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Paper 6
Date: March 17, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STRYKER CORPORATION and
WRIGHT MEDICAL TECHNOLOGY, INC.,
Petitioner,

v.

OSTEOMED LLC,
Patent Owner.

IPR2021-01453
Patent 10,245,085 B2

Before SHERIDAN K. SNEDDEN, RICHARD H. MARSCHALL, and TIMOTHY G. MAJORS, *Administrative Patent Judges.*

MARSCHALL, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

A. Background and Summary

Stryker Corporation and Wright Medical Technology, Inc. (collectively, "Petitioner") filed a Petition requesting an *inter partes* review of claims 1–9 of U.S. Patent No. 10,245,085 B2 ("the '085 patent," Ex. 1001). Paper 2 ("Pet."). OsteoMed LLC ("Patent Owner") filed a Preliminary Response to the Petition. Paper 5 ("Prelim. Resp.").

To institute an *inter partes* review, we must determine that the information presented in the Petition shows "a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a) (2018). The Supreme Court has held that a decision to institute under 35 U.S.C. § 314 may not institute on less than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). After considering the evidence and arguments presented in the Petition, we determine that Petitioner has demonstrated a reasonable likelihood of success in proving that at least 1 claim of the '085 patent is unpatentable.

B. Real Parties-in-Interest

Petitioner identifies Wright Medical Technology, Inc. as a wholly-owned subsidiary of Stryker Corporation, and states that Stryker Corporation is the real party-in-interest. Pet. 1. Patent Owner identifies itself as the real party-in-interest. Paper 3, 1.

C. Related Matters

Petitioner has filed petitions for *inter partes* review in IPR2021-01450, IPR2021-01451, and IPR2021-01452 for related U.S. Patent Nos. 8,529,608; 9,351,776; and 9,763,716. Pet. 1–2; Paper 3, 1–2. The parties

indicate that the '085 patent is asserted against Petitioner in *OsteoMed LLC v. Stryker Corporation*, Case No. 1:20-cv-06821 (N.D. Ill.) and in *OsteoMed LLC v. Wright Medical Technology, Inc.,* Case No. 1:20-cv-1621 (D. Del.). Pet. 1–2; Paper 3, 1–2.

D. The '085 patent

The '085 patent discloses a "system for securing bones together across a joint." Ex. 1001, code (57). The system may be used for reconstructing a joint that has been damaged due to bone or soft tissue trauma, in which a surgeon may need to fuse the bones of the joint together in a configuration that approximates the natural geometry of the joint. *Id*. at 1:28–32.

The '085 patent discloses that its system has "the ability to tightly couple the bones of a joint together" by including a transfixation screw inserted across the joint through a bone plate. *Id*. at 2:44–46. More specifically, the '085 patent discloses that the presence of the transfixation screw across the joint "may increase the contact pressure on the bony interface of the joint, increasing the probability of a positive fusion." *Id*. at 2:57–62. According to the '085 patent, by having the transfixation screw passing from the first bone to the second bone, a "tension band" construct is created "that enables the transfixation screw to absorb a portion of the mechanical stress that would otherwise be imposed upon the plate above the joint when a load is applied to the joint," thereby enhancing the integrity and reliability of the plate and increasing the load that the plate may support without increasing plate thickness. *Id*. at 2:67–3:7.

Figure 2, reproduced below, shows "a bone plate being used in conjunction with a transfixation screw to repair the failed metatarso-

phalangeal joint" and immediately below it is Figure 3, which shows "a more detailed isometric view of the bone plate." *Id.* at 3:22–27.

