

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HALLIBURTON ENERGY SERVICES, INC.,
Petitioner,

v.

U.S. WELL SERVICES, LLC,
Patent Owner.

IPR2021-01036
Patent 9,611,728 B2

Before MEREDITH C. PETRAVICK, LYNNE H. BROWNE, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

BROWNE, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner, Halliburton Energy Services, filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–13 of U.S. Patent No. 9,611,728 B2 (Ex. 1001, “the ’728 patent”). Patent Owner, U.S. Wells Services, LLC, filed a Preliminary Response (Paper 6, “Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 7, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 9, “Prelim. Sur-reply”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition and any response thereto shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Considering the Petition, the arguments presented in the Preliminary Response, as well as all supporting evidence, we determine that Petitioner shows a reasonable likelihood that at least one of the challenged claims is unpatentable. Accordingly, we institute *inter partes* review.

A. *Real Parties in Interest*

Petitioner states that it, “Halliburton Company, and Halliburton Holdings LLC are the real parties in interest.” Pet. 1. Patent Owner states that it, USWS Holdings, LLC, and U.S. Well Services, Inc. are the real parties in interest. Paper 4, 1.

B. *Related Matters*

The parties state that the ’728 patent is currently being asserted in *U.S. Well Services, Inc. v. Halliburton Company*, Case No. 6:21-cv-00367 (W.D. Tex.). Pet. 1; Paper 4, 1. The parties further indicate that the ’728 patent was previously asserted in *U.S. Well Services, LLC v. Tops Well Services, LLC*, Case No. 3-19-cv-00225 (S.D. Tex.), which was filed on July 3, 2019

and dismissed without prejudice on July 23, 2019. Pet. 1; Paper 4, 1. The parties also indicate that the '728 patent is also being asserted in *U.S. Wells Services, LLC v. Tops Well Services, LLC*, Case No. 3-19-cv-00237 (S.D. Tex.), which was filed on July 22, 2019, and which is stayed pending settlement discussions. Pet. 1; Paper 4, 1.

The parties state that Petitioner filed petitions for *inter partes* review against other patents held by Patent Owner, including: IPR2021-01032 against U.S. Patent No. 9,410,410 (“the '410 patent”); IPR2021-01033 against U.S. Pat. No. 9,789,601; IPR2021-01034 against U.S. Pat. No. 10,337,308; IPR2021-01035 against U.S. Pat. No. 9,970,278; IPR2021-01037 against U.S. Pat. No. 9,745,940; IPR2021-01038 against U.S. Pat. No. 10,408,030; and IPR2021-01065 against U.S. Pat. No. 9,840,901. Pet. 1–2; Paper 4, 2.

C. The '728 Patent

The '728 patent, titled “Cold Weather Package for Oil Field Hydraulics,” issued April 4, 2017. Ex. 1001, codes (45), (54). It “relates to an electrical hydraulic fracturing system having heaters for heating hydraulic fluid.” *Id.* at 1:19–21. Figure 1 of the '728 patent is reproduced below.

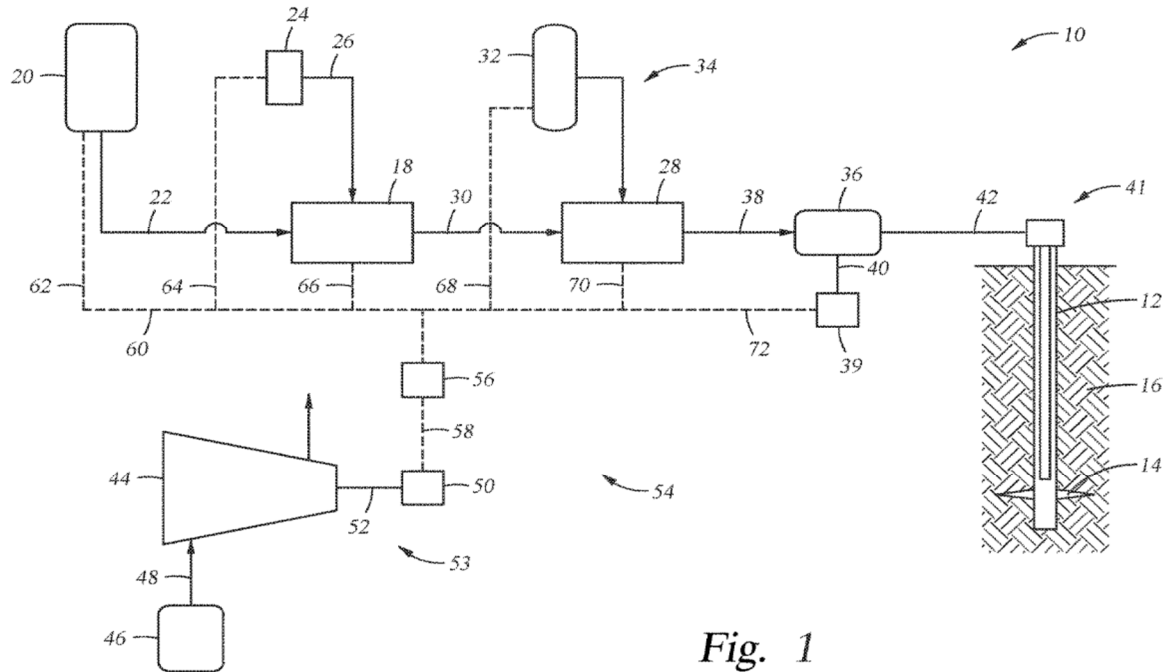


Fig. 1

Figure 1 shows a schematic of hydraulic fracturing system 10. *Id.* at 3:38–39. As shown in Figure 1, hydraulic fracturing system 10 includes fluid source 20 (represented by a large chamfered rectangle) in the upper left corner of the figure. *Id.* at Fig. 1, 4:15. To the right of fluid source 20 is additive source 24 (represented by a small rectangle). *Id.* at Fig. 1, 4:19. Below and to the right of additive source 24 is hydration unit 18 (represented by a large rectangle). *Id.* at Fig. 1, 4: 16. Above and to the right of hydration 18 is proppant source 32 (represented by a cylinder). *Id.* at Fig. 1, 4:18–29. Below and to the right of proppant source 32 is blender unit 28 (represented by a large rectangle). *Id.* at Fig. 1, 4:27. To the right of blender unit 28 is fracturing pump system 36 (represented by small chamfered rectangle). *Id.* at Fig. 1, 4:32–33. To the right of fracturing pump system 36 is wellhead assembly 41 (represented by a small rectangle) and below it is motor 39 (represented by a small rectangle). *Id.* at Fig. 1, 4:44. Below wellhead assembly 41 are wellbore 12 (shown as a vertical tunnel shaft) in

subterranean formation 16 (represented by a large rectangle filled with cross-hatching). Fig. 1, 4:14–15. Fractures 14 are shown as triangles extending from wellbore 12 into subterranean formation 16 at the bottom of wellbore 12. *Id.*

Shown in Figure 1 below and between hydration unit 18 and blender unit 28 is transformer 56 (represented by a small rectangle) and below it is generator 50 (also represented by a small rectangle). Ex. 1001, Fig. 1, 5:2, 9. To the left of generator 50 is turbine 44 (represented by a truncated cone) and below it is fuel source 46 (represented by a chamfered square). *Id.* at Fig. 1, 4:63, 65. “Electricity generated in generator 50 is conveyed to transformer 56 via line 58” (represented by a dashed line extending between generator 50 and transformer 56). *Id.* at Fig. 1, 5:18–19. Transformer 56 is also connected to power bus 60 (represented by a horizontal dashed line extending from a point below the left half of fluid source 20 to motor 39) having lines 62, 64, 66, 68, and 70 (each of these lines is represented by a dashed vertical line extending from bus 60 as described below) connected thereto. *Id.* at Fig. 1, 5:23–24. “[L]ine 62 connects fluid source 20 to bus 60, line 64 connects additive source 24 to bus 60, line 66 connects hydration unit 18 to bus 60, line 68 connects proppant source 32 to bus 60, line 70 connects blender unit 28 to bus 60.” *Id.* at Fig. 1, 5:26–30. The portion of bus 60 extending passed line 70 is labeled 72. *Id.* at Fig. 1.

