

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PERMIAN GLOBAL INC., AND
MANTICORE FUELS, LLC
Petitioner,

v.

FUEL AUTOMATION STATION, LLC,
Patent Owner

Case No. IPR2023-01238

Patent 10,974,955

PATENT OWNER FUEL AUTOMATION STATION'S PRELIMINARY
RESPONSE PURSUANT TO 37 C.F.R. §42.107

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TABLE OF EXHIBITS

Exhibit	Description
FAS2001	WO 2007/087849 with translation
FAS2002	U.S. 2,769,572
FAS2003	Independent Claim Comparison
FAS2004	Parent Application 15/890,584, 10/05/2018 Office Action
FAS2005	Parent Application 15/890,584, 3/29/2019 Office Action
FAS2006	Co-owned Application 16/148,403, File History Excerpt of 10/1/2018 IDS
FAS2007	Co-owned Application 16/148,403, File History Excerpt of Notice of Allowance
FAS2008	U.S. 3,826,275
FAS2009	Jayanti, "Bends Flow and Pressure Drop"
FAS2010	Keulegan et. al., "Pressure Losses For Fluid Flow In Curved Pipes"

I. INTRODUCTION

Any case for invalidity must be made, in the first instance, in the Petition. If the Petition does not show a reasonable likelihood that the Petitioner would prevail as to at least one of the challenged claims, institution should be denied. As will be shown herein, the Petition fails to show a reasonable likelihood of success on at least one claim.

Initially, the PTAB should exercise its discretion to deny institution because Petitioner's primary prior art reference in the Petition, Van Vliet, is the same prior art that was presented to the Office during prosecution. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). Petitioner relies on Van Vliet in every asserted ground of the Petition. Petitioner argues that the Office erred, but that argument is actually based on Petitioner's disagreement with the Examiner's treatment of Van Vliet, not any actual evident error by the Office. Indeed, if reasonable minds can disagree regarding the purported treatment of the art or arguments, it cannot be said that the Office erred in a manner material to patentability. *Id.*

Next, Petitioner does not meet its burden of fully explaining and supporting its challenges to independent claims 1[e], 11[d], and 19[e]. *Google Inc. v. EveryMD.com LLC*, IPR2014-00347, Paper 9, slip op. at 23–25 (May 22, 2014). For instance, Petitioner misses accounting for features in these claims, which are not in Van Vliet. Moreover, Petitioner makes only conclusory statements that design choice renders the

claims obvious over Van Vliet, without any underlying analysis, or even a legal framework.

Additionally, under Ground 2, Petitioner does not support its assertion of obviousness as to independent claims 1[e] and 11[e]. For instance, Petitioner's rationale and motivation does not particularly address the claim feature of manifolds being fluidly connected with or through the reels, and Petitioner does not set forth any reason to modify Van Vliet to have a fluid connection to its reels as in Cable, nor with regard to claims 2 and 3 does Cable support adding an aisle walkway or moving Van Vliet's reels to two opposed trailer sides. Moreover, a person of ordinary skill in the art ("POSITA") would not look to Cable to modify Van Vliet in the first place, because most of the equipment is different between Cable and Van Vliet.

Further, as to Grounds 3 and 3A, Petitioner fails to account for, or provide sufficient support for, the claimed location of the register. For example, Petitioner asserts that it would have been obvious to install a register *directly* downstream of the pump in Van Vliet, but neither Petitioner nor its expert provide any supported reason why a register would be installed *directly* downstream of the pump rather than at other locations that would seem to provide more accurate readings.

Finally, as to Grounds 4 and 4A, Petitioner's motivation for Defosse is insufficient. For example, Petitioner casually concludes that the pumps of DeFosse and Van Vliet are analogous because both are used at hydraulic fracturing sites. However,

Petitioner does not account for the fact that the pumps are actually used for very different purposes in these references. Moreover, given the different purposes of the pumps, a POSITA would not have been motivated to modify Van Vliet according to Defosse.

For these reasons and more, none of Petitioner's Grounds 1-4A support institution.

II. BACKGROUND

A. Fracking and Refueling

Hydraulic fracturing, known as "fracking," was developed as far back as 1865. EX1019 at 1. Although originally conducted with gunpowder, modern fracking involves pumping water and sand into the ground to fracture rock formations. The cracks formed in the rock are held open by the sand so that natural gas can escape and flow into the well for collection. EX1019 at 4.

Pumps are operated at the surface of the well to provide the water and sand. The pumps are continually refueled, i.e., "hot-refueling," to avoid shut-downs and thus enable continuous fracking operations. EX1001 at 22, col. 1, ll. 6-18. The area around the pumps is dangerous, as the pumps and other equipment run at high temperatures, produce high noise levels, and present hazards from fuel and vapors. EX1004, [0002]. Thus, fuel distribution stations are used to continuously and automatically refuel the

pumps, without a need to have personnel at the pumps to connect hoses and check fuel tank fuel levels.

B. Overview of the '955 Patent

The '955 Patent is directed to a distribution station, which is used to deliver fuel to pumps or other equipment on a fracking wellsite for sustained operation. Ex. 1001, col. 1, ll. 17-31, col. 9, ll. 42-53.

Fig. 2 of the '955 Patent, copied below, shows an overview of an example of a distribution station 20. The distribution station 20 in the example is comprised of a mobile trailer 22 that may have wheels to permit movement from site to site. Ex. 1001, col. 2, ll. 24-32. Fuel is provided to one or more pumps 30 from an external source. *Id.*, col. 2, ll. 49-54. The pumps 30 are connected via a line 32 with a high precision register 34 for metering fluid. *Id.* The line 32 is connected with one or more manifolds 38 arranged on opposed sides of the compartment 24 of the trailer 22. *Id.*, col. 2, ll. 63-67. Reels 42 are provided to extend or retract the hoses 40 externally to the equipment being refueled. *Id.*, col. 3, ll. 1-9. Each hose 40 is connected to a respective one of the reels 42 and a respective one of a plurality of control valves 44. *Id.*, col. 4, ll. 15-24. For example, a secondary line 46 leads from the manifold 38 to the reel 42, and the control valve 44 is in the secondary line 46 to selectively permit fuel flow from the manifold 38 to the reel 42 and the hose 40. *Id.* Integrated fuel cap sensors 50 are affixed to the equipment (i.e., the fuel tank of the equipment). *Id.*, col. 4, ll. 26-37. Each hose 40 is

