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Paper 22
Date: May 22, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MEDACTA USA, INC., PRECISION SPINE, INC.,
and LIFE SPINE, INC.,
Petitioner,

v.

RSB SPINE, LLC,
Patent Owner.

IPR2020-00274
Patent 6,984,234 B2

Before PATRICK R. SCANLON, MICHAEL L. WOODS, and ERIC C. JESCHKE, *Administrative Patent Judges*.

JESCHKE, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. BACKGROUND

Medacta USA, Inc., Precision Spine, Inc., and Life Spine, Inc. (collectively, "Petitioner") filed a Petition to institute an *inter partes* review of claims 1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, and 32 (the "challenged claims") of U.S. Patent No. 6,984,234 B2 (Ex. 1001, "the '234 patent"). Paper 4 ("Pet."). RSB Spine, LLC ("Patent Owner") filed a Patent Owner's Preliminary Response. Paper 13 ("Prelim. Resp.").

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2019). Section 314(a) of Title 35 of the United States Code provides that an *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Upon consideration of the evidence and arguments in the Petition (including its supporting testimonial evidence) as well as the evidence and arguments in the Preliminary Response, for the reasons below, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. We thus institute *inter partes* review on all challenged claims on all asserted grounds. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require "a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition"); Patent Trial and Appeal Board Consolidated Trial Practice Guide 64 (Nov. 2019) ("The Board will not institute on fewer than all claims or all challenges in a

petition."), *available at* https://www.uspto.gov/TrialPracticeGuide Consolidated ("TPG").

A. Related Proceedings

The parties identify five pending proceedings in the U.S. District Court for the District of Delaware involving the '234 patent: (1) *RSB Spine, LLC v. Life Spine, Inc.*, No. 18-cv-1972 (D. Del.); (2) *RSB Spine, LLC v. Medacta USA, Inc.*, No. 18-cv-1973 (D. Del.); (3) *RSB Spine, LLC v. Precision Spine, Inc.*, No. 18-cv-1974 (D. Del.); (4) *RSB Spine, LLC v. Xtant Medical Holdings, Inc.*, No. 18-cv-1976 (D. Del.); and (5) *RSB Spine, LLC v. DePuy Synthes, Inc.*, No. 19-cv-1515 (D. Del.) (collectively, the "Delaware Litigations"). Pet. 1–2; Paper 7, at 2 (Patent Owner's Mandatory Notices).[1] The Delaware Litigations also involve U.S. Patent No. 9,713,537 B2 (Ex. 2004, "the '537 patent"). Pet. 1.

On the same day as the filing of the Petition in this Proceeding (December 13, 2019), Petitioner filed an additional petition for *inter partes* review of claims 35, 37, and 39 of the '234 patent in IPR2020-00265. *See See Medacta USA, Inc, v. RSB Spine, LLC*, IPR2020-00265, Paper 2 (PTAB Dec. 13, 2019) (Petition) ("-00265 Pet."). Concurrently with the issuance of this Decision, we grant institution in that proceeding. *Medacta USA, Inc, v. RSB Spine, LLC*, IPR2020-00265, Paper 24 (PTAB May 22, 2020) (Decision on Institution).

[1] Petitioner also includes *RSB Spine, LLC v. RTI Surgical, Inc.*, No. 18-cv-1975 (D. Del.) in its list of "pending litigations." Pet. 1. Patent Owner does not list this litigation (Paper 7, at 2), which appears to have been voluntarily dismissed on April 11, 2019 (*RSB Spine, LLC v. RTI Surgical, Inc.*, No. 18-cv-1975 (D. Del. April 11, 2019), ECF No. 12).

On December 13, 2019, Petitioner also filed petitions for *inter partes* review of claims 1, 3–6, 10, 13–15, 18, 19, 21, 22, 24, 29, and 30 of the '537 patent, in both IPR2020-00264 and IPR2020-00275. *See Medacta USA, Inc, v. RSB Spine, LLC*, IPR2020-00264, Paper 2 (PTAB Dec. 13, 2019) (Petition); *Medacta USA, Inc, v. RSB Spine, LLC*, IPR2020-00275, Paper 4 (PTAB Dec. 13, 2019) (Petition). Concurrently with the issuance of this Decision, we grant institution in IPR2020-00264, but deny institution in IPR2020-00275. *See Medacta USA, Inc, v. RSB Spine, LLC*, IPR2020-00264, Paper 24 (PTAB May 22, 2020) (Decision on Institution); *Medacta USA, Inc, v. RSB Spine, LLC*, IPR2020-00275, Paper 22 (PTAB May 22, 2020) (Decision on Institution).

The parties also identify "related" U.S. Patent Application No. 15/723,522 as currently pending before the U.S. Patent and Trademark Office. Pet. 2; Paper 7, at 2.

B. Real Parties in Interest

The Petition lists the following entities as real parties in interest: Medacta USA, Inc., Precision Spine, Inc., Life Spine, Inc., and Xtant Medical Holdings, Inc. Pet. 1.[2] Patent Owner identifies itself as the sole real party in interest. Paper 7, at 2.

C. The '234 Patent

The '234 patent "is directed to a bone plate system that is particularly useful for assisting with the surgical arthrodesis (fusion) of two bones together, and more particularly, to a bone plate that provides and controls

[2] Petitioner states that "Xtant objects to being identified as a real party-in-interest" and "does not voluntarily agree to be identified as a real party-in-interest." Pet. 1 n.1.

limited movement between the bones during fusion." Ex. 1001, 1:6–10. In the "Background" section, the '234 patent discloses that "[t]he stabilization of the vertebra to allow fusion is often assisted by a surgically implanted device to hold the vertebral bodies in proper alignment and allow the bone to heal, much like placing a cast on a fractured bone." *Id.* at 1:47–51. Figure 1 is reproduced below:

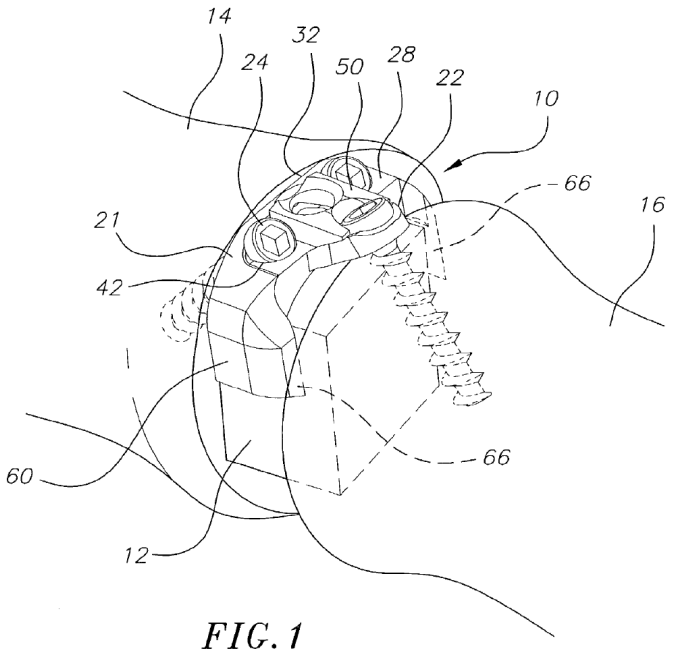

FIG. 1

Figure 1 "is a perspective view of a bone stabilization plate system according to the invention that is assembled between adjacent vertebrae." Ex. 1001, 3:46–48. More specifically, Figure 1 depicts bone stabilization plate system 10, "compris[ing] a base plate 20 [(unnumbered)] having first and second ends, and including a primary member 21 and a secondary member 22 at the second end of the base plate." *Id.* at 4:3–6.[3] Describing

[3] Throughout this Decision, we omit any bolding of reference numerals or claim numbers in quotations from the '234 patent and from prior art references.

Figure 1 (as well as Figure 3 below), the '234 patent discloses that "base plate 20 [is] mounted to first and second adjacent vertebral bodies 14 and 16 with a bone graft 12 between the vertebral bodies" and that "base plate 20 has a bottom surface 26 that contacts the bone graft 12." *Id.* at 4:16–19. Figure 3 is reproduced below:

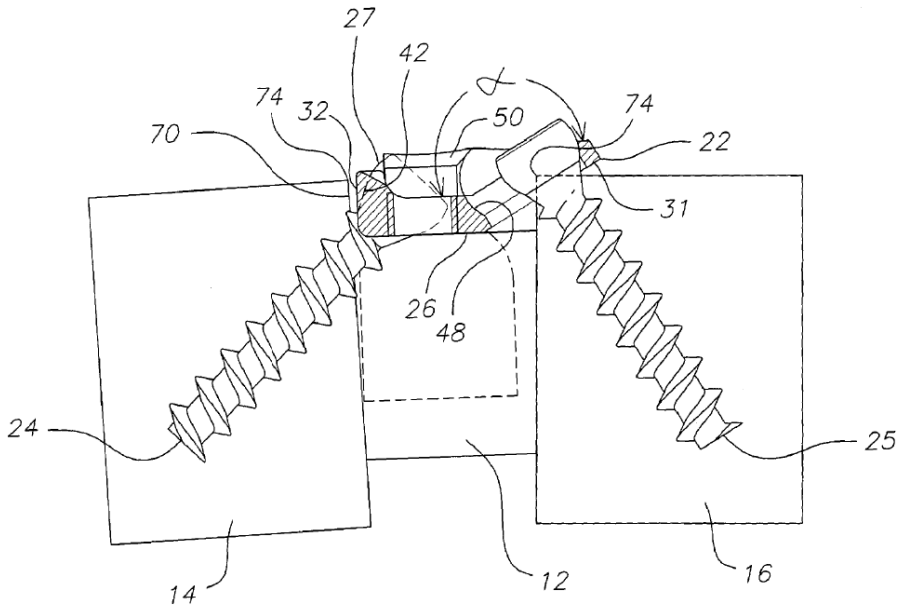

FIG. 3

Figure 3 "is a side cross-sectional view of the bone stabilization plate system of [Figure 1] assembled between adjacent vertebrae." Ex. 1001, 3:51–53. In the embodiment depicted in these Figures, primary member 21 includes two "first bone screw holes 42 extending therethrough for receiving a corresponding number of first bone screws 24," each of which "extends into the first vertebral body 14 at an angle." *Id.* at 4:45–48, 4:55–57. In addition, secondary member 22 includes one "bone screw hole in the form of an elongated bone screw slot 48 for receiving a second bone screw 25," shown extended into "second vertebral body 16." *Id.* at 4:63–67.

