UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LIBERTY ENERGY, INC. AND LIBERTY OILFIELD SERVICES LLC,
Petitioners,

v.

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

IPR2025-00139
U.S. Patent No. 11,208,878 B2

PATENT OWNER'S RESPONSE

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TQ Delta, LLC v. Cisco Sys., Inc., 942 F.3d 1352 (Fed. Cir. 2019) 39, 43, 47

Statutes

35 U.S.C. § 313 1

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	U.S. Patent No. 9,945,365 to Hernandez et al.
2002	Grizzly EnviroFrac data sheet
2003	Patent Case Scheduling Order, *U.S. Well Services, LLC, et al v. Liberty Energy, Inc.*, et al, 4:2-cv-008939-KPE (S.D. Tex.), ECF No. 30.
2004	Petitioner's Invalidity Contentions Cover Pleading, *U.S. Well Services, LLC, et al v. Liberty Energy, Inc.*, et al, 4:2-cv-008939-KPE (S.D. Tex.).
2005	USPTO Announcement Rescinding Memorandum Addressing Discretionary Denial Procedures and Accompanying Memorandum
2006	Order Denying Stay
2007	Joint Motion to Amend Patent Case Scheduling Order
2008	Amended Patent Case Scheduling Order
2009	Declaration of Richard Quarles ISO Motion for *Pro Hac Vice*
2010	U.S. Pat. Pub. No. 2019/0203572 (Morris572)
2011	U.S. Pat. Pub. No. 2019/0003329 (Morris329)
2012	Deposition of Dr. Robert Durham
2013	Declaration of Dr. Michael Nikolaou
2014	C.V. of Dr. Michael Nikolaou
2015	Memorandum And Order, Case 4:24-cv-00839 Document 111, Filed on 05/30/25 in TXSD
2016	Order Adopting Claim Construction Memorandum & Order, Case 4:24-cv-00839 Document 128, Filed 07/07/25 in TXSD

I. INTRODUCTION

Patent Owner U.S. Well Services LLC respectfully submits this Patent Owner's Response in accordance with 35 U.S.C. § 313 and 37 C.F.R. § 42.120, responding to the Petition for *inter partes* review (the "Petition") filed by Liberty Energy Inc. and Liberty Energy Services LLC (collectively, "Petitioners") challenging Claims 1-10 (the "challenged claims") of U.S. Patent No. 11,208,878 (the "878 Patent").

Petitioners failed to show how the prior art discloses or renders obvious "wherein the electric powered pump, the VFD, the switchgear, and the transformer are mounted on a common support structure." More than half the references asserted against this limitation have already been considered by the Examiner and determined not to anticipate or render obvious the 878 Patent. The other two asserted references merely address switchgear and thus do not address the electric powered pump, the VFD, or the transformer. None of the asserted references teach the electric powered pump, the VFD, the switchgear, and the transformer all mounted on a common support structure; instead, they teach against it.

Further, every ground possesses a common flaw. The Petition fails to show how Morris (asserted in every ground) discloses or renders obvious a "variable frequency drive," as required by all claims. Although Morris discloses a "drive" for an electric motor, Morris does not disclose that drive is a "variable frequency

drive." Petitioner also relies on Oehring IV for this feature but only provided evidence that a POSITA merely ***could have***—rather than evidence that a POSITA ***would have***—combined the prior art, when there exist multiple alternative ***fixed*** frequency drive design choices. Accordingly, the Petition fails to show a reasonable likelihood of success that Morris discloses a "variable frequency drive" or that such a drive was obvious over Oehring IV.

Because every ground in the Petition fails to disclose or render obvious at least one claim limitation, Petitioner has not met its burden to show that any of the claims are invalid.

II. THE CHALLENGED U.S. PATENT NO. 11,208,878

A. Overview of the Challenged Patent

The effective filing date for the 878 Patent is October 9, 2018. Petitioners contend that the 878 Patent is not entitled to its October 9, 2018, effective date. The Board need not address the effective date issue because the Petitioner relies on prior art predating October 9, 2018. Patent Owner reserves the right to assert the October 9, 2018, filing date in this or related proceedings.

The 878 Patent is directed to a hydraulic fracturing (fracking) system for fracturing a subterranean formation within oil and gas wells by pumping fracturing fluid down a wellbore. EX-1001, Abstract, 1:38–43. Pumping operations conventionally involve diesel-powered pumps which have certain disadvantages

(e.g., expensive, less environmentally friendly, less safe, heavy to transport). *Id.*, 1:46–49.

To overcome these problems, the 878 Patent teaches a novel system of pumping fluid into a wellbore using electric powered fracturing pumps (404) powered by electric motors (412) as shown in Fig. 4 and reproduced below. *Id.*, 2:31–43, Fig. 4.

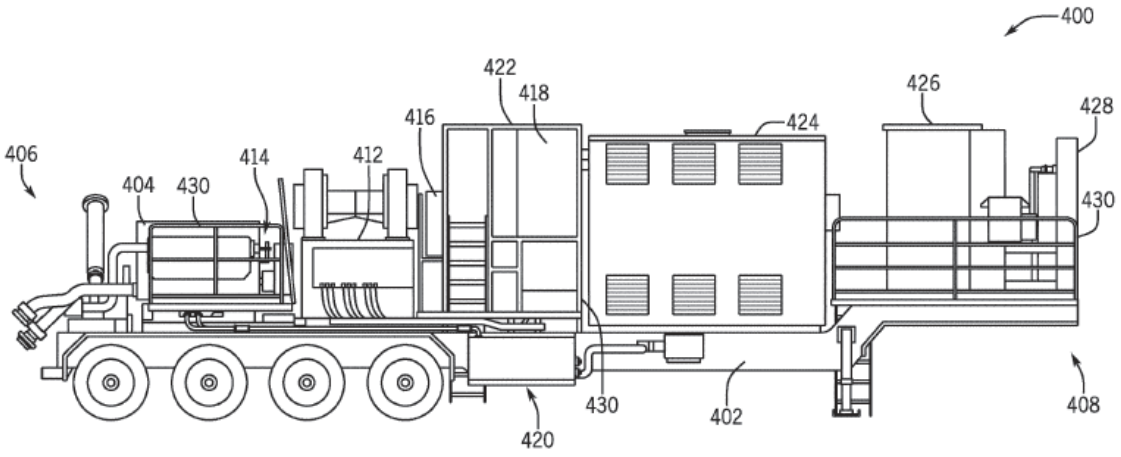


FIG. 4

878 Patent, Fig. 4 (EX-1001)

The above system also includes a "liquid cooling system (428), such as a radiator," for cooling "one or more variable frequency drives (VFDs)" (418) that are used to regulate the electric powered pumps. The 878 Patent explains that its VFD(s) are connected to the electric motor(s) and used to "control the speed of the … electric motor[s]" during drilling operations. *Id.*, 3:8–12. The transformer 424 provides power to the VFD using a switchgear. *Id.*, 11:15–20. Figure 15, shown

below, illustrates an exemplary switchgear 1500 and includes a "transformer [for] distributing power to the electric powered pump," a "modular switchgear system," (1500) and "power distribution for electric oilfield equipment." *Id.*, 2:35–45, 3:12–17.

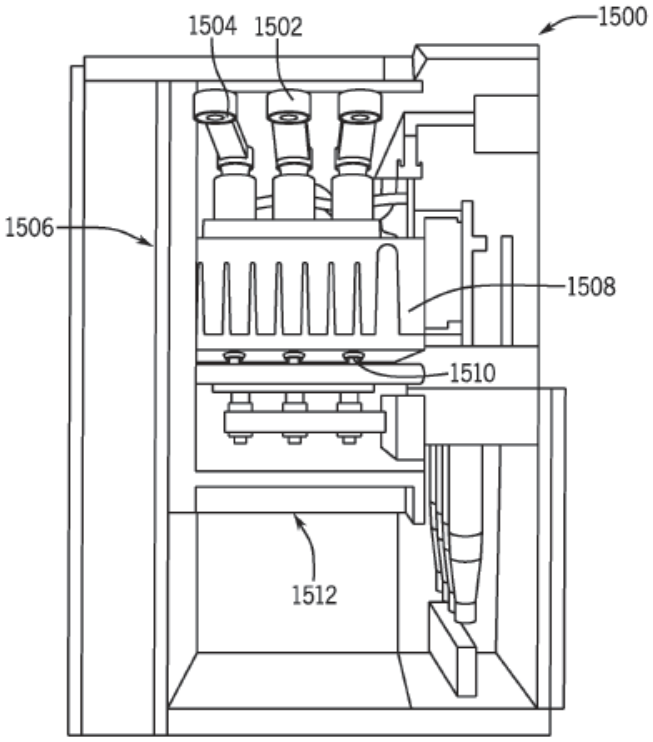


FIG. 15

878 Patent, Fig. 15 (EX-1001)

B. Challenged Claims

The 878 Patent contains a single independent claim. Independent Claim 1 recites, among other limitations, a variable frequency drive connected to at least one electric motor:

> 1. A hydraulic fracturing system for fracturing a subterranean formation, comprising:
>
> an electric powered pump coupled to a well associated with the subterranean formation and powered by at least one electric motor, the electric powered pump configured to pump fluid into a wellbore associated with the well;
>
> ***a variable frequency drive (VFD) connected to the at least one electric motor to control the speed of the at least one electric motor***;
>
> a transformer for conditioning power to the electric powered pump, the power being received from at least one generator at a voltage higher than an operating voltage of the electric pump; and
>
> a switchgear, receiving power from at least one generator, configured to distribute power to a plurality of pieces of wellsite equipment, the switchgear having a common load sharing bus and front aligned, shielded cable connections, the switchgear being positioned within an enclosure;
>
> ***wherein the electric powered pump, the VFD, the switchgear, and the transformer are mounted on a common support structure*** and a single cable couples the switchgear to the transformer.

