

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

G&H DIVERSIFIED MANUFACTURING, LP,
Petitioner,

v.

DYNAENERGETICS EUROPE GMBH,
Patent Owner.

PGR2021-00078
Patent 10,844,697 B2

Before ERIC C. JESCHKE, RICHARD H. MARSCHALL, and,
JASON W. MELVIN, *Administrative Patent Judges*.

JESCHKE, *Administrative Patent Judge*.

DECISION
Granting Institution of Post-Grant Review
35 U.S.C. § 324

I. BACKGROUND

Petitioner, G&H Diversified Manufacturing, LP, filed a Petition to institute a post-grant review of claims 1–21 (the “challenged claims”) of U.S. Patent No. 10,844,697 B2 (Ex. 1001, “the ’697 patent”). Paper 1 (“Pet.”). Patent Owner, DynaEnergetics Europe GmbH, filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). With our authorization (Ex. 3001), Petitioner filed a Preliminary Reply (Paper 8, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 9, “Prelim. Sur-reply”).

We have authority to determine whether to institute a post-grant review. *See* 35 U.S.C. § 324 (2018); 37 C.F.R. § 42.4(a) (2020) (“The Board institutes the trial on behalf of the Director.”). Section 324(a) of Title 35 of the United States Code provides that a post-grant review may not be instituted “unless . . . the information presented in the petition . . . , if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” Upon consideration of the evidence and arguments in the briefing (including supporting testimonial evidence), for the reasons below, we determine that the information presented shows that it is more likely than not that Petitioner would prevail with respect to at least one of the challenged claims. We thus institute a post-grant review on all challenged claims on all asserted grounds. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); PTAB Rules of Practice for Instituting on All Challenged Patent Claims and All Grounds and Eliminating the Presumption at Institution Favoring Petitioner as to Testimonial Evidence (“PTAB Rules”), 85 Fed. Reg. 79,120, 79,120 (Dec. 9, 2020) (to be codified at 37 C.F.R. pt. 42) (“[T]he Board will either institute review on all of the

challenged claims and grounds of unpatentability presented in the petition or deny the petition.”).

A. Related Proceedings

The parties identify several proceedings involving the ’697 patent:

- *DynaEnergetics Europe GmbH v. Yellow Jacket Oil Tools, LLC*, No. 6:20-cv-01110 (W.D. Tex.), filed Dec. 4, 2020 (“the W.D. Tex. Litigation”)¹;
- *G&H Diversified Mfg., LP v. DynaEnergetics Europe GmbH*, No. 3:20-cv-00376 (S.D. Tex.), filed Dec. 14, 2020 (“the S.D. Tex. Litigation”);²
- *NexTier Completion Sols. Inc. v. DynaEnergetics Europe GmbH*, No. 4:21-cv-01328 (S.D. Tex.), filed Apr. 21, 2021;
- *DynaEnergetics Europe GmbH v. Oil States Int’l, Inc.*, No. 6:21-cv-00372 (W.D. Tex.), filed Apr. 16, 2021;
- *DynaEnergetics Europe GmbH v. PerfX Wireline Servs., LLC*, No. 6:21-cv-00371 (W.D. Tex.), filed Apr. 16, 2021;
- *DynaEnergetics Europe GmbH v. Horizontal Wireline Servs., LLC*, No. 6:21-cv-00349 (W.D. Tex.), filed Apr. 8, 2021;
- *DynaEnergetics Europe GmbH v. Bear Mfg., LLC*, No. 3:21-cv-00185 (N.D. Tex.), filed Jan. 28, 2021;
- *DynaEnergetics Europe GmbH v. Oso Perforating, LLC*, No. 3:21-cv-00188 (N.D. Tex.), filed Jan. 28, 2021;

¹ Petitioner listed this litigation, but under the case number “3:20-cv-00376.” Pet. 101. This appears to be a typographical error.

² Both the W.D. Tex. Litigation and the S.D. Tex. Litigation involve Petitioner and Patent Owner.

- *DynaEnergetics Europe GmbH v. SWM Int’l, LLC*, No. 3:21-cv-00192 (N.D. Tex.), filed Jan. 28, 2021;
- *DynaEnergetics Europe GmbH v. Nexus Perforating LLC*, No. 4:21-cv-00280 (S.D. Tex.), filed Jan 28, 2021;
- *DynaEnergetics Europe GmbH v. Vigor USA, LLC*, No. 4:21-cv-00283 (S.D. Tex.), filed Jan. 28, 2021 (stipulation of dismissal filed July 27, 2021);
- *DynaEnergetics Europe GmbH v. Rock Completion Tools*, No. 6:21-cv-00084 (W.D. Tex.), filed Jan. 28, 2021;
- *DynaEnergetics Europe GmbH v. GR Energy Servs. Operating GP LLC*, No. 6:21-cv-00085 (W.D. Tex.), filed Jan. 28, 2021;
- *DynaEnergetics Europe GmbH v. NexTier Completion Sols. Inc.*, No. 6:20-cv-01201 (W.D. Tex.), filed Dec. 30, 2020 (amended complaint filed Apr. 30, 2021);
- *PerfX Wireline Servs., LLC v. DynaEnergetics Europe GmbH*, No. 1:20-cv-03665 (D. Colo.), filed Dec. 15, 2020³; and
- *SWM Int’l, LLC and NexTier Completion Solns. LLC v. DynaEnergetics Europe GmbH*, PGR2021-00097 (PTAB).

Pet. 99–101; Paper 6 (Patent Owner’s Supplemental Mandatory Notices) at 2–3. Petitioner also lists several applications “in the ’697 Patent family.” See Pet. 101.

³ Petitioner listed this litigation, but under the case number “6:20-cv-01201.” Pet. 101. This appears to be a typographical error.

B. The '697 Patent

The '697 patent relates to perforation gun components for use in well bore perforating in the oil and natural gas industries. Ex. 1001, code (57), 1:24–36. According to the '697 patent, “[a] typical perforation gun system consists of an outer gun carrier arranged in the interior of which there are perforators—usually hollow or projectile charges—that shoot radially outwards through the gun carrier after detonation.” *Id.* at 1:37–40.

Figure 32 is reproduced below:

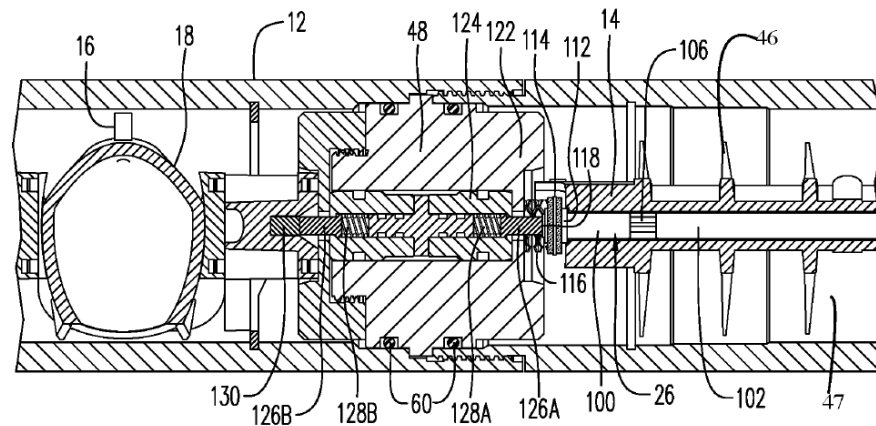


FIG. 32

Figure 32 is a “detailed side view of a tandem seal adapter and detonator.” Ex. 1001, 4:57–58. The embodiment shown in Figure 32 includes, among other components: outer perforation gun carrier 12; shaped charge 18; detonator assembly 26; tandem seal adapter 48; sealing means 60; pressure bulkhead 124; and contact pins 126A and 126B linked to coil springs 128A, 128B. *Id.* at 5:42–46, 7:60–63, 8:31–36. Describing Figure 32 (and Figure 35B below), the '697 patent discloses that the “dual spring pin connector assembly including the bulkhead 124 and coil springs

128A, 128B is positioned within the tandem seal adapter 48 extending from a conductor slug 130 to the bulkhead connector element.” *Id.* at 8:36–42.⁴

Figure 35B is reproduced below:

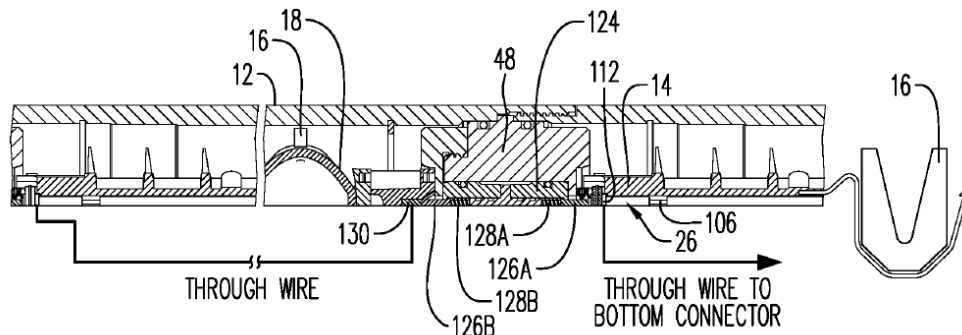


FIG. 35B

Figure 35B is an “electrical schematic view[] of a detonator and of wiring within a perforated gun system.” Ex. 1001, 4:65–67. Describing Figure 35B (and Figure 32 above), the ’697 patent discloses that “[t]he dual spring pin connector assembly is connected to the through wire 106 of the detonator assembly 26.” *Id.* at 8:36–42.

Figure 28 is reproduced below:

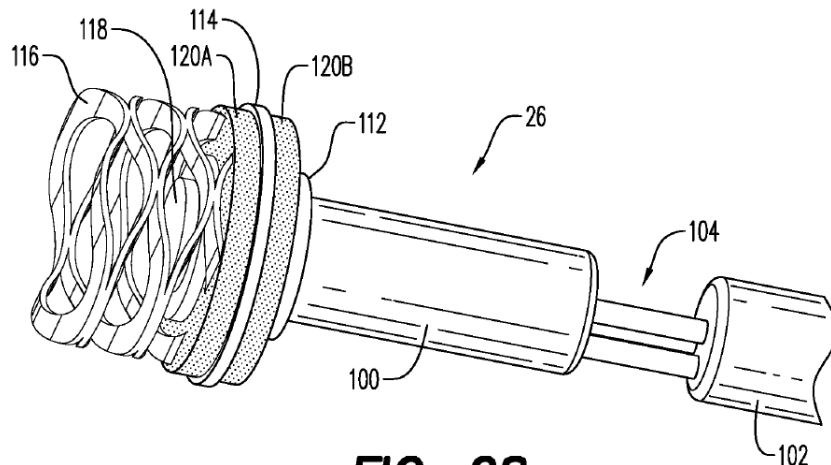


FIG. 28

⁴ In this Decision, we omit emphasis on reference numerals and claim numbers in quotations from the ’697 patent and prior art references.

Figure 28 is a detailed perspective view of a detonator. Ex. 1001, 4:47–50. Detonator assembly 26 shown in Figure 28 includes detonator head 100, detonator body 102, and detonator wires 104. *Id.* at 8:9–13. The '697 patent discloses that depicted

detonator head 100 further includes a through wire connector element 112 connected to the through wire 106 (not shown), a ground contact element 114 for connecting the ground wire 110 to the tandem seal adapter (also not shown), through ground 20 springs 116, and a bulkhead connector element 118 for connecting the signal-in wire 108 to the bulkhead assembly 58 (also not shown).

Ex. 1001, 8:15–22.

C. Challenged Claims

Petitioner challenges claims 1–21, of which claims 1 and 14 are independent. Claims 2–13 depend from claim 1, and claims 15–21 depend from claim 14. Independent claim 1 is reproduced below, with bracketed text added to identify certain language:

1. [1 Preamble] An electrical connection assembly for establishing an electrical connection in a tool string, the electrical connection assembly comprising:

[1.a] a tandem seal adapter having a first end, a second end and a bore that extends from the first end to the second end and entirely through the tandem seal adapter;

[1.b] a perforation gun system comprising a first outer gun carrier, a shaped charge, and a first detonator, wherein the shaped charge and the first detonator are positioned within the first outer gun carrier, wherein the first outer gun carrier is connected to the first end of the tandem seal adapter; and

[1.c] a pressure bulkhead having an outer surface, a first end and a second end, the outer surface of the pressure bulkhead is sealingly received in the bore of the tandem seal adapter, [1.d] the pressure bulkhead also having a pin connector assembly

extending through the pressure bulkhead from a first pin connector end to a second pin connector end, and configured to relay an electrical signal from the first end of the pressure bulkhead to the second end of the pressure bulkhead, wherein the first pin connector end extends beyond the first end of the pressure bulkhead and the second pin connector end extends beyond the second end of the pressure bulkhead, wherein

[1.e] the first detonator is in electrical communication with the pin connector assembly, [1.f] wherein the tandem seal adapter and the pressure bulkhead are configured to provide a seal between the detonator and an environment on the second end of the tandem seal adapter.

Ex. 1001, 11:18–47.⁵

D. Asserted Grounds of Unpatentability

Petitioner challenges claims 1–21 on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
2, 15, 18	112(a)	Enablement
18	112(b)	Indefiniteness
1, 2, 8–11, 13	102(a)(2)	Rogman Patent ⁶

⁵ We adopt Petitioner’s designations for the elements of the challenged claims. *See* Pet. xii–xvi (showing numerical designations for the language in the challenged claims). We apply these designations below.

⁶ US 10,077,641 B2, issued September 18, 2018 (Ex. 1005, the “Rogman Patent”). Petitioner asserts that the Rogman Patent is prior art to the ’697 patent under 35 U.S.C. § 102(a)(2) via 35 U.S.C. § 102(d)(2) “because it has an effective priority date of December 4, 2012, via PCT/US13/73094 (filed December 4, 2013) [Ex. 1006] and U.S. Provisional Application No. 61/733,129 (filed December 4, 2012) (‘Rogman Provisional’) [Ex. 1007].” *See* Pet. 9.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
9–12	103	Rogman Patent, Borgfeld ⁷
3–5, 7, 14, 15, 21	103	Rogman Patent, Deere ⁸
16–18	103	Rogman Patent, Deere, Borgfeld
6, 19, 20	103	Rogman Patent, Deere, Burton ⁹
8	103	Rogman Patent, Burton

Petitioner supports its challenges with a declaration from Mr. Robert A. Parrott. Ex. 1015 (“Parrott Decl.”). Patent Owner relies on the Declaration of Dr. John Rodgers, Ph.D. Ex. 2001 (“the Rodgers Declaration” or “Rodgers Decl.”).

II. DISCUSSION

A. Eligibility for Post-Grant Review

1. Legal Framework

As a threshold matter, we must determine whether the ’697 patent is eligible for post-grant review. The post-grant review provisions in section 6(d) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011) (“AIA”) apply only to patents that “contain[] or contained at any time . . . a claim to a claimed invention that

⁷ US 2013/0153205 A1, published June 20, 2013 (Ex. 1009, “Borgfeld”).

⁸ US 2013/0008669 A1, published January 10, 2013 (Ex. 1008, “Deere”).

⁹ US 2013/0126237 A1, published May 23, 2013 (Ex. 1004, “Burton”).

has an effective filing date . . . that is on or after [March 16, 2013].” AIA §§ 3(n)(1), 6(d), 6(f)(2)(A), 125 Stat. 284, 293, 305–312 (2011).

Each petitioner for post-grant review must certify that the challenged patent is available for post-grant review. 37 C.F.R. § 42.204(a). In addition, “[a] petition for a post-grant review may only be filed not later than the date that is 9 months after the date of the grant of the patent or of the issuance of a reissue patent (as the case may be).” 35 U.S.C. § 321(c). Petitioner has the burden to demonstrate eligibility for post-grant review. *See Mylan Pharms. Inc. v. Yeda Res. & Dev. Co.*, PGR2016-00010, Paper 9 at 10 (PTAB Aug. 15, 2016).

2. Analysis

Petitioner states that the ’697 patent is eligible for post-grant review because “[t]he earliest possible effective priority date to which the ’697 [p]atent is July 18, 2013 based upon the chain of earlier applications to Canadian Patent No. 2,821,506.” Pet. 1–2. Petitioner also states that the Petition is being filed within nine months of the date the patent issued. Pet. 2. Patent Owner does not dispute post-grant review eligibility.

On this record, we determine that the ’697 patent is eligible for post-grant review. Specifically, the record supports Petitioner’s assertion that the earlier potential priority date is July 18, 2013. Ex. 1001, code (30). That date falls after March 16, 2013. Also, the Petition was filed on May 10, 2021, which is within nine months of the issuance date of the ’697 patent: November 24, 2020. *Id.* at code (45); Pet. 2.