In the embodiment depicted above, "base plate 20 further includes a pair of lateral tabs 60 integrally formed with the primary member 21 and extending outwardly from opposite ends of the bottom surface 26 of the primary member to form, together with the primary member, a unitary substantially U-shaped structure." Ex. 1001, 6:33–38. The '234 patent discloses that, "[i]n use, the lateral tabs 60 extend around the bone graft 12 to prevent lateral shift of the graft and control subsidence of adjacent vertebrae as they set during healing." *Id.* at 6:38–41.

D. Illustrative Claims

Petitioner challenges claims 1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, and 32, of which claims 1 and 22 are independent. Claims 2–10, 13, 16, 19, and 20 depend from claim 1; claims 24, 25, 29, 31, and 32 depend from claim 22. Claim 1 is reproduced below:

> 1. A method for joining first and second bones having top surfaces and side surfaces generally facing each other, the method comprising:
>
> inserting between the side surfaces of the bones a base plate having a first end nearer the first bone and a second end nearer the second bone, wherein the base plate has a first screw hole extending through the first end and a second screw hole extending through the second end;
>
> introducing a first bone screw through the first screw hole and into the first bone, wherein the first bone screw is introduced at an angle relative to the top surface of the bone ranging from about 20° to about 60°,
>
> introducing a second bone screw through the second screw hole and into the second bone, wherein the second bone screw is introduced at an

> angle relative to the top surface of the bone ranging from about 20° to about 70°, and
>
> covering at least a part of the first bone screw and at least a part of the second bone screw to prevent the first and second bone screws from backing out of the first and second bones, respectively.

Ex. 1001, 8:62–9:16.

Claim 22 is reproduced below:

> 22. A bone stabilization plate system comprising:
>
> a base plate having bottom surface and first and second ends, the first end comprising a first bone screw region having a first bone screw hole extending therethrough at an angle relative to the bottom surface of the base plate ranging from about 20° to about 60°, and the second end comprising a second bone screw region having a second bone screw hole extending therethrough at an angle relative to the bottom surface of the base plate ranging from about 20° to about 70°;
>
> a first bone screw capable of securing the base plate to a first bone by insertion through the first bone screw hole;
>
> a second bone screw capable of securing the base plate to a second bone by insertion through the second bone screw hole; and
>
> a bone screw retaining means for securedly covering at least a part of the first and second bone screws to prevent the bone screws from backing out from the first and second bones.

Ex. 1001, 10:37–56.

E. Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable based on the following asserted grounds:

Claim(s) Challenged	35 U.S.C. §[4]	Reference(s)/Basis
1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, 32	103(a)	Michelson[5]
2–8, 16	103(a)	Michelson, Fraser '106[6]

Petitioner supports its challenge with a declaration from Mr. Michael C. Sherman (Ex. 1005, "the Sherman Declaration" or "Sherman Decl.").

II. DISCUSSION

A. Discretion Under 35 U.S.C. § 314(a) Based on Parallel Petitions

Institution of *inter partes* review is discretionary. *See* 35 U.S.C. § 314(a) (authorizing institution of an *inter partes* review under particular circumstances, but not requiring institution under any circumstances); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (explaining that under § 314(a), "the PTO is permitted, but never compelled,

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[4] The Leahy-Smith America Invents Act ("AIA") included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Pub. L. No. 112-29, §§ 3(c), 3(n)(1), 125 Stat. 284, 287, 293 (2011). Because the application from which the '234 patent issued was filed before March 16, 2013, we apply the pre-AIA version of this statute. *See* Pet. 4 (stating same). We would reach the same outcome, however, even under the AIA version.

[5] WO 00/66045, published Nov. 9, 2000 (Ex. 1006). Petitioner asserts that Michelson is prior art to the '234 patent under pre-AIA 35 U.S.C. § 102(b). *See* Pet. 4. Patent Owner does not dispute this position. We determine that Petitioner has made an adequate showing, at this stage of the proceeding, that Michelson is prior art.

[6] US 6,432,106 B1, issued Aug. 13, 2002 (Ex. 1007). Petitioner asserts that Fraser '106 is prior art to the '234 patent under pre-AIA 35 U.S.C. §§ 102(a) and 102(e). *See* Pet. 4. Patent Owner does not dispute this position. We determine that Petitioner has made an adequate showing, at this stage of the proceeding, that Fraser '106 is prior art.

to institute an IPR proceeding"); *see also Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) ("[T]he agency's decision to deny a petition is a matter committed to the Patent Office's discretion. See [5 U.S.C.] § 701(a)(2); 35 U.S.C. § 314(a) (no mandate to institute review)." (additional citation omitted)).

As discussed above, *on the same day*, Petitioner filed two petitions (in this proceeding and in IPR2020-00265) challenging certain claims of the '234 patent. *See supra* § I.A. In line with the Board's Consolidated Trial Practice Guide, Petitioner provided a ranking for the two petitions and an explanation of why the Board should exercise its discretion to institute an additional petition if one petition satisfies Petitioner's burden under 35 U.S.C. § 314(a). *See* Paper 5; TPG 59–61.

Petitioner states that "Patent Owner has asserted infringement of eighteen claims from the '234 patent against Petitioner[]" and that "[t]he challenged claims are lengthy and recite limitations covering multiple aspects of a spinal implant." Paper 5, at 2. According to Petitioner, "two petitions are necessary to address each of the various components and combinations implicated as well as address Patent Owner's claim construction positions." *Id.* at 3; *see also id.* at 5 ("Petitioner[] need[s] more than the allotted 14,000 words in one petition to present a thorough analysis of each ground in this case."). Petitioner also highlights that the two petitions "rely on the same prior art combinations to demonstrate unpatentability of the '234 claims, **but challenge different claim sets**," with the Petition in IPR2020-00265 challenging claims 35, 37, and 39 and the

petition in this proceeding challenging claims 1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, and 32. *Id.* at 5.[7]

Patent Owner does not address these issues in the Preliminary Response. *See also* TPG 60–61 (discussing how a patent owner could respond to this type of filing). For the reasons provided by Petitioner as summarized above, we are persuaded, in light of the particular circumstances here, that two petitions were necessary to adequately challenge the 26 claims of the '234 patent at issue between this proceeding and IPR2020-00265.

B. The Level of Ordinary Skill in the Art

The level of ordinary skill in the art is "a prism or lens" through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *Id.* (internal quotation marks and citation omitted).

Petitioner contends that a person having ordinary skill in the art "at the time of the alleged invention would have had at least a Bachelor of

[7] Petitioner appears to mistakenly provide the list of claims in the '537 patent challenged in IPR2020-00275 as the list of the claims in the '234 patent challenged in this proceeding. *Compare* Paper 5, at 2, 5, *with* Pet. 2 (listing the claims in the '537 patent challenged in IPR2020-00275).

Science degree in the field of Mechanical, Biomechanical or Biomedical engineering with at least 5–10 years of experience designing and developing orthopedic implants and/or spinal interbody devices." Pet. 14–15 (citing Sherman Decl. ¶ 22).[8]

Patent Owner does not dispute Petitioner's proposed definition of the level of ordinary skill in the art, which appears consistent with the record at this stage of the proceeding, including the prior art. *See GPAC Inc.*, 57 F.3d at 1579. For purposes of this Decision, we adopt the definition of the level of ordinary skill in the art proposed by Petitioner.

C. Claim Construction

1. Overview

In *inter partes* reviews, the Board interprets claim language using the district-court-type standard, as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

[8] In IPR2020-00265, Petitioner stated the same level of ordinary skill in the art, except included "at least 5 years of experience" rather than, as here, "at least 5–10 years of experience." *See* -00265 Pet. 13–14; Pet. 14–15. We view these proposed levels of skill as the same in scope. We encourage the parties to address this issue, if necessary, during trial.

Petitioner proposes constructions for the following terms: (1) "base plate"; (2) "lip osteophyte"/"lip osteophite"; and (3) "bone screw retaining means." Pet. 15–20. In the claim construction section of its Preliminary Response, Patent Owner addresses only the term "base plate." Prelim. Resp. 2–11; *see also id.* at 2 (stating Patent Owner "addresses other constructions proposed by Petitioner[] as necessary in the sections that follow when discussing the numerous deficiencies in the Petition").

Based on the current record and for purposes of this Decision, we construe the term "base plate." We do not discern a need to construe explicitly any of the other claim language discussed in this section or any other claim terms because doing so would have no effect on the analysis below. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that "we need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

2. "Base Plate"

Petitioner proposes that the term "base plate" should be construed as "[a] fixation plate to stabilize adjacent vertebrae for fusion, which is distinct from bone graft material deployed across a bone graft site and **is not used with a load-bearing fusion cage**." Pet. 15. This proposed construction includes a negative limitation—not in Patent Owner's proposed construction (and shown with Petitioner's emphasis above)—requiring that the "base plate" not be "used with a load-bearing fusion cage." *Id.* (emphasis omitted).

Patent Owner, on the other hand, proposes that the term "base plate" should be construed as "[a] fixation plate of a bone plate stabilization system to stabilize adjacent vertebrae for fusion and **distinct from a spacer** and bone graft material deployed across a bone graft site." Prelim. Resp. 3 (emphasis added). Patent Owner proposes a different additional limitation—not included in Petitioner's proposed construction (and shown with our emphasis above)—requiring that the "base plate" is "distinct from a spacer." *Id.* We first address each of the additional requirements proposed as part of Petitioner's and Patent Owner's constructions (shown in emphasis above), then address a requirement included in both proposed constructions, and then address one additional requirement included in Patent Owner's proposed construction (not disputed by the parties).

a. Petitioner's Proposed Requirement—"not used with a load-bearing fusion cage"

In support of the portion of Petitioner's proposed construction requiring that the term "base plate" is "not used with a load-bearing fusion cage," Petitioner relies on an alleged prosecution history disclaimer based on arguments made by the patent applicant during prosecution, in which, according to Petitioner, "Patent Owner took the position . . . that the claims do not cover implants that use load-bearing spacers." Pet. 16. In particular, Petitioner cites the following argument made by the patent applicant during prosecution of the application that issued as the related '537 patent:

> [**F**]**usion cage 110 is load-bearing** between the two vertebral bodies. The plate 120, which is applied after the load-bearing fusion cage 110 is already in place, keeps the load-bearing fusion cage 110 in place. The **plate 120 is applied, again after the load-bearing fusion cage 110 is in place**, to the respective anterior face of each of the two vertebral bodies.