In operation, hydration unit 18 receives fluid from fluid source 20 via line 22 (represented by a solid arrow extending from the bottom of fluid source 20 to the left side of hydration unit 18). Ex. 1001, Fig. 1, 4:17–18. Hydration unit 18 also selectively receives additives from additive source 24 via line 26 (represented by a solid arrow extending from the right side of additive source 24 to the top of hydration unit 18). *Id.* at Fig. 1, 4:18–19.

The fluid and additives are transferred from hydration unit to blender unit 28 via line 30 (represented by a solid arrow extending from the right side of hydraulic unit 18 to the left side of blender unit 28) where they are mixed. *Id.* at Fig. 1, 4:24–27. Proppant source 32 delivers proppant to blender unit 28 via line 34 (represented by a solid arrow extending from the right side of proppant source 32 to the top of blender unit 28) where the proppant is mixed with the fluid and additives to form a fracturing slurry. *Id.* at Fig. 1, 4:28–32. The fracturing slurry is delivered to fracturing pumping system 36 via line 38 (represented by a solid arrow extending from the right side of blender unit 28 to the left side of fracturing pumping system 36). *Id.* at Fig. 1, 4:32–33.

The '728 patent describes an example wherein the pressure of the slurry in line 38 ranges from around 80 psi to around 100 psi. Ex. 1001, 4:40–42. Motor 39 “drives pump system 36 so that it can pressurize the slurry” to a pressure of about 15,000 psi. *Id.* at 4:43–46. The pressurized slurry is injected into wellhead assembly 41 via discharge piping 42 (represented by a solid line extending from the right side of fracturing pump system 36 to the left side of wellhead assembly 41). *Id.* at Fig. 1, 4:46–49.

The '728 patent describes turbine 44 as receiving a combustible fuel from a fuel source 46 via a feed line 48 (represented by a solid arrow extending from the top of fuel source 46 to the bottom of turbine 44). Ex. 1001, Fig. 1, 4:63–65. Combustion of the fuel in turbine 44 in turn powers a generator 50 that produces electricity. *Id.* at 5:1–2. As shown in Figure 1, shaft 52 (represented by a solid line extending between the turbine 44 and generator 50) connects generator 50 to turbine 44. *Id.* at Fig. 1, 5:2–3.

D. Challenged Claims

Petitioner challenges claims 1–13. Pet. 14. Claims 1 and 7 are independent claims. Ex. 1001, 8:22–38, 8:60–9:5. Claims 2–6 depend from claim 1 and claims 8–13 depend from claim 7. *Id.* at 8:39–59, 9:6–29.

Representative claim 1 is reproduced below.

1. A hydraulic fracturing system for fracturing a subterranean formation comprising:

a plurality of electric pumps fluidly connected to the well and powered by at least one electric motor, and configured to pump fluid into the wellbore at high pressure so that the fluid passes from the wellbore into the formation, and fractures the formation;

a variable frequency drive connected to the electric motor to control the speed of the motor, wherein the variable frequency drive frequently performs electric motor diagnostics to prevent damage to the at least one electric motor; and

a working fluid system comprising working fluid, and a heater that is in thermal contact with the working fluid;

wherein the heater comprises a tank having working fluid and a heating element in thermal contact with the working fluid.

Ex. 1001, 8:22–38.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 6–8, 10, 11, 13	103(a)	Robinson, ¹ Broussard, ² Henry ³

¹ Robinson et al., U.S. Patent Application Publication No. 2007/0125544 A1, published June 7, 2007 (Ex. 1006) (“Robinson”).

² Broussard et al., U.S. Patent Application Publication No. 2014/0138079 A1, published May 22, 2014 (Ex. 1007) (“Broussard”).

³ Henry et al., U.S. Patent Application Publication No. 2011/0042387 A1, published Feb. 24, 2011 (Ex. 1010) (“Henry”).

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 6–8, 10, 11	103(a)	Robinson, Coli, ⁴ West, ⁵ Henry
4, 5, 12	103(a)	Robinson, Broussard, Henry, Aalvik ⁶
4, 5, 12	103(a)	Robinson, Coli, West, Henry. Aalvik
9	103(a)	Robinson, Broussard, Henry, Hodgson ⁷
9	103(a)	Robinson, Coli, West, Henry Hodgson
13	103(a)	Robinson, Broussard, Henry, Jang ⁸
13	103(a)	Robinson, Coli, West, Henry, Jang

Pet. 14. In addition to the references listed above, Petitioner relies on the Declaration of Mark Ehsani, PhD (Ex. 1003). Patent Owner submits a declaration of Mr. Robert Schaaf (Ex. 2007).

II. ANALYSIS

A. Discretionary Denial Under 35 U.S.C. § 314(a)

Patent Owner requests that we exercise discretion under 35 U.S.C. § 314(a) to deny institution. Prelim. Resp. 26–35 (citing, *e.g.*, *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”)).

⁴ Coli et al., U.S. Patent Application Publication No. 2012/0255734 A1, published Oct. 11, 2012 (Ex. 1008) (“Coli”).

⁵ West et al., International Patent Application Publication No. WO 2014/116761 A1, published July 31, 2014 (Ex. 1009) (“West”).

⁶ Aalvik et al., International Patent Application Publication No. WO 2007/0055587 A1, published May 18, 2007 (Ex. 1011) (“Aalvik”).

⁷ Hodgson et al., International Patent Application Publication No. WO 2014/105642 A1, published July 3, 2014 (Ex. 1009) (“Hodgson”).

⁸ Jang et al., U.S. Patent Application Publication No. 2014/0158345 A1, published June 12, 2014 (Ex. 1013) (“Jang”).

Fintiv sets forth the factors that we weigh in determining whether to exercise our discretion to deny institution of the *inter partes* review proceeding here under 35 U.S.C. § 314(a). *See Fintiv*, Paper 11 at 5–6.

These factors are:

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.

Id. “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. “[T]he Board takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.*

For the reasons discussed below, we decline to exercise our discretion to deny institution under 35 U.S.C. § 314(a).

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

Fintiv Factor 1 recognizes that a stay of litigation pending resolution of a PTAB trial allays concerns about inefficiency and duplication of efforts, which strongly weighs against exercising the authority to deny institution. *Fintiv*, Paper 11 at 6.