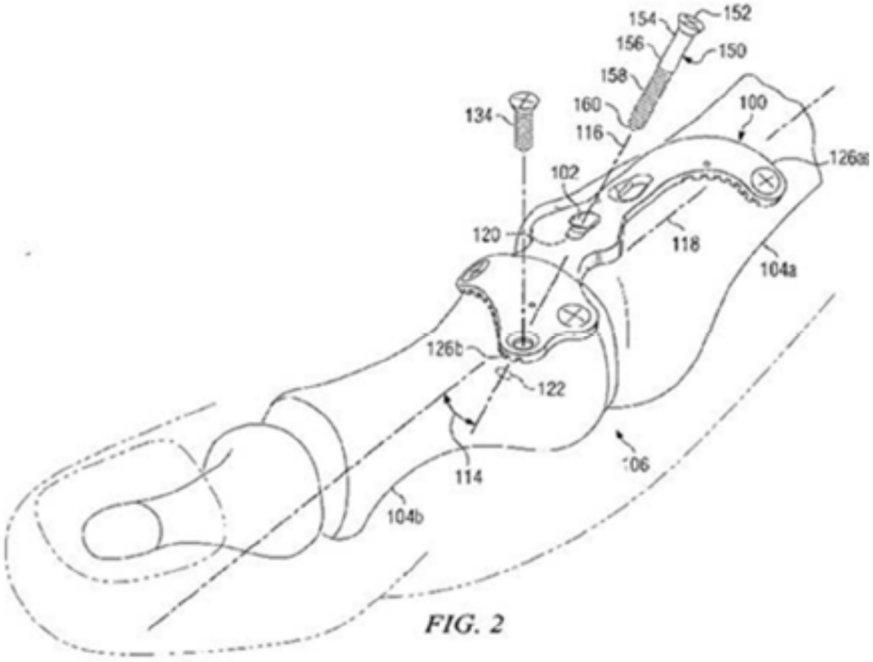


FIG. 2

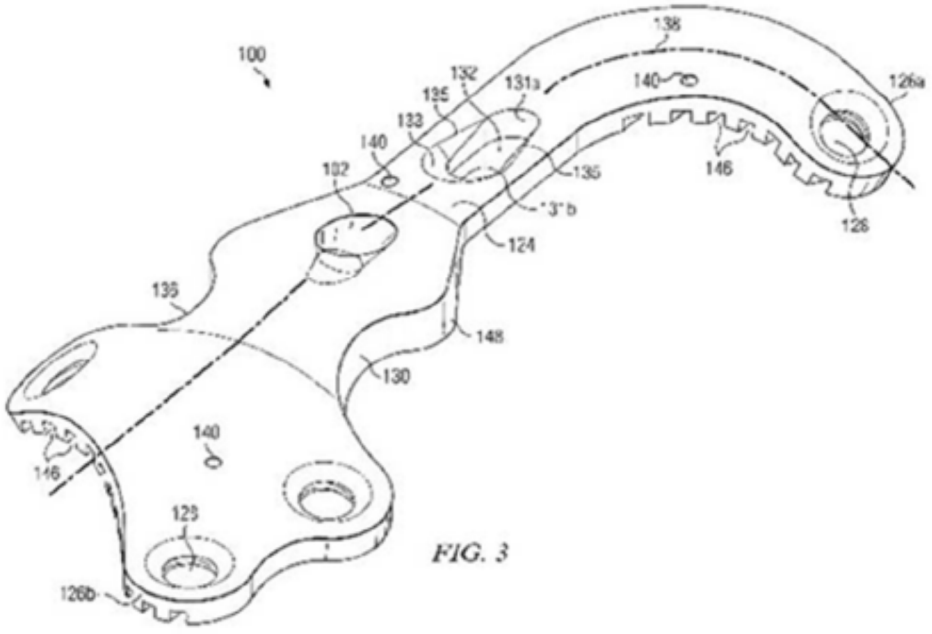


FIG. 3

Figure 2 shows bone plate 100 and transfixation screw 150 applied to a failed metatarso-phalangeal joint. *Id*. at 4:29–31. Transfixation screw 150 is inserted through transfixation screw hole 102 of bone plate 100 and into both first bone 104a and second bone 104b "in order to fuse joint 106." *Id*. at 4:42–47. Figure 3 shows bone plate 100 having elongated spine 124 and bridge portion 130 between first end 126a and second end 126b that can span across joint 106. *Id*. at 7:45–54. First end 126a includes attachment point 128 "for attaching first end 126a to bone 104a" and second end 126b includes another attachment point 128 "for attaching second end 126b to bone 104b." *Id*. The '085 patent discloses that bridge portion 130 "is free of voids such as positioning holes or screw holes that could potentially reduce the bending strength of bridge portion 130" and may include thickened section 136 of bone plate 100 "to increase the bending strength of bridge portion 130." *Id*. at 8:31–39.

E. Challenged Claims

The '085 patent includes nine claims, all of which are challenged, with claim 1 the only independent claim. We reproduce claim 1 below.

> 1. A system for securing a first discrete bone and a second discrete bone together across a joint between the first discrete bone and the second discrete bone, the system comprising:
>
> a plate comprising:
>
> an elongate spine having a first end comprising at least one attachment point for attaching the first end to the first discrete bone on a first side of the joint, a second end comprising at least one attachment point for attaching the second end to the second discrete bone on a second side of the joint, and a bridge portion disposed between the first end and the second end, the bridge portion having a portion configured to span across the joint, the bridge portion further comprising a thickened portion

having a thickness greater than at least a portion of a thickness of either the first end or the second end; and

an aperture defining a transfixation screw hole disposed along the spine at the thickened portion of the bridge portion, the transfixation screw hole comprising an inner surface configured to direct a transfixation screw through the transfixation screw hole such that the transfixation screw extends at a trajectory configured to pass through a first position on the first discrete bone and a second position on the second discrete bone once the plate is placed across the joint.

Ex. 1001, 12:28–53.

F. Asserted Ground of Unpatentability

Petitioner asserts that claims 1–9 are unpatentable based on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)
1–3, 6–9	102(b)[1]	Slater[2]
4, 5	103(a)	Slater, Weaver[3]
1–8	102(b)	Falkner[4]
9	103(a)	Falkner, Arnould[5]
1–3, 6–9	103(a)	Arnould, Slater

[1] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), amended 35 U.S.C. §§ 102 and 103. Based on the putative effective filing date of the '716 patent, we apply the pre-AIA versions of §§ 102 and 103.
[2] Slater, WO 2007/131287 A1, published Nov. 22, 2007 (Ex. 1005, "Slater").
[3] Weaver et al., US 6,623,486 B1, issued Sept. 23, 2003 (Ex. 1009, "Weaver").
[4] Falkner, US 2005/0171544 A1, published Aug. 4, 2005 (Ex. 1006, "Falkner").
[5] Arnould, EP 1 897 509 B1, published Mar. 12, 2008 (Ex. 1007). Petitioner states that Exhibit 1008 is a certified English translation of Exhibit 1007 (Pet. 4) and, for purposes of this Decision, we refer to Exhibit 1008 as "Arnould."

Claim(s) Challenged	35 U.S.C. §	Reference(s)
4, 5	103(a)	Arnould, Slater, Weaver

Petitioner also relies on the declaration of Kenneth A. Gall, Ph.D., in support of the asserted grounds. Ex. 1002. Patent Owner has not, at this time, filed rebuttal documentary or testimonial evidence.

II. ANALYSIS

A. Claim Construction

We interpret a claim "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b) (2020). Under this standard, we construe the claim "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." *Id.*

Petitioner takes the position that "[t]here are no claim terms in the Challenged Claims that require construction" and that Petitioner has "applied the ordinary and customary meaning of each claim term." Pet. 11. Patent Owner does not take issue with Petitioner's position. Prelim. Resp. 4–5. Having considered the parties' positions and evidence of record, we determine that no express construction of any claim term is necessary to determine whether to institute *inter partes* review. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("[W]e 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))). To the extent further discussion of the meaning of any claim term is necessary to our decision, we provide that discussion below in our analysis of the asserted grounds of unpatentability.

B. Summary of Cited Prior Art

1. Summary of Slater

Slater relates to an ankle fusion plate for fusion of the anterior ankle. Ex. 1005, 1:6–7. Slater discloses that orthopedic devices can repair diseased bones and bone fractures. *Id*. at 1:21–22. Slater explains that bones that have been fractured must be kept together for lengthy periods of time to permit recalcification and bonding. *Id*. at 3:1–3. According to Slater, internal fixation techniques require "the fracture be stable axially, torsionally and rotationally." *Id*. at 3:19–25; 7:1–2. To achieve such objectives, Slater discloses a fixation screw and plate design in which "the plate depth changes at different locations" so that "the depth at the beginning arid end points of the L shaped contour [of the plate] over the ankle joint in the second region will be at it[s] maximum thickness." *Id*. at 8:27–34. Slater further discloses that "[t]he plate will taper at at least one but preferably two different points of the plate" and that "[t]hese points will preferably resemble and conform to the typical geometry of the anatomical region." *Id*. at 9:3–4, 11–12.