Pet. 16 (quoting Ex. 2005, at 222,[9] with emphasis added by Petitioner). Based on this particular argument that the patent applicant advanced during prosecution, Petitioner contends that the claimed "base plate" cannot be used with a separate load-bearing spacer or cage. *See id.* at 17 ("This prosecution history disclaimer is both clear and unambiguous, and, as such, restricts Patent Owner from now arguing that the claimed base plate can be used with a separate load bearing spacer/cage.").

We are not persuaded by this argument, however, because Petitioner has not demonstrated that the statements relied upon amount to a "disavowal . . . 'clear and unmistakable' to one of ordinary skill in the art." *See Elbex Video. Ltd. v. Sensormatic Elecs. Corp.*, 508 F.3d 1366, 1371 (Fed. Cir. 2007) (quoting *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1326 (Fed. Cir. 2003)). Based on the record at this stage of the proceeding, we understand the examiner during prosecution to have identified plate 120 in Fraser '222[10] (rather than, for example plate 120 *and* fusion cage 110) as the "base plate" recited in the claims of the application that later issued as the '537 patent. This view is supported by other statements in the prosecution history of the '537 patent. *See MIT v. Shire Pharms., Inc.*, 839 F.3d 1111, 1122 (Fed. Cir. 2016) (rejecting an alleged prosecution history disclaimer based on consideration of the statements "[i]n the context of the entire

[9] Petitioner cites Exhibit 1010, but that is actually US 7,112,222 B2 ("Fraser '222"). We understand Petitioner to have intended to cite to the file history of the application that issued as the '537 patent. Patent Owner has the same understanding. *See* Prelim. Resp. 4–5 n.3, 8 n.5. Patent Owner kindly filed the intended file history as Exhibit 2005. We will revise any mistaken citations to Exhibit 1010 to citations to Exhibit 2005.

[10] "Fraser '222" refers to US 7,112,222 B2 (Ex. 1010).

prosecution history"). For example, in the same filing that includes the alleged disclaimer identified by Petitioner, the applicant summarized a prior telephone interview as including a discussion of the "specifics of the Fraser plate 120" in which "[i]t was noted that the plate 120 is for application onto the anterior side/face of vertebral bones" and "*not for location between the bones*." Ex. 2005, at 218 (emphasis added). Then, in the Notice of Allowance that issued weeks later, the examiner included in the reasons for allowance that "no reference . . . could be found which disclose[s] or suggest[s] a bone stabilization plate with a *base plate configured to fit primarily between anterior portions of adjacent bones' lip osteophytes*" as recited in, for example, issued claim 1 of the '537 patent. *Id.* at 233 (emphasis added) (providing reasons for allowance), 211 (providing amendments to claim 1).

Viewed in the context of these statements, in the discussion highlighted by Petitioner, the applicant did not disclaim the use of the recited "base plate" with a separate fusion cage; instead, in that discussion, the applicant merely asserts that the identified "base plate"—i.e., plate 120 in Fraser '222—does not satisfy the requirement, in each independent claim, that the "base plate" be "configured to fit primarily between" certain recited portions of the bones' lip osteophytes, either to "bear weight" or "while bearing weight." *See* Ex. 2005, at 222–23. The reason for this, as explained by the applicant, is that, in Fraser '222, fusion cage 110 "is load-bearing between the two vertebral bodies" whereas plate 120 is "applied . . . after the load-bearing fusion cage 110 is in place, to the respective anterior face of each of the two vertebral bodies." *Id.* at 222; *see also id.* at 221 ("The fusion cage is then positioned between the vertebrae . . . . **Once the fusion cage is**

in position, the plate is mated to the anterior face of the fusion cage . . . .") (quoting Ex. 1010, 8:39–49, with emphasis added by applicant). Thus, contrary to Petitioner's assertion (Pet. 15–17), the applicant did not disclaim the use of the recited "base plate" with a load-bearing fusion cage.[11] For the forgoing reasons, we do not construe "base plate" as requiring the negative limitation that it must not be used with a load-bearing fusion cage.

b. Patent Owner's Proposed Requirement—"distinct from a spacer"

Patent Owner contends that a skilled artisan would understand that a "base plate" is "distinct from a spacer." Prelim. Resp. 3–4. Patent Owner explains that a "person of ordinary skill would understand a spacer to refer to an interbody device . . . [for] insertion at a bone graft site." *Id.* at 4 (citing Ex. 2001, S158–59, S161–62, Figs. 1, 3; Ex. 2002, 5:3–5, 6:5–7, 6:22–67, 9:55–63, 11:2–5, 11:44–67, 12:1–10, 12:25–28, 12:65–13:3, Figs. 5–8). Patent Owner further explains that a "spacer bears weight from the vertebral

[11] To the extent Petitioner continues to assert its prosecution history disclaimer argument at trial, the parties are encouraged to develop during briefing the issue of whether argument in the prosecution history of the application leading to the '537 patent can disclaim scope in the claims of the '234 patent given, for example, (1) the issuing dates of each patent and the date of the alleged disclaimer, (2) the additional written description in the '537 patent, (3) the nature of the particular priority relationship between the patents, and (4) any relevant differences in the claim language between the patents. *See, e.g., Georgia-Pacific Corp. v. U.S. Gypsum Co.*, 195 F.3d 1322 (Fed. Cir. 1999); *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340 (Fed. Cir. 2004); *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295 (Fed. Cir. 2007); *Capital Mach. Co. v. Miller Veneers, Inc.*, 524 F. App'x 644 (Fed. Cir. 2013) (nonprecedential). The parties should also consider addressing whether the decision in *Sinorgchem Co., Shandong v. International Trade Commission*, 511 F.3d 1132 (Fed. Cir. 2007), cited by Patent Owner (Prelim. Resp. 4–5 n.3), applies to the facts here.

bodies in the spinal column to promote fusion." *Id.* (citing Ex. 2001, S158, S160–61; Ex. 2002, 2:1–3, 5:5–10, 10:14–51, 12:49–59).

We are not persuaded by Patent Owner's argument. Despite Patent Owner's numerous citations to Exhibits 2001 and 2002, we find nothing in this extrinsic evidence to support Patent Owner's assertion that a skilled artisan would understand that a "base plate" *must* be distinct from a "spacer." Rather, Exhibits 2001 and 2002 merely describe examples of base plates *that are* separate from an interbody spacer (*see, e.g.*, Ex. 2002, Figs. 7, 8). Neither of these documents defines "base plate," or otherwise establishes that one of ordinary skill in the field at issue would understand that a "base plate" must be distinct from a "spacer." Furthermore, we find nothing in the claims or the written description of the '234 patent, such as a lexicographic definition of "base plate," that supports such a requirement. We further note that Patent Owner does not submit declaration testimony to support its position that a skilled artisan would have understood "base plate" to be distinct from a "spacer," rendering Patent Owner's position as to the alleged understanding of a skilled artisan as untenable attorney argument. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (rejecting attorney argument as to the alleged understanding of one of skill in the art on an issue when no evidence was presented). Because the evidence of record fails to support Patent Owner's position that the claimed "base plate" must be "distinct from a spacer," we decline to adopt Patent Owner's proposed requirement.

c. Petitioner and Patent Owner's Common Proposed Requirement—"distinct from" "bone graft material deployed across a bone graft site"

Both Petitioner and Patent Owner include as part of their proposed constructions that the claimed "base plate" is a "fixation plate" that functions to "stabilize adjacent vertebrae for fusion" and is "distinct from" "bone graft material deployed across a bone graft site." *See* Pet. 15 ("Patent Owner and Petitioner[] currently agree that [one of ordinary skill in the art] would understand the term 'base plate' to include 'a fixation plate to stabilize adjacent vertebrae for fusion' which is 'distinct from bone graft material deployed across a bone graft site.'" (citing Ex. 1009)); Prelim. Resp. 3 ("The parties agree that a base plate is a 'fixation plate' that functions to 'stabilize adjacent vertebrae for fusion' and is 'distinct from . . . bone graft material [deployed] across a bone graft site.'").

In their filings in this proceeding, neither Petitioner nor Patent Owner provides argument or identifies evidence to support the alleged requirement that the "base plate" be "distinct from" "bone graft material deployed across a bone graft site." Although the parties agree on this aspect of their proposed constructions, for the reasons below, we do not find the asserted distinction supported by the record at this stage of the proceeding. *See Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1556 (Fed. Cir. 1995) ("[T]he judge's task is not to decide which of the adversaries[' constructions] is correct. Instead the judge must independently assess the claims, the specification, . . . and declare the meaning of the claims.").

Based on our review of the record, we note that *some* independent claims in the '234 patent include recitations that could be seen to support the asserted distinction between the "base plate" and "bone graft material." For

example, claim 35 recites that the claimed "system" includes a "base plate" "for retaining bone graft material." Ex. 1001, 12:10–11. In addition, claim 41 recites the step of "positioning a U-shaped base plate onto . . . bone graft material." *Id.* at 13:19–14:1. Independent claims 1, 22, and 34, however, do not recite "bone graft material" at all. Under the doctrine of claim differentiation, these differences support that the asserted distinction is *not* part of the proper understanding of the term "base plate" itself. *See Caterpillar Tractor Co. v. Berco, S.p.A.*, 714 F.2d 1110, 1115–16 (Fed. Cir. 1983) (rejecting an argument that a structural relationship recited in two independent claims should limit another independent claim that did not recite the same relationship, stating: "Courts may not introduce into a claim limitations which are explicitly contained in other claims."). Here, claims 1, 22, and 34 do not appear to exclude from their scope a "base plate" that was *indistinct* from "bone graft material" (which is not recited in those claims).

Although the Specification describes embodiments in which a "base plate" is distinct from bone graft material (*see, e.g.*, Ex. 1001, Figs. 1, 3), it is generally improper to read limitations from specific embodiments into the claims. *See Cadence Pharms. Inc. v. Exela PharmSci Inc.*, 780 F.3d 1364, 1369 (Fed. Cir. 2015) ("[E]ven if all of the embodiments discussed in the patent included a specific limitation, it would not be proper to import from the patent's written description limitations that are not found in the claims themselves." (internal quotations omitted)). Accordingly, in our preliminary

construction, we do not include a requirement that the "base plate" is distinct from bone graft material.[12]

d. Patent Owner's Proposed Requirement—"of a bone plate stabilization system"

Patent Owner includes as part of its proposed construction that the "base plate" is part "of a bone plate stabilization system." Prelim. Resp. 3. In a footnote that provides the only discussion of this proposed requirement, Patent Owner cites portions of the '234 patent in support. *Id.* n.2 (citing Ex. 1001, 2:40–41, 2:60–62, 4:3–4, claim 22).