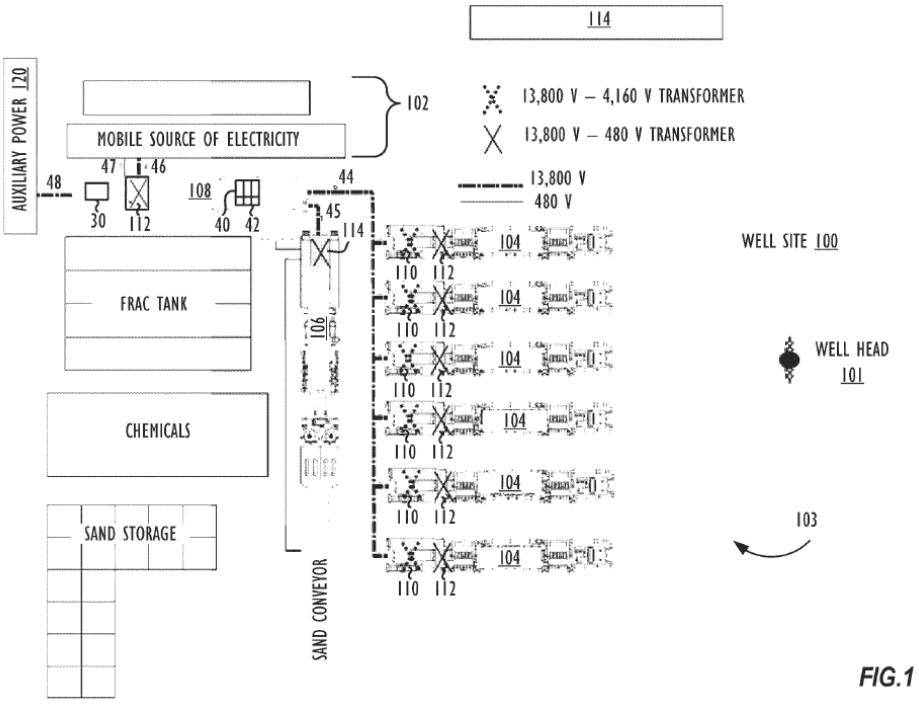
EX-1001, Claim 1 (emphasis added). Claims 2 through 10 all depend from Claim 1 and thus include the same limitations. As further explained below, the prior art in the Grounds does not disclose or render obvious these limitations.

III. ASSERTED PRIOR ART

Below are summaries of pertinent prior art.

A. Morris

U.S. Patent Application Publication 2020/0040705 to Morris et al. (Morris) is directed to an electric power distribution system and method for powering fracturing operations in oil and/or gas wells. EX-1004, Abstract, [0002]. Morris's distribution system for use in "fracturing fleet (103) includes a "switch gear transport" (108) with "circuit breaker connector[s]" (40) that connect an electric power source (102) to a "fracturing pump transport" (104) as shown in Fig. 1 and reproduced below. *Id.*, [0035], Fig. 1.



Morris, Fig. 1 (EX-1004)

Morris explains that its fracturing pump transport comprises one or more "transformers" (110) configured to receive electric power at a first voltage level and step down the voltage to one or more second voltage levels to power "prime movers, drivers, and/or other control instrumentation" in the oil and/or gas fracking system. *Id.*, [0030], [0031]. Morris's switchgear is mounted to switch gear transport 108, which is a separate transport from Morris's fracturing pump transport 108, where the pumps are located. *Id.*, [0021], [0022], [0025], [0035], Fig. 1. Though Morris mentions that its system may include "drives," Morris does not provide any further details regarding such drives. *See id.*, [0031], [0032], [0034], Fig. 1. Morris does not disclose the claimed "variable frequency drive."

B. Oehring IV

U.S. Patent Application Publication No. 2017/0222409 to Oehring et al. ("Oehring IV") is directed to a hydraulic fracturing system for fracturing a subterranean formation. EX-1006, Abstract. Oehring IV's hydraulic fracturing system further includes a "hydraulic fracturing well site power generation system 100" that provides electrical load sharing using one or more generators (105) for generating electricity that are electrically coupled to one or more electric motors, which power one or more electric pumps for pumping fracking fluid down a wellbore as shown in Fig. 1 and reproduced below. *Id.*, [0015], Fig. 1. Oehring IV's system also includes one or more switchgears located on switchgear trailer

125, for distributing an electrical load from its generators to the electric pumps. *Id.* Oehring IV further teaches that step-down transformers are located on a separate support structure from the fracturing equipment. *Id.*, [0092].

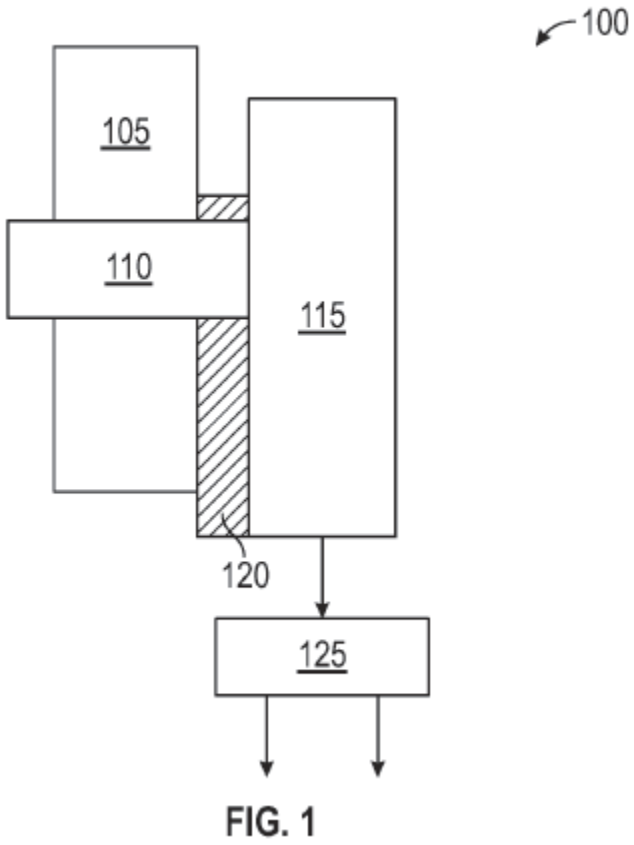


FIG. 1

Oehring IV, Fig. 1 (EX-1006)

IV. SKILL LEVEL OF A POSITA

For purposes of this Response, Patent Owner applies the same skill level proposed by Petitioners. *See* Pet., 17.

V. CLAIM CONSTRUCTION

Petitioners have not proposed any construction for the terms of the 878 Patent. Pet., 17. Patent Owner addresses claim construction positions, if any, in the body of its arguments below.

VI. ARGUMENT

A. Petitioners Failed to Show How the Prior Art Discloses or Renders Obvious "wherein the electric powered pump, the VFD, the switchgear, and the transformer are mounted on a common support structure."

Petitioners make four arguments using five different prior art references attempting to show "wherein the electric powered pump, the VFD, the switchgear, and the transformer are mounted on a common support structure" (the "Common Support Structure" limitation) is disclosed or rendered obvious. All fail.

First, the Common Support Structure limitation is a point of novelty that the Examiner identified to Patent Owner during examination of the 878 Patent. EX-1002, 451–469. EX-2013, ¶ 55. Patent Owner modified the claims to capture this point of novelty, overcome the Examiner's prior rejections, and obtain allowable claims. *Id.*, 71–77, 34–39. Petitioners further admit the Common Support Structure limitation was the key to claim allowance during examination. Pet., 36 ("PO amended Claim 1 to include limitation 1[g] [(i.e., the Common Support Structure limitation)] to obtain allowance").

Second, Petitioners' asserted prior art references regarding the Common Support Structure limitation—over half of which are listed on the face of the 878 patent, cited by the Examiner, and/or contain substantially the same disclosures as references by the same inventor that were the basis of rejections during examination—suffer from the same deficiencies as all prior art references considered by the Examiner during prosecution—none teach or render obvious the electric powered pump, the VFD, the switchgear, and the transformer mounted on a ***common*** support structure. EX-2013, ¶ 66.

Third, all of Petitioners' prior art references teach mounting one or more of the electric powered pump, the VFD, the switchgear, and/or the transformer on ***separate*** support structures. *Id.* Indeed, it is telling that Petitioners put forth no anticipation grounds, or even single reference obviousness for the Common Support Structure limitation—itself an admission that none of the prior art discloses mounting the electric powered pump, the VFD, the switchgear, and/or the transformer on the same support structure.

Fourth, Petitioners' assertions that the prior art would suggest to or motivate a POSITA to mount the electric powered pump, VFD, switchgear, and transformer on the same support structure are bellied by the references themselves, which teach against the Common Support Structure limitation. EX-2013, ¶ 71.

1. The Common Support Structure Limitation is a Point of Novelty Identified by the Examiner During Prosecution of the 878 Patent

The Examiner independently identified the novelty of the Common Support Structure Limitation over all prior art and indicated to Patent Owner that the claims would be allowable if amended to incorporate this point of novelty. EX-1002, 467. EX-2013, ¶ 55. Specifically, in an Office Action dated Feb. 4, 2021, the examiner rejected then-claim 20 as being unpatentable over U.S. Pat. Pub. No. 2019/0203572 ("Morris572") in view of U.S. Pat. Pub. No. 2020/0194976 ("Benussi") in view of U.S. Pat. Pub. No. 2018/0090914 ("Johnson"). *Id.*, 459. The Examiner further objected to then-claim 21 as "dependent upon a rejected base claim" (i.e., claim 20), but advised that it "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." *Id.*, 467. The examiner explained:

> Claim 21 recites that each of the pump, VFD, transformer, and switchgear are mounted on a ***common support structure***. The combined limitations of claims 20-21 are ***not taught by the prior art***, that is a fracturing system including a pump driven by an electric motor, a transformer, a VFD, and a switch gear ***on a common platform***. Wherein the switchgear includes a common bus and front-aligned cable connections within an enclosure so that a single cable is needed to connect the switchgear and the transformer on the common transport.

Id. (emphasis added). In an August 3, 2021 Response, Patent Owner cancelled original claims 1–16 and 21 and amended then-claim 17 to incorporate the Common Support Structure limitation of original claim 21 that was identified by the Examiner. *Id.*, 72–73. The Examiner responded by issuing a Notice of Allowance on Aug. 20, 2021, allowing claim 17—now issued claim 1—and dependent claims 18–20 and 22–27—now issued claims 2–10. *Id.*, 39.

As the prosecution history shows, the Examiner originally identified the Common Support Structure as a point of novelty which, when combined with the additional claim 1 limitations, is not disclosed, taught, or rendered obvious by any of the prior art or any combinations thereof. EX-2013, ¶ 55. During examination, the Examiner considered the primary prior art disclosures asserted by Petitioners, as discussed *infra,* Section VI.A.2.[1] Petitioners do not assert that the Examiner committed any material errors when considering this art. The Examiner's independent identification of the Common Support Structure as a novel innovation over the primary asserted prior art disclosures demonstrates that Petitioners have

[1] Petitioners also assert Premset Catalog (EX-1007) and Premset Brochure (EX-1008), both of which address only switchgears and thus do not disclose or render obvious the Common Support Structure limitation.

not met their burden of showing the 878 Patent claims to be invalid by a preponderance of the evidence.