B. Discretion Under 35 U.S.C. § 324(a) Based on Overall Efficiency

Patent Owner argues that we should exercise our discretion to deny the Petition for overall efficiency reasons. *See* Prelim. Resp. 35–42; *id.* at 37

(stating that “Board decisions post-*SAS* have routinely considered the number of claims and grounds that meet the more likely than not standard and whether institution would ‘be an efficient use of the Board’s time and resources’” (citing *RetailMeNot, Inc. v. Honey Sci. Corp.*, PGR2019-00060, Paper 17 at 35–36 (PTAB Mar. 10, 2020) (citing *Deeper, UAB v. Vexilar, Inc.*, IPR2018-01310, Paper 7 at 41–43 (PTAB Jan. 24, 2019) (informative); *Chevron Oronite Co. v. Infineum USA L.P.*, IPR2018-00923, Paper 9 at 10–11 (PTAB Nov. 7, 2018) (informative))). Specifically, Patent Owner argues that we should exercise our discretion to deny under § 324(a) because all of the grounds based on prior art—six of the eight grounds asserted—improperly rely on “Rogman,” which, according to Patent Owner, is not actually prior art. Prelim. Resp. 37–42; *see id.* at 38 (“Here, each of the Petition’s six prior art grounds rely upon the collective ‘Rogman’ as the primary reference. So without ‘Rogman’ available as prior art, only three of the Petition’s twenty-one challenged claims and two of the Petition’s eight grounds remain.”). Patent Owner asserts that “the Rogman Patent as a whole is not prior art” and that “[t]he only available prior art is the disclosure of subject matter in the Rogman Patent that is supported by the Rogman Provisional.” *Id.* at 38 (citing 35 U.S.C. § 102(d)(2)); *see also* Prelim. Sur-reply 5 (arguing that “only the specific subject matter in the Rogman Patent that is also described in the Provisional may qualify as prior art under Section 102(d)(2)”).

Petitioner more generally states that the Rogman Patent “is prior art because it has an effective priority date of Dec. 4, 2012 via . . . U.S. Provisional Application No. 61/733,129 (filed Dec. 4, 2012) (‘Rogman Provisional’) [Ex. 1007] that describes the subject matter.” Pet. 9.

Petitioner also argues that the Rogman Patent can be relied on as prior art “for all that it discloses.” Prelim. Reply 2 (omitting capitalization and emphasis in heading).

We agree with Patent Owner’s narrower statement of Petitioner’s ability to rely on disclosures in the Rogman Patent, but we do not exercise our discretion to deny the Petition as proposed by Patent Owner. Here, the Rogman Patent is entitled to claim the benefit of an earlier filing date under 35 U.S.C. § 120 based on the Rogman Provisional. *See* MPEP § 2154.01(b) (“Determining When Subject Matter Was Effectively Filed Under AIA 35 U.S.C. [§] 102(d)”). In that situation, section 102(d)(2) provides that “[f]or purposes of determining whether a patent,” such as the Rogman Patent, “is prior art to a claimed invention under subsection (a)(2), such patent . . . shall be considered to have been effectively filed, with respect to *any subject matter described in the patent or application . . . as of the filing date of the earliest such application that describes the subject matter.*” 35 U.S.C. § 102(d)(2) (emphasis added); *see also* Prelim. Reply 3–4 (discussing this statutory provision). Thus, Patent Owner accurately states that the disclosures in the Rogman Patent are available as prior art to the ’697 patent to the extent described in the earlier-filed Rogman Provisional. *See* Prelim. Resp. 38.

For the reasons discussed below, however, we determine at this stage of the proceeding that Petitioner has adequately shown for institution that the subject matter of claim 1 of the ’697 patent is disclosed in both the Rogman Provisional and the Rogman Patent. *See infra* § II.I.2.a. Because we conclude that Petitioner has made a sufficient threshold showing with respect to the asserted prior art grounds, we do not exercise our discretion to

deny under § 324(a). *See Deeper*, Paper 7 at 41–43; *Chevron Oronite*, Paper 9 at 10–11.

C. Discretion Under 35 U.S.C. § 324(a) Based on Parallel Litigation

1. Legal Framework

Section 324(a) of Title 35 of the United States Code states that:

[t]he Director may not authorize a post-grant review to be instituted unless the Director determines that the information presented in the petition filed under section 321, if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.

The portion of the statute reading “[t]he Director may not authorize . . . unless” mirrors the language of 35 U.S.C. § 314(a), which concerns *inter partes* review. This language of sections 314(a) and 324(a) provides the Director with discretion to deny institution of a petition. *See 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.”); Consolidated Trial Practice Guide 55 (Nov. 2019), <https://www.uspto.gov/TrialPracticeGuideConsolidated> (“TPG”).

In exercising the Director’s discretion under 35 U.S.C. §§ 314(a) and 324(a), the Board may consider “events in other proceedings related to the same patent, either at the Office, in district courts, or the ITC.” TPG 58. The Board’s precedential *NHK Spring* decision explains that the Board may consider the advanced state of a related district court proceeding, among other considerations, as a “factor that weighs in favor of denying the Petition under § 314(a).” *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential).

In addition, the precedential order in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020), identifies factors to consider when a patent owner raises an argument for discretionary denial due to the advanced state of a parallel proceeding:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Fintiv, Paper 11 at 5–6. “These factors relate to whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Id.* at 6. There is some overlap among these factors and some facts may be relevant to more than one factor. *Id.* In evaluating the factors, the Board takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review. *Id.*

2. *Analysis*

Patent Owner argues that we should exercise our discretion to deny institution based on the W.D. Tex. Litigation and the S.D. Tex. Litigation. Prelim. Resp. 47–53; Prelim. Sur-reply 1–3. Petitioner opposes. *See* Pet. 26–30; Prelim. Reply 1–2. For the reasons below, we are not persuaded

that we should exercise discretion to deny institution under 35 U.S.C. § 324(a) based on that litigation. We discuss each *Fintiv* factor in turn below.

a. Factor 1: whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

The first *Fintiv* factor requires consideration of whether the district court has stayed or may stay the proceeding pending post-grant review. “A district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts.” *See Fintiv*, Paper 11 at 6.

Petitioner asserts that, in the W.D. Tex. Litigation, no trial date has been set, no discovery has taken place, and there is no scheduling order. Pet. 26–27. According to Petitioner, “the lack of substantial progress in th[at] action[] would support the possibility of a stay” but, “as such a stay is currently speculative, this factor would generally be neutral.” Pet. 27 (citing *Sand Revolution II, LLC v. Cont’l Intermodal Grp.—Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative)).

Patent Owner responds that Petitioner has not moved for a stay and that “even if Petitioner requested a stay now, it is very unlikely that the particular judge presiding over the WDTX Case, Judge Albright, would grant such a request.” Prelim. Resp. 48 (citing *Multimedia Content Mgmt. LLC v. Dish Network LLC*, No. 6:18-CV-00207-ADA, 2019 WL 11706231, at *3 (W.D. Tex. May 30, 2019)). Patent Owner asserts that this factor favors denial. *Id.* at 49.

The District Court has not granted a stay in the W.D. Tex. Litigation and no party has requested a stay. Here, Patent Owner does not provide any

“specific evidence” to support that a stay requested by Petitioner would be denied. *Sand Revolution II*, Paper 24 at 7. We will not attempt to predict how the District Court would rule should a stay be requested. *See id.* (“In the absence of specific evidence, we will not attempt to predict how the district court in the related district court litigation will proceed because the court may determine whether or not to stay any individual case, including the related one, based on a variety of circumstances and facts beyond our control and to which the Board is not privy.”); *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative) (“A judge determines whether to grant a stay based on the facts of each specific case as presented in the briefs by the parties. We decline to infer, based on actions taken in different cases with different facts, how the District Court would rule should a stay be requested by the parties in the parallel case here.”). We view this factor as neutral. *See Sand Revolution II*, Paper 24 at 7; *Fintiv*, Paper 15 at 12.

b. Factor 2: proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision

Petitioner states this factor is neutral because no trial date has been set in the W.D. Tex. Litigation. Pet. 27. Patent Owner responds that this factor favors denial because, in the proposed scheduling order in the W.D. Tex. Litigation, trial is “estimated to begin January 3, 2023.” Prelim. Resp. 49.

We do not agree with Patent Owner’s assessment as to this factor. No trial date has been set in the W.D. Tex. Litigation. Moreover, even assuming the “estimated” trial date is adopted, the trial would be roughly two months *after* the due date for any final written decision here. Prelim. Resp. 49 (citing Ex. 2010 (proposed scheduling order in the W.D. Tex.

Litigation)). On the record here, we look to other factors in the analysis. *See Fintiv*, Paper 11 at 9 (“If the court’s trial date is at or around the same time as the projected statutory deadline or even significantly after the projected statutory deadline, the decision whether to institute will likely implicate other factors.”). We view this factor as weighing against discretionary denial, however, given that the final written decision here will precede any trial that takes place.

c. Factor 3: investment in the parallel proceeding by the court and the parties

The third *Fintiv* factor considers “the amount and type of work already completed in the parallel litigation by the [district] court and the parties at the time of the institution decision. Specifically, if at the time of the institution decision, the district court has issued substantive orders related to the patent at issue in the petition, this fact favors denial.” *See Fintiv*, Paper 11 at 9–10. Thus, the more advanced the parallel proceeding, the less likely we are to institute a post-grant review. *Id.* at 10.

Petitioner states that, in the W.D. Tex. Litigation, “except for venue, jurisdiction, and claim construction, all other discovery is stayed until after the claim construction hearing under the local rules.” Pet. 27 (citing Ex. 1021 at 3). Petitioner also notes that there has been no claim construction, no invalidity expert reports, and no dispositive motions in either the W.D. Tex. Litigation or the S.D. Tex. Litigation. Pet. 27–28.

Patent Owner responds that, based on the proposed schedule in the W.D. Tex. Litigation, by the issuance of this Institution Decision, “Petitioner will have submitted invalidity contentions, the parties will have made numerous claim construction exchanges, each party will have each prepared and submitted claim construction briefing and begun preparations for the

Markman hearing proposed for December 20, 2021.” Prelim. Resp. 49–50 (citing Ex. 2010). Patent Owner states that, in the S.D. Tex. Litigation, “the parties have fully briefed Patent Owner’s motion to dismiss and exchanged infringement and invalidity contentions” and claim construction briefing is “well underway,” with “a claim construction hearing . . . set for October 21, 2021.” *Id.* at 50 (citing Ex. 2008 (Declaration of Preston Heard) ¶ 7; Ex. 2012).

On the current record, we are not persuaded that the level and type of investment by the Texas District Courts and the parties in the W.D. Tex. Litigation and the S.D. Tex. Litigation at this point in time support exercising discretion to deny institution. As an initial matter, we note that Patent Owner frames the argument under § 324(a) overall as related solely to the W.D. Tex. Litigation (*see* Prelim. Resp. 47, § C, first sentence), but then addresses the S.D. Tex. Litigation only as to certain factors, when beneficial.

Turning to the merits, although the parties have invested some time in the two Litigations, this must be considered in context of the substantial investment required *in the future*. As to efforts by the District Courts, in the W.D. Tex. Litigation, the District Court has issued an order denying a motion to dismiss for improper venue and granting in part a motion to transfer as to *another defendant* (i.e., not Petitioner), but that order does not substantively address the ’697 patent at all. *See* Ex. 2009; *see also Fintiv*, Paper 11 at 10 (“If, at the time of the institution decision, the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution under *NHK*.”). Patent Owner also has not identified any orders substantively addressing the ’697 patent in the S.D. Tex. Litigation.

As to the efforts by the parties, in both Litigations, initial invalidity contentions have been provided and claim construction hearings have recently occurred or will soon occur. We view the Litigations as less developed than that in *Sand Revolution II*, in which the panel found this factor weighed “only marginally, if at all, in favor of exercising discretion” when (1) a two-page claim construction order had issued and (2) the defendant had provided invalidity contentions. *Sand Revolution II*, Paper 24 at 10–11. Moreover, before any trials in the Litigations, the parties must exchange their final contentions, finish fact discovery, exchange expert reports, take expert depositions, complete briefing on case-dispositive issues, and prepare for trial. *See, e.g.*, Ex. 2010 (proposed scheduling order in the W.D. Tex. Litigation). In addition, the District Courts would have to issue a claim construction order, decide any case-dispositive issues, coordinate pretrial conferences, and prepare for trial. *Id.*

Patent Owner does not allege any delay by Petitioner in filing the Petition. *See Fintiv*, Paper 11 at 11 (“If the evidence shows that the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution under *NHK*.”). For these reasons, we determine that the third *Fintiv* factor weighs against exercising discretion to deny institution.

d. Factor 4: overlap between issues raised in the petition and in the parallel proceeding

The fourth *Fintiv* factor requires consideration of “inefficiency and the possibility of conflicting decisions.” *See Fintiv*, Paper 11 at 12. Therefore, “if the petition includes the same or substantially the same claims, grounds, arguments, and evidence, as presented in the parallel

proceeding, this fact has favored denial.” *Id.* The *Fintiv* panel stated that “the degree of overlap is highly fact dependent” and encouraged the parties “to indicate whether all or some of the claims challenged in the petition are also at issue in the district court.” *Id.* at 13.

We first address the degree of overlap in issues based on the *claims* at issue in each proceeding. *See Fintiv*, Paper 11 at 13 (“The existence of non-overlapping claim challenges will weigh for or against exercising discretion to deny institution under *NHK* depending on the similarity of the claims challenged in the petition to those at issue in the district court.”).

Petitioner notes that, in both Litigations, Patent Owner has alleged infringement of only claims 1, 2, 8–10, and 13, but that Petitioner challenges all twenty-one claims in the Petition. *See* Pet. 28. Patent Owner responds that, in both Litigations, Petitioner asserts invalidity of all twenty-one claims. *See* Prelim. Resp. 51 (citing Ex. 2013 (Answer in the W.D. Tex. Litigation) at 8, 11; Ex. 2014 (Answer in the S.D. Tex. Litigation)). Petitioner counters that, in both Litigations, it alleges invalidity of only the claims asserted by Patent Owner—i.e., claims 1, 2, 8–10, and 13, and that, therefore, “Petitioner challenges fifteen of twenty-one claims in this proceeding that are not at issue in” the Litigations. Prelim. Reply 1–2.

We agree with Petitioner’s position as to the preliminary invalidity contentions in the Litigations, in which Petitioner asserts invalidity as to only the claims asserted. *See, e.g.*, Ex. 2015 at 3 (stating that “Defendants contend that each of the claims of [the ’697 patent] asserted” and that “Defendants do not provide any invalidity contentions regarding any claims not asserted against them”); Ex. 1038 at 3 (stating that Petitioner “contends that each of the claims of [the ’697 patent] asserted”). Thus, the degree of

overlap in the claims at issue between the Litigations and this proceeding is quite low, with only six of twenty-one claims overlapping. Moreover, the entirety of the subject matter of independent claim 14 and its dependent claims 15–21 is not at issue in the Litigations.

We turn now to the degree of overlap in issues based on the *prior art* at issue in each proceeding. *See Fintiv*, Paper 11 at 12–13 (discussing how, “if the petition includes materially different grounds, arguments, and/or evidence than those presented in the district court, this fact has tended to weigh against exercising discretion to deny institution”). Although the preliminary invalidity contentions in both Litigations include the Rogman Patent, Borgfeld, and Burton, they do not include Deere. *See* Ex. 2015 at 8–9; Ex. 1038 at 7–8. Moreover, Petitioner has stipulated, in the Litigations, to not rely on any references that form a basis for the Petition here. *See* Pet. 28–29 (citing Ex. 1036 (letter with stipulation for both Litigations)). Although narrower than the stipulation in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18 (Dec. 1, 2020) (precedential), in which the stipulation extended as well to “any ground . . . that could have been reasonably raised in an IPR,” Petitioner’s stipulation nonetheless “mitigates to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.” *Sand Revolution II*, Paper 24 at 12. Patent Owner notes that the stipulation does not address issues under § 112 (Prelim. Sur-reply 1–2), however, Petitioner only asserts invalidity under § 112 as to claims 2, 15, and 18 in the Petition, and only claim 2 is asserted in the Litigations. For these reasons, we determine that the fourth *Fintiv* factor weighs slightly against exercising discretion to deny institution.

e. Factor 5: whether the petitioner and the defendant in the parallel proceeding are the same party

Under the fifth *Fintiv* factor, “[i]f a petitioner is unrelated to a defendant in an earlier [district] court proceeding, the Board has weighed this fact against exercising discretion to deny institution.” *See Fintiv*, Paper 11 at 13–14. Petitioner here is the same party as the defendant in the Litigations. Pet 29; Prelim. Resp. 52. Nonetheless, because the Final Written Decision in this decision will precede the expected trial date in the W.D. Tex. Litigation, this factor weighs against discretionary denial.

f. Factor 6: other circumstances that impact the Board’s exercise of discretion, including the merits

In an analysis based on district court litigation, “all relevant circumstances,” including the merits, are considered in assessing whether to exercise discretion to deny institution of post-grant review. *Fintiv*, Paper 11 at 14. Petitioner argues that the Petition is strong and that “this *one* administrative proceeding has the ability to render *ten-plus* litigations moot.”¹⁰ Pet. 29–30. Patent Owner responds that “the Petition’s merits are severely and fatally flawed due to its sweeping reliance on the non-prior art ‘Rogman’ as the primary reference across all of its prior art grounds.” Prelim. Resp. 52. For the reasons discussed below, although Patent Owner raises issues as to the merits, we are not persuaded that those issues weigh in favor of discretionary denial. We view the sixth *Fintiv* factor as neutral.