We are not persuaded that this proposed requirement should be included in the construction of "base plate." We first address the claim language highlighted by Patent Owner. As an initial matter, we note that, although the title of the '234 patent includes the phrase "BONE PLATE STABILIZATION SYSTEM," the claims—and specifically only *some* of the independent claims—use a different phrase: "bone stabilization plate system." *See* Ex. 1001, code (54), 10:38 (claim 22), 12:10 (claim 35), 12:58 (claim 40). Further, although the preambles of each independent apparatus claim (numbers 22, 35, and 40) recite a "bone stabilization plate system," each independent method claim (numbers 1, 34, and 41) recites a "base plate" but does not recite a "bone stabilization plate system" (or any other "system"). *See id.* at 8:62–14:17. Under the doctrine of claim differentiation, these differences support that the asserted requirement is *not* part of the proper understanding of the term "base plate" itself. *See*

[12] We note that neither Petitioner nor Patent Owner relies, in the context of any argument, on the presence of this alleged requirement in the construction of "base plate."

Caterpillar Tractor, 714 F.2d at 1115–16. Here, claims 1, 34, and 41 do not appear to exclude from their scope practicing the method on a "base plate" that is *not* part of a "bone stabilization plate system" (which is not even recited in those claims).

Turning to the passages in the written description cited by Patent Owner, the first actually characterizes the "present invention" as a "bone stabilization *device*" and method of use, rather than a "bone stabilization *plate system*." Ex. 1001, 2:40–41 (emphasis added). And although the remaining two passages do refer to a "bone stabilization plate system," those passages make clear that they only describe particular disclosed embodiments. *See id.* at 2:60–62 ("*In another embodiment*, the invention is directed to bone stabilization plate system comprising a base plate having bottom surface and first and second ends." (emphasis added)), 3:67–4:4 ("A *particularly preferred bone stabilization plate system* 10 constructed in accordance with the present invention is shown in FIGS. 1 to 4. *The depicted bone stabilization plate system* comprises a base plate 20 having first and second ends . . . ." (emphasis added)). On the record here, we do not read these limitations into the meaning of the term "base plate." *See SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) ("Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim."). Accordingly, in our preliminary construction, we do not include a

requirement that the "base plate" is part "of a bone plate stabilization system."[13]

e. Preliminary Construction of "Base Plate"

For the reasons above, at this stage of the proceeding, and for purposes of this Decision, we construe "base plate" as a "fixation plate to stabilize adjacent vertebrae for fusion." The parties are hereby given notice that claim construction, in general, is an issue to be addressed at trial and claim constructions expressly or implicitly addressed in this Decision are *preliminary* in nature. Claim construction will be determined at the close of all the evidence and after any hearing. The parties are expected to assert all of their claim construction arguments and evidence in the Petition, Patent Owner's Response, Petitioner's Reply, Patent Owner's Sur-reply, or otherwise during trial, as permitted by our rules.

D. Asserted Obviousness of Claims 1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, and 32 Based on Michelson

Petitioner asserts that claims 1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, and 32 of the '234 patent are unpatentable under 35 U.S.C. § 103(a) based on Michelson. Pet. 4, 21–67. Patent Owner provides arguments addressing this asserted ground of unpatentability. Prelim. Resp. 12–24. We first summarize aspects of Michelson.

[13] We note that neither Petitioner nor Patent Owner relies, in the context of any argument, on the presence of this alleged requirement in the construction of "base plate." *See* Prelim. Resp. 3 n.2 (stating that "the numerous, specific deficiencies in Petitioner['s] arguments do not turn on whether this portion of the proposed construction is included or not").

1. Michelson

According to Michelson, certain spinal instabilities can be treated by fusion, which is "the joining together permanently of the unstable vertebrae via a bridge of bone so as to eliminate all motion along [a] portion of the spine." Ex. 1006, at 2.[14] Michelson discloses various "interbody spinal fusion implants" that are "placed at least in part within a disc space and in contact with each of the vertebral bodies adjacent that disc space for spacing apart and aligning those vertebral bodies and for allowing for the growth of bone in continuity from vertebral body to adjacent vertebral body." *Id.* Michelson provides this summary of the process:

> In order to perform anterior interbody spinal fusion, a significant amount of disc material is removed from the interspace to be fused. After removing the disc material, the disc space is filled with an implant, which generally includes bone or bone in combination with a reinforcing structure, such as an artificial (other than bone) interbody spinal fusion implant.

Ex. 1006, at 3. Figures 24 and 25 of Michelson are reproduced below:

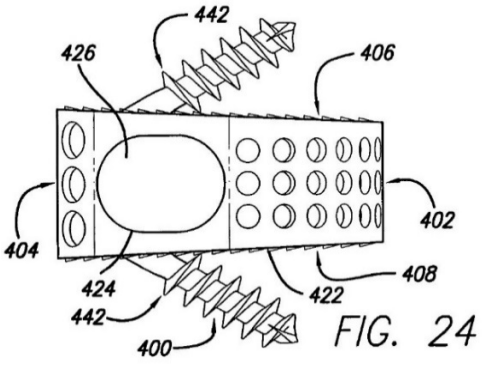


FIG. 24

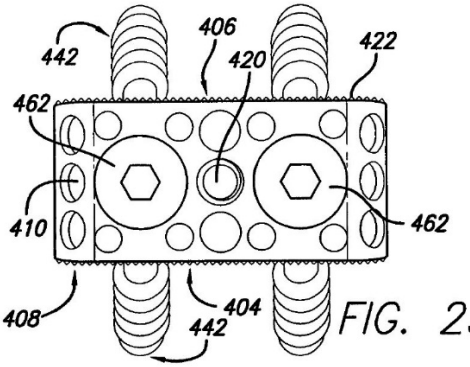


FIG. 25

[14] Both Petitioner and Patent Owner cite to the internal pagination in Michelson rather than the page numbers added by Petitioner (e.g., "Petitioners 1006-1" on the first page). For consistency, we do the same.

Figure 24 is "a side elevation view of the fourth embodiment implant with opposed bone engaging screws." Ex. 1006, at 7. Figure 25 is "a trailing end view of the implant of Figure 24 with screws and screw locks in place." *Id.* Michelson describes implant 400 as including convex leading end 402 and opposite trailing end 404, both of which are "highly perforate to allow for vascular access to hollow interior 426 of implant 400, and to allow for the growth of bone therethrough." *Id.* at 16. Implant 400 also includes opposed upper and lower vertebral body engaging surfaces 406 and 408, respectively, and bone screws 442. *Id.* at 16–17. Figure 25 also depicts "threaded lock members 462, preventing screws 442 from backing out." *Id.* at 17. Figures 23 and 21 are reproduced below:

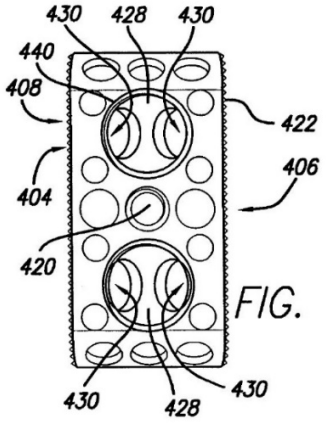


FIG. 23

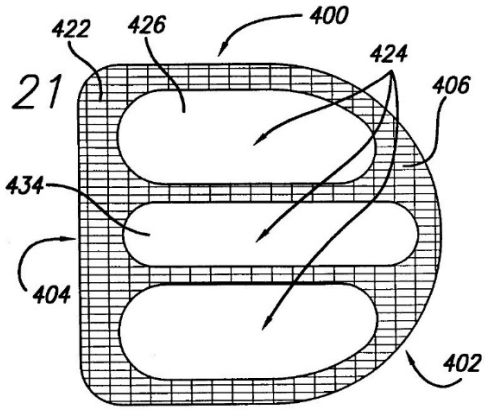


FIG. 21

Figure 23 is a "trailing end view" and Figure 21 is a "top plan view" of the same embodiment shown above. Ex. 1006, at 6. Figure 23 shows two common holes 440 (which receive threaded lock members 462 shown in Figure 25) as well as four holes 430, each of which is "adapted to receive a bone screw 442" that is directed "into [a] vertebral body itself at an angle preferably between 25° and 75°." *Id.* at 17. As shown in Figure 21, Michelson discloses that "[i]mplant upper and lower surfaces 406 and 408 have large windows or slots 424 therethrough, each in communication with

the central hollow chamber 426 of the implant and each forming a direct path to its counterpart on the opposite surface through implant 400." *Id*. at 16–17. Michelson also discloses that "[t]o the extent that such implants are hollow and have openings through the surfaces, those openings and those hollows can preferably be filled with fusion promoting substances, including substances that are osteogenic, osteo-inductive, or osteo-conductive, whether naturally occurring, or artificially produced." *Id.* at 9.

2. Analysis

a. Independent Claim 1

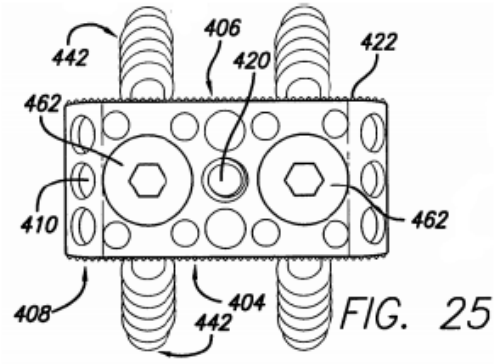
For independent claim 1, Petitioner contends that Michelson discloses each limitation. Pet. 21–30. To support its arguments, Petitioner identifies certain passages in Michelson and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Patent Owner argues that Petitioner has failed to show that Michelson discloses a "base plate" under either Patent Owner's proposed construction or Petitioner's proposed construction. *See* Prelim. Resp. 13–16 (discussing Patent Owner's proposed construction), 16–18 (discussing Petitioner's proposed construction).

We have reviewed Petitioner's contentions with respect to the limitations of claim 1 and, for the reasons below, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to the contention that claim 1 would have been obvious based on Michelson. Pet. 21–30.