Patent Owner contends this factor weighs in favor of discretionary denial because Petitioner has not requested a stay of the parallel district court proceeding, nor is there any evidence of record that a later-filed request for stay would be granted. Prelim. Resp. 28. Petitioner contends this factor favors institution as Petitioner intends to file a stay motion in the event that the present *inter partes* review proceeding is instituted. Pet. 16.

On this record, it is unclear how the judge in district court would proceed, and we decline to speculate regarding whether the district court will grant a stay if this proceeding is instituted. Accordingly, this factor is neutral.

2. *Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision.*

Fintiv Factor 2 looks to the “proximity of the court’s trial date to the Board’s projected statutory deadline.” *Fintiv*, Paper 11 at 9. “If the court’s trial date is earlier than the projected statutory deadline, the Board generally has weighed this fact in favor of exercising authority to deny institution under *NHK*.” *Id.*

Patent Owner contends this factor favors denial because the parallel district court proceeding will conclude before a final written decision is issued in the present proceeding (if instituted), in light of the scheduled trial date of December 19, 2022, in the parallel district court proceeding. Prelim. Resp. 29–30. Patent Owner further contends that there is no reason to believe the trial date will be postponed. Prelim. Sur-reply 3.

In its Preliminary Reply, Petitioner that contends the scheduled trial date is only one month earlier than the projected deadline for a final written decision, and an “early trial date” is “non-dispositive” and simply means that “the decision whether to institute will likely implicate other factors.”

Reply 1–2 (citing *Fintiv*, Paper 11 at 5, 8–9). Petitioner further contends that recent data shows that district court trial dates are often delayed by several months and that the uncertainty of the trial date combined with the close proximity of the current trial date to the projected final written decision deadline weigh against discretionary denial. *Id.* at 2 (citing Ex. 1025, Ex. 1026).

Given the statutory deadlines, our latest possible date for issuance of a final written decision in this proceeding is January 21, 2023, one year and three months after the filing date of Patent Owner’s Preliminary Response. 35 U.S.C. §§ 314(b) (2018), 316(a)(11); *see also* 37 C.F.R. § 42.100(c). Thus, the time period from the district court’s default trial date to our projected statutory deadline for a final written decision is approximately one month. In general, if the district court’s trial date is earlier than our projected statutory deadline for a final written decision, the Board usually has weighed this fact in favor of exercising authority to deny institution under *NHK*. *Fintiv*, Paper 11 at 9. Where the trial date and the projected date of our final written decision are at or around the same time, however, as they are here, the efficiency and fairness concerns that underlie the *Fintiv* analysis are not as strong, and the decision whether to institute will instead implicate other factors. *See Fintiv*, Paper 11 at 9 (“If the court’s trial date is at or around the same time as the projected statutory deadline, . . . the decision whether to institute will likely implicate other factors discussed herein, such as the resources that have been invested in the parallel proceeding.”).

Further, the “Agreed Scheduling Order” states that the trial date is “TBD by the Court (default date under [Standing Order Governing Proceedings] is December 19, 2022)” and “[52 weeks after *Markman*

hearing (12/20/21)].” Ex. 2002, 5. This indicates that the December 19, 2022, is a default date that was calculated as being 52 weeks after the *Markman* hearing, then scheduled for December 20, 2021. *Id.* We note, however, that the *Markman* hearing has since been rescheduled to occur on January 4, 2022. Ex. 1053.

Under these circumstances and especially the closeness of the trial date and projected final written decision deadline, we find that this factor is neutral.

3. *Investment in the parallel proceeding by the court and the parties.*

Fintiv Factor 3 considers the “investment in the parallel proceeding by the court and parties,” including “the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision.” *Fintiv*, Paper 11 at 9.

Patent Owner contends this factor favors denial because instituting the Petition would waste the considerable investment made by the parties and the district court in the parallel district court proceeding. Prelim. Resp. 30. Petitioner contends this factor favors institution because, at the time of the Petition, discovery had not commenced in the parallel district court proceeding, and Patent Owner had not served infringement contentions. Pet. 15. In its Preliminary Reply, Petitioner further contends that “very limited discovery only related to claim construction” is permitted until a claim construction hearing is complete, and it is unclear whether the parties will have received a claim construction order by the time an institution decision is due. Prelim. Reply 2.

Fintiv states that, “[i]f, 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.” *Fintiv*, Paper 11 at 10. Here, although some exchanges have taken place and some of the issues will have been briefed prior to institution, the district court has not issued any substantive orders addressing claim construction, validity, or infringement of the ’728 patent. Accordingly, this factor weighs strongly against exercising our discretion to deny institution.

4. *Overlap between issues raised in the petition and in the parallel proceeding.*

Fintiv Factor 4 considers whether “the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding.” *Fintiv*, Paper 11 at 12. If the issues in the Petition overlap substantially with those raised in the parallel proceeding, “this fact has favored denial.” *Id.* “Conversely, if the petition includes materially different grounds, arguments, and/or evidence . . . this fact has tended to weigh against exercising discretion to deny institution.” *Id.* at 12–13.

Concerns about the degree of overlap may be mitigated where a petitioner agrees not to pursue in the parallel district court litigation the grounds advanced in the petition. *Sand Revolution II, LLC v. Continental Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 at 11–12, 12 n.5 (PTAB June 16, 2020) (informative). A petitioner stipulating not to pursue “any ground raised or that could have been reasonably raised” weighs strongly in favor of not exercising discretionary denial. *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A) (“*Sotera*”).

Patent Owner contends this factor favors denial because Petitioner’s challenges to the ’728 patent are substantially the same as the invalidity

challenges presented in the parallel district court proceeding as Petitioner relies on substantially the same invalidity arguments and the same references. Prelim. Resp. 32.

In its Preliminary Reply, Petitioner submits that this factor weighs against the Board's discretion to deny because there is no overlap between the claims at issue in the Petition and the parallel proceeding. Prelim. Reply 1. To mitigate concerns of overlap, Petitioner also stipulates that it "will not pursue the same invalidity grounds in the district court proceeding as those asserted in the corresponding IPR petition" if the Board institutes an *inter partes* review. *Id.* Patent Owner contends that if the Board credits the stipulation that "the stipulation should weigh only 'marginally' against discretionary denial because it is not as encompassing as the stipulation in *Sotera*. Prelim. Sur-reply 2 (citing *Verizon Bus. Network Svs., LLC v. Huawei Tech. Co.*, IPR2020-01278, Paper 12 at 13 (PTAB Jan. 26, 2021)).

Petitioner's stipulation is narrow, not a broad stipulation that includes "any ground raised, or that *could have been reasonably raised*." See *Sotera*, Paper 12 at 19; see also *Sand*, Paper 24 at 12 n.5 (noting that a broad stipulation better addresses concerns of duplicative efforts and potentially conflicting decisions in a much more substantial way). The stipulation does, however, mitigate the concerns of inefficiency and the possibility of conflicting decisions. Therefore, we find that this factor weighs marginally against denying institution.

5. *Whether the petitioner and the defendant in the parallel proceeding are the same party.*

Fintiv Factor 5 looks to "whether the petitioner and the defendant in the parallel proceeding are the same party." *Fintiv*, Paper 11 at 14. "If a petitioner is unrelated to a defendant in an earlier court proceeding, the

Board has weighed this fact against exercising discretion to deny institution.” *Id.* at 13–14.