¹⁰ We understand this statement to relate to the litigations listed above. *See supra* § I.A.

3. Conclusion

After weighing all of the factors and taking a holistic view of the relevant circumstances of this proceeding, we determine that we should not exercise our discretion to deny institution under § 324(a).

D. Discretion Under 35 U.S.C. § 325(d)

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 325(d). *See* Prelim. Resp. 42–47. Petitioner opposes. *See* Pet. 19–26.

1. Legal Framework

Section 325(d) provides that, in determining whether to institute a post-grant review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Board uses a two-part framework in determining whether to exercise its discretion under § 325(d): (1) determining whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, determining whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *See Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). In applying this framework, we consider several non-exclusive factors, including:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art

was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph). If, after review of factors (a), (b), and (d), we determine that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims. *Advanced Bionics*, Paper 6 at 10.

2. *Summary of the Prosecution History*

The '697 patent issued from U.S. Application No. 16/585,790 (“the '790 application”). *See* Ex. 1001, codes (21), (60). In the only office action in the prosecution history, the Examiner allowed certain claims and relied on Schacherer¹¹ to reject the others. *See* Ex. 1002 at 649–56. The applicant proposed several amendments, including requiring the “pin connector assembly” in claim 1 to extend “through the pressure bulkhead from a first pin connector end to a second pin connector end . . . wherein the first pin connector end extends beyond the first end of the pressure bulkhead and the second pin connector end extends beyond the second end of the pressure bulkhead.” *Id.* at 505; *see also id.* at 512–13 (“Without acquiescing to the rejections, and for the purpose of moving the claims to immediate

¹¹ US 9,677,363 B2, issued June 13, 2017 (“Schacherer”) (Ex. 1003).

allowance, claim 1 is currently amended to, among other things, recite a pin connector assembly extending through the pressure bulkhead ‘from a first pin connector end to a second pin connector end . . . wherein the first pin connector end extends beyond the first end of the pressure bulkhead and the second pin connector end extends beyond the second end of the pressure bulkhead.’” (alteration in original)). The applicants argued that “Schacherer fails to disclose at least the quoted feature(s).” *Id.* at 513.

The Examiner issued a Notice of Allowability, contingent on the applicants’ acceptance of several amendments proposed by the Examiner, including the addition of a requirement for “a perforation gun system comprising a first outer gun carrier, a shaped charge, and a first detonator, wherein the shaped charge and the first detonator are positioned within the first outer gun carrier, wherein the first outer gun carrier is connected to the first end of the tandem seal adapter” in claim 1. Ex. 1002 at 43–50. In allowing the claims, the Examiner noted that “Burton does not teach or suggest placement of detonator 250 within gun carrier 220 and the known prior art fails to make such a modification obvious.” *Id.* at 49. The applicants accepted the Examiner’s amendments, and the ’697 patent issued. *Id.* at 1, 29–30.

Deere is a pre-grant publication of a patent listed on an IDS during prosecution. Ex. 1002 at 69 (listing US 8,869,887 to Deere). The Examiner did not rely on that patent in the rejection. The Rogman Patent was listed on an IDS during prosecution, but the Examiner did not rely on it in the rejection. *Id.* at 664 (line 44). Borgfeld was not before the Examiner.

3. Analysis

a. Whether the Same or Substantially the Same Art or Arguments Were Presented to the Office

As to the first part of the relevant framework, Patent Owner argues that the Petition presents the same or substantially the same art or arguments as previously presented. *See* Prelim. Resp. 43–44. We agree with Patent Owner that three of the four references relied on in the Petition are the same or substantially the same art. As argued by Patent Owner and acknowledged by Petitioner, the Rogman Patent and Burton were before the Examiner during prosecution. *See id.* at 44 (citing Pet. 24–25); Ex. 1002 at 49, 664. Further, because Deere is a pre-grant publication of a patent listed on an IDS (Ex. 1002 at 69), Deere is substantially the same art as was previously presented. *See* Prelim. Resp. 44; Pet. 24.

We turn now to Borgfeld, the fourth and final reference relied on in the Petition. Patent Owner contends that Borgfeld is “cumulative over [Petitioner’s] use of ‘Rogman’” and that Borgfeld is “unequivocally cumulative to Burton because each system includes a detonator positioned in a sub, not an outer gun carrier.” Prelim. Resp. 44. Patent Owner also argues that “Petitioner fails to point to a single material difference between Borgfeld and the remaining references that were before the Office during prosecution.” *Id.* Petitioner argues that “Petitioner is using Borgfeld against Claims 9–12 and 16–18 because Borgfeld has more explicit disclosures than the other references regarding: (1) its similar detonator and connections; and, (2) its bulkhead connector element in a second detonator head within a second outer gun carrier.” Pet. 23.

We are persuaded by Petitioner’s position. Here, Petitioner relies *solely* on Borgfeld for *all* of the additional limitations in claims 16–18. *See*

Pet. 83–87. And during prosecution, the Examiner did not cite *any* prior art—including the Rogman Patent, Deere, or Burton—as disclosing the subject matter of these claims and instead allowed those claims (which were originally filed claims 15–17) in the *first and only* office action. *See* Ex. 1002 at 48 (showing originally filed claims 15–17), 650 (allowing original claims 15–17).

Based on Petitioner’s reliance on Borgfeld in the context of the ground based on the Rogman Patent, Deere, and Borgfeld, as well as the inclusion of two grounds based on § 112, we find three of the eight asserted grounds in the Petition do not present the same or substantially the same art or arguments as were previously presented. These three grounds, however, address only five of the twenty-one claims at issue in the Petition. *See* Pet. 18. When considering the Petition as a whole, we find that it sufficiently implicates the concerns addressed by § 325(d) to find the first part of the framework in *Advanced Bionics* satisfied. We turn now to the second part of the framework: “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, Paper 6 at 8–9.

b. Whether Petitioner Sufficiently Demonstrates that the Office Erred

In the second part of the framework, “Petitioner must demonstrate that the Examiner erred in the evaluation of the prior art, for example, by showing that the Examiner misapprehended or overlooked specific teachings in the relevant prior art such that the error by the Office was material to the patentability of the challenged claims.” *Advanced Bionics*, Paper 6 at 21. “An example of a material error may include misapprehending or overlooking specific teachings of the relevant prior art where those teachings

impact patentability of the challenged claims.” *Id.* at 8–9 n.9. “For example, if the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive under factors (e) and (f).” *Id.* at 10–11.

Petitioner argues that the “record is silent” with respect to the Rogman Patent but that the Examiner erred when stating that “the known prior art fails to make such a modification [placement of detonator within the gun carrier] obvious” (Ex. 1002 at 49) in that the Examiner “overlooked that Rogman is directed to a perforating gun with a TSA [(“tandem seal adapter”)] and PCA [(“pin connector assembly”)]” and that “Rogman teaches every limitation of Claim 1, *including placement of a detonator within a gun carrier.*” Pet. 21. Patent Owner responds that “[b]ecause the Rogman Provisional does not support Petitioner’s reliance on the Rogman Patent, it is actually Petitioner that is misevaluating the Rogman references—not the Office.” Prelim. Resp. 46.

We agree with Petitioner here. In the Reasons for Allowance as to claim 1, the Examiner expressly stated that Burton does not teach the requirement for a detonator within a gun carrier as required by element 1b (proposed by the Examiner prior to issuance), and that the “known prior art fails to make such a modification obvious.” Ex. 1002 at 49 (“In other words, Burton does not teach or suggest placement of detonator 250 within gun carrier 220 and the known prior art fails to make such a modification obvious.”), 44 (adding the entirety of element 1b).

In the Preliminary Response, however, Patent Owner does not challenge Petitioner’s position that the Rogman Patent satisfies the same requirement—i.e., for a “first detonator . . . positioned within the first outer

gun carrier.” *See* Prelim. Resp. 63–65. Instead, Patent Owner challenges whether the Rogman Patent discloses the requirement that “the first outer gun carrier is connected to the first end of the tandem seal adapter” in element 1b. *See id.* And for the reasons discussed below (*see infra* § II.I.2.a.3), we determine, at this stage of the proceeding, that Petitioner has made a sufficient showing that both the Rogman Patent and the Rogman Provisional disclose that limitation. Thus, we determine that the Examiner overlooked specific teachings in the Rogman Patent in a manner than impacts the patentability of the challenged claims.

4. Conclusion

For the reasons above, we find that the same or substantially the same art or arguments were presented to the Office, but we find that Petitioner has shown that the examiner overlooked specific teachings in the Rogman Patent in a manner that impacts the patentability of the challenged claims. Accordingly, we do not exercise our discretion to deny institution under § 325(d).

E. 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.*

Petitioner contends, with accompanying declaration testimony, that a person having ordinary skill in the art “at the effective priority date, would have had a Bachelor of Science Degree in Mechanical or Electrical Engineering and at least two years of industry experience related to assembling, operating, and/or designing perforating tools.” Pet. 30. According to Petitioner, “[t]his description is approximate, and a higher level of training or skill might make up for less education, and vice-versa.” *Id.*

Patent Owner states that one of ordinary skill in the art “should be familiar with prior art methods of installing detonators and making electrical feedthrough connections in perforating gun strings and operational procedures for detonation guns, and safety issues related to perforating operations.” Prelim Resp. 29 (citing Rodgers Decl. ¶ 85). Then, however, Patent Owner states that “the appropriate level of skill does not affect the deficiencies in the Petition or the appropriate analysis of the cited references, and therefore [Patent Owner] does not dispute Petitioner’s proposed level of skill for purposes of this preliminary proceeding.” *Id.*

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

F. Claim Construction

In post-grant reviews, the Board interprets claim language using the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.200(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.

1. Overview

Petitioner discusses certain claim terms: (1) claim terms in claims 6, 7, and 19–21 allegedly governed by § 112(f); (2) “tandem seal adapter” in claims 1, 4, 5, 8, 9, 13, and 14; (3) “pressure bulkhead . . . having a pin connector assembly”; (4) “electrical communication with” in claims 1 and 10; (5) “it is not possible to interrupt the electrical signal” in claims 2 and 15; (6) “wireless” in claim 9; and (7) “detonator is not physically joined to the electrical connection assembly” in claim 18. *See* Pet. 30–38. Patent Owner discusses “connected to” in claim 1. *See* Prelim. Resp. 30–31.

Based on the current record and for purposes of this Decision, we construe the term “connected to,” as discussed below. 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 not change the result of 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. “connected to” (claim 1)

Element 1.b requires, among other aspects, that “the first outer gun carrier is connected to the first end of the tandem seal adapter.” Ex. 1001, 11:27–29 (the “‘connected to’ limitation”). Petitioner does not expressly address this limitation in the claim construction section of the Petition. *See* Pet. 30–38. Patent Owner asserts that “connected to” means “joined or coupled in a manner that resists separation and not merely by physical contact.” Prelim. Resp. 30. According to Patent Owner, “[w]hile ‘connected to’ may appear readily understandable, it is important in the context of the ’697 Patent claims to expressly define this term as requiring a secure coupling or joining together” and that “[m]ere touching together or physical contact alone would not be sufficient for two components to be ‘connected to’ each other.” *Id.* (citing Rodgers Decl. ¶¶ 99–100).

In the Preliminary Reply, Petitioner argues that Rogman allegedly discloses the “connected to” limitation “even assuming” Patent Owner’s proposed construction, but Petitioner also states that “connected to” “should get its plain and ordinary meaning, such as ‘joined together.’” *See* Prelim. Reply 7–8 (citing Ex. 1046 at 1); *see also* Prelim. Sur-reply 7–10 (Patent Owner’s responses).

In an effort to further develop this issue, we provide the following comments on Patent Owner’s proposed construction, which we are not persuaded to fully adopt at this stage of the proceeding. Although Patent

Owner cites to testimony of its declarant on this issue, Dr. Rodgers does not provide any evidence supporting his understanding of the “industry usage” (Rodgers Decl. ¶ 99) and does not cite to any aspect of the ’697 patent—except the entirety of claim 1—in support of the proposed construction.¹² *See id.* ¶¶ 99–101. For example, Dr. Rodgers states that “[w]hile ‘connected to’ may appear readily understandable, it is important in the context of the ’697 Patent claims to expressly define this term as requiring a secure coupling or joining together” (*id.* ¶ 100), but Dr. Rodgers does not explain what language of claim 1 supports that assertion.

On the current record, it is unclear whether Petitioner takes the position that the alternative construction of “connected to” as “joined together” (Prelim. Resp. 7) is broader than Patent Owner’s proposed construction. It is also unclear whether Petitioner views the Petition as applying a construction of “connected to” as “joined together” and that, in the Preliminary Reply, Petitioner argues, *in the alternative*, that Rogman also satisfies the “connected to” limitation under Patent Owner’s proposed construction. At trial, the parties should clarify their positions and develop these issues, including providing additional evidence to support their proposed constructions of “connected to.” Because we determine, as discussed below (*see supra* § II.I.2.a.3), that Petitioner has made a sufficient showing that the Rogman Patent and the Rogman Provisional disclose the “connected to” limitation even under Patent Owner’s proposed construction

¹² In the claim construction section, Patent Owner also cites to the entirety of claim 1, but no other aspect of the Specification.

(which is arguably fully encompassed by Petitioner’s construction), we need not expressly construe this term at this stage. *See Nidec*, 868 F.3d at 1017.¹³

G. Asserted Lack of Enablement of Claims 2 and 15

Petitioner asserts that claims 2 and 15 lack adequate enabling disclosure under 35 U.S.C. § 112(a). Pet. 18, 35–38. Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 31–35.

Dependent claim 2 recites an “electrical connection assembly” in which “it is not possible to interrupt the electrical signal from the first pin connector end to the second pin connector end,” and dependent claim 15 recites an “electrical connection assembly” in which “it is not possible to interrupt the electrical signal between the first end and the second end of the pressure bulkhead.” Ex. 1001, 11:48–50, 13:4–7.

Petitioner argues that claims 2 and 15 “refer to the electrical signal between pin ends of the PCA or ends of the bulkhead defined in Claims 1 and 14, but the ’697 [p]atent gives insufficient direction or guidance as to how to make this PCA uninterruptable.” Pet. 35. According to Petitioner, the written description and related figures “fail to disclose reasonable basic enabling structure to show how one skilled in the art would achieve the novel ‘uninterruptable’ characteristics.” Pet. 35–36. Petitioner asserts that the ’697 patent “lacks working uninterruptable examples because there are plausible situations in which the ’697 [p]atent embodiments do not meet this

¹³ Claim construction, in general, is an issue that may be addressed further at trial. 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.

claim limitation,” such as due to manufacturing defects, external shocks, material failure, or momentary separation due to detonation. Pet. 36 (citing Parrott Decl. ¶¶ 100–109).

Patent Owner responds by first arguing that Petitioner applies an “incorrect, heightened enablement standard requiring explicit descriptions of known features.” Prelim. Resp. 31–32. Then, Patent Owner highlights the ’697 patent’s alleged “advantageous teaching of a more robust wireless assembly, which is not only claimed, but expressly set forth in the specification.” *Id.* at 33 (citing Ex. 1001, 6:13–15). According to Patent Owner, one of ordinary skill in the art “would understand this teaching as providing the proper basis and understanding for the limitation ‘it is not possible to interrupt the electrical signal’ and would further understand, based on the specification and common knowledge in the art, how to make and use the claimed invention without undue experimentation.” *Id.* (discussing Rodgers Decl. ¶¶ 103–105).

We do not agree with Patent Owner that Petitioner applied a “heightened standard” for enablement. As quoted by both parties, the Federal Circuit has held that “[i]t is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.” *Auto. Techs. Int’l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1283 (Fed. Cir. 2007), *quoted at* Pet. 36 & Prelim. Resp. 32. Patent Owner asserts that the relevant teaching of a “more robust wireless assembly” is a “novel aspect of the claimed invention,” but then relies on three lines in the Specification as well as “common knowledge in the art” to enable this teaching. Prelim. Resp. 33. Given Patent Owner’s statement that the “more robust wireless assembly” is a “novel aspect of the

claimed invention,” Petitioner applied the proper standard. Patent Owner should clarify its position on this issue in further briefing at trial.

Turning to the merits, we are persuaded that the Petition shows more likely than not that Petitioner would prevail in demonstrating that claims 2 and 15 are not enabled by the Specification. “[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use *the full scope of the claimed invention* without undue experimentation.” *Trs. of Boston Univ. v. Everlight Elecs. Co.*, 896 F.3d 1357, 1362 (Fed. Cir. 2018) (emphasis added, alteration in original). We consider certain factors to determine whether a disclosure satisfies the enablement requirement, including:

(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988).