2. The Examiner Already Considered the Disclosures of Petitioners' Primary Asserted References and Determined That They Independently and Collectively Do Not Disclose or Render Obvious the Common Support Structure Limitation

The Examiner considered the disclosures of Morris, Oehring IV, and Payne—the primary references Petitioners assert against the Common Support Structure limitation—and determined that they fail to individually or collectively render obvious the Common Support Structure limitation. EX-2013, ¶¶ 57–65. ***First***, the Morris disclosures upon which Petitioners rely were already considered by the Examiner. As discussed *supra*, Section VI.A.1, the Examiner considered U.S. Pat. Pub. No. 2019/0203572 to Morris, et al, ("Morris572"), issued rejections based on Morris572, and subsequently withdrew all rejections and issued a Notice of Allowance based on the addition of the Common Support Structure limitation. *See supra*, Section VI.A.1. Morris572 contains many of the same disclosures relied upon by Petitioners' obviousness grounds as illustrated in the below summary table and in Dr. Nikolaou's comprehensive comparison table. EX-2013, ¶ 59 (showing Petitioners' citations to Morris and illustrating Morris572 disclosures are substantially the same as Petitioners' relied-upon Morris disclosures).

Further, Morris329 (EX-2011) also discloses the Morris content relied upon by Petitioners for the Common Support Structure limitation as illustrated in the below summary table and in Dr. Nikolaou's comprehensive comparison table. EX-2013, ¶ 59 (showing Petitioners' citations to Morris and illustrating Morris329 disclosures are substantially the same as Petitioners' relied-upon Morris disclosures).[2]

[2] As explained *supra*, Section VI.A.1, Morris572 (EX-2010) was considered by the Examiner, used as the basis of a rejection, is listed on the face of the 878 Patent as "cited by Examiner" (*see* EX-1001, 5, 7), and was overcome by the addition of the Common Support Structure limitation. U.S. Pat. Pub. No. 2019/0003329 to Morris et. al. ("Morris329") (EX-2011) was also already considered during examination as shown by its listing as "cited by Examiner" on the face of the 878 Patent. *See* EX-1001, 5, 7.

Petition Citation	**Disclosures Already Considered During Examination**
Petitioners claim "Morris's 'fracturing pump transport 104 may include one or more transformers'" that "supply power to 'drives'". Pet., 37.	Morris572 discloses that its "***trailer 710***" could "***have mounted*** the fracturing pump trailer power and control system 708" which "may comprise one or more ***electric drives***" and "***transformers***". EX-2010, ¶ [0078] (emphasis added); EX-2013, ¶ 59. Dr. Durham admits that Morris572 discloses its fracturing pump trailer may include electric drives and transformers. EX-2012, 44:3–5 ("Q: So Morris 572 discloses its fracturing pump trailer may include transformers. Right? A: Yes"), 44:6–8 ("Q: Morris 572 discloses its fracturing pump trailer may include electric drives. Right? A: Yes, sir.") (discussing EX-2010, ¶ [0078]). Morris329 discloses its "***fracturing pump transport 304*** may include one or more ***transformers***" that "step down the voltage received from the switchgear 308" and ***supply*** "***electric power to the drives*** … mounted on the fracturing pump transport 304." EX-2011, ¶ [0056] (emphasis added). Dr. Durham admits that Morris329 discloses its fracturing pump trailer may include electric drives and transformers. EX-

	2012, 46:12–15 ("Q: So a POSITA would understand that Morris329 discloses drives mounted on the fracturing pump transport 304. Right? A: Yes, sir.), 46:16–19 ("Q: A POSITA would understand that Morris329 discloses fracturing pump transport 304 may include a transformer, right? A: Yes.").
Petitioners claim "[i]t would have been obvious to a POSITA, based on Morris's and Oehring IV's disclosures of a VFD for motor control and common knowledge, to provide a VFD mounted on the same transport as the electric motor." Pet., 37.	Not so. ***First***, Morris does not disclose a VFD as discussed *infra*, Section VI.B. ***Second***, Morris572 and Morris 329 disclose "drives" (EX-2010, ¶ [0078]; EX-2011, ¶ [0056]) and were already considered by the Examiner. ***Third***, the Examiner already considered Morris572, Morris329, and Oehring IV and determined—after evaluating substantially the same Morris disclosure and the same Oehring IV reference—that the claims were allowable. EX-1002, 34–39, 451–467.
Petitioners claim Morris's "transformer also supplies power to 'electric prime movers' and 'pumps.'" Pet., 37.	Morris329 explains that its "***[t]ransformers 310 and 312*** are configured to ***supply enough electric current to power*** the ***prime movers***, drivers, and/or the control instrumentation." EX-2011, ¶ [0056]. Morris329 further explains that its ***transformer(s)*** "step down the voltage received from the switch gear transport 308" to "a voltage

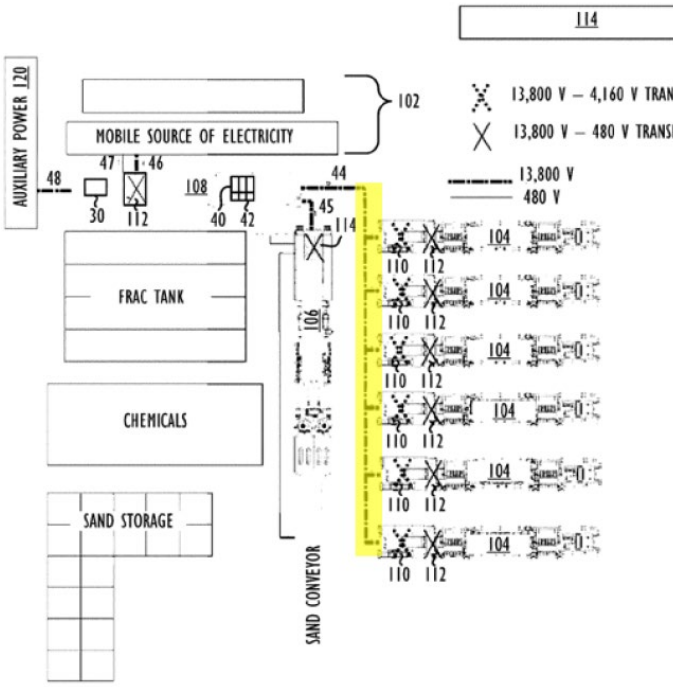
	level of 4.2 kV" that "***supplies electric power to one or more electric prime movers that drive one or more pumps***". EX-2011 (emphasis added). Dr. Durham admits that Morris329 discloses its transformer supplies power to its prime movers and drives. EX-2012, 47:10–17 ("Q: So a POSITA would understand that Morris 329 discloses its transformer supplies power to its prime movers. Right? A: Yes, sir. Q: A POSITA would understand that Morris 329 discloses its transformer supplies power to its drives, right? A: Yes.").
Petitioners claim "Morris also motivates switchgear[3] on the pump transport by teaching a POSITA to mount electrical equipment on the pump transport so that it is 'individually autonomous.'" Pet., 38. Petitioners rely on Morris's teaching that "'[h]aving autonomous trailers allows the fracturing fleet [] to become scalable and	Morris329 also discloses that "[b]y mounting the drives and transformers310 and/or 312 onto the fracturing pump transport 304" …, the transports become ***individually autonomous*** by ***removing the need for other separate support-based trailers***." EX-2011, ¶ [0058] (emphasis added).

[3] Notably, Petitioners cite to Morris paragraph [0034], which does not list "switchgear transport trailer" as one of the trailers to be avoided. *See generally* EX-1004, ¶ [0034].

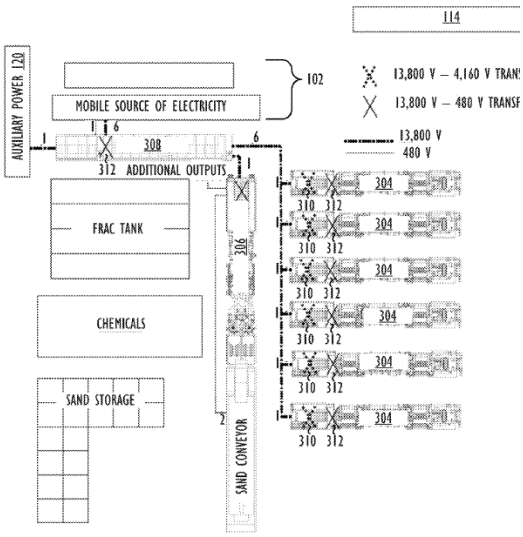
flexible'" while "avoiding 'additional support-based transports'". *Id.*	Morris329 also discloses that ***"[h]aving autonomous trailers allows the mobile fracturing system 302 to become scalable and flexible***". *Id.* (emphasis added). Dr. Durham admits that Morris329 discloses that having autonomous trailers allows the mobile fracturing system to become scalable and flexible. EX-2012, 48:6–10 ("Q: So a POSITA would understand that Morris 329 discloses that having autonomous trailers allows the mobile fracturing system to become scalable and flexible. Right? A: Yes. It says that.").
Petitioners claim "Morris states 'each fracturing pump transport 104 is directly connected to the switch gear transport 108 with a single medium voltage (e.g., 13.8 kV) cable connection 44.'" Pet., 40.	Morris329 likewise discloses that "each fracturing pump transports 304 is directly connected to the switch gear transport 308 with a single medium voltage (e.g., 13.8 kV) cable connection." EX-2011, ¶ [0054]. Dr. Durham admits that Morris329 discloses that each fracturing pump transports 304 is directly connected to the switch gear transport 308 with a single medium voltage (e.g., 13.8 kV) cable connection. EX-2012, 50:6–12 ("Q: So a POSITA would understand that Morris 329 discloses that each of its fracturing pump transports 304 is

	directly connected to the switch gear transport 308 with a single medium voltage, for example, 13.8-kilovolt cable connection. Right? A: Yes.").
Petitioners claim "Morris further explains the benefit of a single, medium-voltage cable connecting switchgear to the transformer in reducing cabling and promoting safety." Pet., 40.	Morris329 likewise discloses that its "medium voltage power distribution system … is able to ***reduce the number of electrical cables used to supply electric power to the fracturing pump transport 304.***" EX-2011, ¶ [0055]. Morris329 also discloses that "[s]upplying electric power at relatively lower current levels ***avoids the safety concerns*** and/or connection/disconnection issues associated with using a single electrical cable that supplies relatively high current (e.g., 600 A). *Id.* Dr. Durham admits that Morris329 discloses the medium voltage power distribution system is able to reduce the number of electrical cables used to supply power to the pump transport. EX-2012, 51:7–14 ("Q. So Morris 329 discloses the medium voltage power distribution system is able to reduce the number of electrical cables used to supply power to the pump transport. Right? A: That's what it says, yes, sir. As compared to the medium low

	power distribution system shown in Figure 2, to complete the sentence."). Dr. Durham further admits that Morris 329 discloses a benefit of supplying electric power at relatively lower current levels avoids the safety concerns and connection issues associated with using a single electrical cable that supplies relatively high current. EX-2012, 52:2–7 ("Q: So Morris 329 discloses a benefit of supplying electric power at relatively lower current levels avoids the safety concerns associated with using a single electrical cable that supplies relatively high current. Right? A: Correct, it says that."), 52:8–14 ("Q: And Morris 329 discloses a benefit of supplying electric power at relatively lower current levels avoids connection issues relative to using a single electrical cable that supplies relatively high current. Right? A: Correct. Safety concerns and/or connection/ disconnection issues.").
Petitioners rely on Morris, Figure 1. Pet., 41.	Morris329 likewise discloses Figure 3, which is substantially identical to Morris's Figure 1. EX-2011, Fig. 3.