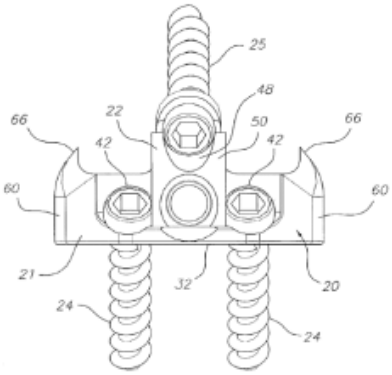
(1) The "Base Plate" Limitation

Claim 1 recites "a base plate" ("the 'base plate' limitation"). Ex. 1001, 8:65–9:1. Addressing this limitation, Petitioner provides the

following side-by-side comparison of Figure 25 of Michelson and Figure 4 of the '234 patent:



Michelson '045, Ex.1006, Fig. 25



'234 patent, Ex.1001, Fig. 4

Pet. 24. Figure 25 of Michelson is "a trailing end view of the implant of Figure 24 with screws and screw locks in place." Ex. 1006, at 7. Figure 4 of the '234 patent is a "top view of the bone stabilization plate system" of Figure 1. Ex. 1001, 3:54–55. Referring to these Figures, Petitioner states that, "like the '234 patent, Michelson . . . discloses a fixation plate 404 to stabilize adjacent vertebrae for fusion." Pet. 24.[15]

[15] Although Petitioner initially appears to identify "fixation plate 404" as the "base plate," Petitioner then refers to the same structure as "this implant." Pet. 24. We note that reference numeral 404 in Michelson is only the "trailing end" of "implant 400." *See, e.g.*, Ex. 1006, at 17. Based on the totality of the record, we view Petitioner's reference to reference numeral 404 (Pet. 24) as a typographical error. *Cf.* Pet. 26, 40, 41, 43, 48, 52, 54, 58 (all referring to "trailing end 404" in Michelson). Accordingly, we understand Petitioner to identify implant 400 as the "base plate." This understanding is supported by other annotated Figures in the Petition. *See, e.g.*, Pet. 57 (showing an annotated version of Figure 24 of Michelson with certain structure overlaid in orange and identified as a "base plate"), 23 (similar). Patent Owner has a similar understanding, as reflected in its arguments on this issue. *See, e.g.*, Prelim. Resp. 13 ("The fixation plate

Patent Owner presents two related arguments. First, Patent Owner argues that Petitioner has failed to show that Michelson discloses a "base plate" under Patent Owner's proposed construction. *See* Prelim. Resp. 13–16. Specifically, Patent Owner contends that "[t]he fixation plate identified by Petitioner[]—Michelson's implant 400— . . . is not a 'base plate' because it is not distinct from a spacer." *Id.* at 13. In support, Patent Owner first asserts that Petitioner has equated the terms "spacer" and "fusion cage" (or just "cage") (*id.* at 13–14 (citing Pet. 16, 17, 24)) and then highlights Petitioner's assertions that Michelson's implant 400 is "***integrated with a load-bearing fusion cage***" (*id.* at 14 (quoting Pet. 24)). According to Patent Owner, because Petitioner argues that Michelson's implant 400 "is a unitary, single component implant structure that incorporates or includes an integral fusion cage/spacer that is ***indistinct*** from any fixation plate, this implant relied on by Petitioner[] fails to satisfy the 'base plate' limitation under Patent Owner's construction of this term." *Id.* at 16 (citing Pet. 28).

At this stage of the proceeding, Patent Owner's first argument does not identify a deficiency in Petitioner's position. As discussed above, we preliminarily construe "base plate" as a "fixation plate to stabilize adjacent vertebrae for fusion." *See supra* § II.C.2.e. Because our preliminary construction *does not* include the "distinct from a spacer" requirement from Patent Owner's proposed construction, we are not persuaded by this argument. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (rejecting arguments "not based on limitations appearing in the claims").

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identified by Petitioner[]—Michelson's implant 400—thus is not a 'base plate' because it is not distinct from a spacer.").

Second, Patent Owner argues that Petitioner has failed to show that Michelson discloses a "base plate" under Petitioner's proposed construction. *See* Prelim. Resp. 16–18. Specifically, Patent Owner contends that Petitioner "tacitly admit[s] that Michelson fails to disclose a 'base plate' according to the literal terms of Petitioner['s] proposed construction because the Michelson implant ***is*** used with a load-bearing fusion cage—an integrated one." Prelim. Resp. 17. According to Patent Owner, Petitioner "surreptitiously adopt[s] and appl[ies] a modified version of [its] proposed construction that inserts an additional qualifier—'separate,'" but Petitioner "offer[s] no evidence or argument showing why [its] proposed construction [of] 'base plate' should be modified in such a manner." *Id.*

At this stage of the proceeding, Patent Owner's second argument also does not identify a deficiency in Petitioner's position. As an initial matter, although Petitioner's statement of its construction does not include the word "separate" before "load-bearing fusion cage," like Patent Owner, we understand Petitioner to have implicitly included "separate" in its proposed construction. *See* Prelim. Resp. 17 (citing Pet. 24 (stating that Michelson's implant 400 "is not used with a *separate* load-bearing fusion cage or spacer" (emphasis added))). Here, Patent Owner does not address whether Michelson discloses a "base plate" under the proper understanding of Petitioner's proposed construction of that term; instead, Patent Owner contests a portion of Petitioner's proposed construction, specifically the requirement that the "base plate" is "not used with a [separate] load-bearing fusion cage." *See, e.g.*, Prelim. Resp. 18 ("Accordingly, the Board should not adopt Petitioner['s] unexplained, implicit modification to its proposed construction of 'base plate' and [should] find that Petitioner has failed to

satisfy its burden to show Michelson discloses a 'base plate' under Petitioner['s] actual proposed construction."). Regardless, as discussed above, our preliminary construction *does not* include that additional requirement proposed by Petitioner. *See supra* § II.C.2.a. Thus, Petitioner need not show that Michelson satisfies that requirement. *See Self*, 671 F.2d at 1348 (rejecting arguments "not based on limitations appearing in the claims").

As discussed above, Petitioner identifies implant 400 as a "fixation plate . . . to stabilize adjacent vertebrae for fusion" (Pet. 24 (citing Ex. 1006, Fig. 25))—in other words, as a "base plate" under our preliminary construction. At this stage of the proceeding, Patent Owner does not challenge this assertion by Petitioner, which we determine is supported by the record. *See, e.g.*, Ex. 1006, at 2 (discussing the use of the disclosed "interbody spinal fusion implants" for fusion, i.e., the "joining together permanently of the unstable vertebrae via a bridge of bone so as to eliminate all motion along that portion of the spine"). For these reasons, at this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that Michelson discloses the "base plate" limitation under the preliminary construction above.

(2) The Remaining Aspects of Petitioner's Contentions

Patent Owner does not offer any arguments specifically addressing the remaining limitations of claim 1. *See* Prelim. Resp. 13–18. We have reviewed these aspects of Petitioner's contentions, and determine that the Petition provides a sufficient showing, at this stage of the proceeding, that Michelson satisfies each limitation. *See* Pet. 21–30. For the reasons above, we determine, based on the current record, that the Petition shows a

reasonable likelihood that Petitioner would prevail with respect to the contention that claim 1 would have been obvious based on Michelson.[16]

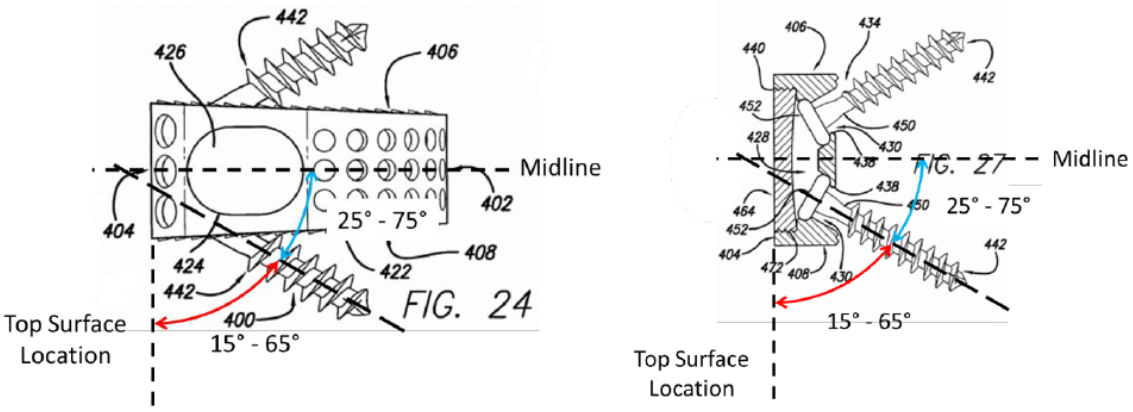
b. Dependent Claims 2–7

Claims 2–4 and 6 include certain requirements for the structures into which either "the first bone screw" (claim 2), the "second bone screw" (claim 4), or both (claims 3 and 6) are introduced. *See* Ex. 1001, 9:17–28, 9:32–37. Petitioner argues these claims are satisfied by alleged teachings in Michelson that the relevant identified bone screw is introduced at a "75° angle relative to the midline of the base plate." Pet. 30–31 (addressing claim 2: "[I]f the first bone screw of the Michelson . . . device is introduced through the first screw hole at a 75° angle relative to the midline of the base plate, then the screw will be introduced into the first bone at a corner of the bone formed between the top surface and side surface of the first bone."), 32–33 (addressing claims 3 and 4: "[I]f the second bone screw of the Michelson . . . device is introduced through the second screw hole at a 75° angle relative to the midline of the base plate, then the screw will be introduced into the second bone at a corner of the bone formed between the top surface and side surface of the first bone."), 34–35 (addressing claim 6).

As noted by Petitioner, a "75° angle relative to the midline of the base plate" appears to equate to a 15° angle relative to the top surface of the bone.

[16] Petitioner also provides an alternative basis as to certain aspects of claims 1 and 22 "[i]n the event that the Board determines that the claimed first end and second end only comprises the corner of the base plate." Pet. 65; *see also id.* at 65–67 (providing alternative basis). Because neither party appears to have addressed the scope of the "first end and second end" in the briefing thus far, we take no position on it, and thus do not address Petitioner's alternative basis.