Figure 1, reproduced below, shows a side elevation view of a plate attached via fixation screws "to an abbreviated ankle joint (dotted lines)." *Id*. at 9:28–30.

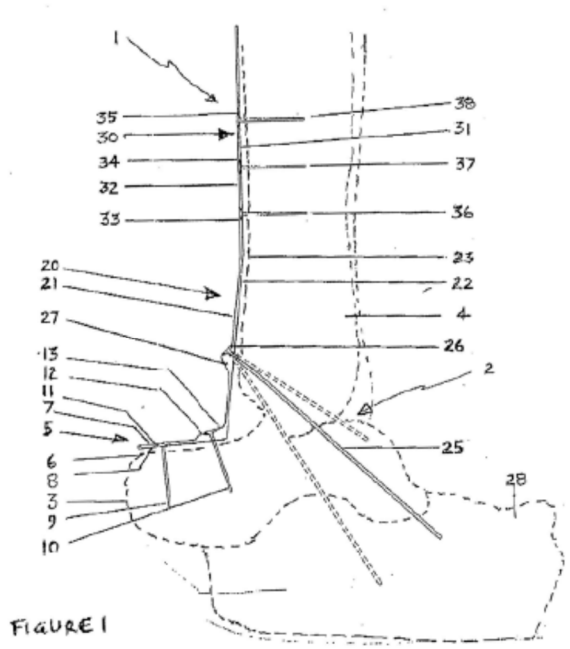


FIGURE 1

Figure 1 shows fusion plate 1 attached to the talus bone 3 and the tibial bone 4 that form ankle joint 2. *Id*. at 11:1–4. Fusion plate 1 includes portion 5 "disposed in a first plane which generally aligns with" anterior surface 6 of the talus bone 3 for fixation thereto. *Id*. at 11:5–8. Disposed in portion 5 are fixation screws 9 and 10 which pass through openings 11 and 12 of portion 5 to engage the talus bone 3. *Id*. at 11:8–9. Portion 20 of fusion plate 1 has formation 27 with opening 26 disposed therein for allowing fixation screw 25 to pass therethrough. *Id*. at 11:18–21. "Formation 27 is configured so that screw 25 is implanted at an angle within a predetermined allowable angular range" such that fixation screw 25 engages the tibia bone 4, the talus bone 3, and the calcaneus bone 28. *Id*. at 11:21–24. Portion 30 of fusion plate 1 includes openings 33, 34, and 35 which receive fastening screws 36, 37, and 38 to engage tibia bone 4. *Id*. at 11:27–31.

2. Summary of Falkner

Falkner relates to systems for fixing bones using bone plates having apertures for retaining fasteners. Ex. 1006, code (57). Falkner discloses that fixation of bone fractures can be problematic when these fractures are disposed near the ends of bones. *Id*. at ¶ 4. Falkner purports to resolve past problems of achieving an interference fit that is tight enough to prevent slippage of a blade portion of the bone plate relative to an interlocking bone screw. *Id*. at ¶ 6.

Figure 1, reproduced below, shows a sectional view of a system for fixing bones using a bone plate with a toothed aperture such that the bone plate is secured to a fractured bone. *Id*. at ¶ 8.

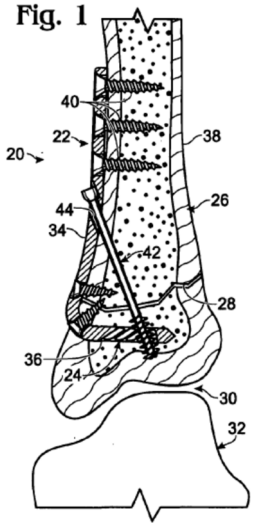


Figure 1 shows system 10 including bone plate 22 with toothed aperture 24 in which bone plate 22 "may be positioned on and/or in any suitable bone(s) to span . . . within a bone or between bones" such as on a region of the tibia bone 26 that spans fracture 28, as depicted. *Id*. at ¶ 21. According to Falkner, in other examples, bone plate 22 may span joint 30 between tibia bone 26 and talus bone 32. *Id*. Bone plate 22 includes first plate portion 34 and second plate portion 36. *Id*. at ¶ 22. Falkner discloses

that bone screws 40 "may be placed into bone from any suitable number of openings of the bone plate." *Id*. at ¶ 23. Threaded fastener 42 may extend through opening 44 and toothed aperture 42 of bone plate 22. *Id*. at ¶ 24. Falkner discloses that bone plate 22 "may be sized and shaped to conform to particular portions of a bone (or bones)" and "may be thicker and thus stronger in regions where they may not need to be contoured, such as along the shaft of the bone." *Id*. at ¶¶ 33, 35. Thickness of bone plate 22 "may be varied within" and a thicker portion may be provided to "increase structural stability." *Id*. at ¶ 35.

3. Summary of Arnould

Arnould "relates to an arthrodesis plate for a metatarsal-phalangeal joint." Ex. 1008 ¶ 1. Arnould discloses that a leg of its plate "allows the plate to be attached to a lateral surface of the epiphysis of the phalanx." *Id*. at ¶ 6. Arnould explains that "this leg is shaped so that its end hole can receive a long screw . . . which will extend both through the bone material of the phalanx and into the bone material of the metatarsal." *Id*. Thus, the "long screw extends lengthwise in a direction having an anteroposterior component, so that this screw essentially, if not exclusively, takes up the bending stresses generated during the patient's walking." *Id*.

Figure 1, reproduced below, shows a perspective view of an arthrodesis plate placed and fixed on a metatarsal-phalangeal joint locked by the plate. *Id*. at ¶ 10.