As argued by Petitioner, at this stage of the proceeding, the disclosures identified lack adequate direction or guidance (factor 2 above) and lack working examples (factor 3) as to how to make the “electrical signal” truly uninterruptable, as required to enable the *full scope* of the limitations at issue (factor 8). This is supported by the testimony of Mr. Parrott, who identifies “several mechanisms by which an electrical signal can be interrupted” in the context of each limitation at issue. Parrott Decl. ¶¶ 103 (claim 2), 108 (claim 15). Further supporting that the full scope of the limitations at issue are not enabled, both Patent Owner and its declarant argue as if the limitations at issue merely require a *less interruptible*

electrical signal (as compared to the prior art) rather than one that it is “not possible to interrupt,” as recited. *See, e.g.*, Prelim. Resp. 33 (discussing a “*more robust wireless assembly*” (emphasis added)); Rodgers Decl. ¶¶ 104–105 (same). Although the record is less developed as to the other *Wands* factors, the evidence as to factors 2, 3, and 8 weighs in favor of Petitioner’s position at this stage of the proceeding. Accordingly, we determine, based on the current record, that the Petition shows more likely than not that Petitioner would prevail in demonstrating that claims 2 and 15 are invalid for lack of enablement.

H. Asserted Lack of Enablement and Asserted Indefiniteness of Claim 18

Petitioner asserts that claim 18 of the ’697 patent lacks adequate enabling disclosure under 35 U.S.C. § 112(a) and is indefinite under 35 U.S.C. § 112(b). Pet. 18, 37–38. Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 34–35.

Independent claim 14 recites an “electrical connection assembly” that includes, among other aspects, “a set of inner components within the downhole tool *that includes [a] detonator.*” Ex. 1001, 12:48–50, 12:61–62 (emphasis added). Dependent claim 18 depends from claim 14 via claim 16, and recites: “The electrical connection assembly of claim 16, wherein the detonator further includes a detonator body extending from the detonator head and further *wherein the detonator is not physically joined to the electrical connection assembly.*” *Id.* at 13:17–21 (emphasis added).

Petitioner argues that the pair of italicized phrases above “is a paradox” and that a “claim that is ‘nonsensical and require[s] an impossibility’ is indefinite as a matter of law.” Pet. 37 (quoting *Synchronoss Techs., Inc. v. Dropbox, Inc.*, 987 F.3d 1358, 1366–67 (Fed. Cir. 2021))

(alteration by Petitioner). Petitioner also argues that, based on the same language, claim 18 is not enabled “because the written specification fails ‘to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make’ such a detonator not connected to itself.” Pet. 38 (citing *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956 (Fed. Cir. 1983)).

Patent Owner responds that “the meaning of claim 18 is sufficiently certain to allow even Petitioner to understand its intention to require that the detonator is not physically joined to the *pin connector assembly* (which is the part of the electrical connection assembly that is ‘configured to relay an electrical signal’ (Ex. 1001, cl. 14)).” Prelim. Resp. 34 (citing Pet. 38). According to Patent Owner, one of ordinary skill in the art “would understand that the detonator is not wired to the rest of the electrical connection assembly because the pin connector assembly is the part that creates the electrical connection by touching the bulkhead connector element—i.e., the signal-in contact to the detonator—but not being physically joined to it.” *Id.* (citing Ex. 1001, 8:31–42; Rodgers Decl. ¶¶ 106–108). With this asserted understanding by one of ordinary skill in the art, Patent Owner argues that claim 18 is neither indefinite nor lacking in enablement. *Id.* at 35.

To satisfy the definiteness requirement of § 112(a), a patent’s claims must, when “viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S.

898, 910 (2014).¹⁴ On the current record, we are persuaded that the Petition shows more likely than not that Petitioner would prevail in demonstrating that claim 18 is indefinite. As an initial matter, we decline to rewrite the limitation at issue—replacing “electrical connection assembly” with “pin connector assembly” as proposed by Patent Owner—to avoid indefiniteness (or lack of enablement) when Patent Owner has not sought to correct the alleged error. *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1375 (Fed. Cir. 2004) (stating that patentees “argue only that ‘to’ should be construed to mean ‘at’ because otherwise the patented process could not perform the function the patentees intended” but that the Federal Circuit has “repeatedly declined to rewrite unambiguous patent claim language for that reason”).

Further, on the current record, we agree with Petitioner’s position that the limitation as recited in the ’697 patent is nonsensical and requires an impossibility, rendering it more likely than not indefinite. *See Synchronoss*, 987 F.3d at 1366–67. Accordingly, we determine, based on the current record, that the Petition shows more likely than not that Petitioner would prevail in demonstrating that claim 18 is invalid for indefiniteness. For the same reasons, we also agree, at this stage of the proceeding, that claim 18 more likely than not lacks enablement. *See Raytheon*, 724 F.2d at 956

¹⁴ A recent memorandum, issued under the Director’s authority to set binding agency guidance, clarifies that the agency’s approach to analyzing indefiniteness in AIA post-grant proceedings will adhere to the approach used in district courts, as explained in *Nautilus*. *See* Memorandum from Andrei Iancu, Andrew Hirshfield, and Scott R. Boalick to Members of the Patent Trial and Appeal Board (Jan. 6, 2021), *available at* <https://www.uspto.gov/sites/default/files/documents/IndefinitenessMemo.pdf>.

(“Because it is for the invention as claimed that enablement must exist, and because the impossible cannot be enabled, a claim containing a limitation impossible to meet may be held invalid under § 112.”).

I. Asserted Anticipation of Claims 1, 2, 8–11, and 13 by the Rogman Patent

Petitioner asserts that claims 1, 2, 8–11 and 13 are anticipated under 35 U.S.C. § 102(a)(2) by the Rogman Patent. Pet. 18, 38–64. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 53–69. We first summarize aspects of the Rogman Patent.

1. The Rogman Patent

The Rogman Patent discloses a “wellbore perforating device.” Ex. 1005, code (57), 1:42–49. The Rogman Patent refers to the Rogman Provisional. *See id.* at code (60).

Figure 1 of the Rogman Patent is reproduced at right. Figure 1 “depicts a cross sectional view of an illustrative wellbore perforating device.” Ex. 1005, 2:15–16. Specifically, Figure 1 depicts wellbore perforating device 100, which can include bulkheads 114, 116¹⁵ connected to ends of loading tube 110. *Id.* at 3:12–15. The Rogman Patent discloses that the bulkheads “can isolate the loading tube 110 from fluids external to the loading tube (e.g., wellbore

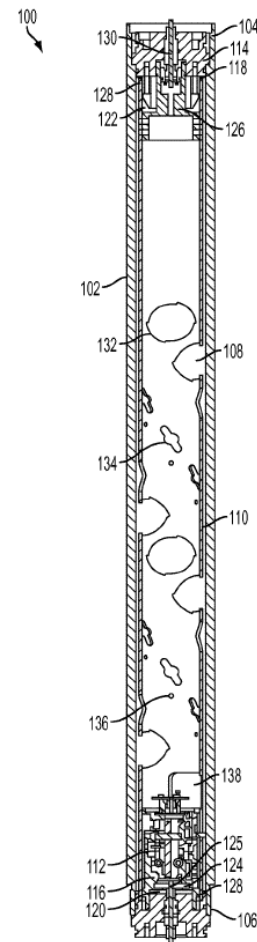


FIG. 1

¹⁵ The parties agree that the lead line for element 116 points to the incorrect structure. *See* Prelim. Resp. 19 n.3; Pet. 52.

fluids).” *Id.* at 3:22–24. In addition, the bulkheads can include “one or more coaxial conduits adapted to allow a coaxial cable, such as a power cable or any other wiring, to pass through the first and second bulkheads 114, 116 while maintaining fluid isolation of the loading tube 110 and space between the carrier 102 and the loading tube 110.” *Id.* at 3:59–64. As one example, the Rogman Patent discloses that “bulkheads 114, 116 can include a seal 130 that fits between the bulkhead 114 or 116 and a coaxial cable passing therethrough” and that “seal 130 can be disposed in annulus (not shown) formed between the bulkhead 114 or 116 and the cable to maintain fluid isolation of the loading tube 110.” *Id.* at 3:64–4:3.

Figure 3 of the Rogman Patent is reproduced below:

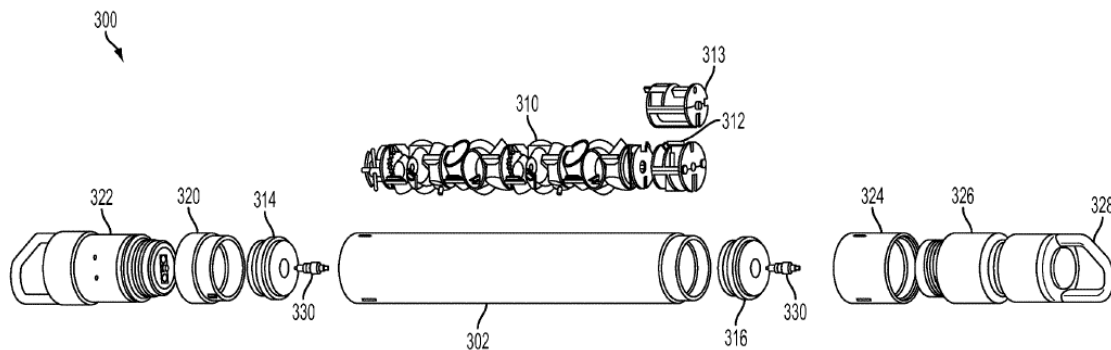


FIG. 3

Figure 3 depicts “an exploded side perspective view of another illustrative well bore perforating device.” Ex. 1005, 2:21–22. Specifically, Figure 3 depicts wellbore perforating device 300 with loading tube 310, bulkheads 314, 316, and seals 330 configured like those in Figure 1. *See id.* at 5:46–52.¹⁶

¹⁶ We summarize as needed below, in the analysis of the limitations, those aspects of the Rogman Provisional that describe the relied-upon subject manner disclosed in the Rogman Patent. *See* 35 U.S.C. § 102(d).

2. Analysis

a. Independent Claim 1

For independent claim 1, Petitioner contends that the Rogman Patent discloses each limitation. Pet. 38–50. To support its arguments, Petitioner identifies certain passages in the Rogman Patent and the Rogman Provisional and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Patent Owner argues that neither the Rogman Patent nor the Rogman Provisional discloses three limitations in claim 1: the “pin connector assembly” limitation; the “connected to” limitation; and the “seal” limitation (as defined below). *See* Prelim. Resp. 54–68. We have reviewed Petitioner’s contentions with respect to claim 1, and for the reasons below, we determine that the Petition shows more likely than not that Petitioner would prevail in demonstrating that claim 1 is anticipated by the Rogman Patent. We discuss below each of Patent Owner’s arguments.

(1) The “Pin Connector Assembly” Limitation

Element 1.d recites, among other aspects, “a pin connector assembly extending through the pressure bulkhead from a first pin connector end to a second pin connector end.” Ex. 1001, 11:33–36 (the “‘pin connector assembly’ limitation”). For this limitation, Petitioner highlights a “coaxial feedthru” in the Rogman Provisional, which is referred to as seal 130/330 with “a coaxial cable passing therethrough” in the Rogman Patent. *See* Pet. 46 (citing Ex. 1007 at 8, Fig. 1; Ex. 1005, 3:59–4:3, Figs. 1, 3); Ex. 1005, 3:64–67.

We reproduce below Figure 1 of the Rogman Provisional.

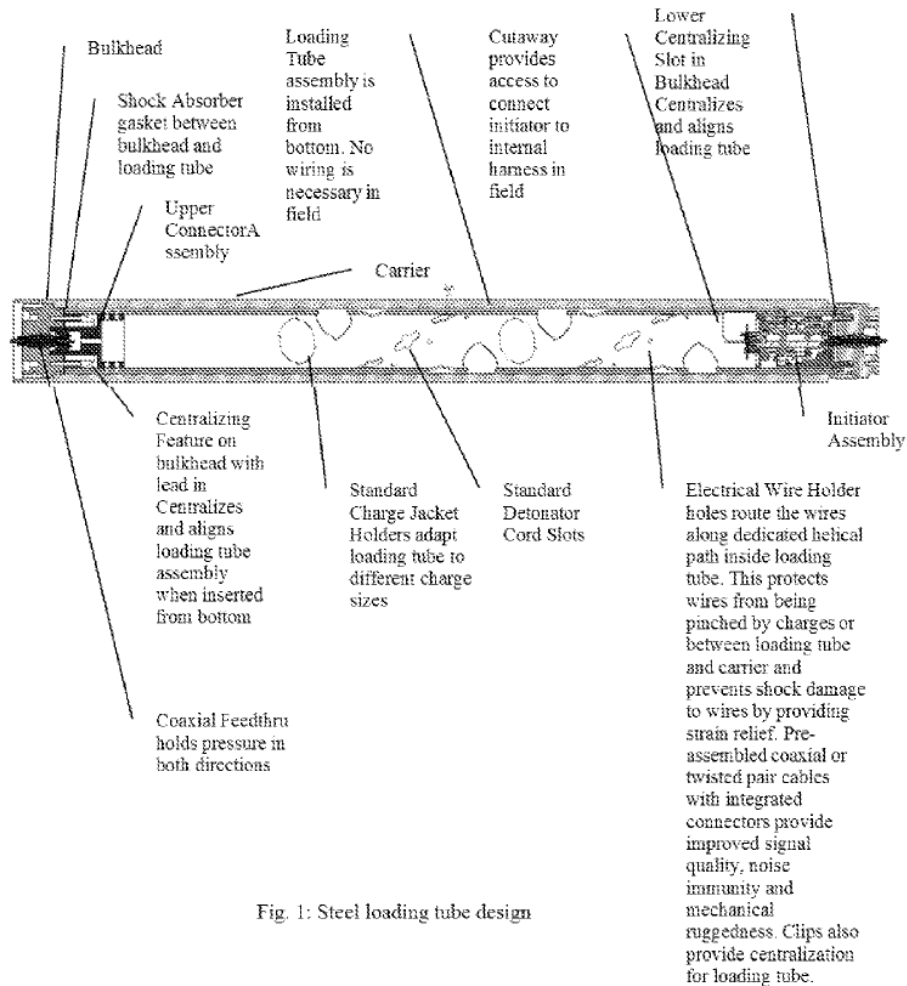


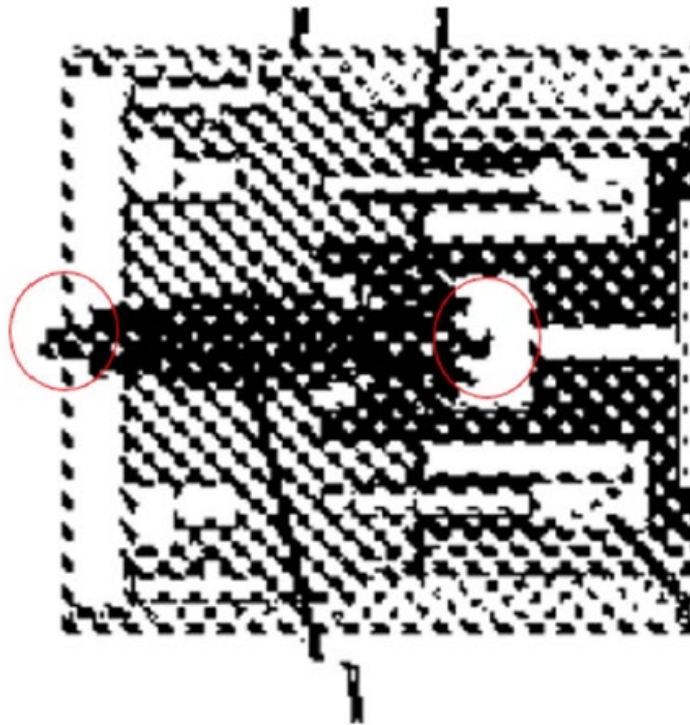
Fig. 1: Steel loading tube design

Figure 1 shows a steel loading tube design. Ex. 1007 at 8.¹⁷ According to Petitioner, the term “Coaxial Feedthru” in the Rogman Provisional (left side in Figure 1, above) “denot[es] it is configured to relay an electrical signal from the first end of the pressure bulkhead to the second end of the pressure bulkhead.” Pet. 46 (citing Ex. 1007 at 8, Fig. 1); see Parrott Decl. ¶ 137 (same); Ex. 1005, 3:59–64 (“The first and second bulkheads 114, 116 can also include one or more coaxial conduits adapted to allow a coaxial cable,

¹⁷ For the Rogman Provisional, we cite to the page numbers added by Petitioner.

such as a power cable or any other wiring, to pass through the first and second bulkheads 114, 116 while maintaining fluid isolation of the loading tube 110 and space between the carrier 102 and the loading tube 110.”), *cited at* Pet. 46.

Patent Owner argues that neither the Rogman Patent nor the Rogman Provisional discloses the “pin connector assembly” limitation. *See* Prelim. Resp. 54–63. As to the identified “coaxial feedthru” in the Rogman Provisional, Patent Owner states that it “is certainly not a pin connector assembly, to the extent that the Rogman Provisional even shows or describes it in any understandable way” and that it “is illustrated only in Figs. 1 and 3 in which it appears as a featureless black or gray mass.” *Id.* at 54. Patent Owner then provides the following close-up of a portion of Figure 1 of the Rogman Provisional (reproduced in full above).