See Pet. 34 ("Michelson . . . teaches 'said **screw holes are angled between 25 and 75 degrees from the mid-longitudinal axis** of said implant.' Ex.1006 at 32, 101; *see* Ex.1005 at ¶¶101-103. This is the equivalent of 15° and 65° from the top surface of the bone. Ex.1005 at ¶¶101-103."). This understanding is supported by these annotated versions of Figures 24 and 27 of Michelson provided in a portion of the Sherman Declaration cited by Petitioner on this issue, which show a "Top Surface Location" and "Midline" with 90° of angular separation between them:



Michelson '045, Ex. 1006, Figs. 24 and 27

Sherman Decl. ¶ 102. In the annotated versions of both Figure 24 and Figure 27 of Michelson, Mr. Sherman added (1) a dotted line identified as "Midline," (2) a dotted line identified as "Top Surface Location," (3) a dotted line along the length of the intervening bone screw, (4) a red arc showing the angle between the "Top Surface Location" and bone screw, and (5) a blue arc showing the angle between the bone screw and "Midline." *Id.*

Assuming this understanding of Petitioner's position is correct, it is unclear, on the current record, how teachings of bone screws at a 15° angle relative to the top surface of the bone that allegedly satisfy claims 2–4 and 6 *could also* satisfy the requirements in independent claim 1 (from which

claims 2–4 and 6 depend) that (1) "the first bone screw is introduced at an angle relative to the top surface of the bone ranging from about 20° to about 60°" and (2) "the second bone screw is introduced at an angle relative to the top surface of the bone ranging from about 20° to about 70°." *See* Ex. 1001, 9:5–7, 9:9–12; *see also* 35 U.S.C. § 112, fourth paragraph ("A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers."). The parties are encouraged to develop these issues in the briefing during trial.

Claim 5 depends from claim 4 and claim 7 depends from claim 6. *See* Ex. 1001, 9:29–31, 9:38–40. For the same reasons discussed in the prior paragraph, at this stage of the proceeding, it is not clear how teachings that allegedly satisfy claims 5 and 7 (with their dependency to claims 4 and 6, respectively), could also satisfy the limitations of claim 1. As to the additional limitations recited in claims 5 and 7, however, we determine that the Petition provides the requisite showing, at this stage of the proceeding, that Michelson discloses the subject matter of these additional limitations. *See* Pet. 37–38. Patent Owner does not offer any arguments specifically addressing those claims. We include claim 2–7 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; TPG 64 ("The Board will not institute on fewer than all claims or all challenges in a petition.").

c. Dependent Claims 8–10, 13, 14, 16, 19, and 20

We have reviewed Petitioner's contentions with respect to claims 8–10, 13, 14, 16, 19, and 20, which depend from claim 1, and we determine that the Petition provides the requisite showing, at this stage of the proceeding, that Michelson discloses the subject matter of these claims. *See*

Pet. 37–50.[17] Patent Owner does not offer any arguments specifically addressing these claims. We determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to the contention that claims 8–10, 13, 14, 16, 19, and 20 would have been obvious based on Michelson.

d. Independent Claim 22

For independent claim 22, Petitioner contends that Michelson discloses each limitation. Pet. 50–59. To support its arguments, Petitioner identifies certain passages in Michelson and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Patent Owner argues (1) that Petitioner has failed to show that Michelson discloses a "base plate" under either Patent Owner's proposed construction or Petitioner's proposed construction (Prelim. Resp. 13–18) and (2) that Petitioner has failed to show that Michelson discloses a "bone screw retaining means" (*id.* at 19–22). We address in turn below each of Patent Owner's arguments.

(1) The "Base Plate" Limitation

For the recitations of "base plate" in claim 22, Petitioner refers to its arguments provided for claim 1. *See* Pet. 51 ("With respect to the base plate, as discussed in Section VIII.A.2, Michelson . . . discloses a base plate."). Patent Owner's arguments summarized above, addressing the "base plate" recited in claim 1, also addressed the "base plate" in claim 22. *See* Prelim. Resp. 13–18. For the reasons discussed above (*see supra* § II.D.2.a), at this

[17] Although claim 18 depends from claim 1, Petitioner addresses claim 18 with claim 31 after the discussion of independent claim 22 (from which claim 31 depends.). *See* Pet. 63–64. We do the same. *See infra* § II.D.2.f.

stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that Michelson discloses the "base plate" limitation under the preliminary construction above.

(2) The "Bone Screw Retaining Means" Limitation

Claim 22 recites "a bone screw retaining means for securedly covering at least a part of the first and second bone screws to prevent the bone screws from backing out from the first and second bones" ("the 'bone screw retaining means' limitation"). Ex. 1001, 10:53–56. Addressing this limitation, Petitioner references the discussion of its proposed construction of this limitation (under § 112 ¶ 6) and then quotes Michelson's disclosure that "trailing end 404 of **implant 400 is adapted** to receive a total of four bone screws 442 deployed in upwardly and downwardly projecting opposed pairs, and **further to receive into common holes 440 threaded lock members 462, preventing screws 442 from backing out**." Pet. 58 (quoting Ex. 1006, at 18, with emphasis added by Petitioner) (citing Sherman Decl. ¶ 189). Petitioner also reproduces Figures 26 and 27 of Michelson (as do we, below):

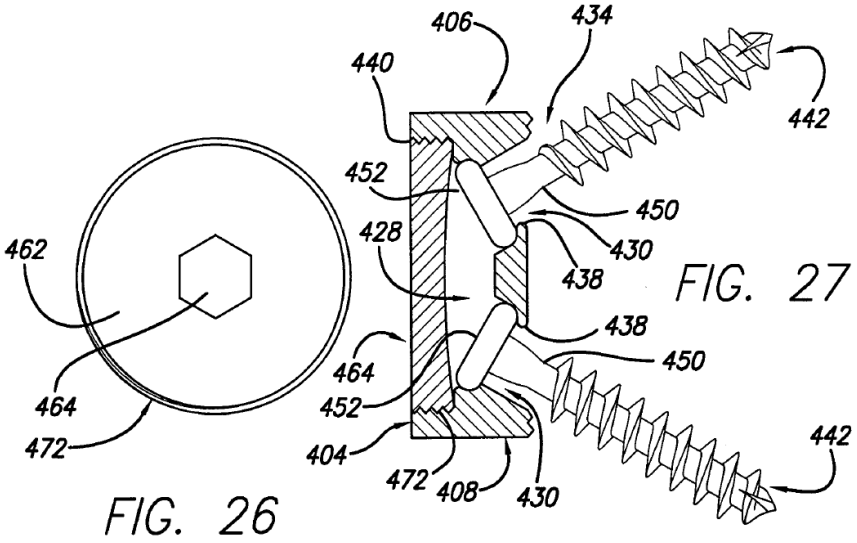


FIG. 27

FIG. 26

Pet. 59. Figure 26 "is a top plan view of the screw lock of Figure 25" (which we reproduced *supra* § II.D.1), and Figure 27 "is a side elevation view in partial cross section through a portion of the rear wall of the fourth embodiment implant, with opposed bone screws, and lock." Ex. 1006, at 7. Referring to these Figures, Petitioner states that Michelson "teaches the base plate includes a lock 462 that covers part of the first and second bone screws to prevent them from backing out." Pet. 58.

Patent Owner contends that Michelson does not disclose the "bone screw retaining means" limitation under Petitioner's proposed construction (the only construction presented in this proceeding). Prelim. Resp. 19–22.[18] Patent Owner highlights Michelson's disclosures that "lock 462 take[s] the form of a disc with a threaded side wall 472, capable of threadably engaging threads 472 within common hole 428" (Prelim. Resp. 20 (quoting Ex. 1006, at 18)) and that lock 462 serves to "prevent[] screws 442 from backing out" (*id.* at 21 (quoting Ex. 1006, at 17)). Patent Owner then argues that lock 462 is not *either* of the two alternative structures proposed by Petitioner under its proposed construction of this limitation. *Id.*

As to the first proposed structure, Patent Owner asserts that "a 'disc with a threaded sidewall' like lock 462 first is not 'a retaining plate ***and*** a set screw,' which requires two elements: (i) a plate *and* (ii) a set screw." Prelim. Resp. 21. As to the second proposed structure, Patent Owner argues that lock 462 "is not 'one or more screws with heads that overlap at least a

[18] In the claim construction section of the Petition, Petitioner included Patent Owner's proposed construction of this term in the Delaware Litigations. *Compare* Pet. 20, *with* Ex. 1009, at 12. In this proceeding, however, Patent Owner does not propose a construction for the "bone screw retaining means" limitation. *See* Prelim. Resp. 2–11.

portion of one or more bone screws . . .' as a disc with a threaded sidewall is not a 'screw' having a 'head.'" *Id.* (citing Ex. 1001, 5:14–19, Fig. 5). According to Patent Owner, "Michelson describes lock 462 ('a disc with a threaded sidewall') differently from the bone 'screws' having distinct 'heads.'" *Id.* (citing Ex. 1006, at 18, Fig. 27).

Although Patent Owner raises certain issues that may warrant further development, we note that Patent Owner has not submitted declaration testimony to support its position that a skilled artisan would not have understood lock 462 to align with either of Petitioner's proposed structures for the "bone retaining means" limitation; this renders Patent Owner's position as to the alleged understanding of a skilled artisan as attorney argument. *See Elbit Sys.*, 881 F.3d at 1359 (rejecting attorney argument as to the alleged understanding of one of skill in the art on an issue when no evidence was presented); *see also* 37 C.F.R. § 42.108(c) ("The Board's decision [at institution] will take into account a patent owner preliminary response where such a response is filed, including any testimonial evidence, but a genuine issue of material fact *created by such testimonial evidence* will be viewed in the light most favorable to the petitioner solely for purposes of deciding whether to institute an *inter partes* review." (emphasis added)). We encourage the parties to develop these issues further during trial.

(3) The Remaining Aspects of Petitioner's Contentions

Patent Owner does not offer any arguments specifically addressing the remaining limitations of claim 22. *See* Prelim. Resp. 12–22. We have reviewed these aspects of Petitioner's contentions, and determine that the Petition provides a sufficient showing, at this stage of the proceeding, that

Michelson satisfies each limitation. *See* Pet. 50–59.[19] We include claim 22 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; TPG 64 ("The Board will not institute on fewer than all claims or all challenges in a petition.").

e. Dependent Claims 24, 25, 28, 29, and 32

We have reviewed Petitioner's contentions with respect to claims 24, 25, 28, 29, and 32, which depend from claim 22, and we determine that the Petition provides a sufficient showing, at this stage of the proceeding, that Michelson discloses the added subject matter of these claims. *See* Pet. 59–63, 64–65. Patent Owner does not present any arguments specifically addressing these claims. *See* Prelim. Resp. 19–22 (addressing these claims with the arguments as to the "bone screw retaining means" limitation in independent claim 22). We include these claims in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; TPG 64 ("The Board will not institute on fewer than all claims or all challenges in a petition.").

f. Dependent Claims 18 and 31

Claim 18 depends from claim 14 and claim 31 depends from claim 29. *See* Ex. 1001, 10:20–22, 11:29–31. Each adds the requirement that "the first, second and third bone screws are covered by a single retaining plate."