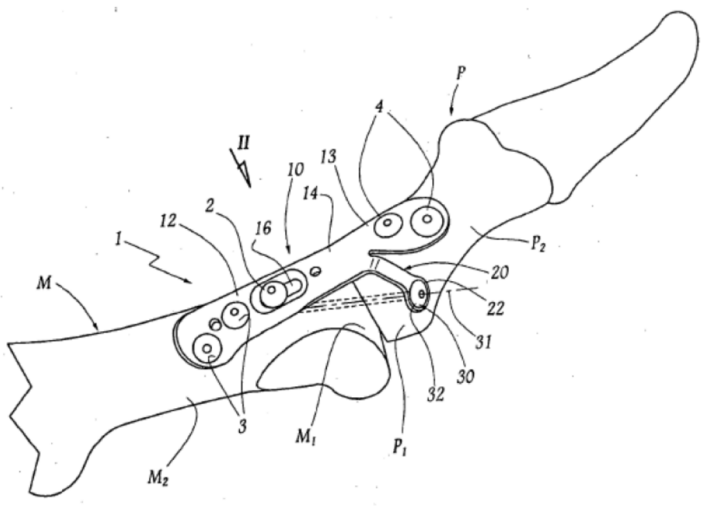


Fig.1

Figure 1 shows arthrodesis plate 1 on a joint between metatarsal M and first phalanx P of a toe. *Id*. at ¶ 11. Plate 1 includes plate body 10 and leg 20. *Id*. at ¶ 13. Leg 20 is provided with a through-hole for receiving screw 30 that has sufficient length to extend from the through-hole "into both the phalangeal epiphysis P_1 and the metatarsal epiphysis M_1, and possibly also into the metatarsal diaphysis M_2." *Id*. at ¶ 26. Screws 3 and 4 secure opposite ends of plate body 10 via holes in the plate body to the bones as shown. *Id*. at ¶¶ 33–34.

4. Summary of Weaver

Weaver is directed to a bone plating system for fracture fixation, which includes a bone plate having plate holes for both locking and non-locking screws. Ex. 1009, 1:10–13. Weaver discloses that "[s]ecuring the screws to the plate provides a fixed angle relationship between the plate and screw and reduces the incidence of loosening" and such screws are called "locking screws." *Id*. at 1:46–49. According to Weaver, a known locking screw has threading on an outer surface of its head that mates with corresponding threading on the surface of a plate hole to lock the screw to

the plate. *Id*. at 1:49–54. Weaver discloses that "locking screws provide a high resistance to shear or torsional forces." *Id*. at 1:56–58. However, existing bone plating systems under high stress and loading conditions may have a locking plate hole that is distorted and allows the fixed angular relationship between the locking screw and plate to change. *Id*. at 2:20–22. Weaver purports to resolve such deficiencies in its bone plating system. *Id*. at 2:28–29.

Figure 3, reproduced below, shows a side view of an exemplary bone plate. *Id*. at 3:25.

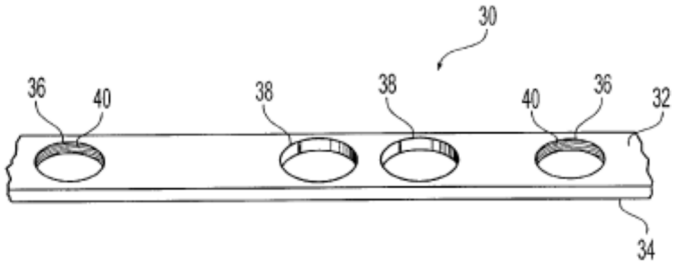


Fig. 3

Figure 3 shows bone plate 30 including first plate holes 36 and second plate holes 38. *Id*. at 4:45–46. Each first plate hole 36 has thread 40 that mates with thread 24 on head 22 of locking screw 20 (shown in Figure 2) to secure locking screw 20 to bone plate 30 at a temporally fixed angular orientation whereas second plate holes 38 are not threaded and receive non-locking screws 10 with non-threaded heads 12 (shown in Figure 1). *Id*. at 4:47–53. Weaver discloses that "first plate holes 36 are preferably conical in shape" and that "threads 40 on first plate holes 36 are also preferably double lead threads" which enable engagement "while maintaining a low profile." *Id*. at 5:1–5.

C. Ground 1: Anticipation of Claims 1–3 and 6–9 by Slater

Petitioner contends that Slater discloses all elements of claims 1–3 and 6–9, and thus anticipates those claims under 35 U.S.C. § 102(b). Pet. 17. To support its contention, Petitioner directs our attention to the foregoing discourses of Slater and provides a detailed claim analysis addressing how Slater discloses each element of claims 1–3 and 6–9. *Id.* at 17–34 (citing Ex. 1002).

Patent Owner's primary contention is that Slater fails to disclose a single embodiment that meets all the limitations of claim 1. Prelim. Resp. 8–14. We note that Patent Owner does not, at this stage, contest that Slater discloses a bone plate with features meeting the other limitations of independent claim 1 or the dependent claims 2, 3, and 6–9. *See generally id.*

