be considered only at the relevant screw hole. Thus, we find no support for Plaintiff's reading of such a restriction into the claims.

Accordingly, we decline to construe the phrase "non-perpendicular angular orientation with respect to the plane defined by the upper surface of the plate." The plain and ordinary meaning of the phrase is clear and descriptive, and the intrinsic evidence does not indicate that the patentee intended to alternatively define it.

b. "Head portion lies in a plane different from the plane in which the shaft portion lies"

Claims 10 and 38 of the '744 patent, which depend from claims 1 and 24, respectively, further recite a bone plate wherein "the head portion [of the plate] lies in a plane different from the plane in which the shaft portion lies." Plaintiff asserts that this phrase should be construed as "the head portion and shaft portion are in different planes." Defendant, however, contends that the ordinary meaning of this term is clear and it does not need to be construed, and we agree.

Plaintiff's proposed "interpretation" has no support in the intrinsic evidence. It is based almost entirely on Plaintiff's own speculation about what Defendant intends to argue at the infringement phase, and not on what a person skilled in the art would understand the claim term to mean. In fact, Plaintiff has not even explained how its proffered construction differs from the claim language itself, since it simply drops the word "lies" without even a hint as to how that clarifies its meaning.

The meaning of the phrase "the head portion lies in a plane different from the plane in which the shaft portion lies" has a plain and ordinary meaning, and there is no evidence indicating that the patentees meant to provide it with a special definition. Accordingly, we will not construe this claim term.

C. Conclusion

Having considered the papers submitted by the parties and the arguments of counsel during the Markman hearing, the court interprets the disputed claim terms as set forth above and as summarized in the order following this memorandum. Furthermore, Defendant's Motion for Partial Summary Judgment of Invalidity is GRANTED IN PART and DENIED IN PART. The term "bone contact area" is amenable to construction and thus is not indefinite. Accordingly, Defendant's Motion with respect to that term is DENIED. However, the term "less than about 2%" is insolubly ambiguous and thus fails the definiteness requirement of 35 U.S.C. s. 112. Accordingly, Defendant's Motion with respect to that term is GRANTED and claims 36, 54, and 56 of the '036 patent are invalid as a matter of law.

An order follows.

ORDER

AND NOW, this 4th day of February, 2008, upon consideration of the submissions of the parties and for the reasons stated in the accompanying memorandum, it is hereby ORDERED that the Motion is GRANTED IN PART and DENIED IN PART. Judgment as a matter of law is hereby ENTERED in favor of Defendant as to the '036 Patent's use of "less than about 2%," and claims 36, 54 and 56 of the '036 Patent are invalid as a matter of law. Defendant's Motion for Summary Judgmentof Invalidity of any claims using the term "bone contact area" is DENIED.

It is further ordered that the claim construction regarding the disputed language in the patent is as follows:

CLAIM LANGUAGE	*CONSTRUCTION*
"Lower surface"	the underside surface of the bone compression plate which does not include the area of any holes
"Studs"	the portions along the side edges of the lower surface of the plate, defined by the combination of the open sections and the concave lower surface, that provide reduced contact areas
"Studs for bone contact extending downwards from the lower surface and below the side walls"	(no separate construction necessary)

"The intersection of surfaces formed by said cut out sections and the concave lower surface of the plate forming studs for bone contact"	the studs are formed along the side edges of the plate by the intersection of the cut out sections and the concave lower surface of the plate
"Open sections along the side edges of the plate between the screw holes"; "Open sections lying between elongated screw holes"	undercuts in the lower surface of the plate that extend transversely through a side edge or side wall of the plate between the screw holes
"Open sections forming concavities in the lower surface"	undercuts along the side edges of the lower surface of the plate which are located between the screw holes and which form arch-shaped spaces in the lower surface
"Arcuate cut out sections"	arch shaped undercuts along the outer edges of the lower surface of the plate
"Self-compressing screw holes"; "Self-compressed screw holes"	screw holes formed with a slot that is elongated in the direction of the longitudinal axis of the plate so that the plate will be shifted relatively along the axis when the threaded securing screws are inserted there through and into the bone part
"Bone contact area"	the area defined by the bottom surface area of the studs for bone contact
"Less than about 2%"	(Indefinite)
"Second hole"; "Second plate hole"	a hole that is not threaded (i.e. does not have any threads)
"Head portion configured and dimensioned to conform to a metaphysis of a bone"	(no construction necessary)
"Shaft portion configured and dimensioned to conform to a diaphysis of a bone"	(no construction necessary)
"Trapezoidal cross section"	a cross-section with a shape similar to the cross-hatched portion of Figure 11
"An edge inclined at an angle to the upper surface toward the bone-contacting surface for displacing the bone plate when engaged by the head of second bone screw"	(no construction necessary)
"A plurality of arched cutouts extending transverse to the longitudinal axis"	a plurality of undercuts that have a shape like an arch, and that extend in a direction transverse to the longitudinal axis
"Thinner cross section in regions between the plate holes"	the thickness of the cross-section of the plate at a region between the holes is less than other regions of the plate
"A non-perpendicular angular orientation with respect to the plane defined by the upper surface of the plate"	(no construction necessary)
"Head portion lies in a plane different from the plane in which the shaft portion lies"	(no construction necessary)

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