Pet., 41.



EX-2011, Fig. 3.

Dr. Durham admits Morris329, Figure 3 shows the connection between switch gear 308 and transformer 310. EX-2012, 51:2–5 (Q: In Figure 3 there's a connection between switch gear 308 and transformer 310. Right? A: There would be.") (objections omitted).

Petitioners claim that "[i]t would also have been obvious to a POSITA, based on Morris's and Oehring IV's disclosure of a VFD for motor control and common knowledge, to provide a VFD mounted on the same transport as the electric motor." Pet., 37.

Oehring III likewise discloses that "each electric motor 14 can be equipped with a variable frequency drive (VFD) 15 … that controls the speed of the electric motor 14, and hence the speed of the pump 10." EX-1014, ¶ [0021].

Dr. Durham admits that Oehring III discloses a VFD that controls the speed of the electric motor 14. EX-2012, 53:15–19 ("Q: So in paragraph 0021, it discloses electric motor 14 can be equipped

	with a variable frequency drive, for example, a VFD. Right? A: Correct. It -- yeah, uses the VFD acronym for variable frequency drive), 53:20–22 ("Q: And in paragraph 0021, it discloses a VFD that controls the speed of the electric motor 14. Right?").
Petitioners claim that "Oehring IV teaches that 'switchgear [] can distribute power to other switchgear units.'" Pet., 39.	As explained above, Oehring IV was previously considered by the Examiner.
Petitioners claim "[a] POSITA would have understood that a 'hierarchy of switchgear units' supports load sharing and isolation, as taught by Oehring IV." Pet., 39.	As explained above, Oehring IV was previously considered by the Examiner.

Second, Oehring IV was already considered during examination, as shown by its listing as "cited by Examiner" on the face of the 878 Patent. *See* EX-1001, 5, 7. Thus, all Oehring IV disclosures relied upon by Petitioners were already considered by the Examiner and determined not to disclose or render obvious—alone or in combination with all other references—the Common Support Structure limitation. Additionally, U.S. Pat. Pub. No. 2016/0105022 to Oehring et al (Oehring III) (EX-1014) was already considered by the Examiner, in a rejection (EX-1002, 2136), listed on the face of the 878 Patent as "cited by Examiner" (*see* EX-1001, 4, 7), and overcome by the addition of the Common Support Structure limitation. *See supra*, Section VI.A.1.

Oehring III discloses additional Oehring IV content relied upon by Petitioners for the Common Support Structure limitation as illustrated in the below Oehring summary table and in Dr. Nikolaou's comprehensive comparison table. EX-2013, ¶ 63 (showing Petitioners' citations to Oehring IV and illustrating additional Oehring III disclosures that are substantially the same as Petitioners' relied-upon Oehring IV disclosures).

Petition Citation	**Disclosures Already Considered During Examination**
Petitioners claim that "[i]t would also have been obvious to a POSITA, based on Morris's and Oehring IV's disclosure of a	Oehring III likewise discloses that "each electric motor 14 can be equipped with a variable

VFD for motor control and common knowledge, to provide a VFD mounted on the same transport as the electric motor." Pet., 37.	frequency drive (VFD) 15 … that controls the speed of the electric motor 14, and hence the speed of the pump 10." EX-1014, ¶ [0021]. Dr. Durham admits that Oehring III discloses a VFD that controls the speed of the electric motor 14. EX-2012, 53:15–19 ("Q: So in paragraph 0021, it discloses electric motor 14 can be equipped with a variable frequency drive, for example, a VFD. Right? A: Correct. It -- yeah, uses the VFD acronym for variable frequency drive), 53:20–22 ("Q: And in paragraph 0021, it discloses a VFD that controls the speed of the electric motor 14. Right?").
Petitioners claim that "Oehring IV teaches that 'switchgear [] can distribute power to other switchgear units.'" Pet., 39.	Oehring IV was previously considered by the Examiner. *See infra*.
Petitioners claim "[a] POSITA would have understood that a 'hierarchy of switchgear units' supports load sharing and isolation, as taught by Oehring IV." Pet., 39.	Oehring IV was previously considered by the Examiner. *See infra*.

The Oehring IV disclosures were thus already considered by the Examiner during prosecution, Petitioners have not alleged that the Examiner committed material error in considering them, and as such Petitioners' obviousness arguments that rely upon them should be rejected.

Third, Payne (U.S. Pat. App. Pub. No. 2016/0258267, EX-1013) was already considered during examination, as shown by its listing on the face of the 878 Patent. *See* EX-1001, 4. Payne is also listed in the 878 Patent file history, specifically in an International Search Report as relevant to PCT/US 20/00017. EX-1002, 618. Thus, all Payne disclosures relied upon by Petitioners have already been considered by the Examiner and determined not to disclose or render obvious—alone or in combination with all other references—the Common Support Structure limitation. *See supra*, Section VI.A.1.

3. All Primary References Explicitly Disclose Mounting One or More Components of the Common Support Structure Limitation on ***Separate*** Support Structures

Morris, Oehring IV, and Payne all disclose mounting one or more components of the Common Support Structure limitation on separate support structures. EX-2013, ¶¶ 66–70. ***First***, Petitioners admit that "Morris discloses a switchgear transport that is ***separate*** from Morris's fracturing pump transport". Pet., 39 (emphasis added). Dr. Durham admits as much:

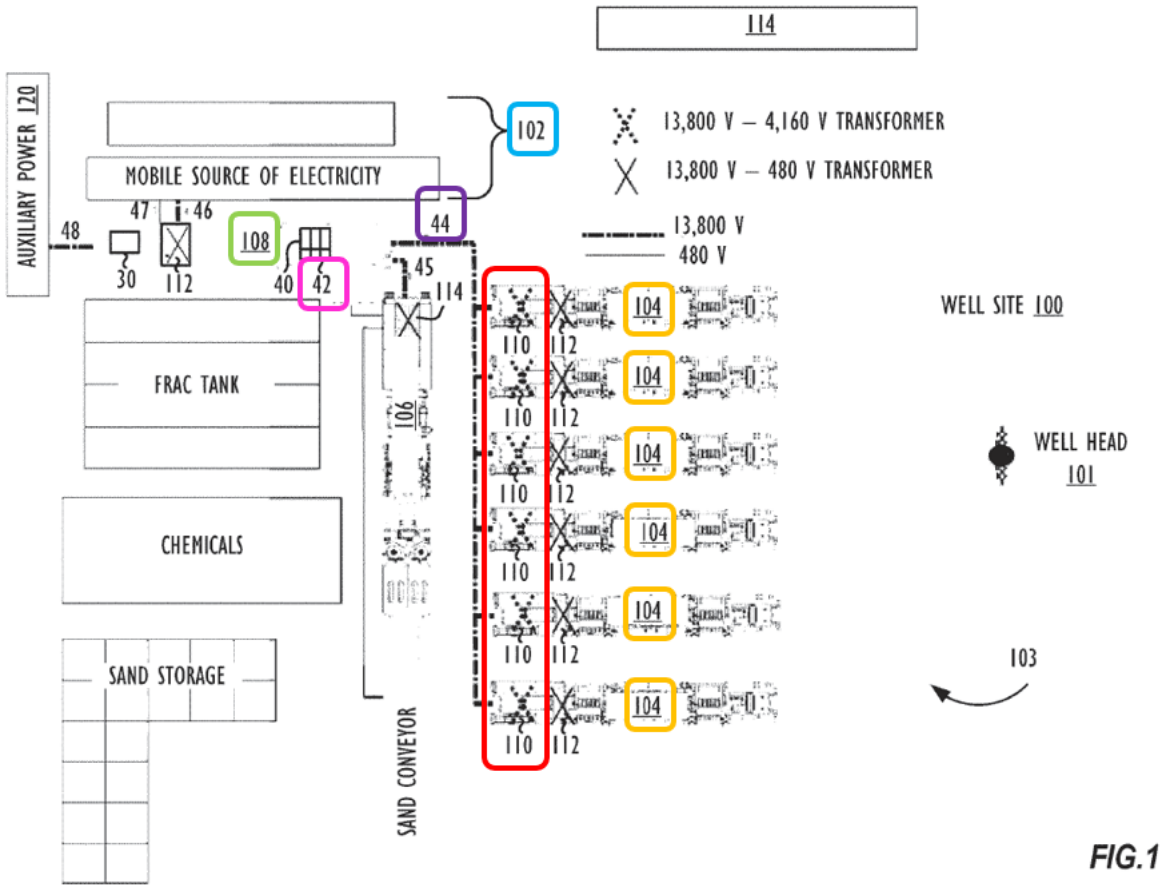
> Q: So Morris discloses that switch gear transport 108 is a separate transport from fracturing transport pump 104. Right?
>
> A: Yes, that's correct.
>
> Q: So the switch gear that are on switch gear transport 108 are not on the same transport as the pumps on fracturing pump 104. Right?

A: Correct. In this embodiment, that's correct.

Q: And the switch gear that are on switch gear transport 108 are not on the same transport as the transformers 110. Right?

A: Yes. That's correct in this embodiment.