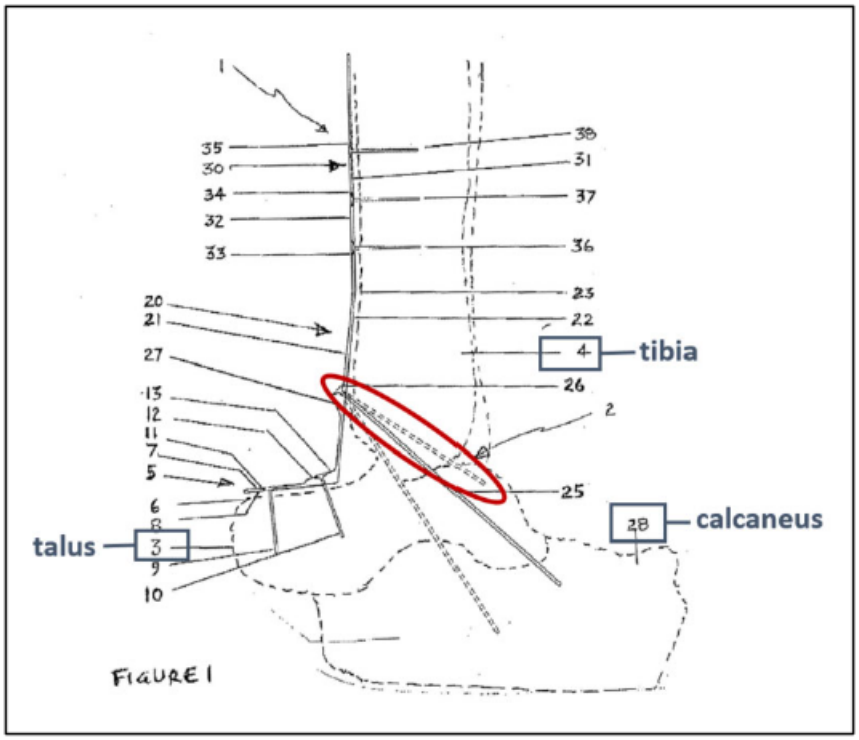
Based on the preliminary record, we determine that Petitioner has met its institution burden and demonstrated to a reasonable likelihood that it will prevail in showing that claims 1–3 and 6–9 are anticipated by Slater. We address Patent Owner's contentions below.

1. Whether Slater Fails to Disclose a Single Embodiment That Meets All of the Claimed Limitations of Independent Claim 1

Petitioner argues that, if claim 1's preamble is limiting, Slater discloses a system for securing two discrete bones together across a joint between the two bones. Pet. 17–18.[6] In support, Petitioner directs our attention to its annotated Figure 1 of Slater, reproduced below, which shows "a side elevation view of a plate according to one embodiment and attached

[6] We need not decide whether the preamble is limiting at this stage because a system for securing two bones is disclosed in Slater.

via fixation screws to an abbreviated ankle joint (dotted lines)." *Id.* at 18; Ex. 1005, 9:28–30.



Id. Petitioner's annotated version of Figure 1, above, adds boxes and text to identify the tibia, talus, and calcaneus, and also includes a red oval around one of three screw paths shown in the figure. *Id.* With reference to the figure above, Petitioner asserts,

> Figure 1 of Slater illustrates (1) a fusion plate 1 being used to secure three discrete bones (tibia 4, talus 3, and [calcaneus] 28) across two joints and (2) an alternate embodiment where fusion plate 1 is used to secure two discrete bones (tibia 4 and talus 2, within the oval annotated into Figure 1 [above]) together across a single joint between the two bones.

Pet. 18 (citing Ex. 1002 ¶ 133; Ex. 1005, 12:3–4, 6:17–7:2, 8:13–28, 11:1–4, 12:3–10, 13:5–9, 14:1–8). Petitioner supports this interpretation of Slater with Dr. Gall's testimony. *See* Ex. 1002 ¶ 133.

Patent Owner contends that Petitioner is picking-and-choosing features from among "alternative" embodiments in Slater to combine and modify to arrive at the claimed subject matter. Prelim. Resp. 8–10. Patent Owner contends that "Slater fails to describe th[e] alternative [two-bone] embodiment in detail, only briefly acknowledging that it may be an option" and, thus, Petitioner is allegedly "forced to rely on expert testimony to fill the gaps regarding how the three-bone embodiment would be modified for a two-bone application." *Id.* at 9–10; *see also id.* at 10 (Patent Owner further contending that "Dr. Gall, Petitioners' expert, relies on multiple, distinct teachings of Slater and alleges that a POSA might somehow combine to achieve the claimed invention of the '085 patent.").

We disagree on this record that Petitioner improperly picks from and combines unrelated disclosures in Slater to arrive at the claimed subject matter. It is prohibited, when anticipation is the issue, to pick and choose from "various disclosures *not directly related to each other* by the teachings of the cited reference." *In re Arkley*, 455 F.2d 586, 587 (1972) (emphasis added). But here, the disclosures of Slater relied upon by Petitioner appear to be sufficiently related to each other as evidenced by at least Figure 1 itself, and the related written description in Slater. The two-bone embodiment appears to be an "alternate" embodiment only insofar as it reflects another angled pathway for the screw so it anchors in a second and not a third bone. This is not wholly distinct, however, from the three-bone embodiment. To the contrary, both the two-bone and three-bone embodiments are depicted as alternatives within the plate of Figure 1 itself. Thus, Figure 1, with the two-bone pathway, is arranged in a manner that meets the preamble of claim 1, and we are persuaded on this record that a

person of ordinary skill in the art would understand Slater that way. Indeed, the fact that related text in Slater about Figure 1 indicates that one or multiple joints may be fused supports Petitioner's and Dr. Gall's interpretation of Slater. *See, e.g.*, Ex. 1005, 12:3–5 ("As may be seen from figure 1, the screws are placed in a particular orientation and required angle to the *joint/s* required for arthrodesis.") (emphasis added).

Patent Owner criticizes Dr. Gall's analysis "of a single cursory embodiment" on whether Slater discloses a system for fusing two bones across a single joint. Prelim. Resp. 12. That criticism is, however, unavailing because "[e]xpert testimony may shed light on what a skilled artisan would reasonably understand or infer from a prior art reference." *Acoustic Tech., Inc. v. Itron Networked Solutions, Inc.*, 949 F.3d 1366, 1373 (Fed. Cir. 2020). Patent Owner also points out that Slater's disclosure mostly concerns securing three bones across two joints, and that Slater purportedly teaches that adding "more joints" in the fusion is advantageous. Prelim. Resp. 21–13 (citing, e.g., Ex. 1005, 16:28–30). Even if that aptly characterizes Slater's disclosure, that does not negate anticipation. Un-preferred—even disfavored—embodiments may still anticipate a claim. *Celeritas Techs. Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998) ("A reference is no less anticipatory if, after disclosing the invention, the reference then disparages it."). We also recognize counsel's argument that "Dr. Gall's opinion of Slater does not represent a fair reading" of the reference, yet Patent Owner provides no testimonial evidence to support a competing interpretation of Slater. Prelim. Resp. 13.