connected to one of the fuel cap sensors 50, which measure the fuel level in the equipment. *Id.* The control valves 44, pump or pumps 30, sensors 36b, and register 34 are in communication with a controller 52 that is configured to operate the distribution station 20. *Id.*, col. 4, ll. 38-47. Each integrated fuel cap sensor 50 generates signals that are indicative of the fuel level in the fuel tank of the piece of equipment. *Id.*, col. 4, ll. 52-55. The signals are communicated to the controller 52. *Id.* In response to a fuel level that falls below a lower threshold, the controller 52 opens the control valve 44 associated with the hose 40 to that fuel tank and activates the pump or pumps 30. *Id.*, col. 4, ll. 57-64. The pump or pumps 30 provide fuel flow into the manifolds 38 and through the open control valve 44 and reel 42 such that fuel is provided through the respective hose 40 and integrated fuel cap sensor 50 into the fuel tank. *Id.* The controller 52 also determines when the fuel level in the fuel tank reaches an upper threshold, which triggers the controller 52 to close the respective control valve 44 to cease fuel flow to the fuel tank. *Id.*, col. 5, ll. 14-24. Multiple control valves 44 may be open at one time, to provide fuel to multiple fuel tanks at one time. *Id.*

An aisle walkway (A) runs down the middle of the trailer 22 between the support racks 42a that hold the reels 42. *Id.*, col. 3, ll. 29-39. Workers walk through the walkway to operate the station 20. In that regard, there may be multiple workers who need space to pass by each other without bumping into each other or the equipment. *Id.*, col. 3, ll. 40-47.



FIG.2

III. LEGAL STANDARDS

Institution requires "a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a). In the first instance, this showing must be made *in the Petition*. See 35 U.S.C. § 312(a) ("A petition filed under section 311 may be considered only if . . . (3) *the petition* identifies, in writing and with particularity . . . the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim" (emphasis added)).

It is Petitioner who must specify "[h]ow the challenged claim is to be construed" and "[h]ow the construed claim is unpatentable," including "specify[ing] where each element of the claim is found in the prior art patents or printed publications relied upon."

37 CFR § 42.104(b)(3)-(4). "[I]t is Petitioner's burden to establish, in the Petition, a reasonable likelihood of success, which includes, inter alia, explaining how a challenged claim is construed and how the prior art teaches that claim." *World Bottling Cap, LLC v. Crown Packaging Tech., Inc.*, Case IPR2015-00296, slip op. at 5 (PTAB May 27, 2015) (Paper 8).

Key requirements and burdens applicable to the Board's institution decision in an IPR were summarized by the Federal Circuit in *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356 (Fed. Cir. 2016): In an IPR, the Petitioner has the burden *from the onset* to show with particularity why the patent it challenges is unpatentable. *See* 35 U.S.C. § 312(a)(3) (requiring IPR *petitions* to identify 'with particularity ... the evidence that supports the grounds for the challenge to each claim.'). *Id.* at 1363 (emphasis added).

IV. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner set forth its definition of the level of ordinary skill in the art. Petition at 16-17. While Patent Owner does not necessarily agree with Petitioner's definition, the Petition should be denied for reasons that do not rely on the level of ordinary skill in the art. Accordingly, at this stage of the proceeding, Patent Owner does not dispute the level of ordinary skill in the art, but reserves the right to characterize a POSITA should the PTAB decide to institute review.

V. CLAIM CONSTRUCTION

The Board applies the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2021). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner purports to apply the ordinary and customary meanings of the claim terms, though it does not formally provide any meanings and asserts that express constructions are not required. Petition at 21. However, Patent Owner believes that construction of the term or terms below may be necessary. Having only the benefit of Patent Owner's constructions (because Petitioner did not propose any constructions), the Board should adopt Patent Owner's constructions below.

To the extent that construction of any term is not addressed below, Patent Owner reserves the right to further address claim construction issues should the PTAB decide to institute review.

A. Claims 1[e], 11[d] and 19[e]: "connected"

More fully, claim 1[e] recites "wherein a portion of the reels are connected to be fed from the first manifold and another portion of the reels are connected to be fed from the second manifold," claim 11[d] recites "a plurality of reels in the container, each said reel individually connected with the at least one manifold," and claim 19[e] recites "a plurality of reels in the container and connected with the at least one manifold."

The '955 Patent provides no explicit definition of "connected," nor does the prosecution history provide any insight on the claim term. Thus, an ordinary and customary meaning in the context of the entire patent disclosure is appropriate.

For several reasons, the inference from the context of "connected" in claims 1[e], 11[d] and 19[e] is that the reel is "fluidly connected" with the manifold. First, the context of "connected" relative to other recitations in the claims supports "fluidly connected." In each of claims 1[e], 11[d] and 19[e], "connected" is preceded by a recitation that the first and second manifold (claim 1) or the at least one manifold (claims 11 and 19) are/is fluidly connected with the pump (claim 1) or the at least one pump (claims 11 and 19). EX1001 at p. 12-13. Each of claims 1[e], 11[d] and 19[e] also includes a recitation that each hose is connected with a different one of the reels. *Id.*

Since the manifold is expressly fluidly connected with the pump, the manifold is understood to have a fluid supply. From the fluid supply in the manifold it would be further understood that (i) the recited connection between the manifold and the reel is likewise a fluid connection, for the reel to receive the fluid supply from the manifold and that (ii) the recited connection of the hose to the reel is also a fluid connection, for the hose to receive the fluid supply from the reel (and hoses are normally for handling fluids). Thus, from the understood claim context, it would have been redundant to recite that that the reel is "fluidly" connected to the manifold.