EX-2012, 14:17–15:7; EX-2013, ¶ 66. Indeed, Morris discloses, with reference to annotated Fig. 1 below, that switch gear transport 108 (green) is connected to separate fracturing pump transports 104 (yellow) via cable connections 44 (purple). EX-1004, ¶ [0027], Fig. 1 (annotated); EX-2013, ¶ 66. Morris's separate switch gear transport 108 further does not include "front-aligned, shielded cable connections" as required by Claim 1, and Petitioners do not contend that it does. *Id.* Further, Morris does not explicitly even disclose the claimed VFD—let alone its mounting on a common support structure—as discussed *infra* in Section VI.B. Thus, Morris does not explicitly disclose the claimed VFD mounted on either switch gear transport or fracturing pump transport. *Id.*; EX-2013, ¶ 67.



EX-1004, Fig. 1 (annotated).

Second, Oehring IV discloses a dedicated switchgear trailer 300-a that is separate and distinct from pump trailer 425, as illustrated in Figs. 3A and 4 and reproduced below. Dr. Durham admits as much:

> Q: So Oehring 4 discloses that the fracturing pumps on fracturing pump trailer 425 are not on the same trailer as the switch gear that is located on switch gear trailer 325. Right?
>
> A: Yes. I could agree with that.

EX-2012, 18:8–13. EX-2013, ¶ 68. Oehring IV further discloses that its 13.8-kilowat transformer is not on the same trailer as fracturing pump trailer 425. EX-1006, ¶ [0053]; EX-2013, ¶ 69. Dr. Durham admits this as well:

> Q: So a POSITA would understand that Oehring 4 discloses that its 13.8-kilovolt to its 600-volt transformer described in paragraph 0053 is not on the same trailer as fracturing pump trailer 425, right?
>
> A: Correct.

EX-2012, 19:8–13; EX-2013, ¶ 69.

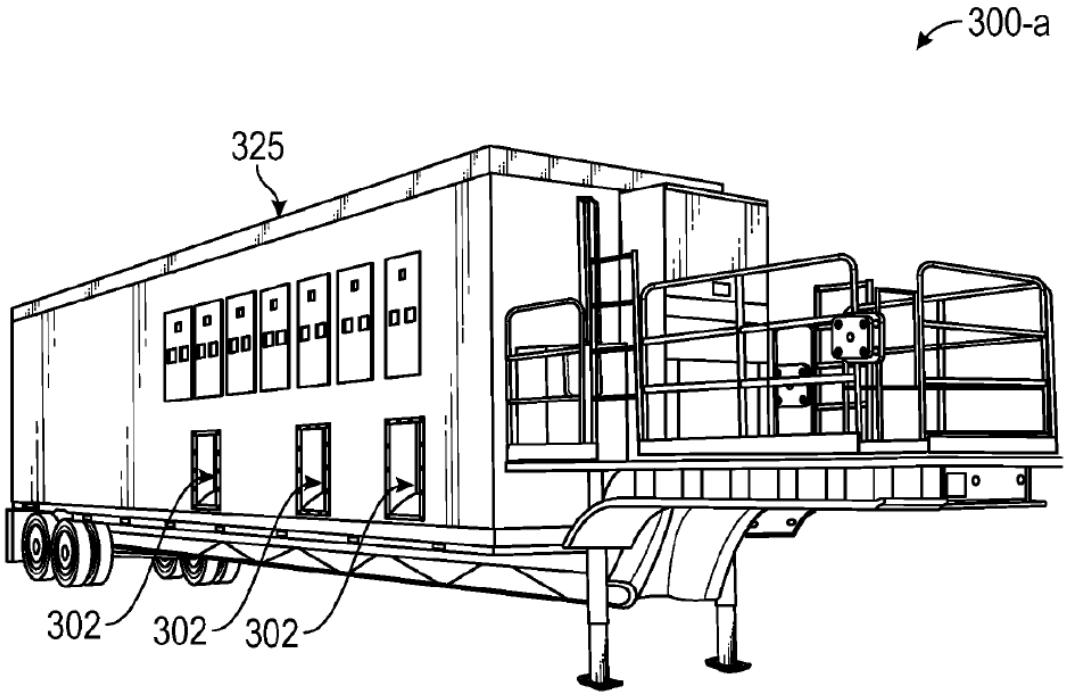


FIG. 3A

EX-1006, Fig. 3A.

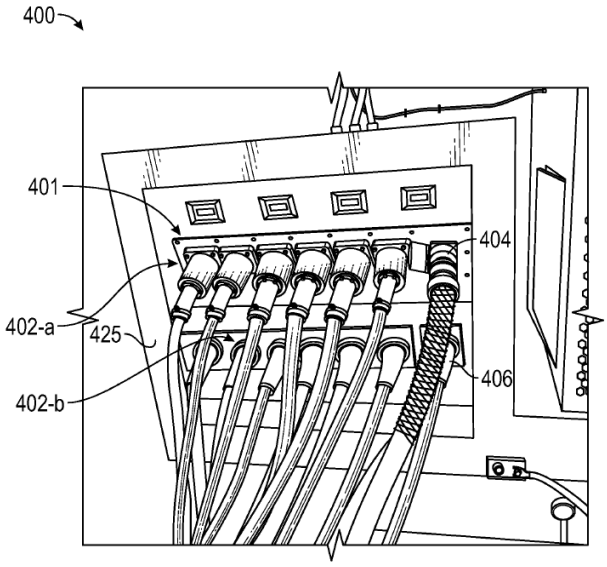


FIG. 4

EX-1006, Fig. 4.

Third, Payne discloses that its "fracturing pump unit trailers, trucks, or skids [("fracturing pump trailers")] 20a, 20b, 20c, 20d, 20e, 20f, 20g, and 20h" (yellow) are separate and distinct from its "transformer trailers, trucks, or skids [("transformer trailers")] 70a-70d" (red) as illustrated in Figure 1 and reproduced below. EX-1013, ¶ [0043], Fig. 1; EX-2013, ¶ 70. Dr. Durham admits as much:

> Q: So the transformer units on transformer trailers 70a through 70d are on a separate trailer from fracturing pump unit trailers 20a through 20h. Right?
>
> A: Yes, they are.

EX-2012, 21:19–22:2 (objections omitted); EX-2013, ¶ 70.

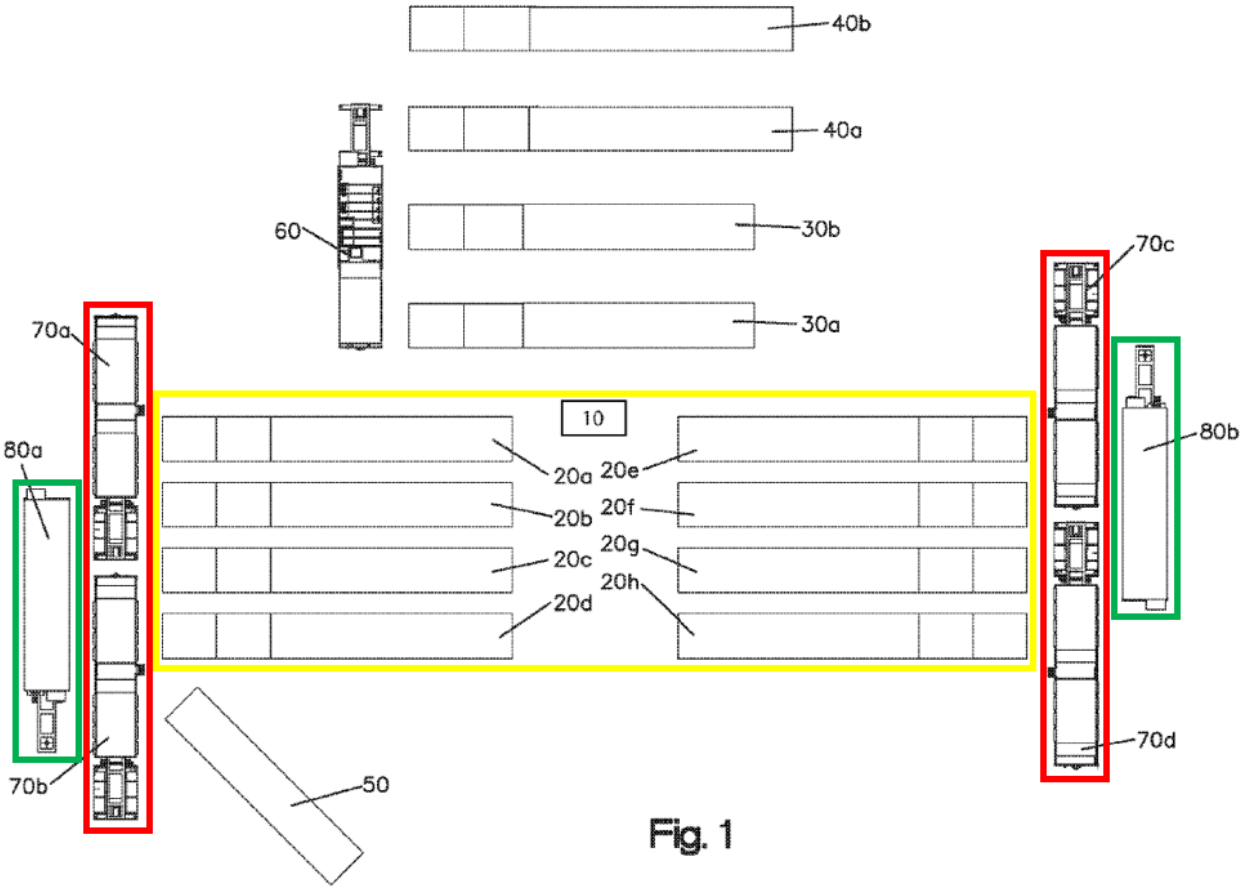


Fig. 1

EX-1013, Fig. 1 (annotated).

Payne explains that each of its transformer trailers "includes a pair of the eight fracturing transformer units" 300a–300h. EX-1013, ¶ [0043]. Payne further discloses that its "switchgear trailers, trucks, or skids [("switchgear trailers")] 80a, 80b" (green) are separate and distinct from both its fracturing pump trailers and transformer trailers as also illustrated in Figure 1. *Id.*, ¶ [0044], Fig. 1; EX-2013, ¶ 71. Dr. Durham admits as much:

> Q: So switch gear module 200a on switch gear trailer 80a is on a different trailer than fracturing pump trailer 20a. Right?

A: Yes.

Q: And switch gear module 200a on switch gear trailer 80a is on a different trailer than transformer 300a on transformer trailer 70a. Right?

A: Yes, I agree with that.

EX-2012, 22:12–20; EX-2013, ¶ 71. Payne's separate switch gear trailers 80a and 80b further do not include "front-aligned, shielded cable connections" as required by Claim 1, and Petitioners do not contend that it does. EX-2013, ¶ 71.