Prelim. Resp. 54. The excerpt of Figure 1 shows, among other aspects, the “coaxial feedthru” with two red circles at the ends. *Id.* Patent Owner adds that the Rogman Provisional “does not show or describe any components or portions of the coaxial feedthru, such as the smaller portions at the ends, although the Rogman Provisional in view of the Rogman Patent suggests that those smaller portions are portions of a cropped coaxial cable or other wire.” *Id.* at 55.

At this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that the Rogman Provisional and the Rogman Patent both disclose the “pin connector assembly” limitation. Figure 1 of the Rogman Provisional is rendered in a low-resolution halftone, but the smaller portions on the ends of the “coaxial feedthru” acknowledged by Patent Owner and the use of the term “coaxial feedthru” (Ex. 1007 at 8, 14) support Petitioner’s and Mr. Parrott’s position that the identified structure would be understood as “configured to relay an electrical signal from the first end of the pressure bulkhead to the second end of the pressure bulkhead.” *See* Parrott Decl. ¶ 137, *cited at* Pet. 46–48. Moreover, although Patent Owner is correct that “[t]he smaller portions of the coaxial feedthru respectively terminate in undefined spaces” (Prelim. Resp. 55), the record at this stage does not support the necessary implication that one of ordinary skill in the art would, based on that fact, view the “coaxial feedthru” as not connecting to another structure to convey an electrical signal.

For similar reasons, the seals 130/330 with their coaxial cable in the Rogman Patent and the cited disclosures similarly support Petitioner’s position at this stage. *See* Pet. 46–48 (citing, e.g., Ex. 1005, Figs. 1, 3, 3:59–

4:3). As noted by Petitioner, and shown in Figure 1, reproduced above, the Rogman Patent discloses that “first and second bulkheads 114, 116 can include a seal 130 that fits between the bulkhead 114 or 116 and a coaxial cable passing therethrough.” Ex. 1005, 3:64–67, *cited at* Pet. 46.

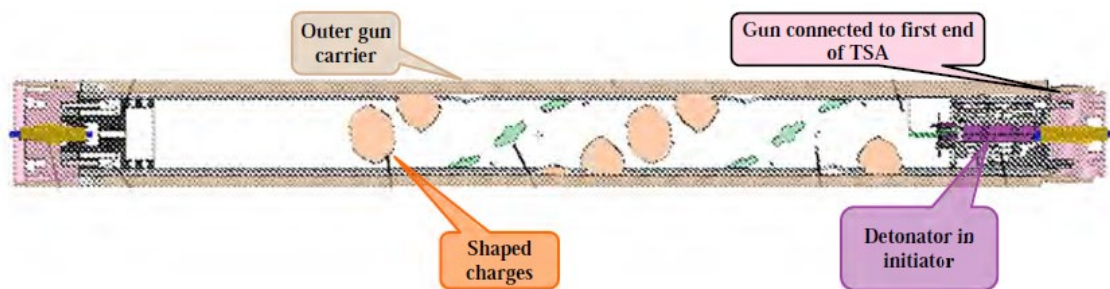
Patent Owner concludes but does not adequately explain at this stage why neither the “coaxial feedthru” with its coaxial cable in the Rogman Provisional nor seals 130/330 with their coaxial cable in the Rogman Patent are a “pin connector assembly.” *See, e.g.*, Prelim. Resp. 54 (stating, without explanation, that “the ‘Coaxial Feedthru,’ for example, is certainly not a pin connector assembly”), 56–57 (addressing the Rogman Patent in a similar manner). Patent Owner develops this argument only slightly, stating that one of ordinary skill in the art “would understand that *a pin connector assembly would include a pin* for reliably making electrical connections, and loose coaxial cable within a perforating gun assembly would be undesirable, especially in a system as described and claimed by the ’697 Patent.” *Id.* at 62 (emphasis added) (citing Rodgers Decl. ¶ 119).

We first note that the testimony from Dr. Rodgers does not indicate that a “pin connector assembly” would *necessarily* include a “pin.” *See* Rodgers Decl. ¶119. Further, Patent Owner has not adequately developed, at this stage, what constitutes a “pin” and why the coaxial cable in the Rogman Provisional and the Rogman Patent would not be understood to satisfy such an alleged requirement. The parties may wish to develop this issue at trial. For the reasons stated by Patent Owner (Prelim. Resp. 61–62), however, we do not view the record as supporting Petitioner’s reliance on Figure 5 as to the “pin connector assembly” limitation (*see* Pet. 46–47). The parties may also wish to develop this issue at trial.

For these reasons, at this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that the Rogman Patent and the Rogman Provisional both disclose the “pin connector assembly” limitation.

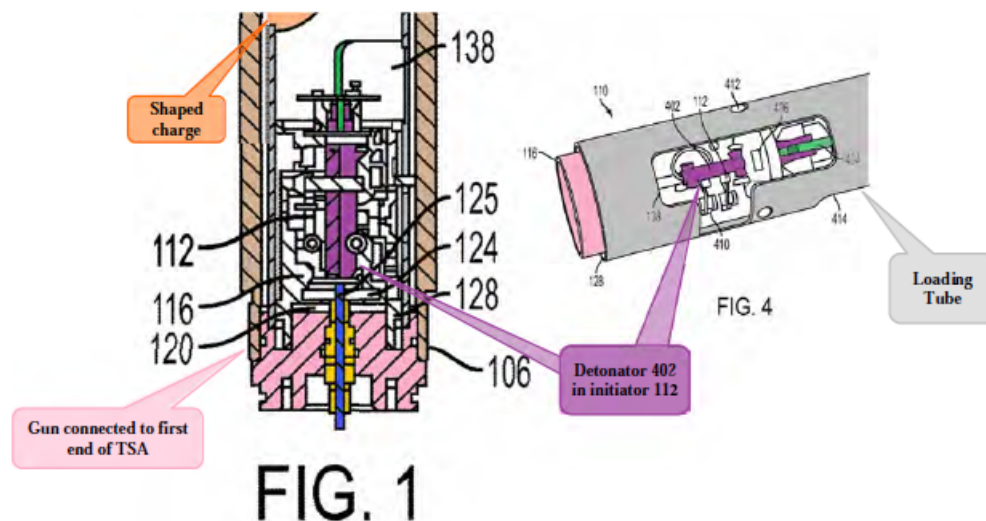
(2) The “Connected to” Limitation

Element 1.b requires, among other aspects, that “the first outer gun carrier is connected to the first end of the tandem seal adapter.” Ex. 1001, 11:27–29 (the “connected to” limitation”). For this limitation, Petitioner provides this annotated version of a portion of Figure 1 of the Rogman Provisional:



Pet. 44. In the annotated version of Figure 1 of the Rogman Provisional here, Petitioner added (1) a text box and orange highlighting identifying “Shaped charges,” (2) a text box and tan highlighting identifying “Outer gun carrier,” (3) a text box and pink highlighting identifying “Gun connected to first end of TSA,” and (4) a text box and purple highlighting identifying “Detonator in initiator.” *Id.*

Petitioner also provides this annotated version of a portion of Figure 1 and a portion of Figure 4 of the Rogman Patent:



Pet. 43. In the annotated versions of these Figures of the Rogman Patent here, Petitioner added (1) a text box and orange highlighting identifying “Shaped charge,” (2) tan highlighting for the gun carrier, (3) a text box and pink highlighting identifying “Gun connected to first end of TSA,” (4) a text box and purple highlighting identifying “Detonator 402 in initiator 112,” and (5) a text box and gray highlighting identifying “Loading Tube.” *Id.*

Petitioner states that “Rogman discloses that ‘the bulkhead [can be] keyed to the carrier to align/orient the charges’ [Ex. 1007 at 15], teaching that Rogman’s outer gun carrier is connected to the first end of the TSA (what Rogman calls the bulkhead) via the keys in the carrier.” Pet. 43 (alteration by Petitioner). Further, Petitioner states, “Rogman adds that ‘[t]he first bulkhead 114 can be disposed on . . . the first end 104 of the carrier 102” (Ex. 1005, 3:19–20) as shown in the annotated version of the portion of Figure 1 of the Rogman Provisional above. Pet. 43–44 (alteration by Petitioner).

After the filing of the Preliminary Response, in which Patent Owner argued that “connected to” means “joined or coupled in a manner that resists separation and not merely by physical contact,” Petitioner was granted a Preliminary Reply to address this “unexpected definition” (Ex. 3001 at 4), and Patent Owner was granted a Preliminary Sur-reply to respond. *See* Prelim. Reply 7–10; Prelim. Sur-reply 7–10. Petitioner presents several arguments as to why “Rogman” allegedly satisfies the “connected to” limitation even under Patent Owner’s proposed construction. To further develop the record on this issue, we address each of the arguments below.

First, Petitioner argues that the “Rogman Provisional says the ‘[b]ulkhead is held between two carriers when they are threaded together’” (Ex. 1007 at 14) and asserts that “[a] ‘held’ bulkhead is one that ‘resists separation’” as required under Patent Owner’s proposed construction. Prelim. Reply 8 (first alteration by Petitioner). Patent Owner responds that “neither Rogman reference shows a second outer gun carrier at all, much less the configuration of components or their function between connected gun carriers.” Prelim. Sur-reply 8. This argument does not show a deficiency in Petitioner’s position; although the figures of the Rogman Patent and the Rogman Provisional do not *show* two gun carriers, the sentence quoted by Petitioner shows that the Rogman Provisional, at least, verbally discloses the concept of “two carriers” being “threaded together.” Ex. 1007 at 14.¹⁸

Although Patent Owner appears correct that neither the Rogman Patent nor the Rogman Provisional expressly discuss the interface of the

¹⁸ In the context of claim 9, Petitioner also discusses how the Rogman Patent allegedly discloses connecting a second gun carrier. Pet. 53–54.

identified “tandem seal adapter”—the “bulkhead” in the Rogman Provisional and seal 130/330 in the Rogman Patent—and the identified “first outer gun carrier,” as discussed in the claim construction section as to the “connected to” limitation (*see supra* § II.F.2), the ’697 patent does not discuss that interface either. On the current record, we view this disclosure of the presence of two gun carriers, with the identified “tandem seal adapter” “held between two carriers” as adequately showing that the Rogman Provisional satisfies the “connected to” limitation. Specifically, we agree, at this stage of the proceeding, with Petitioner’s statement that “[a] ‘held’ bulkhead is one that ‘resists separation’” between the “outer gun carrier” and the “first end of the tandem seal adapter” even if another structure (e.g., a second gun carrier) provides such functionality. *See* Prelim. Reply 8. Stated differently, we do not view the “connected to” limitation, at this stage of the proceeding, as requiring that the interface between the “first outer gun carrier” and the “first end of the tandem seal adapter” alone provides the function of “resist[ing] separation,” as required under Patent Owner’s proposed construction. *See* Prelim. Resp. 30.

In its fifth argument, Petitioner states that “Rogman’s bulkheads show the exact same o-ring connections to the outer gun carriers as the TSA embodiments in the ’697 Patent” and argues that “Patent Owner admits that the “connected to” limitation “can be achieved by . . . o-rings.” Prelim. Reply 9 (quoting Prelim. Resp. 30) (alteration by Petitioner). Patent Owner responds by questioning whether the Rogman Patent and Rogman Provisional disclose o-rings outside the identified “tandem seal adapter.” *See* Prelim. Sur-reply 10. At this stage, we are persuaded by Petitioner’s position that the annotated Figures on page 9 of the Preliminary Reply show

similar configurations in the Rogman Patent, the Rogman Provisional, and the '697 patent as to the o-rings, which Patent Owner appears to state satisfies the “connected to” limitation. *See* Prelim. Resp. 30. As to Patent Owner’s assertion that this argument by Petitioner is untimely (Prelim. Sur-reply 10), we view it as in response to the claim construction issues in the Preliminary Response. *See, e.g.,* Ex. 3001.

We also provide additional guidance to the parties as to other arguments by Patent Owner in the briefing. As to Petitioner’s second argument (Prelim. Reply 8), we agree with Patent Owner, at this stage of the proceeding, that the term “bulkhead” is used differently in the Rogman Patent and the '697 patent (Prelim. Sur-reply 8–9). As to Petitioner’s third argument (Prelim. Reply 8–9), we agree with Patent Owner, at this stage of the proceeding, that the relied-upon statements in the Rogman Patent do not support that the Rogman Patent discloses the “connected to” limitation (Prelim. Sur-reply 9–10). As to Petitioner’s fourth argument (Prelim. Reply 9), we agree with Patent Owner, at this stage of the proceeding, that the statement that the “bulkhead [is] keyed to the carrier” to “centralize” the loading tube and “align/orient the charges” (Ex. 1007 at 13, 15, Fig. 1) does not show that the Rogman Provisional describes the “connected to” limitation (Prelim. Sur-reply 10). *See also* Prelim. Resp. 64–65 (also discussing the “keyed” disclosures).

For these reasons, at this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that the Rogman Patent and the Rogman Provisional disclose the “connected to” limitation.

(3) The “Seal” Limitation

Element 1.f recites, among other aspects, a “tandem seal adapter . . . configured to provide a seal between the detonator and an environment on the second end of the tandem seal adapter.” Ex. 1001, 11:44–47 (the “‘seal’ limitation”). For this limitation, Petitioner highlights the disclosure in the Rogman Provisional that the “bulkheads have feedthroughs that thread into the bulkhead . . . [so t]hey hold pressure in both directions.” Pet. 49–50 (citing Ex. 1007 at 8, 14, Fig. 1) (alterations in original). As to the Rogman Patent, Petitioner states it discloses that “[t]he first and second bulkheads 114, 116 . . . can isolate the loading tube 110 from fluids external to the loading tube 110 (e.g., wellbore fluids).” Pet. 49 (quoting Ex. 1005, 3:22–24) (alterations in original). Petitioner also refers to the discussion of element 1.b and states that “Rogman’s detonator is in the loading tube behind the TSA and pressure bulkhead.” Pet. 50 (citing Parrott Decl. ¶¶ 138–152).

Patent Owner presents several arguments as to why neither the Rogman Patent nor the Rogman Provisional discloses the “seal” limitation. *See* Prelim. Resp. 65–68. First, Patent Owner contends that “[t]he Rogman Provisional does not show or describe at all any seal or sealing function of the bulkhead.” *Id.* at 66. This argument does not identify a deficiency in Petitioner’s position because, although Patent Owner highlights the disclosure regarding the “centralizing functions” (*id.*), Patent Owner does not address the disclosure, highlighted by Petitioner, that the “bulkheads have feedthroughs that thread into the bulkhead . . . [so t]hey hold pressure in both directions” (Pet. 49–50 (citing Ex. 1007 at 8, 14, Fig. 1) (alteration in original)). We view this disclosure as showing sufficiently, at this stage of

the proceeding, that the Rogman Provisional describes the “seal” limitation because if the coaxial feedthroughs in the bulkheads “hold pressure in both directions,” the bulkhead must also be holding pressure, which, at this stage, appears to satisfy the requirement to be “configured to provide a seal.” This understanding is supported by the testimony of Dr. Parrott, who reaches a similar conclusion based on this disclosure in the Rogman Provisional. Parrott Decl. ¶ 150, *cited at* Pet. 50. As to Petitioner’s reliance on the disclosure in the Rogman Provisional that “the bulkhead [can be] keyed to the carrier” (Pet. 49 (quoting Ex. 1007 at 15) (alteration by Petitioner)), we agree with Patent Owner’s reasoning, at this stage of the proceeding, that this disclosure does not imply a sealing function that would satisfy the “seal” limitation (*see* Prelim. Resp. 67–68).

At this stage of the proceeding, we also view the relied-upon statement as sufficiently showing that the Rogman Patent satisfies the “seal” limitation. Discussing Figure 1, the Rogman Patent discloses that “[t]he first and second bulkheads 114, 116 [(i.e., the identified “tandem seal adapter”)] can isolate the loading tube 110 from fluids external to the loading tube 110 (e.g., wellbore fluids).” Pet. 49 (quoting Ex. 1005, 3:22–24) (alteration by Petitioner). If the bulkheads “isolate” loading tube 110—which is inside gun carrier 102 (*see* Ex. 1005, Fig. 1)—from “wellbore fluids,” the same bulkheads would also perform the function required of the “seal” limitation. This understanding is supported by the testimony of Dr. Parrott, who reaches a similar conclusion based on this disclosure in the Rogman Patent. Parrott Decl. ¶¶ 148–151, *cited at* Pet. 50. Patent Owner does not address this disclosure in the Preliminary Response.

As to Patent Owner’s argument regarding the size of element 116 in Figure 5 of the Rogman Patent relative to loading tube 110 (Prelim. Resp. 67), the parties should develop at trial whether Figures 4 and 5 of the Rogman Patent improperly identify element 116 (ostensibly the “bulkhead”), as Patent Owner acknowledges Figure 1 does. *See* Prelim. Resp. 19 n.3; *see also* Pet. 52 (“Patent Owner . . . appreciates that 116 in Figure 1 is mislabeled as Rogman’s bulkhead”). For these reasons, at this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that the Rogman Patent and the Rogman Provisional both disclose the “seal” limitation.