2. Whether the Petition Fails to Show That Slater Discloses All Elements of Dependent Claims 2–3 and 6–9

Petitioner also argues that dependent claims 2–3 and 6–9 are anticipated by Slater. Pet. 26–34. Petitioner cites documentary and testimonial support for its argument and Patent Owner does not provide any separate rebuttal argument on the challenged dependent claims. *Id.*; *see generally* Prelim. Resp. 13–14 (arguing that the remaining claims are patentable because they all depend from allegedly patentable claim 1).

Upon review of the parties' arguments and supporting evidence, we determine that Petitioner demonstrates a reasonable likelihood that 2–3 and 6–9 are anticipated by Slater. Also, because we institute as to claim 1, we will institute on all challenged claims and grounds. *SAS*, 138 S. Ct. at 1354; *PGS Geophysical AS v. Iancu,* 891 F.3d 1354,1360 (Fed. Cir. 2018).

D. Ground 2: Obviousness of Claims 4 and 5 over Slater and Weaver

Petitioner contends that claims 4 and 5 are unpatentable for obviousness over Slater and Weaver. Pet. 34–37. Claims 4 and 5 depend from claim 1 and add that transfixation screw hole includes features that lockably engage the transfixation screw head (claim 4) and that the inner surface of the screw hole includes threads that engage the screw (claim 5). Ex. 1001, 13:1–6. Petitioner alleges that those locking features are disclosed in Weaver and it would have been obvious to add them to Slater's plate to provide a more secure fixation between the screws and the plate. Pet. 34–37 (citing Ex. 1002 ¶¶ 170–178). Petitioner otherwise relies on its anticipation analysis for claim 1 discussed above. *Id.* at 34.

Patent Owner's only counterargument to Ground 2 at this stage is its argument for claim 1 and Ground 1. Prelim. Resp. 14. Patent Owner's

argument on Ground 1 is addressed above. On this record, Petitioner has met its institution burden on Ground 2 and, as we are instituting trial on other claims and grounds, we must institute trial on all challenged claims and grounds

E. Ground 3: Anticipation by Falkner; Ground 4: Obviousness over Falkner and Arnould

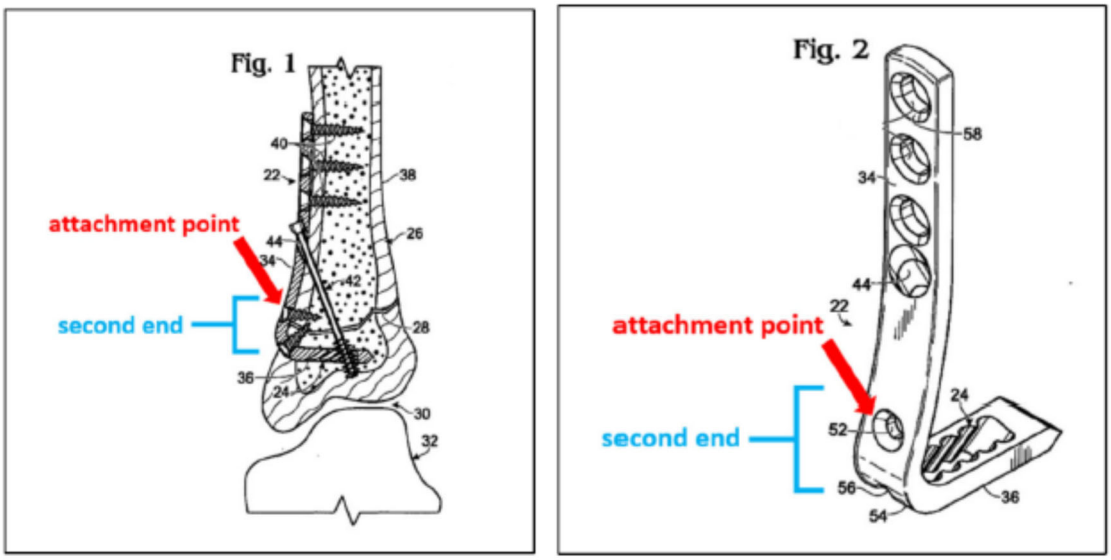
As to Ground 3, Petitioner contends that claims 1–8 are anticipated by Falkner. Pet. 37–52. Patent Owner argues that Falkner fails to anticipate because it does not disclose all of the limitations of claim 1, and relies on those same arguments with respect to dependent claims 2–8. Prelim. Resp. 14–27. As to Ground 4, Petitioner argues that dependent claim 9 would have been obvious over Falkner and Arnould. Pet. 53–56. Petitioner's argument under Ground 4 relies on Petitioner's predicate anticipation challenge under Ground 3 for those claims from which claim 9 depends. *Id.* Petitioner relies on Arnould under Ground 4 only for allegedly teaching certain transfixation angles encompassed by claim 9. *See id.* Patent Owner does not raise any additional arguments as to Ground 4. Prelim. Resp. 35.

We institute review of these challenges because we institute as to grounds 1 and 2 above. *See SAS Inst.*, 138 S. Ct. at 1359–60. We provide the following analysis of Patent Owner's arguments to guide the parties during trial.

Petitioner alleges that Falkner discloses claim 1's preamble. Pet. 37–38. According to Petitioner, although Falkner's Figure 1 shows a plating system for fixing a single bone having a fracture, Falkner discloses that its bone plates may be used for any suitable "bone(s)" to fix fractures or other bone discontinuities. *Id.* at 38 (citing Ex. 1006 ¶¶ 21, 27–29, 62 (emphasis omitted)). Petitioner also cites Falkner's disclosure that, in other examples,

"plate 22 may span a joint, such as joint 30 between tibia 26 and talus 32, among others." *Id.* (emphasis omitted)

For claim 1's "second end" limitations, Petitioner cites to Figures 1 and 2 of Falkner (with annotations) as produced below.