Second, the context of "connected" in the overall claim also supports "fluidly connected." In particular, connections other than "fluid" connections would be not be understood from the claim context. For example, a mechanical connection would not be understood because a mechanical connection is already implicit from both the manifold and the reel being part of the same claimed distribution station. The reel is a component of the distribution station, as is the manifold, and the reel therefore must somehow physically be a part of, i.e., connected to, the distribution station (and thus also at least indirectly connected to the manifold). Rather, since the manifold is understood to have a fluid supply, it would be further understood that the recited connection of the reel with the manifold is likewise a fluid connection, for the reel to receive the fluid supply from the manifold.

The understanding that the reel is fluidly connected with the manifold is also finds support the disclosure of the '955 Patent. The '955 Patent discloses that the distribution station is useful for delivering fuel or other fluids. EX1001, col. 2, ll. 12-23. There is a fuel line that is fluidly connected to the manifold (EX1001, col. 2, ll. 63-64) and a secondary fuel line that leads from the manifold to the reel, with a control valve in the secondary fuel line. *Id.*, col. 4, ll. 18-23. The control valve can be opened or closed to selectively permit fuel flow from the manifold to the reel. *Id.* The pump provides fuel flow into the manifold and through the open control valve and reel. *Id.* col. 4, ll. 61-64. The '955 Patent thus explicitly discloses that fluid is supplied from the manifold to the reel.

When the context of the claim is taken together with the disclosure of the '955 Patent, the reel would be understood to be fluidly connected to the manifold. Accordingly, the term "connected" in claims 1[e], 11[d], and 19[e] means "fluidly connected."

As pointed out above, Petitioner has not proposed any claim constructions. However, as to claims 1[e], 11[d], and 19[e]¹ Petitioner attempts to discretely impose a construction. For instance, buried in a footnote with little or no analysis, Petitioner blithely asserts that the claims do not require that the manifold is fluidly connected with

¹ Petitioner does not mention claim 19[e]; however, Petitioner's analysis of claim 19[e] relies on its analysis for claim 11[d]. Petition at 56.

the reels. Petition at 27, footnote 6. In alleged support, but without explanation, Petitioner concludes that the disclosure of the '955 Patent somehow "mirrors" that of Van Vliet. This, however, is a mischaracterization. The '955 Patent expressly discloses that the reels and manifolds are connected for fluid flow from the manifolds to the reels (see above). See also EX1001, col. 4, ll. 15-24, describing "fuel flow from the manifold 38 to the reel 42 and hose 40." Unlike the '955 Patent, Van Vliet makes no such disclosure that its reels are fluidly connected to the manifold, or even that fuel is received by or flows through the reels. Thus, Van Vliet does not "mirror" the '955 Patent with respect to how the reels are connected to the manifolds. Petitioner's attempt to surreptitiously introduce a claim construction should not be given weight, but even if it is, Petitioner does not support its proposition.²

VI. INSTITUTION SHOULD BE DENIED UNDER *ADVANCED BIONICS*

Under 35 U.S.C. § 325(d), the PTAB has discretion to deny a petition where the same or substantially the same prior art or arguments were previously presented to the Office.

The PTAB applies a two-part framework to assess whether to exercise its discretion and deny a petition. First, the PTAB considers whether the same or substantially the same prior art or arguments previously were presented to the Office.

² Petitioner also asserts that fluidly connecting the reels to the manifold is an obvious matter of design choice. That issue, which Petitioner also fails to support, is addressed separately later on in Section VII.A.3.

If either condition is satisfied, the PTAB then assesses whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). A non-exclusive list of factors, set forth in *Becton, Dickinson and Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph), guides the Board's application of this framework. *Advanced Bionics*, Paper 6 at 9. Those factors include:

(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, Paper 8 at 17-18.

As discussed below, the factors weigh in favor of denying institution.

A. Petitioner's prior art is the same or substantially the same as prior art presented to the Office during prosecution.

1. Cited Prior Art

Petitioner relies on Van Vliet in all Grounds 1, 2, 3, 3A, 4, and 4A, and relies on Cable in Grounds 2, 3A, and 4A. Petition at 5. However, for the reasons that follow, Van Vliet and Cable are defeated under *Advanced Bionics*.

2. *Advanced Bionics* Step 1: Van Vliet is the same prior art presented to the Office, and Cable is cumulative of prior art considered during prosecution.

i. Van Vliet

As Petitioner acknowledges, Van Vliet was reviewed by the patent Examiner during prosecution of the '955 Patent. Petition at 8. Therefore, there is no disagreement that Step 1 is answered in the affirmative, as Van Vliet is the same prior art as was presented to the Office during prosecution.

Petitioner also asserts that the Office will additionally have its expert's declaration, and that the report will bring new evidence to the Office's attention. *Id.* However, nowhere in the Petition does Petitioner identify for the PTAB any new evidence in particular that its expert brings to light.

Petitioner relies on Van Vliet as the primary reference in all asserted grounds and, in particular, Ground 1 relies on Van Vliet alone.