(4) The Remaining Limitations of Claim 1

Patent Owner does not offer any arguments specifically addressing the remaining limitations of claim 1. *See* Prelim. Resp. 53–69. We have reviewed Petitioner’s contentions with respect to those limitations and determine that the Petition provides a sufficient showing, at this stage of the proceeding, that the Rogman Patent and the Rogman Provisional both satisfy each limitation. For the reasons above, we determine, based on the current record, that the Petition shows more likely than not that Petitioner would prevail in demonstrating that claim 1 is anticipated by the Rogman Patent.

b. Claims 2, 8–11 and 13

For dependent claims 2, 8–11 and 13, Petitioner contends that the Rogman Patent and the Rogman Provisional both disclose each limitation. Pet. 50–64. Patent Owner provides a chart of the aspects of these claims allegedly lacking and then cites to twenty-two paragraphs of the Rodgers Declaration. *See* Prelim. Resp. 68–69 (citing Rodgers Decl. ¶¶ 132–153).

Arguments and information that are not presented and developed in a brief, but instead are incorporated by reference, are not entitled to consideration, as it is improper to incorporate by reference arguments from one document into another document. 37 C.F.R. § 42.6(a)(3); *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 at 7–10 (PTAB August 29, 2014) (informative) (discussing incorporation by reference). Here, because Patent Owner’s table (Prelim. Resp. 69) does not adequately develop the arguments at issue, we will not consider them at this stage. We include claims 2, 8–11, and 13 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

J. Asserted Obviousness of Claims 9–12 Based on the Rogman Patent and Borgfeld

Petitioner asserts that claims 9–12 of the ’697 patent would have been obvious under 35 U.S.C. § 103(a) based on the Rogman Patent and Borgfeld.¹⁹ Pet. 18, 53–64. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 69–76. We first summarize aspects of Borgfeld.

1. Borgfeld

In this asserted ground, Petitioner relies on Borgfeld, in addition to the Rogman Patent (summarized above (*see* § II.I.1)). Borgfeld discloses “[a]n

¹⁹ The alleged obviousness of claims 9–11 based on the Rogman Patent and Borgfeld is in the alternative to the alleged anticipation of those claims based on the Rogman Patent alone. *See* Pet. 18, 53 (“Rogman Anticipates Claims 9–11 or, Alternatively, Rogman in View of Borgfeld Renders Claims 9–11 Obvious” (emphasis omitted)).

electrical connector module for completing an electrical connection in a wellbore device.” Ex. 1009, code (57).

Figure 9 of Borgfeld is reproduced below:

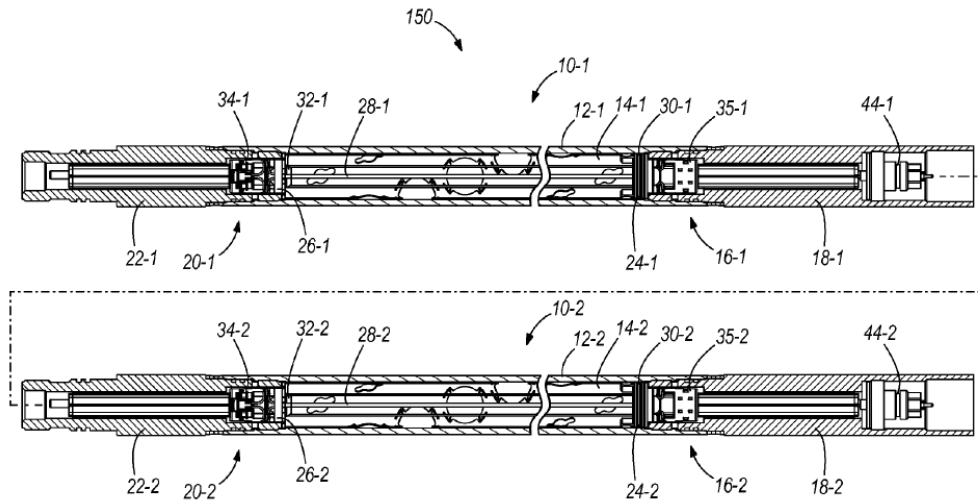


FIG. 9

Figure 9 is “a section view of an assembly of perforating guns having electrical connector modules.” Ex. 1009 ¶ 12. Specifically, Figure 9 shows an assembly 150 with a “modular connection” between first perforating gun 10-1 and second perforating gun 10-2. *Id.* ¶ 26. Borgfeld discloses that “electrical connector module 35-1 electrically connects the first end 16-1 of the first perforating gun 10-1 to the second end 20-2 of the second perforating gun 10-2.” *Id.*

Figure 2 is reproduced below:

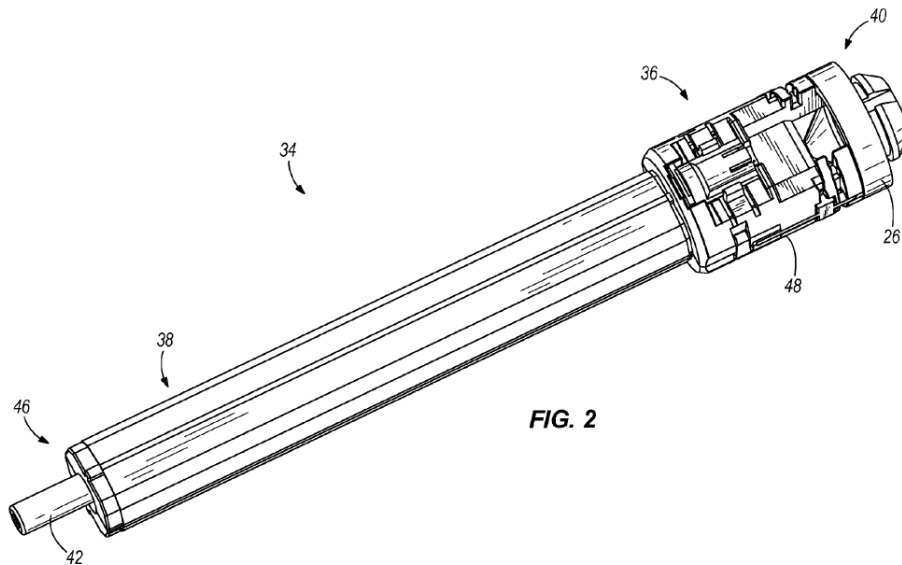


Figure 2 is a perspective view of an electrical connector module from a wellbore device. Ex. 1009 ¶¶ 4–5. Electrical connector module 34, shown in Figure 2, includes initiator housing 36 with initiator circuitry and explosive matter. *Id.* ¶ 17. Borgfeld discloses that:

A first end 40 of the connector module 34 is connected to the second end 20 of the perforating gun 10 via the loading tube adapter 26, and a second end 46 of the connector module 34 has a plug connector 42 for electrically connecting with another wellbore device, such as for example the pressure bulkhead and electrical feedthrough device 44 shown connected to the electrical connector module 35.

Ex. 1009 ¶ 17.

2. Analysis

a. Dependent Claim 9

For dependent claim 9, Petitioner contends that the proposed combination of the Rogman Patent and Borgfeld discloses each limitation. Pet. 53–59. Patent Owner (1) argues that Borgfeld lacks “a second outer gun carrier connected to the second end of the tandem seal adapter” as recited in

claim 9 (the “‘second outer gun carrier’ limitation”), (2) argues that Borgfeld lacks “a bulkhead connector element positioned within the second outer gun carrier, wherein the second pin connector end is in wireless electrical contact with the bulkhead connector element” also recited in claim 9 (the “‘bulkhead connector element’ limitation”), and (3) challenges the Petitioner’s articulated reasons to combine the Rogman Patent and Borgfeld in the manner asserted. *See* Prelim. Resp. 69–74.

(1) The “Second Outer Gun Carrier” Limitation

Claim 9 recites “a second outer gun carrier connected to the second end of the tandem seal adapter.” Ex. 1001, 12:29–31. Patent Owner argues that Borgfeld does not disclose this limitation. *See* Prelim. Resp. 72–73. This argument does not show a deficiency in the Petition, however, because Petitioner relies on *only* Rogman as disclosing this limitation, and only relies on Borgfeld (in the alternative) to address the “bulkhead connector element” limitation (as discussed in the next subsection). *See* Pet. 53–54 (stating that “Rogman discloses a second outer gun carrier connected to the second end of the TSA” and stating that, “[a]lternatively, Borgfeld more explicitly discusses its second gun’s bulkhead connection”). At this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that the Rogman Patent and the Rogman Provisional each disclose this limitation.

(2) The “Bulkhead Connector Element” Limitation

Claim 9 recites “a bulkhead connector element positioned within the second outer gun carrier, wherein the second pin connector end is in wireless electrical contact with the bulkhead connector element.” Ex. 1001, 12:31–34. In the alternative rejection based on obviousness, Petitioner relies on

Borgfeld for aspects of this limitation. *See* Pet. 54–56. Specifically, Petitioner provides an annotated version of Figure 9 of Borgfeld, which identifies, among other aspects, a “[s]econd pin connector end,” a “[w]ireless connection bulkhead connector element,” and a “[s]econd outer gun carrier.” *See* Pet. 55. According to Petitioner, “the second pin connector end on the pressure bulkhead electrical feedthrough of [element] 44-1 will wirelessly mate with the bulkhead connector element in the second gun, pin 42 of detonator module 34-2’s head that Borgfeld discloses is ‘for electrically connecting with another wellbore device.’” *Id.* (citing Ex. 1009, Figs. 2 & 9).

First, Patent Owner argues that the connection between the identified “[s]econd pin connector end” and “[w]ireless connection bulkhead connector element” is located within connected adaptors 18-1, 22-2 in Figure 9 of Borgfeld and *not* within the identified “second outer gun carrier,” as required by the first part of the “bulkhead connector element” limitation. Prelim. Resp. 73. This argument does not identify a deficiency in Petitioner’s position. We understand Petitioner to rely on Rogman for the requirement for “a bulkhead connector element positioned within the second outer gun carrier” and then rely on Borgfeld (again in the alternative) as to the requirement that “the second pin connector end is in wireless electrical contact with the bulkhead connector element.” Specifically, Petitioner discusses the location of “Rogman’s bulkhead connector element” (Pet. 54, first full paragraph), then *does not* discuss Borgfeld’s bulkhead connection as within a “second gun carrier (Pet. 54–55), then clarifies that “Rogman discloses placing the detonator module it calls the ‘initiator’ that assembly within the gun carriers rather than using adapters” (Pet. 55–56).

Second, Patent Owner argues that, “[w]ithin each perforating gun 10-1, 10-2, each of the electrical connector modules 34-1, 35-1, 34-2, 35-2 is wired to electrical wires 80, 82 of the perforating gun 10-1, 10-2 . . . and does not form a wireless electrical contact with any component.” Prelim. Resp. 73 (citing Ex. 1009 ¶ 21; Rodgers Decl. ¶ 162). This argument does not identify a deficiency in Petitioner’s position. Although modules 34-1, 35-1, 34-2, 35-2 do appear to involve wires, this argument does not address the relied-upon connection between the identified “[s]econd pin connector end” and “[w]ireless connection bulkhead connector element,” shown by the dotted line linking the two portions of structure in Figure 9 of Borgfeld, which does not appear to involve a wire—i.e., it is “wireless.” See Pet. 55 (showing an annotated version of Figure 9 of Borgfeld). At this stage of the proceeding and on the current record, we determine that Petitioner has made a sufficient showing that Borgfeld discloses this limitation.

*(3) The Reasons to Combine the Rogman Patent
and Borgfeld*

Petitioner asserts that one of ordinary skill in the art “would have been motivated to modify Rogman to use Borgfeld’s wireless detonator modules with a reasonable expectation of success, to the extent Rogman required any such modification.” Pet. 56; Pet. 56–59 (entire argument). First, Petitioner notes that the Rogman Patent and Borgfeld are assigned to a common assignee and that one of ordinary skill in the art “would be motivated to use components from the same company dealing with the very same specific technology at or around the same time as commonly sourced parts typically work together.” Pet. 56 (citing Parrott Decl. ¶ 168). Second, Petitioner contends that certain disclosures show that “Rogman specifically and explicitly contemplates modification to use a detonation module like

Borgfeld's with its 'slide in' connections." Pet. 57 (citing Parrott Decl. ¶¶ 169–172). Third, Petitioner asserts that the proposed modification would increase durability, facilitate easier assembly, and "further Rogman's goals of making the 'gun system not require[] any field wiring . . . at the wellsite.'" Pet. 57–58 (quoting Ex. 1007 at 14) (citing Parrott Decl. ¶ 173) (alterations in original). Finally, Petitioner states that one of ordinary skill in the art "would have confidence that modifying Rogman to use Borgfeld's disclosed connection—to the extent Rogman's sequential guns do not already directly mate through its pressure bulkhead PCA—would be a success." Pet. 58–59.

Patent Owner presents several arguments addressing the proposed combination. *See* Prelim. Resp. 69–71. As to the first position by Petitioner, Patent Owner argues that "each of Borgfeld, the Rogman Provisional, and the Rogman Patent is assigned to Schlumberger Technology Corporation, but the Rogman applications have no connection to Borgfeld" and that "Rogman does not include any reference to or common inventors or disclosure from Borgfeld." *Id.* at 69–70. At this stage of the proceeding, we are not persuaded by Petitioner's assertion that a common assignment would impact the reason to combine analysis. Indeed, Petitioner does not identify any case law supporting that proposition.

Next, Patent Owner argues that "Rogman" teaches eliminating gun adapters and that one of ordinary skill in the art would thus understand "Rogman" to teach away from the alleged proposed modification. *See* Prelim. Resp. 70–71 (citing Rodgers Decl. ¶¶ 155–158). This argument does not identify a deficiency in Petitioner's position because, at this stage of the proceeding, we do not understand adapters 18-1, 22-1 in Borgfeld as

part of the proposed modified device. Instead, we understand the proposed modification to include modifying the Rogman Patent with Borgfeld’s “wireless” bulkhead connection. *See* Pet. 54–56. Petitioner does not discuss adapters 18-1, 22-1 in Borgfeld, except as the location for the relied-upon “wireless” bulkhead connection. *See* Pet. 53–59.

Finally, Patent Owner asserts that one of ordinary skill in the art “would have no understanding of how to modify Rogman, with respect to connecting adjacent guns, in a manner that would either accomplish the stated goals of Rogman or achieve the claimed electrical connection assemblies” because, according to Patent Owner, “Rogman does not contain any disclosure regarding connecting two or more perforating guns, except that the ‘[c]arriers screw directly into each other (no adapters in gun string).’” Prelim. Resp. 71 (citing Ex. 1007 at 13; Rodgers Decl. ¶ 158; Prelim. Resp. 12–20, 68–69) (alteration by Patent Owner). This argument seeks to rely on a prior argument from a table (Prelim. Resp. 69), which does not adequately develop the issue. At this stage, we will not consider this argument further.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 9 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

b. Claim 10

For dependent claim 10 (which depends from claim 9), Petitioner contends that the proposed combination of the Rogman Patent and Borgfeld discloses each limitation. Pet. 59–61. Patent Owner does not present any

arguments specifically addressing claim 10. We include claim 10 in the context of this asserted ground in the instituted inter partes review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

c. Claim 11

For dependent claim 11, Petitioner contends that the proposed combination of the Rogman Patent and Borgfeld discloses each limitation. Pet. 61–64. Patent Owner presents two arguments for why Borgfeld does not satisfy claim 11, which recites: “The electrical connection assembly of claim 10, wherein the first detonator includes a through wire connector element and a ground connector element.” Ex. 1001, 12:39–41; *see* Prelim. Resp. 74–75.

Petitioner states that Borgfeld discloses that “electrical connector 96 can be electrically connected to the noted initiator circuitry and/or to the plug connector 42 for connecting to another device in the wellbore.” Pet. 63 (quoting Ex. 1009 ¶ 23). Further, Petitioner states that “Borgfeld does not explicitly disclose a ground connector element; however, as Mr. Parrott already explained, the minimum wires for switched detonators are the hot and ground wires, so Borgfeld inherently has a ground.” *Id.* (citing Parrott Decl. ¶¶ 192–196).

Patent Owner first argues that “Borgfeld does not disclose a detonator including a through wire connector element and a ground connector element that do not use wires to make necessary connections.” Prelim. Resp. 74–75. This argument does not identify a deficiency with Petitioner’s position as Patent Owner has not adequately explained why claim 11 requires that these aspects “not use wires to make necessary connections.” *Id.* at 74.

Second, Patent Owner argues that “Borgfeld does not disclose a ground connection at all.” Prelim. Resp. 75 (citing Rodgers Decl. ¶ 167). This argument, however, does not address Petitioner’s position that a ground is *inherently* present in the relied-upon disclosures of Borgfeld. *See* Pet. 63.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 11 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

d. Claim 12

For dependent claim 12, Petitioner contends that the proposed combination of the Rogman Patent and Borgfeld discloses each limitation. Pet. 64. Patent Owner argues that Borgfeld does not satisfy claim 12, which recites: “The electrical connection assembly of claim 10, wherein the bulkhead connector element is a portion of a detonator head portion of the second detonator.” Ex. 1001, 12:42–44; *see* Prelim. Resp. 75–76.