Payne explains that its switchgear trailers "include two switchgear modules 200a, 200b that are electrically connected to four turbine generators." EX-1013, ¶ [0044]. Payne thus confirms that its electric powered pump, switchgear, and transformer are not on a common support structure and consequently ***fails to meet*** the requirements of the Common Support Structure limitation. *Id.*, ¶¶ [[0043]–[0044], Fig. 1; EX-2013, ¶ 72.

4. The Asserted References Teach Against Mounting the Electric Powered Pump, the VFD, the Switchgear, and/or the Transformer on a Common Support Structure

Morris, Oehring IV, and Payne all teach against the Common Support Structure limitation, at least by disclosing advantages of mounting the equipment on separate trailers and/or disadvantages of having a common support structure. EX-2013, ¶¶ 73–76; s*ee Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed Cir. 2018) ("A reference may be said to teach away when a person of

ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference. . . Moreover, a reference must be considered for all it taught, disclosures that diverged and taught away from the invention at hand as well as disclosures that pointed towards and taught the invention at hand.").

First, Morris is directed to a "***switch gear transport*** that distributes electric power for fracturing operations." EX-1004, Abstract (emphasis added). Morris teaches the advantages of a standalone switch gear transport in a master/slave configuration—as opposed to switchgear on a pump transport—where:

> The switch gear transport 108 could also be setup to ***act as a hub*** for receiving control and monitoring information for fracturing fleet 103.
>
> …
>
> Specifically, the switch gear transport 108 could house control and monitoring equipment to communicate with other transports and fracturing equipment.
>
> …
>
> The switch gear transport 108 could also provide data received from transports and fracturing equipment to data van 114. The data van 114 remotely controls the switch gear transport 108."

EX-1004, ¶ [0037] (emphasis added); EX-2013, ¶ 74. Dr. Durham admits there are multiple advantages to this hub configuration:

> Q: What would be the advantages of the switch gear transport being set up to act as a hub?
>
> A: Well, I think it goes on in that paragraph to explain those advantages. It would allow the switch gear transport 108 to communicate, monitor and provide control signals to other transports, such as fracturing pump transport 104 and hydration blender transport 106. And it also says that switch gear transport 108 could house control of monitoring equipment to communicate with other transports. And then goes on to list different data or control functions. I guess data that would be -- could be monitored from transport 108, including power measurements, power management equipment, safety circuits, safety logic, and communicate those back to data van 114.

EX-2012, 36:10–37:5; EX-2013, ¶ 75. Morris thus teaches the advantages of a dedicated switch gear transport to be a centralized communications hub rather than a distributed switchgear structure. EX-2013, ¶ 76. These advantages include enhanced communications through monitoring and control of other transports. *Id.* Morris further discloses another advantage of its dedicated switchgear, namely that it "may also be able to power a second fracturing fleet located at an adjacent well site or for the purposes of fracturing multiple well heads 101." *Id.*, [0038]; EX-2013, ¶ 76. Morris explains its design has multiple power source connections, which provide its switchgear with "additional electric power to power two or more

fracturing fleets (e.g., about 16 fracturing pump transports 104 and two or more electric blender transports 106)." *Id.*, [0043]; EX-2013, ¶ 76.

Second, Oehring IV teaches a transformer on a separate support structure from the fracturing pump trailer 425 as illustrated in Figure 4. EX-2013, ¶ 77. By having its transformer located on separate trailer from the fracturing pump trailer 425, the Oehring IV system has room for a second pump on fracturing pump trailer 425. *Id.*, ¶¶ [0052–53]; EX-2013, ¶ 77. Oehring IV explains that its fracturing pump trailer has "[a]n upper row of plugs 402-a [that] can be used to power one fracturing pump, while a lower row of plugs 402-b can be used to power ***a second fracturing pump on the same fracturing pump trailer 425***, as illustrated in Figure 4 and reproduced below. *Id.*, Fig. 4 (emphasis added).

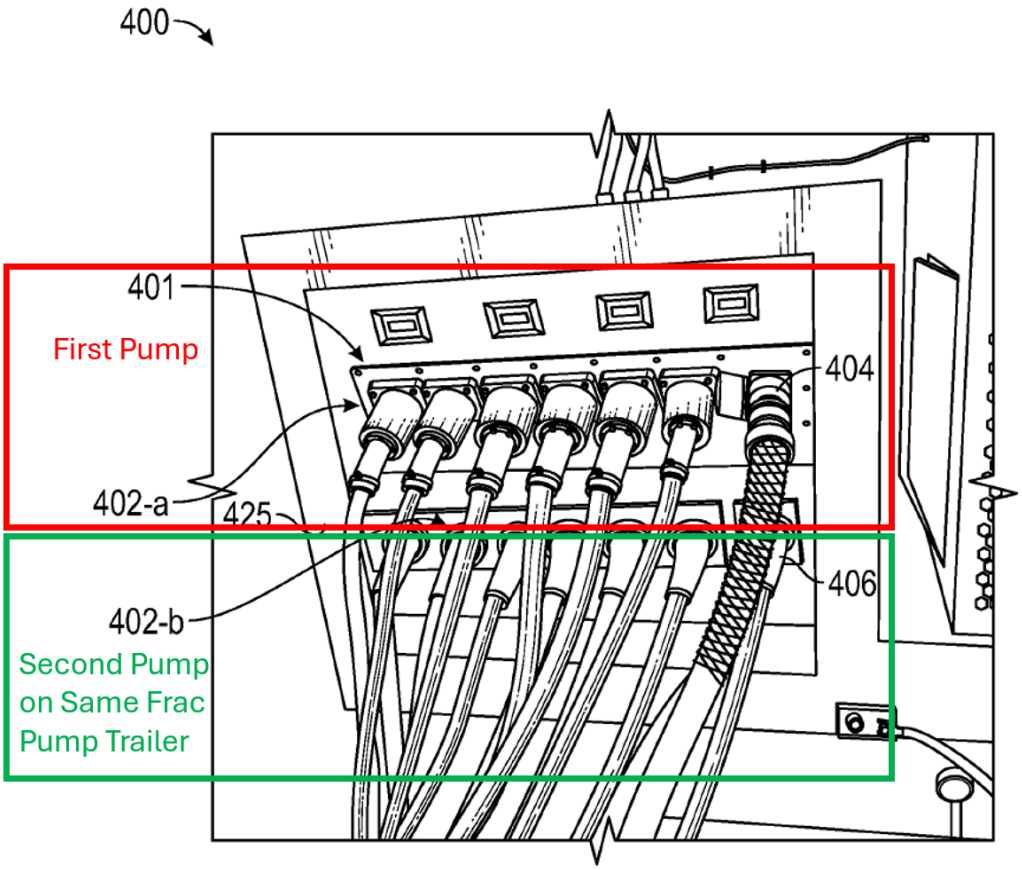


FIG. 4

Fig. 4 (annotated). Oehring IV thus teaches the advantages of its split system that leaves room for multiple pumps on the same fracking pump trailer, and as such does not disclose or render obvious combining transformers and electric pumps on a common support structure. EX-2013, ¶ 77.

Third, Payne teaches against the Common Support Structure limitation by teaching a system whereby fracturing pump units, transformers, and switchgear all have separate support structures (e.g., pump unit trailers 20a–20h, transformer trailers 70a–70d, switchgear trailers 80a–80b) as discussed *supra*. EX-2013, ¶ 78.

Payne further provides no teaching, suggestion, or motivation for combining any of these separate components onto a common support structure. *Id.*

B. Petitioner Failed to Show How the Prior Art Discloses or Renders Obvious a "Variable Frequency Drive Connected To At Least One Motor."

The Petition presents two different theories for how the prior art allegedly discloses or renders obvious claim 1's requirement for "a variable frequency drive (VFD) connected to the at least one electric motor to control the speed of the at least one electric motor."[4] All dependent claims depend on claim 1 and thus have the same limitation. Both of Petitioner's theories are flawed, as discussed below.

1. The Petition Fails to Show How Morris Discloses a Variable Frequency Drive

The Petition first argues that Morris discloses the VFD limitation. Pet., 30; *see id.*, 48 (relying on same theory for Grounds 1B through 10B). This is incorrect because Morris does not disclose, expressly or inherently, a variable frequency drive. EX-2013, ¶¶ 79–83.

The Petition relies on two disclosures from Morris to purportedly show the claimed "variable frequency drive"—neither of which mentions the terms "variable" or "frequency":

[4] The subsequent arguments refer to this as the VFD limitation.

> The 4.2 kV or 2.1 kV voltage level supplies electric power to one or more electric prime movers (not shown) that drive one or more pumps (not shown) and the 480 V, 240 V and 110 V supplies electric power to the drives and/or other control instrumentation mounted on the fracturing pump transport 104. Transformers 110 and 112 are able to supply enough electric current to power the prime movers, drivers, and/or other control instrumentation….

EX-1004, [0031].

> By mounting the drives and transformers 110 and/or 112 onto the fracturing pump transport 104 and the transformer 114 on the hydration-blender transport 106, the transports 104, 106 become individually autonomous by removing the need for other separate support-based trailers, such as the auxiliary unit transport and drive power transports that provide power conversion and/or drive control.

Id., [0034]. Moreover, Morris nowhere uses the terms "variable," "frequency," or "VFD", let alone a drive that uses a "variable frequency," as required by the claims. EX-2013, ¶¶ 80–81. Dr. Durham admits as much.

> Q: Morris does not expressly describe his drive as a variable frequency drive. Right?
>
> A: I would agree with that.
>
> Q: And Morris does not expressly use the term "variable" in describing his drive. Right?
>
> A: Yes, I can agree with that.

> Q: Does Morris expressly use the term "VFD" anywhere in its specification?
>
> A: No. It does not use that term.

EX-2012, 28:5–13; EX-2013, ¶ 81. As Dr. Durham admits, Morris does not explicitly disclose a "variable frequency drive." EX-2013, ¶ 81.

While admitting that Morris does not expressly disclose a variable frequency drive, Dr. Durham instead appears to advance an incorrect, unsupported argument that Morris implicitly or inherently discloses a VFD. EX-2013, ¶ 81. Specifically, Petitioner's expert states that "Morris at least suggests the use of VFDs." EX-1003, ¶ 169. Dr. Durham tries to explain away the fact that Morris doesn't use the terms "variable" or "frequency" in stating—without any evidentiary support—that "the use of the general term 'drives' to refer to VFDs has been common in the electric industry since at least the 1990s." EX-1003, ¶ 169. But this statement cannot support that Morris either implicitly or inherently[5] discloses a VFD. EX-

[5] Dr. Durham's testimony also fails to show that a VFD was necessarily present in Morris' system, as required for Morris to inherently disclose VFDs. *In re Rijckaert,* 9 F.3d 1531, 1534 (Fed. Cir. 1993) (reversing rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art).