Patent Owner contends this factor weighs strongly in favor of denial because Petitioner is the named defendant in the parallel district court proceeding. Here, it is undisputed that Petitioner is a defendant in the parallel litigation. Pet. 1. As noted in Section II.A.2 above, it is unclear on this record when the trial in the Texas litigation will occur and whether the trial will take place prior to a final written decision being issued in this proceeding. Thus, it is unclear on this record whether any estoppel will be implicated. *See* 35 U.S.C. § 315(e). Under these circumstances and especially given the closeness of the default trial date and the projected final written decision deadline, the facts underlying this factor are neutral.

6. *Other circumstances that impact the Board’s exercise of discretion, including the merits.*

Fintiv Factor 6 looks to whether “other circumstances” exist that might “impact the Board’s exercise of discretion, including the merits.” *Fintiv*, Paper 11 at 14.

Patent Owner argues this factor favors denial because: there is a weakness in Petitioner’s merits (i.e., Petitioner has improperly relied on hindsight bias and conclusory statements to support its obviousness contentions); the Office previously considered the primary reference in each of Petitioner’s grounds (i.e., Coli); and Petitioner has weaponized the *inter partes* review process, as evidenced by Petitioner’s filing of fourteen separate petitions challenging Patent Owner’s patents. Prelim. Resp. 34. Petitioner does not address this factor. *See generally* Pet.

We have reviewed the prior art references and the arguments of both Petitioner and Patent Owner. As discussed in more detail below, we find the

evidence and arguments presented by Petitioner persuasive on this preliminary record and sufficient to meet our standard for instituting *inter partes* review. Accordingly, we find that factor 6 is neutral.

7. *Conclusion on Discretionary Denial under 35 U.S.C. § 314(a)*

Based on a holistic review of the *Fintiv* factors, we decline to exercise our discretion under § 314(a) to deny institution.

B. *Discretionary Denial Under 35 U.S.C. § 325(d)*

Section 325(d) provides that the Director may elect not to institute a proceeding if the challenge to the patent is based on matters previously presented to the Office. 35 U.S.C. § 325(d) states, in pertinent part, that “[i]n determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31, 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 for evaluating arguments under § 325(d):

(1) 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 first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”). “[T]he *Becton, Dickinson* factors provide useful

insight into how to apply the framework under 35 U.S.C. § 325(d).” *Id.* at 9 (footnote omitted). The non-exclusive *Becton, Dickinson* factors are:

- (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 § III.C.5, first paragraph) (“*Becton, Dickinson*”). *Becton, Dickinson* factors (a), (b), and (d) relate to the first part of the *Advanced Bionics* framework (whether the same or substantially the same art or arguments previously were presented to the Office), and *Becton, Dickinson* factors (c), (e), and (f) relate to the second part of that framework (previous Office error). *Advanced Bionics*, Paper 6 at 9–11. Only if the same or substantially the same art or arguments were previously presented to the Office do we then consider whether the petitioner has demonstrated a material error by the Office. *Id.*

Under § 325(d), the art or arguments must have been previously presented to the Office during proceedings, such as examination of the underlying patent application, pertaining to the challenged patent. *Advanced Bionics*, Paper 6 at 7. Previously presented art includes art made of record

by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (“IDS”), in the prosecution history of the challenged patent. *Id.* at 7–8.

Patent Owner contends that the same or substantially the same art and arguments cited by Petitioner were already considered by the Office, and Petitioner failed to show or even suggest how the Office may have erred. Prelim. Resp. 14. Specifically, both *Broussard* and *Coli* were substantively considered by the Examiner in that they were cited by the Examiner. *Id.* (citing Ex. 1002, 41). Patent Owner contends further that during prosecution of the ’728 patent “the Examiner issued a 103 rejection of the independent claims in view of *Coli* and several other references.” *Id.* at 14–15 (citing Ex. 1002, 32). Turning to Robinson, Patent Owner contends that “*Robinson* adds nothing relevant to the substance of *Broussard* and *Coli* that was not already substantively considered by the Examiner.” Prelim. Resp. 15 (citing Ex. 2007, 20). Noting that Robinson, like Broussard, discloses a hydraulic fracturing system, and that Robinson and Broussard both disclose electric pumps, Patent Owner contends further that Robinson is substantially the same as and cumulative to Broussard. Pet. 16 (citing Ex. 2007, 21).

Turning to Henry and West, Patent Owner contends that “the substance of *Henry* is substantially the same as *Leavitt*, which was substantively considered by the Examiner during prosecution” and “the substance of *West* is substantially the same as the substance of *Rusnak*, which was also substantively considered and relied upon by the Examiner during examination.” Prelim. Resp. 18–19 (citing Pet. 14; Ex. 1002, 41; Ex. 2007, 24–25). According to Patent Owner the Examiner issued § 103 rejections over the independent claims relying on Leavitt, Rusnak, and several other references. *Id.* Patent Owner also makes allegations that the

rest of the prior art asserted in the Petition is substantially the same as references relied upon during examination of the '728 patent. *Id.* at 20–22.

Petitioner contends that “[t]he only references relied upon [in the Petition] that were cited during examination are *Broussard* and *Coli*.” Pet 16–17 (footnote omitted). Thus, Petitioner contends that Robinson, West, Henry, and the remaining prior art relied upon in the Petition were not considered during examination of the '728 patent. Petitioner contends further that “*Broussard* was not considered by the Examiner in any rejections.” *Id.* at 17. Petitioner also contends that, although *Coli* was relied upon in a rejection by the Examiner, it is relied upon in the Petition in a manner that was not considered during examination. Pet. 17. Regarding Patent Owner’s allegations that Robinson and Henry are substantially the same as prior art relied upon during prosecution, Petitioner contends that Robinson and Henry disclose the exact elements Patent Owner used to overcome the rejections during examination. Prelim. Reply 3.

We find that the first part of the *Advanced Bionics* framework is not satisfied because the particular combinations set forth in the Petition were not considered by the Examiner. First, for example, Robinson, West, and Henry (which in combination are the basis of Petitioner’s first ground) were not considered by the Examiner. Further, on the record before us, we do not agree with Patent Owner that these references are substantially the same or cumulative of art considered during prosecution because they include elements not described in that prior art. Second, even though, *Broussard* is cited on the face of the '728 patent, neither the Examiner nor Applicant substantively discussed *Broussard* during prosecution. *See generally* Ex. 1002. Our precedent establishes that “[p]reviously presented art includes . . . art provided to the Office by an applicant, such as on an Information

Disclosure Statement, in the prosecution history of the challenged patent.” *Advanced Bionics*, Paper 6 at 7–8. Thus, we agree with Patent Owner that Broussard was presented to the Office, but for the reasons discussed below we do not find this fact sufficient to satisfy the first part of the *Advanced Bionics* Framework.

During prosecution of the ’728 patent, Coli was applied in combination with other references by the Examiner to reject claims as obvious under 35 U.S.C. § 103(a). Ex. 1002, 32. The Petition sets forth obviousness grounds based on combinations of Coli with other prior art not considered by the Examiner (namely Robinson, West, and Henry). Thus, we determine that the first part of the *Advanced Bionics* framework is not satisfied because the Petition includes grounds based on combinations of prior art not previously presented to the office, particularly combinations that include Robinson, West, and Henry. Under the circumstances below, we exercising discretion to deny the Petition under § 325(d) is unwarranted.