For claim 12, Petitioner refers back to the discussion of claim 10. *See* Pet. 64 (citing Parrott Decl. ¶¶ 181–185, 198). Patent Owner argues that “Borgfeld’s electrical connection modules (34, 35) are wired to electrical wires (80, 82) of the perforating gun (10)” and that “Borgfeld does not disclose that the electrical connection modules (34, 35) make wireless electrical contact within the perforating gun (10).” Prelim. Resp. 75. This argument does not identify a deficiency with Petitioner’s position as Patent Owner has not adequately explained why claim 12 requires that these aspects use “wireless” connections.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 12 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

K. Asserted Obviousness of Claims 3–5, 7, 14, 15, and 21 Based on Rogman and Deere

Petitioner asserts that claims 3–5, 7, 14, 15, and 21 of the '697 patent would have been obvious under 35 U.S.C. § 103(a) based on the Rogman Patent and Deere. Pet. 18, 64–83. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 76–89. We first summarize aspects of Deere.

1. Deere

In this asserted ground, Petitioner relies on Deere, in addition to the Rogman Patent (summarized above (*see* § II.I.1)). Deere discloses couplers with electrical connectors for use in coupling downhole tools. Ex. 1008, code (57). Figure 10A of Deere is reproduced below:

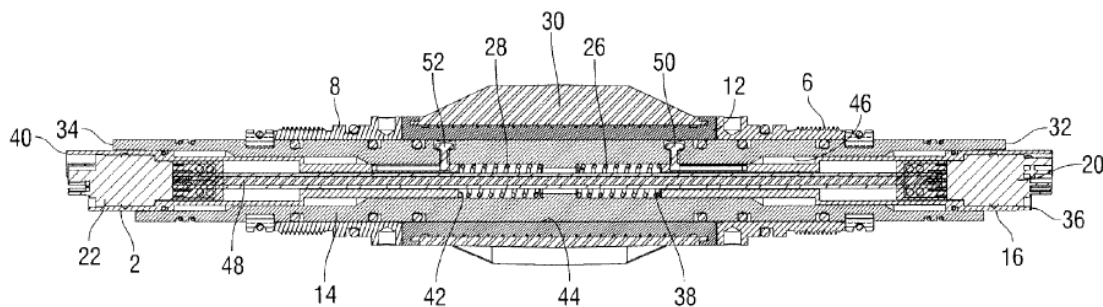


FIG. 10A

Figure 10A is an end view of a coupler. Ex. 1008 ¶¶ 27–28. The depicted coupler includes fin housing 12, shaft housing 14, first connector housing 16, second connector housing 2, and springs 26, 28. *Id.* ¶¶ 73–74.

Electrical connector 20 is located at an exposed end 36 of first connector housing 16, and electrical connector 22 is located at an exposed end 40 of second connector housing 2. *Id.* ¶ 73. Deere discloses that “[f]irst electrical connector 20 is in electrical communication with second electrical connector 22 through electrical line 48.” *Id.*

Figure 14 of Deere is reproduced below:

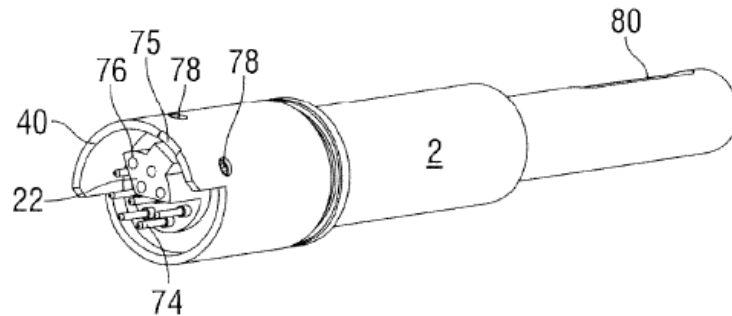


FIG. 14

Figure 14 is an isometric view of a connector housing with a half-circular key configurations. Ex. 1008 ¶ 34. The depicted connector includes connector housing 2 with electrical connector 22 having six electrical pins 74 and four sockets 76. *Id.* ¶ 76.

2. Analysis

a. Dependent Claim 3

For dependent claim 3, Petitioner contends that the proposed combination of the Rogman Patent and Borgfeld discloses each limitation. Pet. 64–73. Patent Owner (1) argues that Deere lacks “a spring loaded contact pin” and (2) challenges the articulated reasons to combine Rogman and Deere in the manner asserted. *See* Prelim. Resp. 76–82.

(1) The Subject Matter of Claim 3

Claim 3 recites: “The electrical connection assembly of claim 1, wherein the pin connector assembly further comprises: a spring loaded

contact pin.” Ex. 1001, 11:51–53. According to Petitioner, “Deere discloses multiple pins and pin receptacles 22 (i.e., pin connectors) in its connector housing 2 (i.e., an assembly) shown in Figure 10A, because, for instance, item 22 has six pins labeled 74 and four sockets labeled 76 as shown.”

Pet. 65 (citing Ex. 1008 ¶ 76, Fig. 14). Petitioner adds that “[t]hese ‘electrical connectors may each be supported in connector housings disposed [read: loaded] with springs.’” *Id.* (quoting Ex. 1008, code (57)) (alteration by Petitioner).

Patent Owner argues that “Deere discusses a spring loaded modular electrical connector including, e.g., an electrical connector 20, 22 supported by a housing 16, 2” (citing Rodgers Decl. ¶ 181) and that Deere fails to disclose one or more “spring connector end interfaces comprising contact pins 126A, 126B, linked to coil springs 128A, 128B” (citing Ex. 1001, 8:34–35). Prelim. Resp. 81.

At this stage of the proceeding, we question Petitioner’s position as to the recited subject matter. Claim 3 requires that the “contact pin” is “spring loaded” but Petitioner has not adequately explained how the identified “contact pin[s]”—such as pin 74 in Figure 14 (*see* Pet. 65)—are “spring loaded.” Instead, the springs relied upon by Petitioner are used to position the identified “pin connector assembly”—i.e., connector housing 2 in Deere. *See id.* (citing Ex. 1008 ¶ 29). The parties should develop this issue at trial.

*(2) The Reasons to Combine the Rogman Patent
and Deere*

Petitioner asserts that one of ordinary skill in the art “would have been motivated to modify Rogman to make Rogman’s pin connectors spring-loaded as taught by Deere with a reasonable expectation of success.”

Pet. 66; Pet. 66–73 (entire argument). According to Petitioner, “Deere

explains that Rogman’s string configuration, where the gun ‘[c]arriers screw directly into each other’ and where the ‘[b]ulkhead is held between two carriers when they are threaded together’ [Ex. 1007 at 13–14] is suboptimal” and Deere also “explains that Rogman’s electrical connection problems may be mitigated by making the connections spring-loaded.” Pet. 66–67 (alteration by Petitioner). Petitioner asserts that “Deere also teaches that the ability to make the electrical connection prior to threading provides the added benefit of reducing the time necessary to put multiple assemblies together and reduces the need for operator training” and that one of ordinary skill in the art “would be motivated to incorporate spring-loaded pins in Rogman’s PCA to achieve these benefits.” Pet. 68 (citing Ex. 1008 ¶¶ 10–14, 96; Parrott Decl. ¶¶ 223–230). Petitioner adds that the proposed modification would not “negatively affect[] Rogman’s apparatus” and that “it would merely be a design choice for [one of ordinary skill in the art] to modify Rogman in view of Deere to use a similar, but symmetrical, configuration whereby the springs are conductors through Rogman’s conducting intermediate pressure seal body.” Pet. 68, 72.

Patent Owner first argues that one of ordinary skill in the art would not modify the Rogman Patent with Deere as proposed because “[n]either Rogman nor Deere contemplates or suggests how spring loaded modular electrical connectors could be implemented with a wired connection.” Prelim. Resp. 76 (citing Rodgers Decl. ¶ 172). An express teaching, suggestion, or motivation in the prior art, however, is not a requirement for an obviousness determination. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–19 (2007) (holding that when the teaching-suggestion-motivation test is applied as a rigid formula, it is incompatible with precedent).

Patent Owner also argues that one of ordinary skill in the art would not have modified the Rogman Patent with Deere because (1) “Rogman does not suffer from the same challenges as the Deere system” (Prelim. Resp. 77), (2) the system and connections in Deere “are subject to different shock and vibration requirements than electrical connections in perforating operations” (*id.* at 78), and (3) “neither Rogman nor Deere provides any teaching of how a bulkhead that is merely a passage for a cable or wire, as in Rogman, may be modified to incorporate an entire spring loaded connector assembly” (*id.*). At this stage of the proceeding, these arguments raise numerous factual issues not adequately developed in the record. The parties should develop these issues as appropriate at trial.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 3 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

b. Claims 4 and 5

For dependent claims 4 and 5, Petitioner contends that the proposed combination of the Rogman Patent and Deere discloses each limitation. Pet. 74–75. Specifically, Petitioner relies on Deere as disclosing the “first spring loaded contact pin” in claim 4 and the “second spring loaded contact pin” in claim 5. *See* Pet. 74–75. Patent Owner argues that Deere does not disclose a “spring loaded contact pin” for the same reasons discussed as to claim 3. *See* Prelim. Resp. 82–83. For the same reasons discussed above (*see supra* § II.K.2.a.1), at this stage of the proceeding, we question Petitioner’s position as to the subject matter of claims 4 and 5.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claims 4 and 5 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

c. Claim 14

For independent claim 14, Petitioner contends that the proposed combination of the Rogman Patent and Deere discloses each limitation. Pet. 76–81. Patent Owner argues that the relied-upon combination lacks (1) a “pin connector assembly” overall and (2) “[a] pin connector assembly [that] includes a spring loaded contact pin.” *See* Prelim. Resp. 85–87.

(1) Pin Connector Assembly

In addressing claim 14, Petitioner relies on modifying the alleged “pin connector assembly” in the Rogman Patent, stating that one of ordinary skill in the art “would modify Rogman’s PCA as taught by Deere to have a spring-loaded contact pin extending from the body of the seal (i.e., bulkhead) in the directions away from and towards the downhole tool, with Rogman’s shortened feedthrough rod in the middle.” Pet. 78; *see also* Pet. 46–48 (discussing how Rogman allegedly discloses a “pin connector assembly”).

Patent Owner first relies on the discussion as to claim 1 for why Rogman allegedly does not disclose a “pin connector assembly.” *See* Prelim. Resp. 85 (citing *id.* at 54–63). For the same reasons discussed above, however (*see supra* § II.I.2.a.2), we determine that Petitioner has made a sufficient showing at this stage that the Rogman Patent and the Rogman Provisional both disclose the “pin connector assembly” limitation.

Patent Owner also argues that “[a] modular electrical connector as discussed by Deere is not a pin connector assembly,” in part, because “the modular electrical connector discussed by Deere includes an ‘industry standard’ pin/socket connector in which various pins and sockets extending from a housing 16, 2 and their complementary connectors must be aligned before inserting the delicate pins into the sockets without damaging them.” Prelim. Resp. 86 (citing Rodgers Decl. ¶ 191; Ex. 1008 ¶ 11–13). This argument does not identify a deficiency in Petitioner’s position, however, because, as discussed above, Petitioner relies on the Rogman Patent, not Deere, for the overall “pin connector assembly.”

(2) Spring Loaded Contact Pin

Like claim 3, claim 14 requires that the “pin connector assembly” includes a “spring loaded contact pin.” Ex. 1001, 13:1–3. For this requirement, Petitioner relies on the same arguments as to claims 3–5. *See* Pet. 80–81 (citing Parrott Decl. ¶¶ 148–152, 199–257, 274). Patent Owner refers to its arguments addressing claim 3 for why Deere does not disclose a “spring loaded contact pin.” *See* Prelim. Resp. 87. For the reasons discussed above as to claim 3 (*see supra* § II.K.2.a.1), at this stage, we question whether Deere discloses a “spring loaded contact pin.”

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 14 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

d. Claims 7 and 21

For dependent claims 7 and 21, Petitioner contends that the proposed combination of the Rogman Patent and Deere discloses each limitation. Pet. 75–76, 82–83. Patent Owner argues that Deere lacks two recited requirements. *See* Prelim. Resp. 83–85. Claim 7 and claim 21 both recite, in relevant part, that “the pin connector assembly further comprises: . . . an inner body” and recite “each of the first biasing member and the second biasing member exerting a force on the inner body.” Ex. 1001, 12:13–25, 14:12–24.

Addressing claim 7 and referring to an annotated version of Figure 10A of Deere (Pet. 76), Petitioner states that, although “Deere does not textually describe the inner body, as shown below the shoulders of the pressure housing 14 represent a cylindrical body with a distinctly different profile than the through-bore of the pressure housing and are clearly ‘bodies’ positioned between the springs for the purpose of backing up or resisting the forces exerted by the springs.” Pet. 75–76 (citing Parrott Decl. ¶ 258; Ex. 1008, Fig. 10A). According to Petitioner, the identified “spring biasing members would exert a force on the inner body as they are sandwiched between the inner body and the pin structures and press on the inner body to keep the pins extending past the TSA pressure housing.” Pet. 76. Petitioner relies on the same positions for claim 21. *See* Pet. 82–83.

Patent Owner argues that “[n]either the ‘shoulder’ portions of the pressure housing 14 nor the portion of the electrical line 48 passing between are an ‘inner body’ of a pin connector” because “[n]one of the embodiments in Deere show or describe any component of a pin connector assembly between the springs 26, 28.” Prelim. Resp. 84.

This argument does not show a deficiency in Petitioner’s position at this stage of the proceeding. Based on the discussion of claims 7 and 21, we understand Petitioner to rely on various structures shown in, for example, Deere Figure 10A for aspects of the recited “pin connector assembly.” *See* Pet. 76 (identifying various aspects of claim 7). With that understanding, Patent Owner has not adequately explained why the identified “inner body”—the “shoulders” of pressure housing 14—are not a “cylindrical body” within the “pin connector assembly,” as asserted by Petitioner. Pet. 75. To the extent Patent Owner implicitly asserts the “inner body” must be a *separate* structure, Patent Owner should explain why at trial. *See, e.g.,* Prelim. Resp. 84 (showing Figure 32 of the ’697 patent with an “inner body” colored separately from the rest of the structure).

Patent Owner also argues that the relied-upon combination “fails to disclose ‘each of the first biasing member and the second biasing member exerting a force on the inner body,’” as required by these claims, but Patent Owner does not adequately develop this argument. Prelim. Resp. 85. At this stage, this argument appears to relate to the prior argument that Deere does not disclose an “inner body.” The parties may wish to develop this issue at trial.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claims 7 and 21 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

e. Claim 15

For dependent claim 15, Petitioner contends that the proposed combination of the Rogman Patent and Deere discloses the additional limitation. Pet. 81–82. Patent Owner argues that Rogman in view of Deere does not. *See* Prelim. Resp. 87–89. Claim 15 recites: “The electrical connection assembly of claim 14, wherein it is not possible to interrupt the electrical signal between the first end and the second end of the pressure bulkhead.” Ex. 1001, 13:4–7.

Petitioner states:

Rogman as modified by Deere teaches this limitation, because[] the PCA with an electrical line would be contiguous as discussed with respect to Claim 2, or, alternatively, using springs that mechanically and electrically connect the spring-loaded pins would be very similar to the '697 Patent's configuration, and, therefore, it would not be “possible to interrupt the electrical signal between the first end and the second end of the pressure bulkhead,” at least to the same extent the '697 Patent does.

Pet. 81 (citing Parrott Decl. ¶¶ 275–277).

Patent Owner argues that the additional limitation is not satisfied because the “modular electrical connectors including, e.g., an electrical connector 20, 22 supported by a housing 16, 2” in Deere could be disassembled by removing screws 58, 78 (*see* Ex. 1008, Figs. 12, 14), “thereby interrupting an electrical signal between the electrical connectors 20, 22.” Prelim. Resp. 88 (citing Rodgers Decl. ¶ 199).

As an initial matter, for the reasons discussed above (*see supra* § II.G), we determine, based on the current record, that the Petition shows more likely than not that Petitioner would prevail in demonstrating that claim 15 is invalid for lack of enablement. Setting that aside, however, this argument does not identify a deficiency in Petitioner's position, because, as

discussed above (*see supra* § II.K.2.c.2), we understand Petitioner to rely on the Rogman Patent, not Deere, for the overall “pin connector assembly” in the context of claims 14 and 15. Thus, we do not understand the structures discussed by Patent Owner—e.g., connectors 20, 22 and screws 58, 78 in Deere—to be present in the modified device of the Rogman Patent and Deere. The parties may wish to develop this issue at trial.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 15 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

L. Asserted Obviousness of Claims 16–18 Based on Rogman, Deere, and Borgfeld

Petitioner asserts that claims 16–18 of the ’697 patent would have been obvious under 35 U.S.C. § 103(a) based on the Rogman Patent, Deere, and Borgfeld. Pet. 18, 83–87. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 89–94.