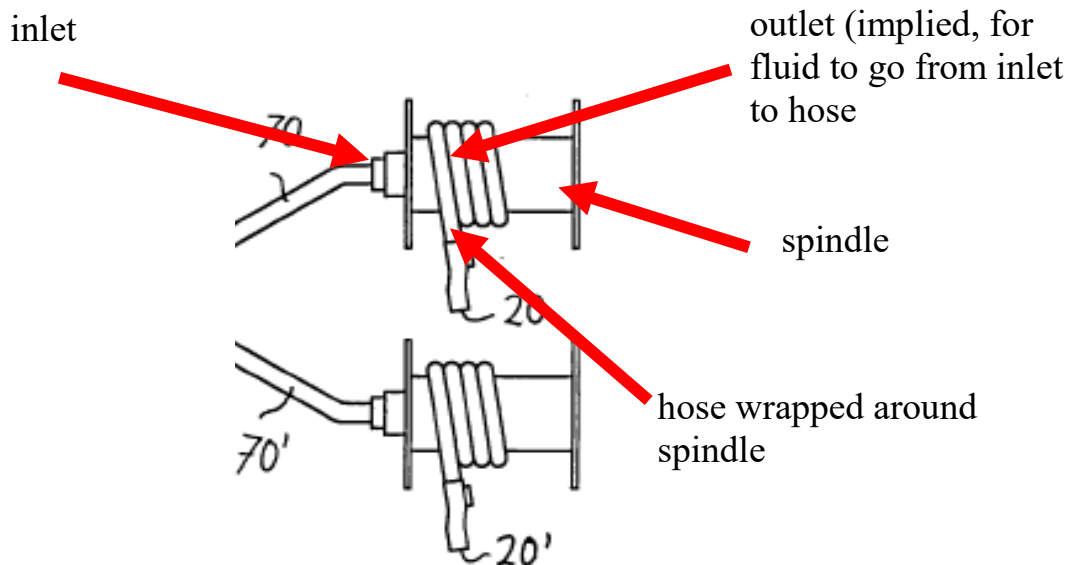
ii. Cable

Although Cable was not presented to the Office during prosecution, as to the independent claims Cable is applied against in the Petition it is cumulative to prior art presented during prosecution. Such an analysis does not require that the teachings be identical or entirely cumulative, only that they are substantially the same. *Dropworks, Inc. v. The University of Chicago*, IPR2021-00100, Paper 9 at 13-14 (P.T.A.B. May 14, 2021).

As to independent claims 1[e] and 11[e], Petitioner relies on Cable for teaching hoses or manifolds that are fluidly connected with or through the reels. Petition at 37. However, the patent Examiner considered several prior art references that disclosed fluidly connected reels with flow paths in them. International Publication WO2007087849 to Amann (FAS2001, English translation and certification) was cited by Applicant in an IDS filed on 02/07/2018 and expressly considered by the Examiner. EX1009 at 81 ("ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH"). Despite presentation of Amann in the record of the '955 Patent, Petitioner fails to mention Amann or provide any analysis under *Advanced Bionics* as to how Cable is not cumulative over Amann with respect to claims 1[e] and 11[e]. As shown below in Amann's Fig. 1, Amann shows reels (unnumbered), with hoses 20 and

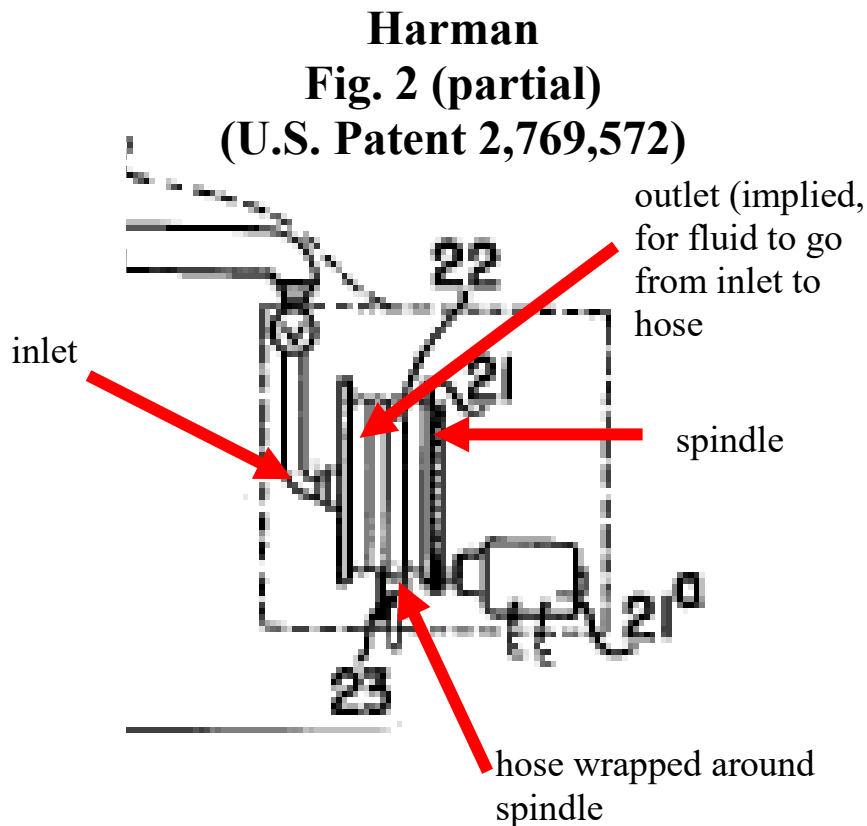
a fluidly connected delivery line inlet 70 leading into the sides of the reels to provide liquid to the hoses. FAS2001 at p. 15. Amann's figure showing delivery line 70 leading into the side of the reel, along with Amann's disclosure that liquid is provided from the line 70 to the hose, signifies that the reel is fluidly connected and that there is a flow path through the reel. Accordingly, Amann discloses the same or substantially same features as Cable.

Amann
Fig. 1 (partial)
(WO2007087849)



U.S. Patent 2,769,572 to Harman (FAS2002) was cited by Applicant in an IDS filed on 12/02/2019 and expressly considered by the Examiner. EX1009 at 64 ("ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH"). Despite presentation of Harman in the record of the '955 Patent, Petitioner again fails to mention

Harman or provide any analysis under *Advanced Bionics*. Fig. 2 (shown below) of Harman shows hose reels 21 that carry hoses 22, with fluidly connected pipe inlets 29 leading into the sides of the reels to provide fuel through nozzles 23 of the hoses. FAS2002 col. 3, ll. 31-38. Like Amann, the depiction of pipes leading into the sides of reels to provide fuel to the nozzles of the hoses means that there is a flow path through the reel.



Cable, like Amann and Harman, is relied upon for a fluidly connected reel and a flow path through the reel. Petition at 37-38. Thus, Amann and Harman each disclose the same or substantially the same features that Petitioner relies upon Cable for with respect to claims 1[e] and 11[e].

Petitioner fails to mention Amann or Harman in its arguments under *Advanced Bionics*, despite acknowledging that Becton factors (a), (b), and (d) are relevant to this inquiry. Petition at 7-10. In fact, Becton favors a conclusion that Cable is the same or substantially the same prior art as presented to the Office during prosecution.

Becton factor (a) pertaining to the similarities and material differences between the asserted art and the prior art involved during examination favors Patent Owner. Petitioner asserts that Cable describes a fluidly connected hose reel having a flow path in the reel (Petition at 37-38). The disclosures of Amann and Harman are similar or the same as the disclosure of Cable. Like Cable, each of Amann and Harman have fluidly connected reels with flow passages through reels. See discussion of Amann and Harman, *supra*.