C. Level of Ordinary Skill in the Art

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner contends that a person of ordinary skill in the art at the time of the invention of the ’728 patent would have had the following education and experience:

either (1) a Bachelor of Science in Mechanical Engineering, Electrical Engineering, Petroleum Engineering or an equivalent

field as well as at least [two] years of academic or industry experience in the oil and gas industry, including well drilling, completion, or production; or (2) at least four years of industry experience in the oil and gas industry, including well drilling, completion, or production.

Pet. 14–15 (citing Ex. 1003 ¶¶ 25–26). Patent Owner adopts this definition of the level of skill. Prelim. Resp. 8.

For purposes of this Decision, we also adopt Petitioner’s proposal as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

D. Claim Construction

For petitions filed on or after November 13, 2018, the “broadest reasonable interpretation” standard has been replaced with the federal court claim construction standard that is used to construe a claim in a civil action under 35 U.S.C. § 282(b). This is the same claim construction standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny.

Neither Petitioner nor Patent Owner provide any explicit construction of any claim terms. Pet. 15, Prelim. Resp. 9. Except to the extent we explain how we interpret the claims in the analysis below, we decline to otherwise expressly construe any claim terms at this time. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs* in the context of an *inter partes* review).

E. Overview of the Asserted Prior art

1. Robinson

Robinson is a U.S. Patent Application Publication titled, “Method and Apparatus for Providing Pressure for Well Treatment Operations,” published June 7, 2007. Ex. 1006, codes (45), (54).

Robinson describes an apparatus for providing pressure for a well fracturing operation. Ex. 1006 ¶ 6. In one embodiment the apparatus includes a pumping grid 111 comprising “pumping modules [that] can be hauled to the fracturing operation factory site by truck, and pinned or bolted or otherwise located together on the ground.” *Id.* ¶ 32. “Pumping equipment grid modules can be added or taken away to accommodate the number of pumping units to be used on site and a “pressure manifold will interface with the pumping equipment grid modules and support a crane.” *Id.* The grid system is “configured with various piping or electrical connections that each pumping unit may require for power, fuel, cooling, and lubrication” and it incorporates “space to allow access to the pumping units’ main components for easy maintenance.”

The pumping grid 111 described above is shown in aerial isometric view in Figure 8, reproduced below:

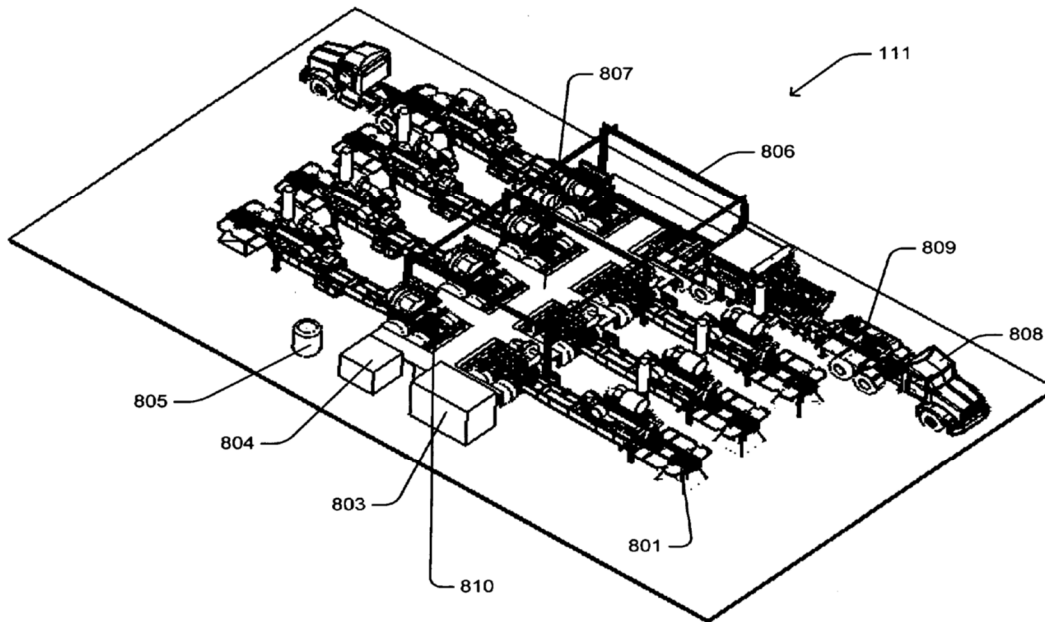


FIG. 8

Id. Fig. 8. As shown in Figure 8, pumping grid 111 “comprises one or more pumps 801 that can be electric, gas, diesel, or natural gas powered.” *Id.*

¶ 32, Fig. 8. Pumping grid 111 contains “spaces or docks 810 operable to receive equipment, such as pumps and other devices, modularized to fit within such spaces.” *Id.* Pumping grid 111 includes “walkways 807 that provide access to pumps or any other equipment docked in the grid spaces.”

Id. Fuel for pumps 801 is supplied from single central fueling system 803 through piping or tubing, hydraulic power for the starting mechanisms of pumps 801 is supplied from single central power system 804 using tubing or piping, and lubrication fluid for pumps 801 is supplied from central lubrication system 805 using tubing or piping. *Id.* Pumping grid 111 also includes crane 806 to assist in the replacement or movement of pumps 801 or other equipment. *Id.*

2. *Broussard*

Broussard is a U.S. Patent Application Publication titled, “System for Pumping Hydraulic Fracturing Fluid Using Electric Pumps,” published on May 22, 2014. Ex. 1007, codes (45), (54).

Broussard describes a system for “pumping fracturing fluid into an oil or gas well using pumps powered by electric motors.” Ex. 1007 ¶ 2. Specifically, Broussard describes a “system [that] includes a plurality of electric pumps fluidly connected to the well, and configured to pump fluid into the wellbore at high pressure so that the fluid passes from the wellbore into the formation, and fractures the formation.” *Id.* ¶ 7. Broussard indicates that the use of electric motors provide a number of advantages including increased efficiency and lower costs because it allows the equipment to be transferred directly on to a truck body or to a trailer, it reduces the number of trailers needed to carry the equipment, the equipment can be delivered to sites having a restricted amount of space, and the equipment can be carried away with less damage to the surrounding environment. *Id.* ¶ 34. Broussard further indicates that because the electric motors run on natural gas the fuel costs of its system are lower, the components of the system require less maintenance, and emissions are lower.

3. *Henry*

Henry is a U.S. Patent Application Publication titled, “Immersion Heaters,” published February 24, 2011. Ex. 1010, codes (45), (54).

Henry describes immersion heaters or heating units. Ex. 1010 ¶ 2. Henry’s Figure 1, reproduced below, shows a cross-sectional view of a

heating unit mounted to a tank containing a fluid. *Id.* ¶ 10.