2013, ¶ 82. Rather, Dr. Durham's statement is *ipse dixit* testimony because he fails to cite any evidentiary support. *TQ Delta, LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019). Because Dr. Durham's unsupported testimony is the only evidence that Morris implicitly or inherently discloses a VFD, that evidence is insufficient for Petitioners to meet their burden of showing claim 1 invalidity by a preponderance of the evidence based on Morris' disclosures.

Dr. Durham's statement is also incorrect. EX-2013, ¶ 82. Morris did not specify the type of drive because the industry used various drives for electric motors that are ***not*** variable frequency. EX-2013, ¶ 83. Dr. Durham admitted as much:

> Q: So a POSITA would recognize that, for example, fixed frequency drives were known in the art at the time of the '878 patent invention. Right?
>
> A: Oh, certainly. I can agree with that for sure.
>
> Q: And fixed frequency drives for use in hydraulic fracturing were known in the art at the time of the '878 patent invention. Right?
>
> A: Yes, I agree with that.

EX-2012, 30:14–31:1; EX-2013, ¶ 83.

In one example directed to use of a fixed frequency drive in hydraulic fracturing operations, U.S. Patent No. 9,945,365 to Hernandez et al. ("Hernandez") discloses a ***fixed*** frequency—in contrast to a variable frequency—drive for an

electric motor used in hydraulic fracturing operations. EX-2001, Abstract ("A motor control center is configured to apply an alternating electrical voltage having a fixed - frequency to the stator in order to power the electric motor, wherein the apparatus and motor control center do not have a variable frequency drive."); EX-2013, ¶ 84. Hernandez further discloses multiple advantages of using a fixed-frequency drive instead of a variable frequency drive. EX-2001, 4:9–30 (explaining advantages include "eliminat[ing] electrical current harmonics … and their potentially damaging effects in the electric motor", "no maintenance requirement for the VFD and no associated costs of a technician trained to maintain the VFD", and elimination of a VFD's "associated cooling components" and the associated reduction in "weight loading on a trailer"); EX-2013, ¶ 84. Indeed, Dr. Durham admits there are multiple advantages of using a fixed frequency drive instead of a variable frequency drive:

> Q: Based on the Hernandez disclosures, a POSITA would recognize that one of the benefits of using a fixed frequency drive instead of a VFD is that not using a VFD eliminates electrical current harmonics due to semiconductor switching that may occur in the VFD. Right?
>
> A: Yes.
>
> Q: And a POSITA would recognize that such electrical current harmonics may have potentially damaging effects in the electric motor. Right?

A: Yes. It can.

…

Q: Based on the Hernandez disclosures, a POSITA would recognize that one advantage of a fixed frequency drive over a variable frequency drive is that a variable frequency drive may have more cooling requirement than a fixed frequency drive. Right?

A: Yeah, I can agree with that. It may have more cooling requirements.

EX-2012, 33:4–34:12; EX-2013, ¶ 85.

As another example, the EnviroFrac electric motor by Grizzly similarly does not use a variable frequency drive. EX-2002, 2, Grizzley EnviroFrac data sheet ("No complicated/ fragile VFD control unit required."); *id.*, 3, ("Simpler and easier to use than VFD-based electrical drive trains with automation to overcome startup issues."); EX-2013, ¶ 86. These references are objective evidence that Morris's generic reference to a "drive" fails to disclose explicitly or inherently a VFD and contradict Dr. Durham's unsupported testimony that "drive" means VFD. EX-2013, ¶ 86. Indeed, the multiple advantages of using a fixed-frequency drive instead of a variable frequency drive in fracking operations—as disclosed by Hernandez and as admitted by Dr. Durham—further demonstrate that Morris does not disclose, expressly or inherently, a VFD. EX-2013, ¶¶ 86–87.

At bottom, Morris does not explicitly disclose a VFD. EX-2013, ¶ 87. Petitioner's expert does not contest this and instead provides unsupported

testimony that Morris implicitly or inherently discloses a VFD. EX-1003, ¶ 169. His attempt to fix this lack of disclosure of VFDs in Morris is contradicted by contemporaneous evidence. EX-2013, ¶¶ 84–86. Morris therefore does not disclose—expressly, implicitly, or inherently—a "variable frequency drive." EX-2013, ¶¶ 86–87. To overcome this problem, Petitioners need to rely on an obviousness combination, but the only purported combination that the Petition presents has numerous shortcomings, as described below. EX-2013, ¶¶ 88–90.

2. The Petition Fails to Provide Any Motivation to Combine Oehring IV's VFDs with Morris's System and Suffers from Hindsight Bias

The Petition advances an alternative obviousness theory for the VFD limitation: "a POSITA would have been motivated to combine Oehring IV's express teaching of variable frequency drives ('VFD') into Morris's fracturing system, and specifically onto Morris's pump transport." Pet., 21–24; *see id.*, 48 (relying on same theory for Grounds 1B through 10B). While Oehring IV discloses a VFD, Petitioners fail to provide sufficient motivation to combine the references—that is, the Petition provides evidence that a POSITA ***could*** combine Oehring IV and Morris, not evidence that a POSITA ***would*** have been motivated to do so. EX-2013, ¶¶ 88–90.

Specifically, the Petition's hindsight bias[6] unpatentability theory is driven based on evidence showing only that a POSITA ***could*** combine Oehring's VFDs with Morris's system—shown below—not any reason or explanation as to how or why a POSITA ***would*** have been motivated to combine the prior art:

> As taught in Oehring IV, "a variable frequency drive (VFD)" ***can*** "control the speed of an electric motor." EX1006, [0043]. Fracturing systems have varying flow rates and the "electrical load constantly changes," requiring "more or less torque from a variable frequency drive." EX1006, [0009]. A POSITA would have known to use VFDs, as taught in Oehring IV, to control motor speeds in Morris for varying loads.

Pet., 22 (emphasis added); *see id*., 30. Dr. Durham's declaration[7] contains the same conclusory analysis:

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[6] "Without any explanation as to ***how or why*** the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that KSR warns against." *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (emphasis added).

[7] Most of Dr. Durham's obviousness analysis in paragraph 153 is also *ipse dixit* testimony by failing to cite any evidence. *TQ Delta*, 942 F.3d at 1359. Thus,

> Oehring IV teaches that discloses [sic] "a variable frequency drive (VFD) [] ***can be utilized*** to control the speed of an electric motor associated with a pump powered by the turbine(s) [generators]." Accordingly, a POSITA would have been motivated to combine the teachings of Morris and Oehring IV to further explain that the use of the "drives" of Morris would have been used to control the speed of the electrical motors and further, the fracturing pumps.

EX-1003, ¶ 153 (emphasis added). But Dr. Durham admits that fixed frequency drives for use in fracking operations were known in the art at the time of the 878 invention as discussed *supra*:

> Q: So a POSITA would recognize that, for example, fixed frequency drives were known in the art at the time of the '878 patent invention. Right?
>
> A: Oh, certainly. I can agree with that for sure.
>
> Q: And fixed frequency drives for use in hydraulic fracturing were known in the art at the time of the '878 patent invention. Right?
>
> A: Yes, I agree with that.

EX-2012, 30:14–31:1; EX-2013, ¶ 88. And as Hernandez—discussed *supra* Section VI.C.1—explains, systems utilizing fixed frequency drives also had the

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such evidence is insufficient to show Petitioner has a reasonable likelihood of prevailing.

capability to control the speed of an electric motor where power is "supplied by an on-site power source 8, such as on-site diesel generators or ***gas turbine generators***." EX-2001, 2:26–32 ("Motor operations may include starting and stopping the motor, ***changing rotational motor speeds***, and dynamically braking the motor and thus the pump.") (emphasis added); EX-2013, ¶ 89. The EnviroFrac product—discussed *supra* Section VI.C.1—is yet another fixed frequency drive design choice available to a POSITA at the time of the 878 Patent invention. EX-2002. EX-2013, ¶¶ 89–90. A POSITA would thus have had multiple design choices when choosing a drive for a fracking system where controlling the speed of the electrical motors is required to address varying loads. EX-2013, ¶ 89. By not sufficiently addressing—or at most advancing a flawed rationale—for why a POSITA would have been motivated to choose a VFD over a fixed frequency drive—Petitioners have not met their burden.

Dr. Durham's remaining testimony does not fix this deficiency. *See id.*, ¶¶ 151-152. At most, the above argument and flawed theory only show evidence of what ***could*** be done by a POSITA, not evidence of obviousness. EX-2013, ¶ 88. As the Federal Circuit has explained, "obviousness concerns whether a skilled artisan not only could have made" any particular modification, "but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention." *Belden v. Berk-Tek*, 805 F.3d 1064, 1073 (Fed. Cir. 2015); *see*

also AT&T Servs. v. Innovative Sonic, IPR2024-01143, Paper 15 at 37-38 (PTAB Feb. 11, 2025) (Petitioner had not shown a reasonable likelihood that the proposed combination teaches the claim because Petitioner "at best, merely posits that a skilled artisan could have modified" the prior art without explaining why); *see also InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014) (concluding that a party's expert "succumbed to hindsight bias in her obviousness analysis" where such analysis "primarily consisted of conclusory references to her belief that one of ordinary skill in the art could combine these references, not that they would have been motivated to do so"). Further, and as shown above, at least two examples of other non-VFD type drives existed that can be used to control an electric motor during fracturing operation. *See supra* Section VI.B.1; *see also* EX-2001, Abstract, *and* EX-2002. The Petition thus advances a legally incorrect and insufficient rationale[8] for combining Morris and Oehring IV.

[8] To the extent that the Board considers the Petition's statement that VFDs "can prevent damage," *see* Pet., 22, to be a purported motivation to combine Morris and Oehring IV, this motivation is unsupported by any expert testimony and Oehring IV's disclosures. Paragraph [0009] of Oehring does not mention

In sum, the Petition presents no valid argument or evidence as to ***why*** a POSITA would have combined Morris and Oehring IV. EX-2013, ¶¶ 88–90. Without doing so, the Petition's obviousness analysis is inadequate and therefore Petitioner has not demonstrated a reasonable likelihood of success. *See TQ Delta*, 942 F.3d at 1357 ("We focus on the Board's obviousness determinations, and in particular, its fact-finding regarding motivation to combine. We hold that the Board's fact-finding is based on conclusory testimony and is therefore unsupported by substantial evidence."). Indeed, just as in *TQ Delta*, Dr. Durham's "*ipse dixit* declaration 'fail[s] to provide any meaningful explanation for why one of ordinary skill in the art would be motivated to combine these references at the time of this invention.'" *Id.* at 1362 (citation omitted); *Palo Alto Networks, Inc. v. Centripetal Networks, LLC*, 122 F.4th 1378, 1386 (Fed. Cir. 2024) ("The question in an obviousness inquiry is whether it would have been obvious to a [POSITA] to combine the relevant disclosures of the two references, not whether each individual reference discloses all of the necessary elements.").