Furthermore, Becton factor (b) regarding the cumulative nature of the asserted art and the prior art evaluated during examination also favors Patent Owner. Cable is cumulative to Amann and Harman. Cable thus teaches no more than what a reasonable Examiner would consider to be taught by Amann and Harman, nor do Petitioners identify any claim features in particular that are taught by Cable but that are not found in Amann or Harman with respect to claims 1[e] and 11[e]. Becton factor (d) is at least neutral, as there were no explicit arguments made by the Examiner or Applicant insofar as fluidly connected reels or flow passages through the reels are concerned.

For these reasons, Cable is the same or substantially the same prior art as presented to the Office during prosecution.

3. Advanced Bionics Step 2: Petitioner has not demonstrated that the Office erred in a manner material to the patentability of the challenged claims.

i. Van Vliet

Petitioner offers reasons it disagrees with the Examiner's treatment of Van Vliet, but differences of opinion do not equate to Office error.

The first reason that Petitioner disagrees with the Examiner's treatment of Van Vliet is that it is not clear to Petitioner that the Examiner substantively considered Van Vliet relative to the '955 Patent's claims because the Examiner never cited any specific paragraph or figure of Van Vliet at any time during prosecution. Petition at 10. This assertion, however, does not support Petitioner's conclusion that the Examiner did not substantively consider Van Vliet. Indeed, by Petitioner's same implicit reasoning, the Examiner not citing any specific paragraph of Van Vliet also suggests that the Examiner considered Van Vliet but determined it did not affect patentability and thus had no reason to cite to it. In fact, the latter inference finds support in Patent Office examination procedures. An examiner is charged with applying the best references to the pending claims and to cite as particularly as possible. *See* 37 C.F.R. § 1.104(c)(2) (stating, for example, that "the Examiner must cite the best references at his or her command"). Thus, when the Examiner, Nicolas A. Arnett, explicitly indicated in the '955 Patent file

history that he considered Van Vliet (EX1009 at 67, bottom of page stating in all caps "ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH"), the proper inference is that he considered it with respect to the patentability of the claims of the '955 Patent.

Additionally, Examiner Arnett was likely already familiar with Van Vliet's disclosure because he allowed the claims of parent application 15/890,584, now U.S. 10,494,251, over Van Vliet. Notably, the claims of the parent '251 Patent are very similar to the claims of the '955 Patent. A claim comparison is shown in exhibit FAS2003, in which the independent claims of the '251 Patent serve as the baseline, and the markings indicate how the independent claims of the '955 Patent differ. As shown, except for "mobile trailer" versus "container" the independent claims of the '955 Patent are virtually the same as those of the '251 Patent.

Examiner Arnett did not preside over the parent application 15/890,584 for the entire duration of prosecution. Examiner Jason K. Neisz appears to have handled prosecution at least from an Office Action mailed 10-05-2018 (FAS2004, cover page) through at least the Office Action mailed March 28, 2019 (FAS2005, cover page). As Examiner Arnett issued the Notice of Allowance (EX1009 at 13), it appears that Examiner Arnett took over the prosecution from Examiner Neisz at some point after the

3-29-2019 Office Action.³ Examiner Neisz explicitly considered Van Vliet during prosecution of the parent application 15/890,584. FAS2004 at 11, bottom of page stating in all caps "ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH"). Moreover, Examiner Niesz was not only aware of Van Vliet from prosecution of the parent application 15/890,584, but he also had previously examined Van Vliet's patent application (annotated cover page of Van Vliet Patent 9,346,662 copied below). Given the inference under 37 C.F.R. § 1.104(c)(2) that Examiner Neisz performed his duties of considering the prior art, the explicit indication on the IDS that he considered Van Vliet, and the fact that the he was also the examiner on Van Vliet's patent application, there is zero doubt that Examiner Neisz was thoroughly familiar with Van Vliet and fully comprehended its disclosure when he examined the claims of the parent application 15/890,584, which are virtually the same as the claims of the '955 Patent. It is therefore likely that Examiner Arnett, in allowing the '955 Patent, realized that the claims were allowable over Van Vliet because he had allowed similar claims in the '251 Patent, which Examiner Neisz examined and did not reject over Van Vliet either. Simply, there was no error on Van Vliet in prosecution of the '955 Patent, nor can any error be inferred from the above circumstances.

³ Insofar as Examiner Arnett was responsible for prosecution of the parent application 15/890,584, he would have also been charged with applying the best references to the pending claims.

(12) **United States Patent**
Van Vliet et al.

(10) **Patent No.:** **US 9,346,662 B2**
(45) **Date of Patent:** **May 24, 2016**

(54) **FUEL DELIVERY SYSTEM AND METHOD**

(75) Inventors: **J. Todd Van Vliet**, Edmonton (CA);
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(73) Assignee: **Frac Shack Inc.**, Edmonton (CA)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 1251 days.

3,028,010	A	4/1962	Headrick	
3,547,141	A	12/1970	Claude	
3,618,643	A	11/1971	Thomson et al.	
4,059,134	A *	11/1977	Violette	141/59
4,139,019	A	2/1979	Bresie et al.	
4,591,115	A	5/1986	De Carlo	
4,638,842	A	1/1987	Hawley et al.	
4,671,329	A	6/1987	Kovacevich, Jr.	
4,770,317	A	9/1988	Podgers et al.	
5,295,521	A *	3/1994	Bedi	141/59
5,388,622	A	2/1995	Phillips	

(Continued)

(21) Appl. No.: **13/028,991**

FOREIGN PATENT DOCUMENTS

(22) Filed: **Feb. 16, 2011**

WO	01/77006	10/2001
WO	2006/005686	1/2006

(65) **Prior Publication Data**

(Continued)

US 2011/0197988 A1 Aug. 18, 2011

OTHER PUBLICATIONS

Related U.S. Application Data

(60) Provisional application No. 61/305,320, filed on Feb.
17, 2010.