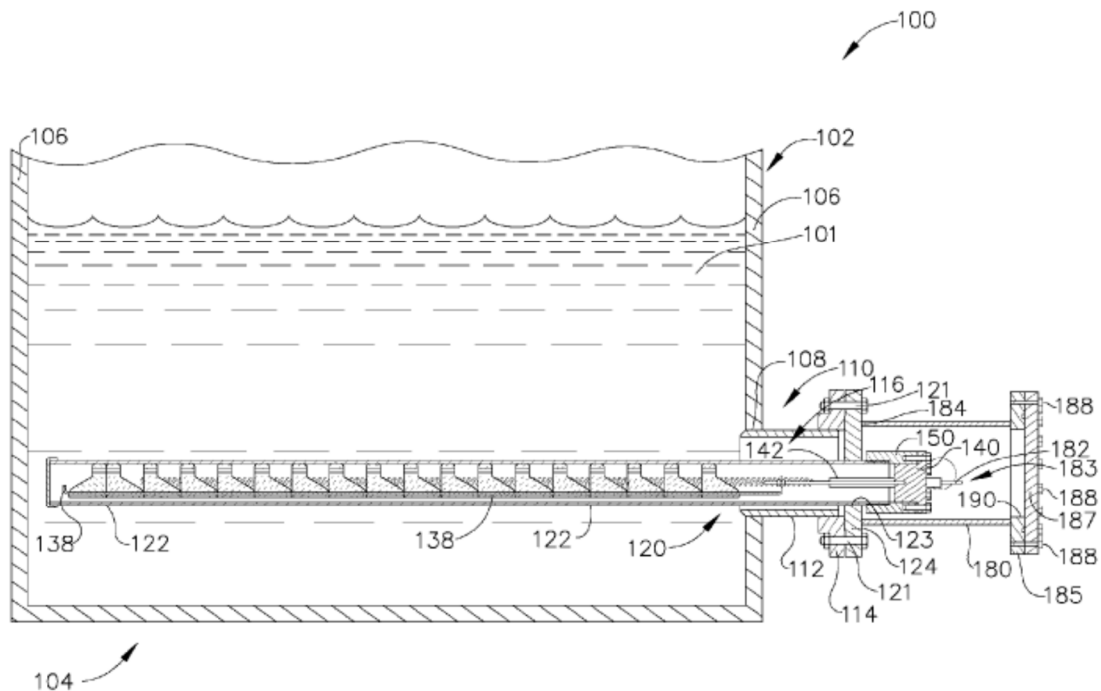


FIG. 1

Id. at Fig. 1. As shown in Figure 1, storage tank 100 comprises open top 102, bottom 104, and sidewall 106 configured as a cylinder with aperture 108 formed in sidewall 106. *Id.* ¶¶ 23–24, Fig. 1. Storage tank 100 is filled with fluid 101. *Id.* ¶ 25, Fig. 1. Figure 1 also shows mating flange 110 comprising neck 112 welded to sidewall 106 and bolt plate 114 integrally formed with neck 112. *Id.* ¶ 24, Fig. 1. Mating flange 110 has aperture 116 extending therethrough and aligned with aperture 108. *Id.* In addition, Figure 1 shows heating unit 120 comprising pipe 122 and mounting portion 124 mounted to pipe 122. *Id.* ¶ 25, Fig. 1. Pipe 122 is sized such that at least a portion of pipe 122 can be inserted in to tank 100 through aperture 116 of mounting flange 110. *Id.* Heating unit 120 further comprises terminal block 140 connected to pipe 122 by collar 150 and cylindrical enclosure 180. *Id.* ¶ 33, 44, Fig. 1. Cylindrical enclosure 180 forms

chamber 183 having end 184 welded to mounting portion 124 and another end comprising bolt plate 185 having holes 186 to receive bolts 188. *Id.* ¶ 44, Fig. 1. Enclosure 180 also encloses proximal ends 181, 182 of terminals 141, 142 (not shown in Figure 1) of heating unit 120 and has opening 190 to allow terminal block 140 and alignment member 138 to be inserted into chamber 183. *Id.* ¶¶ 44–45.

4. *Coli*

Coli is a U.S. Patent Application Publication titled “Mobile, Modular, Electrically Powered System for Use in Fracturing Underground Formations,” published on October 11, 2012. Ex. 1008, codes (45), (54).

Coli describes an electrically powered fracturing system and a system and method for providing on-site electrical power and delivering fracturing fluid to a wellbore at a fracturing operation. Ex. 1008 ¶ 34. *Coli* further describes that natural gas (either supplied to the site or produced on-site) is used to drive a dedicated source of electrical power, such as a turbine generator, for hydrocarbon-producing wellborn completions. *Id.* ¶ 36.

Coli’s Figure 3 is reproduced below.

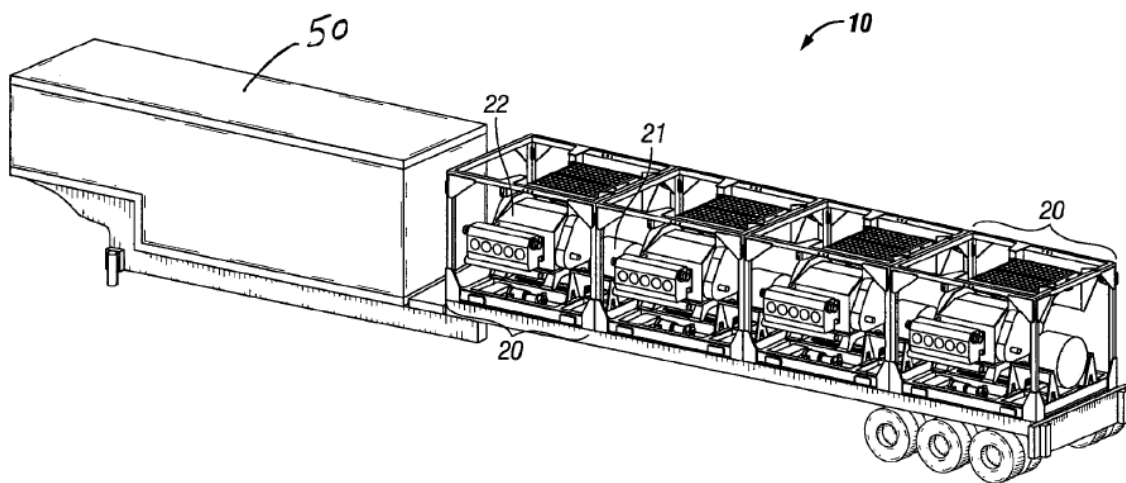


FIG. 3

Figure 3 depicts a schematic perspective view of a fracturing trailer 10 for housing fracturing modules 20 along with a transformer and driver unit 50. *Id.* ¶¶ 24, 40, 49. “Each fracturing module 20 includes an electric motor 21 and a fluid pump 22 coupled thereto.” *Id.* ¶ 40. “Fracturing modules 20 utilize electric power from turbine generator 30 (not shown) to pump fracturing fluid directly to a wellbore.” *Id.* Coli further describes that the system can deliver a 2500 horsepower (“hp”) directly to each pump because pump 22 is directly coupled to electric motor 21. *Id.* ¶ 49. Further, Coli additionally describes that each fracturing module 20 weights approximately 28,000 pounds (“lbs.”), which allows for placement of four pumps 22 in the same physical dimension (i.e., size and weight) as the spacing needed for a simple pump in conventional diesel systems, as well as allowing for up to 10,000 hp total to the pumps. *Id.*

5. *West*

West is an International Application Publication titled, “Variable Frequency Drive Self-Check,” published July 31, 2014. Ex. 1009, codes (43), (54).

West describes diagnostic and control methods for a variable frequency drive. Ex. 1009, 2. Such methods “include determining whether a switching device in the variable frequency drive is open-circuited, short-circuited, or operating normally.” *Id.*, (57).