[19] Petitioner also provides an alternative basis as to certain aspects of claims 1 and 22 "[i]n the event that the Board determines that the claimed first end and second end only comprises the corner of the base plate." Pet. 65; *see also id.* at 65–67 (providing alternative basis). Because neither party appears to have addressed the scope of the "first end and second end" in the briefing thus far, we take no position on it, and thus do not address this alternative basis.

Id. Addressing these additional limitations together, Petitioner first refers back to its discussion of claim 13, in which lock 462 in Michelson was identified as a "retaining plate" that covers two bone screws. Pet. 63 (referencing Pet. 39–40). According to Petitioner, Michelson "teaches that the retaining plate can be used to cover more than two bone screws. For example, Michelson . . . discloses an embodiment with four openings for bone screws." *Id.* (citing Ex.1006, at 15). Petitioner also highlights Michelson's disclosure that "lock 362 is inserted into the threaded aperture 320 by means of a driver placed into hex well 364 and then tightened down to the back of implant 300." *Id.* at 63–64 (quoting Ex. 1006, at 15). Petitioner contends that one of ordinary skill in the art "would have been motivated to alter the [implant] 400 embodiment of Michelson . . . , shown in Figure 24, to use the single lock shown in Figure 18 because this would result in fewer surgical steps compared to using multiple locks." *Id.* at 64 (citing Sherman Decl. ¶¶ 206–208).

Patent Owner argues that Petitioner has "failed to meet [its] burden to show that the Michelson implant that [it] rel[ies] on has three bone screws covered by a single retaining plate as required in claims 18 and 31 while still satisfying other applicable claim limitations." Prelim. Resp. 22 (emphasis omitted). According to Patent Owner, "Petitioner[] fail[s] to explain or describe what [the proposed] modification would entail and what other additional modifications, if any, to implant 400 and/or bone screw holes would be necessary to accommodate the proposed modification" and, "[a]s such, the Board and Patent Owner can only speculate whether the claim limitations that Petitioner[] assert[s] are satisfied by the unmodified version of implant 400 (*e.g.*, the bone screw insertion angles) would continue to

(purportedly) be met by the modified version of implant 400." *Id.* at 23–24. Patent Owner states that this "is indicative of a hindsight-based approach employed by Petitioner[]." *Id.* at 24.

Although Patent Owner raises certain issues that may warrant further development, these arguments, at this stage of the proceeding, do not identify a specific deficiency in Petitioner's position; rather, Patent Owner contends that the description of the proposed modification provided was so inadequate as to preclude identification of any potential deficiencies. *See* Prelim. Resp. 23–24. Notwithstanding that Petitioner's discussion of the proposed modification could have been more detailed, at this stage of the proceeding, we do not view it as insufficient. *See* Pet. 63–64. We encourage the parties, however, to further develop these issues at trial.

At this stage of the proceeding, we are not persuaded by Patent Owner's assertion of a "hindsight-based approach employed by Petitioner[]" when Patent Owner did not substantively address the reason to modify Michelson provided by Petitioner (and Mr. Sherman). *See* Prelim. Resp. 24; *see also id.* at 23 (assuming, "*arguendo*, that [one of ordinary skill in the art] would have been motiv[at]ed to make this proposed modification to the implant 400 embodiment to incorporate the single locking plate shown in the implant 300 embodiment of Michelson"); Pet. 64 (citing Sherman Decl. ¶¶ 206–208); *see also In re Cree, Inc.*, 818 F.3d 694, 702 n.3 (Fed. Cir. 2016) (viewing an "impermissible hindsight" argument as "essentially a repackaging of the argument that there was insufficient evidence of a motivation to combine the references"). We include claims 18 and 31 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*,

138 S. Ct. at 1354, 1359–60; TPG 64 ("The Board will not institute on fewer than all claims or all challenges in a petition.").

E. Asserted Obviousness of Claims 2–8 and 16 Based on Michelson and Fraser '106

Petitioner asserts that claims 2–8 and 16 of the '234 patent are unpatentable under 35 U.S.C. § 103(a) based on Michelson and Fraser '106. Pet. 4, 67–82. Patent Owner provides arguments addressing this asserted ground of unpatentability. Prelim. Resp. 24–35. We first summarize aspects of Fraser '106.

1. Fraser '106

In this ground, Petitioner relies on Fraser '106 in addition to Michelson (summarized above (*see supra* § II.D.1)). Fraser '106 describes its invention as "an implantable structure for promoting fusion of adjacent vertebral bodies." Ex. 1007, 1:14–16. Figures 1 and 2 are reproduced below:

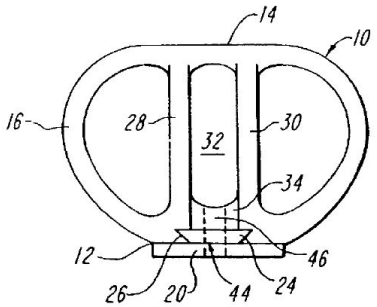


FIG. 1

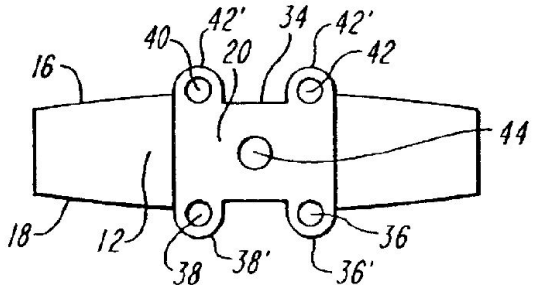


FIG. 2

Figure 1 is a "plan view of a fusion cage," and Figure 2 is a "view of the anterior face of the fusion cage" of Figure 1. Ex. 1007, 1:62–65. The depicted "cage" includes body 10, which, in turn, "includes an anterior face 12, a posterior face 14, a superior face 16, and an inferior face 18." *Id.* at 2:23–27. "The cage also includes a plate 20 that is matable with the body

10." *Id.* at 2:34–35. Fraser '106 discloses that "[a]lthough the plate 20 can be bonded firmly to the body 10 so that the plate and body cannot move with respect to each other, they can also be mated to allow movement with respect to each other." *Id*. at 2:43–46. Figure 2 shows bone screw holes 36, 38, 40, and 42. *Id.* at 2:67–3:2. Figures 3 and 8 are reproduced below:

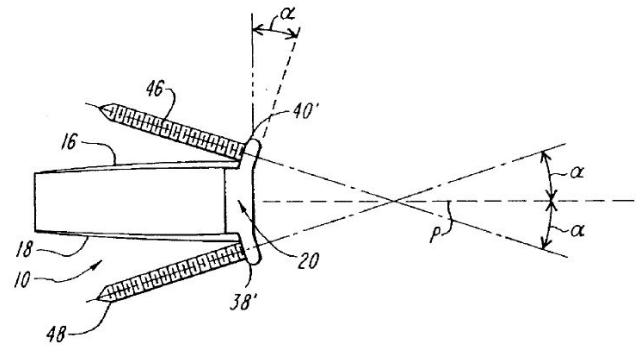


FIG. 3

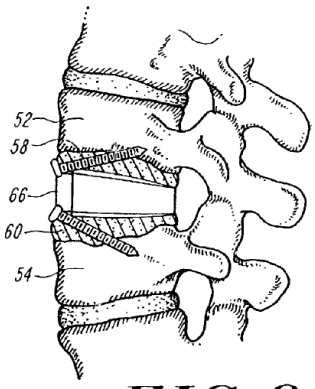


FIG. 8

Figure 3 is "a side view of the fusion cage of [Figure] 1 with bone screws" inserted and Figure 8 "depicts a portion of the spine following placement of the fusion cage" of Figure 1. Ex. 1007, 1:66–67, 2:9–10.[20] Fraser '106 discloses:

> Prior to inserting a fusion cage between vertebral bodies, the space bounded by the body 10 and transverse elements 28 and 30 (if included) can be filled with autograft or allograft bone, or demineralized bone matrix (DBM) to promote fusion. Over a period of about three months the vertebral bodies fuse.

Ex. 1007, 4:38–43.

[20] As to Figure 8, Fraser '106 explains that "portions of the vertebral bodies are shown cut-away to illustrate the penetration of the bone screws 58 and 60 into the bodies." Ex. 1007, 4:13–15.

2. Analysis

For claims 2–8 and 16 in the context of this asserted ground, Petitioner contends that the proposed combination of Michelson and Fraser '106 satisfies each limitation. Pet. 67–76. To support its arguments, Petitioner identifies certain passages in the cited references and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Petitioner also articulates reasons to combine the relied-upon aspects of Michelson and Fraser '106. *Id.* at 76–82. Patent Owner argues (1) that Petitioner's positions regarding Fraser '106 cannot be reconciled with Petitioner's alleged position as to Fraser '222 in IPR2020-00275 (Prelim. Resp. 25–28), (2) that Petitioner and Mr. Sherman have failed to adequately explain the proposed modification of Michelson based on Fraser '106 (*id.* at 28–30), and (3) that Petitioner has failed to provide an adequate reason to modify Michelson with the relied-upon teachings of Fraser '106 (*id.* at 30–35).

We turn now to Patent Owner's first argument. In the context of this asserted ground, Petitioner relies on Fraser '106 as teaching many of the additional limitations in dependent claims 2–8 and 16. *See* Pet. 67–76. For example, as phrased by Patent Owner, when addressing claim 2, Petitioner "rel[ies] on Fraser '106's teachings that the tabbed portions containing the bone screw holes can accommodate bone screw insertion angles of 30° to 75°, relative to the top surface of the base plate." Prelim. Resp. 25 (citing Pet. 67–68 (citing Ex. 1007, 3:13–17, Fig. 3; Sherman Decl. ¶ 222)); *see also* Pet. 70 (referencing the same to address claims 3 and 4), 71–72 (referencing the same to address claim 6), 75–76 (referencing the same to address claim 16). As noted by Patent Owner, to address several claims in

the context of this asserted ground, Petitioner highlights Fraser '106's teaching of a bone screw insertion angle of 30° relative to the top surface of the base plate. *See, e.g.*, Pet. 68 (asserting that "when angled at 30° with respect to the top surface," Fraser '106 discloses the additional limitation of claim 2), 70 (similar assertion for claims 3 and 4), 76 (similar assertion for claim 16); *see also* Prelim. Resp. 26 ("Petitioner[] assert[s] that when the bone screw holes are oriented at 30° from the top surface of the base plate, the Fraser '106 tabbed bone screw holes satisfy the 'corner of the bone' or 'lip osteophite' bone screw orientation limitations in challenged claims 2-7 and 16.").