Pet. 40 (citing Ex. 1006, Figs. 1–2). Petitioner's annotated version of Falkner's Figure 1 above shows a cross-sectional view of bone plate 22 secured to a single bone (tibia, 26), with external plate portion (34) secured to the tibia's external surface and a second (internal) plate portion (36) inserted within the tibia just below fracture (28). *Id.* Petitioner's annotated version of Figure 2 is an isolated perspective view of the same plate further showing the plate's general "L" shape. *Id.* In both figures, Petitioner adds a blue bracket at a segment of external plate portion (36) encompassing a segment at or just above the curve of the L-shaped bracket, which bracketed segment Petitioner names the "second end." *Id.* Petitioner also annotates opening (52) in both figures and, with red arrow and text, names that opening a "fixation point." *Id.* With that context in mind, Petitioner then argues that, "[i]f the Falkner plate was used to span a joint between tibia and

talus 32 . . . a bone screw 40 may be placed into the second discrete bone (talus 32) through the opening 52 at the second end of the plate 22." *Id.* at 40 (citing Ex. 1002 ¶ 185).

Turning to claim 1's bridge portion and the requirement that the bridge portion have a depth or thickness greater than a portion of the first or second ends, Petitioner provides another annotation to Falkner's Figure 1. Pet. 42–43. Petitioner contends that the thickness at the bridge portion appears "thickened" when compared to the tip of internal plate portion 36 inserted into the bone that appears "less thick." *Id.* at 43. Petitioner also relies on Falkner's statement that the "[t]hickness of the plates may vary between plates and/or within plates, according to the intended use," with thicker regions increasing the strength of the plate. *Id.* at 42 (quoting Ex. 1006 ¶ 35) (alteration in original). From this, Petitioner argues that "a thickened portion of the claimed bridge portion has a thickness greater than at least a portion of a thickness of either the first end or the second end." *Id.* at 43 (citing Ex. 1002 ¶ 188).

Patent Owner raises multiple counterarguments. Prelim. Resp. 14–27. First, according to Patent Owner, "Falkner is entirely focused on a bone plate for fixing a bone fracture (i.e., a break in a single bone)" and "there is no disclosure in Falkner explaining how spanning a joint would be achieved or when such an application would be desired." *Id.* at 15–16. Patent Owner contends that Falkner does not disclose a single embodiment that meets all the limitations of claim 1, so Petitioner "relies on a smattering of paragraphs" in Falkner in an attempt to stretch Falkner's single-bone embodiment to explain how Falkner's plate would have been configured in a

different context to reach the claimed subject matter. *Id.* at 15–19. This, Patent Owner contends, is not a theory supportive of anticipation. *Id.*

Second, Patent Owner contends that Falkner's cited plate does not include a second end with an attachment point for attaching the second end to the second discrete bone on a second side of the joint. Prelim. Resp. 20–23. According to Patent Owner, what Petitioner identifies as the "second end" of Falkner's plate is not, in fact, a "second end." *Id.* at 20–21. To the contrary, Patent Owner argues that the "Falkner discloses a second end that is located 'internal to' or physically 'in' the bone and thus inherently cannot attach to the exterior of the second bone." *Id.* at 20.

Third, Patent Owner argues that Falkner fails to disclose "the bridge portion further comprising a thickened portion having a thickness greater than at least a portion of a thickness of either the first end or the second end." Prelim. Resp. 24–27. According to Patent Owner, Petitioner and Dr. Gall fail to appreciate the mechanical stresses in Falkner, why one would thicken the plate, and the purpose of Falkner's pointed end. *Id.* at 26–27.

Based on the present record, we question whether Petitioner will prevail in showing that Falkner anticipates claim 1. Falkner's relied-upon plate shown in Figure 1 is not arranged as claimed to secure two discrete bones across a joint. Ex. 1006, Fig. 1. To make the plate so configured as claimed would apparently require at least some level of redesign or modification. We recognize that Falkner discloses that its plates may be designed to traverse a joint between bones. *See, e.g.*, Ex. 1006 ¶¶ 21, 23, 29. But there is a dearth of detail about such a hypothetical plate's actual design. On this record, making such a plate or modifying the plate of Figure 1 to render it suitable to, for example, spanning a joint between the tibia and talus

may require the POSA to make distinct design choices beyond any embodiment explicitly described in Falkner. Even then, it is not a foregone conclusion that all the claim limitations would be met (e.g., a thicker bridge portion relative to the ends). Our concern is that such theories may drift from anticipation—a doctrine still rooted in "strict identity"[7]—to obviousness.

The parties' dispute about what is or is not a "second end" in Falkner may turn on claim construction, for which the parties have provided no briefing. Petitioner, in one instance and attempting to show satisfaction of one claim limitation, cites a portion of Falkner's plate that appears to be close to the middle of the plate and characterizes that portion as a "second end." Pet. 40. Yet, when wanting to show that the second end of the plate is thinner than the bridge, Petitioner points to another portion of the plate—the distal-most tip of the plate, which is actually inserted in the bone itself. *Id.* at 43. Petitioner's position on what constitutes the "second end" of Falkner lacks a degree of clarity and consistency.

Although we question whether Petitioner makes an adequate showing on these issues, we will not make any formal determination as to these issues until the conclusion of trial, after review of a more complete record.

F. Ground 5: Obviousness over Arnould and Slater; Ground 6: Obviousness over Arnould, Slater, and Weaver

As to Ground 5, Petitioner argues that claims 1–3 and 6–9 would have been obvious over Arnould and Slater. Pet. 56–68. Patent Owner raises several arguments as to claim 1, and relies on those same arguments with

[7] *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1296 (Fed. Cir. 2002).

respect to dependent claims 2–3 and 6–9. Prelim. Resp. 28–34. As to Ground 6, Petitioner argues that claims 6 and 8 would have been obvious over Arnould and Slater, in further view of Weaver. Pet. 69–70. Petitioner's reliance on Weaver here is substantially the same as for Ground 2—citing Weaver's screw locking features and reasons to add them. *Id.* Patent Owner raises arguments as to Ground 5 but no additional arguments as to Ground 6. Prelim. Resp. 28–35.

We institute review of these challenges because we institute as to other grounds above. *See SAS Inst.*, 138 S. Ct. at 1359–60. We provide the following analysis of Patent Owner's arguments to guide the parties during trial.