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preventing damage and Paragraph [0028] refers to the electric motor diagnostics—not the VFD itself—that are used to prevent damage. EX-1006.

C. Petitioner Failed to Show How the Prior Art Discloses or Renders Obvious the Dependent Claim 9 Limitation "Cable Trays Positioned Below a Walking Surface of the Common Support Structure, the Cable Trays Being Covered by a Hinged Cover That Pivots to Provide Access to One or More Cable Trays."

Grounds 4A, 4B, 9A, and 9B of the Petition rely on Pratt (EX-1011) which is not analogous art to the 878 Patent. EX-2013, ¶¶ 91–92. This deficiency dooms Grounds 4A, 4B, 9A, and 9B. *Id.*

Petitioner has the burden to show that all prior art used in a combination is analogous prior art. 35 U.S.C. § 316(e); *see Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1379 (Fed. Cir. 2015) ("[Petitioner] had the burden of persuasion to prove unpatentability by a preponderance of the evidence, and this burden never shifted."). To do so, the Petition must show that the prior art satisfies one of two tests:

> (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

In re Bigio, 381 F. 3d 1320, 1325 (Fed. Cir. 2004). The Petition provides no such analysis for Pratt, and this is not surprising because Pratt is non-analogous art. EX-2013, ¶ 92.

1. Petitioners Fail to Provide Sufficient Motivation to Combine Pratt's Cable Tray with Morris's System Because Pratt is Not in the Same Field of Endeavor or Reasonably Pertinent to the Problem the Inventors Were Trying to Solve

Pratt is not in the field of art of the 878 Patent—switchgear and power distribution systems mounted on a transport trailer for use in hydraulic fracturing operations. *See* EX-1001, 1:24-26, 2:38–39; EX-2013, ¶ 92. Rather, Pratt is directed to cable racks and walkways for accessing cable trays. EX-1011, 1:6–7; EX-2013, ¶ 92. Notably, Pratt contains no mention of fracking operations or transport trailers. *See generally* EX-1011. Dr. Durham admits as much:

> Q: Pratt does not expressly discuss usage of cable trays in fracking operations. Right?
>
> A: I agree with that.
>
> Q: Pratt does not expressly discuss usage of cable trays on a transport trailer. Right?
>
> A: I don't know the answer to that question without reviewing Pratt again with that in mind.
>
> Q: Please take a few moments and review.
>
> A: Sure. Yes, I can agree that Pratt does not mention transport trailers.

EX-2012, 38:22–39:14; EX-2013, ¶ 92. Consequently, Pratt is not in the same field of endeavor as the 878 Patent. EX-2013, ¶ 92.

Pratt also is not reasonably pertinent to the problem the inventors were facing. An inventor considering any problem addressed in the 878 Patent would not be motivated to turn to Pratt at the time of the invention, especially given that it has no mention or reference to hydraulic fracturing or transport trailers, much less hydraulic fracking equipment on a single transport trailer. *See generally* EX-1016; EX-2013, ¶ 93. Therefore, Pratt also would not have logically commended itself to the attention of the 878 Patent's inventor or a POSITA. EX-2013, ¶ 93. *In re Clay*, 966 F.2d 656, 659 (Fed Cir. 1992). Petitioners thus have not met their burden in showing by a preponderance of the evidence that the challenged claims would have been obvious over any combination of prior art relying on Pratt. *The Chamberlain Grp., LLC, v. Overhead Door Corp.*, IPR2022-00842, Paper 9 at 37 (PTAB Oct. 25, 2022) (denying institution because one of the two grounds relied on non-analogous prior art); *In re Nat. Alternatives, LLC*, 659 F. App'x 608, 614 (Fed. Cir. 2016)).

The only "field of endeavor" mentioned in the Petition concerning the 878 Patent is "electric power distribution for multiple-pump fracturing operations" Pet., 21, 68. This alleged field is identified in the context of discussing Morris, Oehring IV, and Payne, not Pratt. *Id*. Regardless, Pratt has nothing to do with multiple-pump fracturing operations—indeed, Pratt never mentions fracking operations as

discussed *supra*. EX-2013, ¶ 93. Further, the Petition's reasoning for why a POSITA would have looked to Pratt is fatally flawed as discussed *infra*.

2. Petitioners Fail to Provide Sufficient Motivation to Combine Pratt's Cable Tray with Morris's System Because the Cited Morris Disclosures Would Not Have Led a POSITA to Apply Pratt's Intra-Transport Cabling

Petitioners advance an erroneous obviousness theory for the Cable Tray limitation of Claim 9: "Express teachings in Morris and Pratt would have led a POSITA to apply Pratt's cable tray walkway in Morris's pump transport." Pet., 60; *see id.*, 63, 75 (relying on same theory for Grounds 4B, 9A, 9B); EX-2013, ¶ 94. While Pratt discloses a cable tray, Petitioners fail to provide a sufficient motivation to combine the references. Petitioners claim the "[e]xpress teachings in Morris and Pratt would have led a POSITA to apply Pratt's cable tray walkway in Morris's pump transport." Pet., 60. Not so. Instead, Petitioners' claimed Morris teachings are directed at cable connections ***between*** transports, not cable connections ***within*** a transport as claim 9 requires. EX-2013, ¶ 95. For example, Petitioners claim that "Morris describes numerous cable connections at various voltages—for AC power, DC power, and communications—at an electric-powered drilling site. Pet. 60–61 (citing EX-1004, ¶¶ [0019], [0031]. But Morris's paragraph [0019] concerns electrical connections from "one transport to another"—not internal transport cabling—and further explicitly defines "electrical

connection" as referring to "connecting one transport to another transport using one or more electrical cables." EX-1004, ¶ [0019]; EX-2013, ¶ 95. Dr. Durham admits as much:

> Q: So here in paragraph 0019, it's describing electrical cables from one transport to another transport. Right?
>
> A: Well, it's referring to that as an electrical connection. I don't think it describes it, per se. But it does refer -- that electrical connection term refers to that, connecting one transport to another transport using one or more electrical cables.

EX-2012, 24:7–15; EX-2013, ¶ 95. Further, Morris's paragraph [0031] does not even address cable connections but is instead regarding transformers that may be included on the fracturing pump transport, with no references to internal transport cabling. *See Id.*, ¶ [0031]; EX-2013, ¶ 96. Petitioners also rely on Morris's disclosures of "'reduc[ing] the number of electrical cables' by supplying power at medium voltage." Pet., 61 (citing EX-1004, ¶¶ [0027]–[0029]). But Petitioners' reliance on Morris is misplaced because paragraphs [0027]–[0029] are instead regarding cables from one transport to another and not cabling within a single transport. EX-1004, ¶ [0027] (regarding "switch gear transport 108 generate[ing] a total of seven medium voltage (e.g. , 13.8 kV) cable connections 44, 45, where ***each fracturing pump transport 104 is directly connected to the switch gear transport 108*** [(i.e., inter- transport cabling)] with a single medium voltage (e.g. ,

13.8 kV) cable connection 44", ¶ [0028] (describing how Morris's "medium voltage power distribution system … is able to reduce the number of ***electrical cables used to supply electric power to the fracturing pump transport*** 104 and hydration - blender transport 106"), ¶ [0029] ("One reason the medium voltage power distribution system is able to utilize less electrical cables is that each electrical cable 44, 45 does not need to supply a relatively high current (e.g., equal to or more than 600 A) ***to each fracturing pump transport 104 and hydration - blender transport 106***."); EX-2013, ¶ 96. Dr. Durham admits as much:

> Q: So here in paragraph 0027, Morris is describing cable connections between the switch gear transport 108 and the fracturing pump transport 104. Right?
>
> A: Yes, sir, along with the blender. But yes.
>
> …
>
> Q: So here in paragraph 0028, Morris is explaining how it reduces the number of electrical cables ***to*** fracturing pump transport 104. Right?
>
> A: Yes.
>
> Q: So here in Morris paragraph 0028, Morris is not expressly discussing electrical cables between components that are all located on the same fracturing pump transport 104. Right?
>
> A: I would agree with that.
>
> …

> Q: So here in paragraph 0029, Morris is discussing electrical cables to fracturing pump transport 104, right?
>
> A: Yes. He does discuss that in that paragraph.

EX-2012, 25:4–27:5 (emphasis added) (objections omitted)EX-2013, ¶ 96.

Petitioners further claim that Morris "identifies 'reduc[ing] physical footprint' as a logistical challenge in fracturing operations" but again cite Morris disclosures of inter transport cable connections and not intra transport cable connections. Pet., 62; *see* EX-1004, ¶ [0003] (discussing "minimizing the on-site area or 'footprint' [(e.g., number of transports)] of the fracturing operations"), ¶ [0034] (discussing ability to "remov[e] the need for other separate support - based trailers"). Indeed, Petitioners cite no support from Morris regarding intra-transport cabling that would have motivated a POSITA to seek Pratt. EX-2013, ¶ 97. Petitioners have thus not met their burden of showing by a preponderance of the evidence that the combination of Morris and Pratt renders claim 9 obvious.

VII. CONCLUSION

For the above reasons, Patent Owner respectfully requests that the Board find that Petitioner has not shown by a preponderance of the evidence that any challenged claim is invalid.

Dated: September 29, 2025

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CERTIFICATE OF COMPLIANCE

The undersigned certifies that this response complies with the word-count limitations of 37 C.F.R. § 42.24(b)(2). This response contains 9,993 words as calculated by the word-count feature of Microsoft Word, the word-processing program used to create it.

The undersigned further certifies that this Petition complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and typestyle requirements of 37 C.F.R. § 42.6(a)(2)(iii). This petition has been prepared in a proportionally spaced typeface using Microsoft Word in Times New Roman 14-point font.

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CERTIFICATE OF SERVICE

I hereby certify that on this 29th day of September, 2025, I caused to be served a true and correct copy of the foregoing "Patent Owner's Response" and accompanying exhibits by electronic mail on the following:

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