EPW Inc. Pamphlet on Auto Limited II Overfill Protection; Auto
Limiter II Automatic Shut-Off Valve for UST's.
(Continued)

(30) **Foreign Application Priority Data**

Feb. 16, 2010 (CA) 2693567

Primary Examiner — Jason K Niesz

Second, Petitioner asserts that even if Examiner Arnett considered Van Vliet, its disclosure of each fluid level sensor being associated with a different one of the hoses may not have been immediately apparent without comparing different figures and their corresponding description. Petition at 11. Petitioner does not explain what in particular about Van Vliet would necessarily cause those features to be beyond apprehension by Examiner Arnett. Indeed, Petitioner's acknowledgement that the features are disclosed by the figures and description raises an inference that Examiner Arnett considered it, especially given that Examiner Arnett had previously allowed similar claims over Van Vliet in the parent application (see above), that examiners are in general highly capable of comprehending the prior art, and that there is an inference that examiners follow examination procedures. 37 C.F.R. § 1.104(c)(2). Aside from Petitioner's conjecture in

that regard, Petitioner provides no factual support tending to show that Examiner Arnett actually failed to appreciate any aspect of Van Vliet. Again, there is no doubt that Examiner Arnett was familiar with Van Vliet's disclosure and that he would have cited to Van Vliet if he thought it was appropriate. As a result, it is apparent that Examiner Arnett just did not interpret Van Vliet in the same manner as Petitioner. This does not, however, mean that Examiner Arnett failed to consider Van Vliet or that he made an error.

Petitioner's failure to demonstrate that Examiner Arnett erred with regard to Van Vliet is fatal to Step 2. Ground 1 asserts that claims 1, 11, and 12 are anticipated by or obvious over Van Vliet alone. Petition at 5. However, Van Vliet is the same prior art as presented to the Office during prosecution, and other than its mere disagreement with the treatment of Van Vliet, Petitioner has not demonstrated any cognizable error in a manner material to patentability. Accordingly, Ground 1 does not favor institution under *Advanced Bionics*.

Additionally, to the extent that Petitioner relies on Van Vliet in the same manner as the primary base reference in Grounds 2, 3, 3A, 4, and 4A as it did for Ground 1, those grounds also do not favor institution.

ii. Cable

Petitioner contends that even if *Advanced Bionics* Step 1 was satisfied, the Office erred under Step 2 in failing to consider Cable. Petition at 10. However, as discussed

below, none of Petitioner's reasons demonstrate that the Office erred.

Petitioner's contention that a reasonable Examiner would have considered Cable because they teach elements of the '955 Patent that materially affect patentability is to no avail in supporting Petitioner's argument. Petitioner relies on *Oticon Med.*, IPR2019-00975, Paper 15 at 18–20 for the proposition that there is error where the secondary reference was not considered by an examiner, and a reasonable examiner would have considered the reference. Petition at 10. *Oticon*, however, is distinguishable from the present facts at hand. In *Oticon*, the Board made detailed findings on the teachings of the challenged reference (Choi) in comparison to teachings before the examiner and problems in the art before concluding that Choi was noncumulative. *Oticon* at 18-19. In contrast, despite Petitioner's burden to show error (*Juniper Networks, Inc. v. Mobile Telecomms. Techs., LLC*, IPR2017-00642, Paper 31 at 10–11 n. 6 (PTAB Mar. 14, 2018)), Petitioner fails to provide any meaningful analysis of the relevant teachings of Cable in comparison to the prior art before the Examiner insofar as claims 1[e] and 11[e] are concerned. As a result, Petitioner has done no more than attempt to apply *Oticon* as a *per se* rule without any analysis of the facts at hand and the prior art of record. For this reason alone, Petitioner has not demonstrated that the Office erred with regard to Cable. In fact, as explained above in section VI.A(2)(ii), Cable is the same or similar to each of Amann and Harman.

Additionally, it is likely that the Examiner Arnett considered reels with flow passages during prosecution. In addition to examining the application that became the '955 Patent, Examiner Arnett also examined co-owned Application 16/148,403, now U.S. 10,815,118. There, as here, Examiner Arnett explicitly indicated that he considered Amman and Harman (FAS2006 at 4, 8). Furthermore, in the '403 Application, Examiner Arnett confirmed in the Notice of Allowance (FAS2007 at 9) that the cited documents do not disclose, in combination with the claimed invention as a whole:

"a plurality of flow passages, each said flow passage being connected to the manifold and running through a respective one of the reels; a plurality of hoses, each said hose being connected with a respective one of the flow passages via a respective one of the reels; a plurality of valves on the mobile trailer, each said valve situated between the manifold and a respective different one of the reels and being operable to control fluid flow through a respective one of the flow passages."

In particular, the inference from Examiner Arnett's statement that the cited documents (which also included Amman and Harman) do not disclose "each said hose being connected with a respective one of the flow passages via a respective one of the reels" is that he indeed considered flow passages through the reels, i.e., fluidly connected. Although Examiner Arnett did not provide reasons for allowance in the Notice of Allowance for the '955 Patent, there is an inference from prosecution of the '403 Application that Examiner Arnett not only knew of Amman and Harman, but that in the '955 Patent prosecution, like in the '403 Application, he considered flow passages in reels.

For the reasons above, the Petition should be denied at least as to Grounds 1, 2, 3A, and 4A because Van Vliet is the same prior art presented to the Office, Cable is cumulative of prior art considered by the Examiner during prosecution, and Petitioner has failed to demonstrate any error by the Office.

VII. PETITIONER FAILS TO ESTABLISH A REASONABLE LIKELIHOOD OF PROVING UNPATENTABILITY OF ANY CHALLENGED CLAIM

For the additional reasons that follow, none of Petitioner's Grounds 1-4A support institution.

The '955 Patent contains three representative independent claims, i.e., claims 1, 11, and 19. EX1001. The table below shows the grounds that Petitioner asserts against each of claims 1, 11, and 19. As the grounds asserted against the dependent claims rely on the same prior art as asserted against the independent base claims, and the additional prior art cited against the dependent claims does not cure the deficiencies, the Petition (and thus institution) stands or falls with the grounds asserted against claims 1, 11, and 19. Moreover, as Patent Owner identifies in its arguments below, several of the grounds rely on other grounds and are thus interdependent.