6. *Aalvik*

Aalvik is an International Application Publication titled, “Subsea Uninterruptible Power Supply System and Arrangement,” published May 18, 2007. Ex. 1011, codes (43), (54).

Aalvik describes an uninterruptible power supply (“UPS”) system. Ex. 1011, code (57). As part of its system Aalvik describes power fed to a

first transformer and then into a main power switchboard having several large power consuming units connected thereto via breakers. Ex. 1011, 14. One of these power consuming units is a second transformer which feeds a second switchboard for non-critical loads. One of these non-critical loads is the UPS. *Id.* at 15. The output of the UPS supplies power to a third switch board for critical loads. *Id.*

7. *Hodgson*

Hodgson is an International Application Publication titled, “Apparatus and Method for Servicing a Well,” published July 3, 2014. Ex. 1012, codes (43), (54).

Hodgson describes a blender apparatus for mixing proppant into fracturing fluid to be injected into a wellbore. Ex. 1012, code (57), 1. Hodgson’s apparatus uses hydraulic generators to power components of its blender apparatus. *Id.* ¶ 31.

8. *Jang*

Jang is a U.S. Patent Application Publication titled, “Dual-pump Formation Fracturing,” published June 12, 2014. Ex. 1013, codes (43), (54).

Jang describes pump systems comprising “one or more motors that may be implemented using electric motors and/or others motors or actuation devices capable of providing a torque to a driving shaft, such as a turbine powered by drilling fluid.” Ex. 1013 ¶ 49.

F. *Obviousness under 35 U.S.C. § 103*

Petitioner contends that claims 1–13 are unpatentable over combinations of Robinson, Broussard, Henry, Coli, West, Aalvik, Hodgson, and Jang. Pet. 19–70. Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 35–63. Noting that Petitioner’s challenges for all grounds rely on the combined teachings of Robinson and Henry to meet the limitations

pertaining to the working fluid system, Patent Owner addresses all of the claims and grounds together. *Id.*

1. *Principles of Law*

A petition must show how the construed claims are unpatentable under the statutory grounds it identifies. 37 C.F.R. § 42.104(b)(4). Petitioner bears the burden of demonstrating a reasonable likelihood that it would prevail with respect to at least one challenged claim for a petition to be granted. 35 U.S.C. § 314(a).

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Secondary considerations may include longfelt but unsolved need, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17–18; *Leapfrog Enters., Inc. v. Fisher–Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). We analyze the asserted grounds with these principles in mind.

2. *Ground 1A: Alleged Obviousness of Claims 1-3, 6–8, 10, 11, and 13 over Robinson, Broussard, and Henry*

Petitioner asserts that Robinson, Broussard, and Henry render obvious claims 1–3, 6–8, 10, 11, and 13. Pet. 19–38

a) *Claim 1*

The preamble to claim 1 recites “[a] hydraulic fracturing system for fracturing a subterranean formation comprising.” Ex. 1001, 8:22–23.

Regarding the preamble, Petitioner contends that both Robinson and Broussard disclose an hydraulic fracturing system for fracturing a subterranean formation. Pet. 23–24 (citing Ex. 1006 ¶¶ 6, 25; Ex. 1007 ¶ 7). Thus, according to Petitioner, “the combination of *Robinson* and *Broussard* discloses each element of” the preamble. *Id.* at 24 (citing Ex. 1003 ¶¶ 73–75). Patent Owner does not dispute Petitioner’s contention. Prelim. Resp. 35–43.

The first limitation of claim 1 recites “a plurality of electric pumps fluidly connected to the well and powered by at least one electric motor, and configured to pump fluid into the wellbore at high pressure so that the fluid passes from the wellbore into the formation, and fractures the formation.” Ex. 1001, 8:24–28. Petitioner contends that Robinson discloses a plurality of electric pumps that prepare a fracturing fluid that is delivered to the wells. Pet. 24 (citing Ex. 1006 ¶¶ 6, 25, 32). Petitioner contends further that Broussard teaches the use of electric motors to drive such pumps and that the fluid that passes from the wellbore into the formation fractures the formation. *Id.* at 24–25 (citing Ex. 1007 ¶¶ 7, 28, 30). Thus, according to Petitioner, “the combination of *Robinson* and *Broussard* discloses” or suggests each element of this limitation. *Id.* at 25. Patent Owner does not dispute Petitioner’s contentions. Prelim. Resp. 35–43.

The second limitation of claim 1 recites “a variable frequency drive connected to the electric motor to control the speed of the motor, wherein the variable frequency drive frequently performs electric motor diagnostics to prevent damage to the at least one electric motor.” Ex. 1001, 8:29–33.

Petitioner contends that Broussard discloses “variable-frequency drives (VFDs) that control the speed of those motors” and that “*Broussard’s* VFDs . . . ‘frequently perform electric motor diagnostics to prevent damage to the electric motor if it becomes grounded or shorted.’” Pet. 25 (citing Ex. 1007 ¶¶ 11, 19, 21). Thus, according to Petitioner, Broussard discloses each element of this limitation. *Id.* Patent Owner does not dispute Petitioner’s contentions. Prelim. Resp. 35–43.

The third limitation of claim 1 recites “a working fluid system comprising working fluid, and a heater that is in thermal contact with the working fluid.” Ex. 1001, 8:34–35. Petitioner contends that “*Robinson* discloses docks 810 that may be preplumbed to facilitate connection of the pumps to a central lubrication system 805 (i.e., a working fluid system) that includes lube oil (i.e., a working fluid).” Pet. 26 (citing Ex. 1006 ¶ 32; Ex. 1003 ¶ 80). Petitioner contends further that “*Robinson* also discloses that ‘any or all of its components’ can be ‘heated’” with electric heaters. *Id.* (citing Ex. 1006 ¶ 21; Ex. 1003 ¶ 5). In addition, Petitioner contends that in view of this teaching a person of ordinary skill in the art would have been motivated to combine Robinson’s working fluid system with Henry’s electric immersion heater. *Id.* According to Petitioner, this arrangement would protect Robinson’s central lubrication system 805 from the adverse weather conditions contemplated by Robinson. *Id.* at 26–27.

Patent Owner disagrees with Petitioner’s contentions. Prelim. Resp. 36–43. Patent Owner argues that “*Robinson* does not disclose a working fluid system comprising a heater that is in ‘thermal contact’ with a working fluid” and that “nothing in *Henry* discloses a ‘working fluid system.’” *Id.* at 36–38 (citing Ex. 2007 ¶¶ 26–27). Patent Owner’s arguments call out the

individual shortcomings of each reference, but do not address the combined teachings of Robinson and Henry.

Patent Owner also argues that a person of ordinary skill in the art would not have been motivated to combine Robinson and Henry. Prelim. Resp. 39–41. Patent Owner argues that “there is nothing in *Robinson* that discloses a working fluid system having a heater in thermal contact with a working fluid.” *Id.* at 40 (citing Ex. 2007 ¶ 26). This fact, however, is not in dispute. Rather, as discussed above, this challenge relies on Henry’s teachings of an immersion heater (i.e. a heater in thermal contact with a working fluid).

In addition, Patent Owner argues that “Petitioner improperly relies on hindsight to reconstruct the claimed invention from disparate elements without ever addressing the differences between the cited references and the claimed invention.” Prelim. Resp. 41–42.