Patent Owner argues that the position taken by Petitioner as to Fraser '106's teachings "cannot be reconciled with the position Petitioner[] ha[]s taken regarding a similar implant disclosed in Fraser '222 (Ex. 1010), which contains ***identical*** teachings regarding bone screw hole placement and orientations." Prelim. Resp. 25. Specifically, Patent Owner argues that in the petition in IPR2020-00275, "Petitioner[] take[s] the position that Fraser '222 'disclosed [a] device[] with ***screws inserted into the anterior surface of the vertebral bones***.'" *Id.* at 27 (quoting IPR2020-00275, Paper 4, at 14–15). According to Patent Owner, "Petitioner['s] positions with respect to the two Fraser references are irreconcilable." *Id.*

At this stage of the proceeding, Patent Owner's first argument does not identify a deficiency in Petitioner's position as to Fraser '106 because we are not persuaded that Petitioner has taken an inconsistent position. In the exact same paragraph from the petition in IPR2020-00275 highlighted by Patent Owner, Petitioner *expressly* distinguishes the two Fraser references, first stating (as noted by Patent Owner) that Fraser '222 "disclose[s] devices

with screws inserted into the anterior surface of the vertebral bones," and then stating that "*unlike the previously applied prior art*,"—i.e., Fraser '222—"Fraser '106 disclose[s] implants with screws that enter the side surfaces and lip osteophytes of the bones." IPR2020-00275, Paper 4, at 14–15. In other words, Petitioner distinguished the Fraser references by identifying Fraser '106 as teaching the *same features* for which Petitioner relies on that reference in parts of this asserted ground in this proceeding. *See, e.g.*, Prelim. Resp. 26 ("Petitioner[] assert[s] that when the bone screw holes are oriented at 30° from the top surface of the base plate, the Fraser '106 tabbed bone screw holes satisfy the 'corner of the bone' or 'lip osteophite' bone screw orientation limitations in challenged claims 2-7 and 16.").

Patent Owner's second and third arguments address the modification of Michelson based on Fraser '106 proposed by Petitioner. *See* Prelim. Resp. 28–35. Before addressing Patent Owner's arguments, we summarize Petitioner's reasons to combine the relied-upon references. In a separate section of the Petition, with the heading "Reasons and Motivations to Combine Michelson . . . in view of Fraser '106," Petitioner first argues that one of ordinary skill in the art would have considered Michelson and Fraser '106 because they are analogous art. *See* Pet. 76–79. Second, Petitioner asserts that Michelson "provides an express motivation for the combination with Fraser '106 because Michelson . . . teaches its improved spinal implant designs may be used in other spinal implant devices" (*id.* at 79 (citing Ex. 1006, at 5; Sherman Decl. ¶ 252)) and that one of ordinary skill in the art "would have combined Fraser '106 with Michelson . . . because Michelson . . . discloses a spinal implant that utilizes a screw anti-back out system that

can be used with standard bone screws to compensate for subsequent settling of the bones after implantation" (*id.* at 80 (citing Ex. 1006, at 27; Sherman Decl. ¶ 255)). Third, Petitioner contends that one of ordinary skill in the art "would have been motivated to apply the teachings of Fraser '106 to locate the bone screw holes at the edges of the top surface of the base plate to allow for improve screw insertion angles, such as the ones taught in Michelson" and "would recognize that a design that provides a surgeon with additional screw insertion options would provide significant advantages during surgeries, especially in complicated cases where there is significant degradation of the bone." *Id.* at 81 (citing Sherman Decl. ¶ 258). According to Petitioner, "[t]he results of this simple modification to Michelson . . . would have yielded predictable and successful results—namely, a spinal implant with an improved range of screw insertion angles to securely hold implant in place." *Id.* (citing Sherman Decl. ¶ 258).

Turning back to Patent Owner's second argument, Patent Owner contends that "Petitioner[] (and [its] supporting declarant) fail to explain how [one of ordinary skill in the art] would have implemented these modifications from Fraser '106 to Michelson's implant 400 and what this modified implant would look like." Prelim. Resp. 28. According to Patent Owner, "Petitioner[] fail[s] to state with specificity what elements from Fraser '106's implant would be incorporated into the Michelson implant" and, "because of this lack of explanation or argument, Patent Owner and the Board can only speculate as to whether a Michelson implant, modified somehow to incorporate some elements from Fraser '106, as vaguely suggested by Petitioner[], would still satisfy other claim limitations that

Petitioner[] asserted were satisfied by the unmodified Michelson implant." *Id.* at 29.

Although Patent Owner raises certain issues that may warrant further development, these arguments, at this stage of the proceeding, do not identify a specific deficiency in Petitioner's position; rather, Patent Owner contends that the description of the proposed modification provided was so inadequate as to preclude identification of any potential deficiencies. *See* Prelim. Resp. 28–30. Although Petitioner's discussion of the proposed modification could have been more detailed, at this stage of the proceeding, we do not view it as insufficient. *See* Pet. 67–82. Moreover, we view Petitioner's discussion of the additional subject matter of claims 2–8 and 16 as adequately identifying the relied-upon teachings in Fraser '106. *See id.* at 67–76. We encourage the parties to further develop these issues at trial.

In its third argument, Patent Owner contends that "Petitioner[] ha[s] also failed to present any plausible reason, supported by evidence, for why [one of ordinary skill in the art] would combine Fraser '106 with Michelson as proposed" in this asserted ground. Prelim. Resp. 30. Patent Owner argues that "[e]stablishing that [Michelson and Fraser '106] are analogous, while perhaps necessary, is not sufficient to establish that [one of ordinary skill in the art] would have been motivated to combine them or that they render the challenged claims obvious." *Id.* at 31. Patent Owner also argues that "the purported 'express motivation[s] to combine' Michelson with Fraser '106 . . . provide nothing of the sort" because, "[t]o the extent that Petitioner[is] relying on the Michelson statement that '[t]he present teachings provide the structure by which implants may be constructed or existing implants may be modified to take advantage of the improvements of

the present invention' (Ex. 1006 at 4), Petitioner[] ha[s] it backwards." *Id.* According to Patent Owner, "Michelson's statement that its teachings can be used to improve other devices would have provided no motivation for [one of ordinary skill in the art] to make the modifications being proposed here—*i.e.*, to improve the *Michelson* device with some vaguely identified structures from *Fraser '106*." *Id.* Patent Owner also asserts as inadequate various statements by Petitioner as to particular alleged motivations for the proposed modification. *See* Prelim. Resp. 32–35.

As to the analogous art issue, we agree with Patent Owner that the analogousness of the asserted art is necessary, but not sufficient to provide a reason to combine that art. *See* Prelim. Resp. 31 (citing, *e.g., Johns Manville Corp. v. Knauf Insulation, Inc.*, IPR2018-00827, Paper 9 at 10–11 (PTAB Oct. 16, 2018) (informative) (denying institution after determining that showing that the references are analogous and *could* be combined does not necessarily establish a sufficient rationale for combining the references). We note, however, that Patent Owner does not argue that Michelson and Fraser '106 are nonanalogous art. As to express motivation allegedly provided by Michelson, at this stage of the proceeding, we are persuaded by Patent Owner's argument that Petitioner's assertions are not supported by the record. *See* Prelim. Resp. 31.

As to Patent Owner's arguments that the other motivation statements provided by Petitioner are, for example, "merely . . . conclusory," "wrong, misleading, or both," or simply "incorrect" (Prelim. Resp. 32–35), we are not persuaded of a deficiency at this stage of the proceeding. Although Patent Owner raises certain potential issues as to the adequacy of Petitioner's motivation statements, which may warrant further development,

we note that Patent Owner has not submitted declaration testimony to support its positions as to the understanding of one of ordinary skill in the art on certain issues. *See* Prelim. Resp. 34 (arguing that "Fraser '106's teachings regarding its smaller top-end insertion angle *would not have been recognized as an improvement* over the larger top-end insertion angle taught by Michelson" (emphasis added)); *id.* (arguing that "the mating structure for lock 462 with threaded sidewalls that is located anterior to the beginning of the bone screw holes is one example of structure that could preclude or interfere with the proposed modification to the Michelson implant"). This renders Patent Owner's position as to the alleged understanding of a skilled artisan as attorney argument. *See Elbit Sys.*, 881 F.3d at 1359 (rejecting attorney argument as to the alleged understanding of one of skill in the art on an issue when no evidence was presented); *see also* 37 C.F.R. § 42.108(c) ("The Board's decision [at institution] will take into account a patent owner preliminary response where such a response is filed, including any testimonial evidence, but a genuine issue of material fact *created by such testimonial evidence* will be viewed in the light most favorable to the petitioner solely for purposes of deciding whether to institute an *inter partes* review." (emphasis added)). We encourage the parties to develop these issues further during trial.

We include claims 2–8 and 16 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; *see also PGS*, 891 F.3d at 1360 (interpreting the statute to require "a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition"); TPG 64 ("The Board will not institute on fewer than all claims or all challenges in a petition.").

III. CONCLUSION

For the reasons above, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of challenged claims 1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, and 32 of the '234 patent.

At this stage of the proceeding, no final determination has yet been made with regard to the patentability of any of the challenged claims or any underlying factual or legal issues, including the construction of claim terms. The final determination will be based on the record as developed during the *inter partes* review.[21]

IV. ORDER

For the reasons above, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1–10, 13, 14, 16, 18–20, 22, 24, 25, 28, 29, 31, and 32 of the '234 patent on all asserted grounds and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, *inter partes* review shall commence on the entry date of this Decision, with notice hereby given of the institution of a trial.

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[21] As highlighted in the accompanying Scheduling Order, "Patent Owner is cautioned that any arguments not raised in the response may be deemed waived." Paper 23, at 8 (emphasis omitted); *see also In re Nuvasive, Inc*., 842 F.3d 1376, 1379–82 (Fed. Cir. 2016) (holding that a patent owner waived an argument addressed in a preliminary response by not raising the same argument in the patent owner response).

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