1. Asserted References

In this asserted ground, Petitioner relies on the Rogman Patent (summarized above (*see* § II.I.1)), Deere (summarized above (*see* § II.K.1)), and Borgfeld (summarized above (*see* § II.J.1)).

2. Analysis

a. Dependent Claim 16

For dependent claim 16, Petitioner contends that the proposed combination of the Rogman Patent, Deere, and Borgfeld discloses each limitation. Pet. 83–86. Patent Owner provides two arguments regarding the

subject matter of claim 16 and challenges Petitioner's articulated reasons to combine in the manner asserted. *See* Prelim. Resp. 89–94.

(1) The Subject Matter of Claim 16

Claim 16 recites: “The electrical connection assembly of claim 14, wherein the detonator comprises: a detonator head that includes a signal-in connector element configured to be contacted by an inner contact pin of the pin connector assembly.” Ex. 1001, 13:8–12. For this additional limitation, Petitioner identifies a portion of a “detonator module” in Borgfeld as a “detonator head” and identifies an alleged “signal-in connector element.” *See* Pet. 83–84 (providing an annotated version of Figure 1 of Borgfeld).

First, Patent Owner argues that “Rogman in view of Deere fails to disclose a pin connector assembly or a detonator electrically connected to a pin connector assembly” as recited in independent claim 14, and thus “Rogman in view of Deere and Borgfeld fails to disclose ‘a detonator head that includes a signal-in connector element configured to be contacted by an inner contact pin of the pin connector assembly’” as recited in claim 16. For the reasons discussed above (*see supra* § II.K.2.c.1), we determine that Petitioner has made a sufficient showing at this stage of the proceeding that the Rogman Patent and the Rogman Provisional both disclose the “pin connector assembly” limitation.

Second, Patent Owner argues that the identified “detonator” in Borgfeld does not satisfy the requirement in independent claim 14 that the “detonator” be in a “downhole tool” because, according to Patent Owner, “each of the electrical connection modules is positioned within an adapter and not within a perforating gun.” Prelim. Resp. 92 (citing Rodgers Decl. ¶ 209). This argument does not identify a deficiency in Petitioner's position

at this stage of the proceeding. As an initial matter, for reasons similar to those discussed above (*see supra* II.J.2.a.3), we do not understand adapters 18-1, 22-1 in Borgfeld as part of the proposed modified device. Instead, we understand the modified device to include the identified structures *from within* Borgfeld’s adapter. *See, e.g.*, Pet. 83–84 (discussing the subject matter of claim 16, but not discussing Borgfeld’s adapter). Moreover, to the extent Petitioner *does* rely on Borgfeld’s adapter, the record is not adequately developed as to why that structure is not part of a “downhole tool.” Neither party proposes a construction for that phrase and the ’697 patent uses that phrase only in the claims. The parties should develop these issues at trial as necessary.

*(2) The Reasons to Combine the Rogman Patent,
Deere, and Borgfeld*

Petitioner argues that one of ordinary skill in the art “would have been motivated to modify Rogman to make its pin connectors spring-loaded as taught by Deere and to further modify Rogman with Borgfeld’s modular slide in detonator module with a reasonable expectation of success, because the motivations concerning Rogman in view of Deere” as discussed above (*see supra* § II.K.2.a.2) “and Rogman in view of Borgfeld” as discussed above (*see supra* § II.J.2.a.3) “deal with different parts of Rogman, and, hence, are independently valid.” Pet. 84–85. According to Petitioner, “the motivations remain, and one modification does not affect the other.” Pet. 85 (citing Parrott Decl. ¶¶ 287–288). Patent Owner summarizes several prior arguments addressing the proposed reasons to combine the Rogman Patent and Borgfeld and to combine the Rogman Patent and Deere. *See* Prelim. Resp. 89–91. We address these above. *See supra* §§ II.J.2.a.3; II.K.2.a.2.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 16 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

b. Claim 17

For dependent claim 17, Petitioner contends that the proposed combination discloses each limitation. Pet. 86. Patent Owner relies on the same arguments presented as to dependent claim 11. *See Prelim. Resp.* 93. For the same reasons discussed above (*see supra* § II.J.2.c), those arguments do not identify a deficiency in Petitioner’s position.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 17 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

c. Claim 18

For dependent claim 18, Petitioner contends that the proposed combination discloses each limitation. Pet. 86–87. Patent Owner presents three arguments as to claim 18, which recites: “The electrical connection assembly of claim 16, wherein the detonator further includes a detonator body extending from the detonator head and further wherein the detonator is not physically joined to the electrical connection assembly.” Ex. 1001, 13:17–21; *see Prelim. Resp.* 93–94. Petitioner identifies element 36 in Borgfeld as the “detonator body.” Pet. 86–87; *see also* Pet. 13 (providing an annotated version of Figure 2 of Borgfeld).

First, Patent Owner relies on the arguments provided as to claim 16, from which claim 18 depends. *See* Prelim. Resp. 93–94. Second, Patent Owner states that Borgfeld’s “electrical connection module 35-1 is connected to the electrical feedthrough device 44 within the adapter 18-1 between perforating guns 10-1, 10-2.” *Id.* at 94 (citing Ex. 1009 ¶ 17, Figs. 1, 9; Rodgers Decl. ¶ 216. This argument does not identify a deficiency in Petitioner’s position as it does not adequately identify the claim language at issue or explain why Borgfeld does not satisfy the language. The Rodgers Declaration merely restates the same. *See* Rodgers Decl. ¶ 216.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 18 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

M. Asserted Obviousness of Claims 6, 19, and 20 Based on Rogman, Deere, and Burton

Petitioner asserts that claims 6, 19, and 20 of the ’697 patent would have been obvious under 35 U.S.C. § 103(a) based on the Rogman Patent, Deere, and Burton. Pet. 18, 88–94. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 94–98. We first summarize aspects of Burton.

1. Burton

In this asserted ground, Petitioner relies on Burton, in addition to the Rogman Patent (summarized above (*see* § II.I.1)) and Deere (summarized above (*see* § II.K.1)). Burton discloses “systems, methods, and apparatus

for communicating detonation and control signals in a perforating gun assembly.” Ex. 1004 ¶ 3.

Figure 6 is reproduced below:

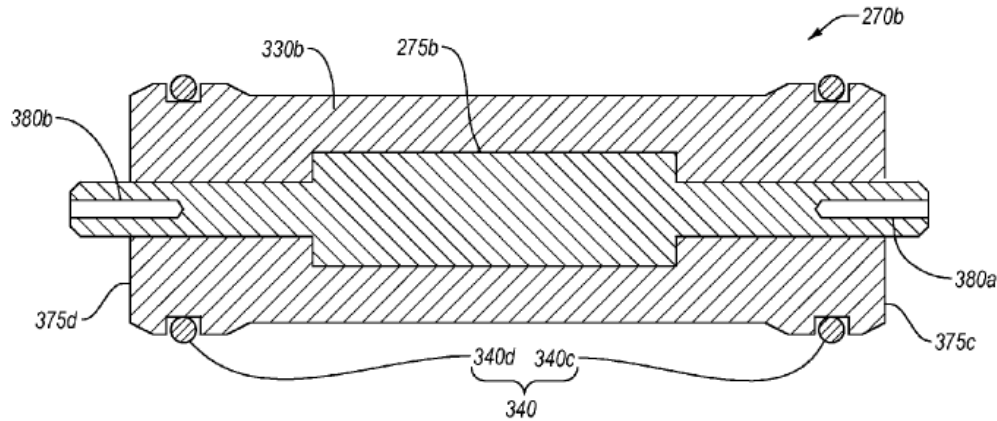


FIG. 6

Figure 6 depicts “a cross-sectional view of a pass-through bulkhead connection switch.” Ex. 1004 ¶ 25. Specifically, Figure 6 shows conductive pin 275b along with openings 380a, 380b on opposing ends. *Id.* ¶ 82. Burton discloses that, “in some embodiments, the conductive pin 275 can be continuous and uninterrupted.” *Id.* ¶ 64.

2. Analysis

a. Dependent Claim 6

For dependent claim 6, Petitioner contends that the proposed combination discloses each limitation. Pet. 88–93. Patent Owner presents one argument as to the subject matter of claim 6 and challenges Petitioner’s articulated reasons to combine the Rogman Patent, Deere, and Burton in the manner asserted. *See* Prelim. Resp. 94–98.

(1) The Subject Matter of Claim 6

Claim 6 depends from claim 1 and adds, in relevant part: “a biasing member is positioned within the pressure bulkhead and configured for

exerting a force on the first pin head portion or the second pin head portion” (“the ‘biasing member’ limitation”). Ex. 1001, 12:10–12. Petitioner identifies element 276a in Burton as a “first head portion,” identifies element 276c as a “second head portion,” and highlights disclosure that these structures need not be “continuous and uninterrupted.” Pet. 88–89 (citing Ex. 1004 ¶ 64). As to the “biasing member,” Petitioner states that “[w]hile Burton does not disclose a biasing member (i.e., spring) exerting a force on one of the pin heads, [one of ordinary skill in the art] would modify Burton’s PCA to use Deere’s spring-biased pins for use in Rogman’s TSA” as discussed in the context of the ground asserting obviousness of claims 3–5, 7, 14, 15, and 21 based on the Rogman Patent and Deere. Pet. 90.

Patent Owner argues that Burton does not disclose the “biasing member” limitation because element 275 in Burton is “an integral or monolithic material” and that “Burton does not teach or suggest any configuration of the conductive pin (275) in which separate pin head portions, or segments generally, are separated by a separate component or spring biased, and/or include pin head portions.” Prelim. Resp. 97–98 (citing Ex. 1004²⁰ ¶¶ 63, 64; Rodgers Decl. ¶¶ 225–226).

This argument does not identify a deficiency in Petitioner’s position. At this stage, we view the record as supporting Petitioner’s understanding of Burton as disclosing embodiments in which conductive pin 275 is *not* a monolithic structure. See Ex. 1004 ¶ 64 (“Additionally, in some embodiments, the conductive pin 275 can be continuous and uninterrupted.”); *see also* Parrott Decl. ¶ 302 (discussing this disclosure in

²⁰ We understand Patent Owner’s citation to “Ex. 1003” to have been intended as a citation to Burton, Exhibit 1004. See Prelim. Resp. 97.

Burton), *cited at* Pet. 90. Moreover, Patent Owner does not address Petitioner’s reliance on “Deere’s spring-biased pins for use in Rogman’s TSA,” as explained in the discussion of claim 6. Pet. 90.

*(2) The Reasons to Combine the Rogman Patent,
Deere, and Burton*

Petitioner contends that one of ordinary skill in the art “would have been motivated to modify Rogman to make its pin connectors spring-loaded as taught by Deere due to the many advantages such springs offer” as discussed in the context of the ground asserting obviousness of claims 3–5, 7, 14, 15, and 21 based on the Rogman Patent and Deere and would “further recognize that additionally modifying the Rogman/Deere combination to have pins with larger heads in the bulkhead as taught by Burton has advantages that are particularly synergistic with Deere’s spring-loaded pin teachings.” Pet. 90–91; *see also* Pet. 90–93 (entire discussion).

First, Patent Owner argues that the “Petition merely states that such combination would be ‘synergistic’ with the system of Deere, and Burton does not specifically exclude the claimed configuration of the conductive pin (275) discussed by Burton” and that “Petitioner’s negative reasoning fails to make a *prima facie* case of obviousness.” Prelim. Resp. 94 (citing Pet 90–91; Rodgers Decl. ¶ 218). This argument does not identify a deficiency in Petitioner’s position at this stage of the proceeding. Petitioner does not merely state that the proposed modified device is “synergistic,” but also discusses *why* at considerable length. Pet. 90–92. Patent Owner also argues that “neither Rogman nor Deere provides any suggestion to modify an electrical connection specifically to provide a ‘pin head’ configuration,” but this argument appears to seek an explicit motivation that is contrary to precedent on obviousness. Prelim. Resp. 95 (citing Rodgers Decl. ¶¶ 219–

220); *see also KSR*, 550 U.S. at 419 (“The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.”).

Second, Patent Owner argues that the proposed modification would not be an “improvement to the pass-through bulkhead connection switch (270) of Burton.” Prelim. Resp. 96 (citing Rodgers Decl. ¶ 222). The record is not adequately developed on this factual issue at this stage of the proceeding.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 6 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

b. Claims 19 and 20

For dependent claims 19 and 20, Petitioner contends that the proposed combination discloses each limitation for similar reasons to those provided for claims 6 and 7, respectively. Pet. 93–94. Patent Owner states that “Rogman in view of Deere and Burton also fails to disclose a pin connector assembly including a contact pin having a pin head portion and a biasing member abutting and exerting a force on the pin head portion, as required by Claims 19 and 20” but does not otherwise explain its position. Prelim. Resp. 98 (citing Rodgers Decl. ¶¶ 229–230). For the reasons discussed above, Patent Owner’s arguments as to claim 6 (*see supra* § II.M.2.a.1) and claim 7 (*see supra* § II.K.2.d) do not identify deficiencies in Petitioner’s positions at this stage.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claims 19 and 20 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

N. Asserted Obviousness of Claim 8 Based on Rogman and Burton

Petitioner asserts that claim 8 of the '697 patent would have been obvious under 35 U.S.C. § 103(a) based on the Rogman Patent and Burton. Pet. 18, 94–98. Patent Owner provides arguments specifically addressing this asserted ground. Prelim. Resp. 99–101.

1. Asserted References

In this asserted ground, Petitioner relies on the Rogman Patent (summarized above (*see* § II.I.1)) and Burton (summarized above (*see* § II.M.1)).

2. Analysis

For dependent claim 8, Petitioner contends (in the alternative to the assert ground of anticipation based on the Rogman Patent) that the proposed combination of the Rogman Patent and Burton discloses each limitation. Pet. 94–98. Patent Owner presents two arguments regarding the subject matter of claim 8 and challenges the reasons to combine the Rogman Patent and Burton as asserted. *See* Prelim. Resp. 99–101.

a. The Subject Matter of Claim 8

In this alternative ground addressing claim 8, Petitioner relies on Burton as disclosing a “more ‘traditional’ spring-loaded connection than Rogman, teaching that ‘the connectors accepted within the openings 380a, 380b [the PCA pin ends] can have one or more springs that can press against

the surface of the opening, thereby frictionally retaining the connector within the opening.” Pet. 94–95 (quoting Ex. 1004 ¶ 82).

First, Patent Owner argues that the proposed configuration would appear to “bias the coaxial feedthru/bulkhead assembly of Rogman *away from* the initiator/loading tube to which it must connect for centralizing the loading tube and connecting a coaxial cable or other wire.” Prelim. Resp. 100 (citing Rodgers Decl. ¶ 234). Second, Patent Owner argues that “a spring-loaded electrical contact that is adjacent the coaxial feedthru/bulkhead, and thereby the female connection to the initiator, would serve no purpose in an electrical connection assembly in Rogman” in that “[t]olerances with respect to a pin connector assembly are not a consideration in the Rogman system, in which a coaxial cable or other wiring is used to make electrical connections and may therefore be provided to an appropriate length for mating with, e.g., a corresponding socket.” *Id.* (citing Rodgers Decl. ¶ 235). Rodgers Decl. ¶ 235.

The record on these issues is not adequately developed. At trial, the parties should further develop these factual issues, and Petitioner should clarify its proposed modification as appropriate.

b. The Reasons to Combine the Rogman Patent and Burton

Petitioner argues that one of ordinary skill in the art “would have been motivated to modify Rogman to use a spring-loaded electrical connection positioned adjacent to the tandem seal adapter as taught by Burton with a reasonable expectation of success.” Pet. 96; *see also* Pet. 96–98 (entire discussion of reasons to combine).

Patent Owner argues that one of ordinary skill in the art would not have been motivated to modify the Rogman Patent based on Burton for the

same reasons discuss above in the context of the asserted ground based on the Rogman Patent, Deere, and Burton. *See* Prelim. Resp. 99. For the same reasons discussed above, those arguments do not identify a deficiency in Petitioner’s positions at this stage of the proceeding. *See supra* § II.M.2.a.2.

Because the Petition shows more likely than not that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see supra* § II.I.2.a), we include claim 8 in the context of this asserted ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60; PTAB Rules, 85 Fed. Reg. at 79,120.

III.CONCLUSION

For the reasons above, we determine that the Petition shows more likely than not that Petitioner would prevail with respect to at least one of challenged claims 1–21 of the ’697 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 post-grant review.

IV. ORDER

Accordingly, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 324(a), a post-grant review is hereby instituted as to claims 1–21 of the ’697 patent on all asserted grounds and

FURTHER ORDERED that pursuant to 35 U.S.C. § 324(c) and 37 C.F.R. § 42.4, post-grant review shall commence on the entry date of this Decision, with notice hereby given of the institution of a trial.

PGR2021-00078
Patent 10,844,697 B2

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