Impermissible hindsight is inferred when the specific understanding or principle within the knowledge of one of ordinary skill in the art that would motivate one (with no knowledge of the claimed invention) to make the proposed combination has not been explained. *In re Rouffet*, 149 F.3d 1350, 1358 (Fed. Cir. 1998).

On pages 21–23 of the Petition, Petitioner explains the rationale in support of the proposed modification. We have reviewed Petitioner’s reasoning in support of the proposed modifications and deem it to be sufficient for purposes of institution.

The fourth limitation of claim 1 recites “wherein the heater comprises a tank having working fluid and a heating element in thermal contact with the working fluid.” Ex. 1001, 8:36–38. For this limitation, Petitioner relies on the same contentions as for the third limitation. Pet. 26–28. Patent

Owner, likewise, relies on the same arguments as for the third limitation. Prelim. Resp. 36–43. As we have discussed these arguments above, we do not repeat that discussion here.

For the reasons discussed above, we find on this record that Petitioner has made a sufficient showing for purposes of institution that Robinson, Broussard, and Henry disclose or suggest each limitation of claim 1.

b) Dependent Claims 2, 3, 6–8, 10, 11, and 13

We have reviewed Petitioner’s contentions regarding the limitations of claims 2, 3, 6–8, 10, 11, and 13 as set forth on pages 29–38 of the Petition and determine that for purposes of institution they are adequately supported by the evidence. As noted above, Patent Owner does not present separate arguments for these claims. Thus, we find on this record that Petitioner has made a sufficient showing for purposes of institution that Robinson, Broussard, and Henry disclose or suggest each limitation of claims 2, 3, 6–8, 10, 11, and 13.

c) Secondary Considerations

Notwithstanding, what the teachings of the prior art would have suggested to one skilled in the art, objective evidence of nonobviousness (so called “secondary considerations”) may lead to a conclusion that the challenged claims would not have been obvious. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Objective evidence of nonobviousness “may often be the most probative and cogent evidence in the record” and “may often establish that an invention appearing to have been obvious in light of the prior art was not.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012) (citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983)).

“In order to accord substantial weight to secondary considerations in an obviousness analysis, ‘the evidence of secondary considerations must have a “nexus” to the claims, i.e., there must be “a legally and factually sufficient connection” between the evidence and the patented invention.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (citing *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019)). “The patentee bears the burden of showing that a nexus exists.” *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999). Nexus is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). A nexus is presumed when “the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Fox Factory*, 944 F.3d at 1373 (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)). “A finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations,” as “the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Id.* at 1373–74 (citing *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996)).

Patent Owner contends that Petitioner has failed to rebut the objective evidence of non-obviousness raised during the prosecution of U.S. Patent No. 9,410,410 from which the ’728 patent is a continuation. Prelim. Resp. 43. Specifically, Patent Owner contends that the objective evidence:

(i) corresponds to its Clean Fleet® product, which embodies the challenged claimed features and is coextensive with the challenged claims; and
(ii) strongly supports the non-obviousness of the challenged claims, including: meeting a long-felt, unmet need; failure of others to meet this need; industry praise; copying of the claimed invention; and commercial success of the claimed invention. *Id.* Specifically, Patent Owner contends that independent “claim 1 is directed to ‘[a] system for hydraulic fracturing an subterranean formation comprising: a plurality of electric pumps . . . powered by at least one electric motor . . . ; a [VFD] connected to the electric motor . . . ; and a working fluid system.,’” and “the Clean Fleet® system [similarly] comprise[s] electric powered pumps” by electric motors, and a VFD. *Id.* at 47 (citing ex. 2015, 1; Ex. 1001, 8:22–38; Ex. 2001). Patent Owner contends further that “[i]ndependent claim 7 recites similar elements.” *Id.*

Notwithstanding, whether Patent Owner is entitled to a presumption of nexus, Patent Owner contends there is a strong nexus between the claimed invention and the secondary considerations evidence. *Id.* at 48. Specifically, Patent Owner contends that there is evidence of: (i) of commercial success; (ii) copying by others; (iii) widespread industry praise and recognition; and (iv) long-felt need, met by the claimed invention. *Id.* at 48–63.

Petitioner contends that Patent Owner has not demonstrated nexus to support secondary considerations. Prelim. Reply 6. Specifically, Petitioner contends that the presumption of nexus under step one of *Fox Factory* does not apply because Patent Owner has not demonstrated that its Clean Fleet® product is coextensive with the ’728 patent. *Id.* at 7. Petitioner further contends Patent Owner cannot demonstrate nexus under step two of *Fox*

Factory because: (i) Patent Owner relies largely on its declarant, yet its declarant has a significant interest in the proceeding, and its declarant's testimony has not been tested; and (ii) even taking the testimony of Patent Owner's declarant at face value, it does not demonstrate nexus because it does not demonstrate that the second considerations actually results from something other than what is both claimed and novel in the claim. *Id.* at 9–10.

Patent Owner bears the burden of showing that a nexus exists. *WMS Gaming*, 184 F.3d at 1359. On this record, Patent Owner does not sufficiently demonstrate that it is entitled to a presumption of nexus. To establish nexus Patent Owner cites to arguments and evidence of objective indicia of nonobviousness submitted during prosecution of the application resulting in the '410 patent. Prelim. Resp. 43–44 (citing Ex. 2026, 149–199).

Further, in as much as, Patent Owner largely relies upon the declarations of Messrs. Broussard (Ex. 2008) and Schaaf (Ex. 2007) to supports its arguments of nexus, we do not find their testimony sufficient to establish nexus as it is untested at this stage of the proceeding. We also note that Mr. Broussard is Patent Owner's President and Chief Executive Officer (Ex. 2016 ¶ 2) and Mr. Schaaf relies on the Broussard Declaration (*see, e.g.*, Ex. 2005 ¶ 91). A final determination as to the veracity of Patent Owner's evidence and arguments is best reserved for trial.

d) Conclusion

For the foregoing reasons, and on the record presently before us, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in demonstrating that claims 1–3, 6–8, 10, 11, and 13 of the '728 patent are obvious over Robinson, Broussard, and Henry.

3. *Grounds 1B–4B*

Patent Owner does not separately contest the remaining challenges including the challenges directed to claims 4, 5, 9, and 12 which are not included in Ground 1A. *See generally* Prelim. Resp. We have reviewed Petitioner’s contentions regarding the limitations of claims 1–13 as set forth in Grounds 1B–4B of the Petition and determine that, for purposes of institution, they are adequately supported by the evidence. Pet. 38–70. To the extent that Patent Owner’s evidence in support of secondary considerations applies to these challenges, we determine it to be insufficient to establish nexus for the reasons discussed in Section II.F.2.c above. For the same reasons, a final determination as to the veracity of Patent Owner’s evidence and arguments as they pertain to Grounds 1B–4B is best reserved for trial.

On the record before us, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in demonstrating that claims 1–13 of the ’728 patent are obvious over the combinations of Robinson, Broussard, Henry, Coli, West, Aalvik, Hodgson, and Jang set forth in Grounds 1B–4B of the Petition.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition and the Preliminary Response, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one of the challenged claims, and thus, we institute an *inter partes* review of all challenged claims on all presented challenges. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require “a simple

yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual and legal issues.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–13 of U.S. Patent No. 9,611,728 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 9,611,728 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2021-01036
Patent 9,611,728 B2

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