Claim	Asserted Ground: Prior Art
Independent claim 1	Ground 1: §102 Van Vliet alone Ground 1: §103 Van Vliet + design choice Ground 2: §103 Van Vliet + Cable

Independent claim 11	Ground 1: §102/§103 Van Vliet alone Ground 2: §103 Van Vliet + Cable
Independent claim 19	Ground 3: §103 Van Vliet + LCR1 + LCR2 Ground 3A: §103 Van Vliet + Cable + LCR1 + LCR2

A. Claims 1[e], 11[d], and 19[e] are not anticipated by or obvious over Van Vliet alone.

1. As to anticipation, Petitioner misses features of claims 1[e], 11[d], and 19[e]⁴.

It is Petitioner's burden to explain how a challenged claim is construed and how the prior art teaches that claim. 37 C.F.R. §§ 42.104(b)(3)–(4); *World Bottling Cap, LLC v. Crown Packaging Tech., Inc.*, Case IPR2015-00296, slip op. at 5 (PTAB May 27, 2015) (Paper 8). As discussed below, Petitioner fails to meet this burden.

For claim 1[e] in Section VIII.A.1.f. of the Petition, Petitioner shows an annotated figure from Van Vliet, and provides several paragraphs of explanation. Petition at 26-27. However, aside from footnote 6, there is not a single mention in that explanation of any reels being connected to be fed from any manifold. Petitioner points out that Van Vliet has hoses, manifolds, and reels and discusses the hoses being

⁴ Petitioner purports to address claim 1[e] in Section VIII.A.1.f. Petition at 26. Petitioner addresses claim 11[d] in Section VIII.A.2.e, but relies on Section VIII.A.1.f. Petition at 31. Petitioner addresses claim 19[e] in Section VIII.C.12.f, but relies on claim 11[d] in Section VIII.A.2.e, which relies on claim 1[e] in Section VIII.A.1.f. Petition at 56.

connected to outlets 22 to receive fuel from the manifolds. *Id.* None of Petitioner's discussion addresses reels being connected to be fed from any manifold. Petitioner has therefore missed setting forth with particularity its asserted anticipation grounds against claim 1[e], and by extension claims 11[d] and 19[e] due to interdependence of Petitioner's grounds.

Petitioner's footnote 6 does not excuse the missing element from its analysis. In its footnote 6 Petitioner asserts that the claims do not require that hoses or manifolds be fluidly connected with or through reels. As discussed above in Section V.A., Petitioner presented no claim constructions, e.g., on "connected" or any other term, and therefore its assertion of what the claims do or do not require thus completely lacks basis. Moreover, whether Petitioner thought that the claims require a fluid connection or not does not relieve Petitioner of its burden to explain how the prior art teaches the claims. In this regard, Petitioner has not even attempted to explain whether the prior art reels are connected, fluidly or not, to the manifolds. Petitioner has, therefore, entirely missed claim 1[e], and thus also claims 11[d] and 19[e].

Accordingly, Ground 1 as to anticipation does not support institution. Insofar as Ground 3 for claim 19[e] relies on Ground 1 as applied to claim 11[d], Ground 3 also fails to support institution.

2. As to anticipation, Van Vliet does not have the features of claims 1[e], 11[d], and 19[e].

As discussed above in Section V.A., the term "connected" in claims 1[e], 11[d], and 19[e] means "fluidly connected."

Van Vliet's description does not disclose that its manifolds are fluidly connected to the reels. Van Vliet discloses that the "hoses 24 are preferably stored on reels 30," and that reels may be manual reels or spring loaded. EX1005, [0015]. However, aside from serving for storage of the hoses, Van Vliet contains no further description about the function or nature of the reels.

Van Vliet's figures also do not disclose that its manifolds are fluidly connected to the reels. Patent drawings are not working drawings and must clearly show the structure which is claimed. *In re Mraz*, 455 F.2d 1069, 173 USPQ 25 (CCPA 1972); MPEP 2125. The reels, numbered as element 30, are only shown in Fig. 1 of Van Vliet. Van Vliet indicates that Fig. 1 is a schematic view. *Id.* at [0008]. As Petitioner's expert acknowledges, "[a] schematic in this context is a high-level representation and is not intended to depict the physical appearance or form." EX1003, ¶132, footnote 138 citing EX1022 (the definition of schematic as "represented in simplified or symbolic form"). Fig.1 is thus unreliable for disclosing features that are, at best, ambiguous, without the benefit of any text to describe such features. Accordingly, any argument that Van Vliet depicts manifolds fluidly connected to the reels is predicated on schematic Fig. 1 that, as a simplified or symbolic representation, was obviously never intended to show a high

level of detail. As a result, Van Vliet's figures do not clearly disclose that its manifolds are fluidly connected to the reels.

Additionally, insofar as Petitioner relies on its expert, Petitioner's expert holds out seemingly contradictory views. In one instance he relies on Van Vliet's figures to allege that the fluid stream goes through the reels. EX1003, ¶¶141-143. Yet, he simultaneously concedes elsewhere in his report that Van Vliet's figures are schematic. EX1003 at 89, footnote 138 citing EX1022 (the definition of schematic as "represented in simplified or symbolic form"). That is, despite the acknowledged simplified or symbolic form of Van Vliet's figures, and the absence of physical appearance or form in the figures, Petitioner's expert appears to rely on physical appearance or form to conclude that the figures somehow show that the reels are fluidly connected to the hoses and manifold. EX1003, §143.

It is further noted that Petitioner's argument on claim feature 1[e], 11[d], and 19[e] also improperly sidesteps a proper anticipation analysis. A claim is anticipated only if each and every element as set forth in the claim is found, either *expressly or inherently* described, in a single prior art reference (MPEP 2131). Petitioner makes no argument that the feature is express, but rather relies on what Fig. 1 of Van Vliet *implies*. By asserting that the claim feature is implied, Petitioner tacitly acknowledges that the claim feature is not express, which further implies that Petitioner must be asserting that the feature is inherent. MPEP 2112 outlines the standard for inherency. The fact that a

certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Rather, in relying upon the theory of inherency, there must be a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Petitioner has not conducted an inherency analysis, and Petitioner has not, therefore, established that Van Vliet inherently has claim features 1[e], 11[d], and 19[e].