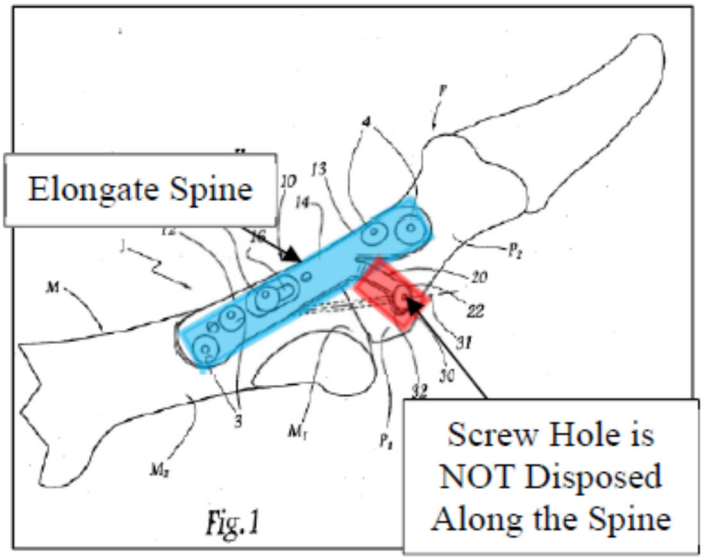
1. Analysis of Claim 1

Petitioner contends that "Arnould discloses each and every element of independent claim 1 except" the element requiring a bridge portion with a thickened section thicker than either the first or second end. Pet. 56 (citing Ex. 1002 ¶ 235). For that missing limitation, Petitioner turns to Slater, which Petitioner argues discloses a thicker bridge portion. *Id.* at 56–57. Petitioner argues that a POSA "would have been motivated to modify the bone plate of Arnould with the thickened bridge portion of Slater in order to strengthen the bone plate in the region of the bone plate spanning across the joint." *Id.* at 60.

Patent Owner does not, at this time, dispute that Arnould discloses most of claim 1's limitations. *See generally* Prelim. Resp. 28–34. Patent Owner, instead, raises two arguments.

First, Patent Owner contends that Petitioner's modified version of Arnould and Slater does not disclose a transfixation screw hole "disposed

along the spine" as recited in claim 1. *Id.* at 29–31. According to Patent Owner, the alleged transfixation screw hole of Arnould is a "through-hole 25 (at the end of leg 20[)] . . . [and] is not disposed on the spine at all, but is rather part of a separate arm piece that extends off the spine." *Id.* at 29. Patent Owner provides the following annotated version of Arnould's Figure 1 in support of its argument.



Id.; Ex. 1008, Fig. 1. The annotated version of Arnould's Figure 1, above, shows plate (1) having a plate body (10) attached to the metatarso-phalangeal bones and joint, and Patent Owner has highlighted in blue the plate's longitudinal body, which Patent Owner calls the "Elongate Spine." Prelim. Resp. 29. In red, Patent Owner highlights leg (20), which extends downward from the longitudinal side of the plate body near the plate's midsection. *Id.* Patent Owner explains, with citation to related disclosure in Arnould, that leg (20) "is meant to wrap around the bone and is located vertically below the plate body." *Id.* at 29–30 (citing Ex. 1008 ¶ 23). In the figure above, Patent Owner adds an arrow identifying a screw hole at the

end of the leg (20), which Patent Owner adds "is NOT Disposed Along the Spine." *Id.* at 29.

Based on the present record, we tend to agree with Patent Owner. Indeed, it appears that Arnould's leg extends in a different plane, down and away from the main or central elongate body of Arnould's plate. This is evident from Patent Owner's annotation, and Arnould's figures and related teachings. *See, e.g.*, Ex. 1008 ¶¶ 23–24, Figs. 1–2; *see supra* (summarizing Arnould). As Patent Owner explains, the leg's end (22) (where the alleged transfixation screw hole resides) is located vertically below the plate body, and the leg itself is bent downward relative to the plate body, including a distinct bend line (23) and "junction" between the leg and the phalangeal portion of the plate body (13). Prelim. Resp. 30–31; Ex. 1008 ¶ 24. The parties may consider briefing the issue further at trial, but insofar as the alleged transfixation screw hole of Arnould is located away from the main body of the plate, at the end of a seemingly distinct leg structure, we are skeptical that such screw hole in Arnould is, under a supportable interpretation, "disposed along the spine" of the bone plate as in claim 1.

Second, Patent Owner argues that the combination fails to disclose "transfixation screw hole disposed along the spine *at the thickened portion of the bridge portion*" because "a POSA would not use Slater to modify Arnould to thicken the bridge portion of the plate." Prelim. Resp. 31–32. According to Patent Owner, "Petitioners, and Dr. Gall, did not provide any justification for why a POSA would look to a linear plate as described in Slater to modify the plate in Arnould that seeks to cure disadvantages provided by such a linear plate." *Id.* at 32–34. We have reviewed the parties' contentions on these issues, and view these issues involving the

teachings of the references and motivation for the proposed combination as best resolved after review of the full record after trial.

For at least the reasons above, we are doubtful that Petitioner can prevail on its challenge to claim 1 as obvious over Arnould and Slater. All challenged claims and grounds must, however, be included in trial when institution is granted, and the parties may address these issues further during trial.

III. CONCLUSION

Petitioner has, at this stage, established a reasonable likelihood of prevailing in showing that at least one of the challenged claims is unpatentable. This determination is, however, based on a preliminary record. We will make a final determination on the patentability of the challenged claims, as necessary and applying the preponderance of the evidence standard, based on a fully developed record through trial.

Any argument not raised in a timely Patent Owner Response to the Petition, or as permitted in another manner during trial, shall be deemed waived even if asserted in the Preliminary Response. *See In re NuVasive*, 842 F.3d 1376, 1380–81 (Fed. Cir. 2016) (holding Patent Owner waived an argument addressed in the Preliminary Response by not raising the same argument in the Patent Owner Response). In addition, nothing in this Decision authorizes Petitioner to supplement information advanced in the Petition in a manner not permitted by the Board's Rules.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a) an *inter partes* review of claims 1–9 of the '085 patent is hereby instituted on the grounds

set forth in the Petition, commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; and

FURTHER ORDERED that the trial will be conducted in accordance with a separately issued Scheduling Order.

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