To the contrary, it is quite possible to have a reel that would not be fluidly connected to the manifold to feed fluid to a hose. For example, U.S. Patent No. 3,826,275 (FAS2008) discloses a hose reel that is for storage and transport of a hose but does not fluidly connect to the reel for throughput of a fluid, i.e., the reel is not fluidly connected to receive fluid to pass through to the hose. Rather, the hose is mechanically secured to the reel by inserting the end of the hose through a slot in the reel hub (*Id.* col. 4, ll. 12-26 "Hose end E of hose H, see FIG. 5, is next inserted through slot 31 in the manner indicated"). In that manner the hose can be wound or unwound from the reel to store and transport the hose from place to place. This non-fluid-connecting type of reel is clearly the type of reel suggested in Van Vliet. For instance, Van Vliet explicitly states that the hoses are preferably *stored* on reels 30 (col. 2, ll. 58), without mention of

the hoses being fluidly connected to the reels, or even that the hoses are on the reels during use. In fact, Van Vliet further states that the hoses are "connected to a fuel outlet 22 by a dry connection 60 and to a cap 26 by a dry connection 62 (col. 5, ll. 9-11), i.e., not the reels. Thus, the hoses could certainly operate properly by storing them on the reels and then, when desired for use, be unwound from storage on the reels and connected to the dry connects 60/62 for operation. In this regard, since the hoses are to be stored on the reels and then connected to fuel outlet 22 by a dry connection 60, a POSITA would be likely to understand that that the reels should be near the dry connections 60, which is what Van Vliet Fig. 1 appears to show.

Van Vliet does not require or even suggest that the hoses are on the reels during operation or that the hoses must be on the reels to operate properly. Thus, a fluid connection between the manifold and the reel is not inherent in Van Vliet because other types of reels exist that do not have fluid passages and the storage function of such reels aligns with the storage function described in Van Vliet. Van Vliet thus does not disclose, either explicitly or inherently, that the manifolds are fluidly connected to the reels.

Accordingly, Ground 1 as to anticipation does not support institution. Insofar as Ground 3 as to claim 19[e] relies on Ground 1 as applied to claim 11[d], Ground 3 also fails to support institution.

4. Petitioner does not sufficiently explain how "design choice" renders claims 1[e], 11[d], and 19[e] obvious.

Petitioner suggests under Ground 1, though only in a footnote, that the manifolds being fluidly connected to the reels would have been an obvious matter of design choice. Petition at 27, footnote 6. To support a conclusion that a claim is an obvious matter of design choice, a "convincing line of reasoning" must be presented as to why one of ordinary skill in the art would have found the claimed feature to have been obvious. *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (BPAI 1985).

For several reasons, Petitioner falls short of meeting its burden of establishing that having manifolds fluidly connected to reels in Van Vliet is an obvious matter of design choice. First, Petitioner fails to make any statement of the law to guide its assertion of design choice, nor provide any analysis of the claim feature within that legal framework. Without any analysis under a legal framework, Petitioner's assertion of "design choice" amounts to no more than a conclusory argument of counsel that cannot support institution.

Second, Petitioner does not provide any analysis of design choice in its Petition. Rather, it only casually mentions "design choice" in footnote 6, without any explanation of how it applies to the claim features at hand or Van Vliet. Petitioner's assertion thus amounts to no more than a conclusory statement that the claims are obvious. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441

F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006); see also *KSR*, 550 U.S. at 418, 82 USPQ2d at 1396 (quoting Federal Circuit's statement in *Kahn* with approval). See also MPEP 2142.

Additionally, insofar as Petitioner relies on its expert, that reliance is ineffective to rescue Petitioner's argument. In particular, there is no indication that Petitioner's expert, who does not profess to be a patent attorney (EX1003 at 1-6), was ever informed about any legal standards for "design choice," despite apparently having been informed about other areas of patent law (EX1003 at 11-17). Therefore, the conclusions of Petitioner's expert on "design choice" were not informed by the law. Indeed, as neither Petitioner nor its expert set forth any legal framework on "design choice," or provide any analysis thereunder, Petitioner's argument of design choice can be given no weight.⁵ Accordingly, Petitioner has in effect failed to demonstrate a *prima facie* case of obviousness under Ground 1. Insofar as Grounds 3 and 4 rely on Ground 1 (see Petition at 57, 63), Grounds 3 and 4 also fail to support institution.

B. Ground 2: The challenged claims are not obvious over Van Vliet in view of Cable.

1. Petitioner does not support its assertion of obviousness as to claims 1[e] and 11[e]⁶.

⁵ Petitioner also relies on "design choice" in numerous other instances throughout the Petition. See Petition at 16, 24, 25, 36, 38, 45, 49, and 55. For the same reasons, each of those instances should also be given no weight.

⁶ Ground 2 does not expressly address claim 11[d] and must therefore necessarily rely on Ground 1 as applied to claim 11[d].

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). Moreover, it is well-settled under *KSR* that the analysis supporting an obviousness rejection should be made explicit. MPEP § 2143.

Petitioner argues that claims 1[e] and 11[e] that require that the hoses or manifolds be fluidly connected with or through the reels are obvious in view of Cable. Petition at 37. Petitioner precedes this argument with a section explaining its rationale and motivation. Petition at 33-37. That rationale and motivation, however, does not particularly address manifolds fluidly connected with or through the reels and does not set forth any reason to modify Van Vliet to have a fluid connection to its reels as in Cable. For instance, Petitioner discusses that both Van Vliet and Cable have hoses, reels, and pumps, that Cable has a walkable central aisleway, and that Van Vliet and Cable are analogous art, but Petitioner does not provide any reason in particular that is directed to motivating a POSITA to modify Van Vliet to have a fluid connection to its reels as in Cable. Accordingly, Petitioner has not met its burden of showing with particularity why claims 1[e] and 11[e] are obvious.

2. A POSITA would not look to Cable to modify Van Vliet.

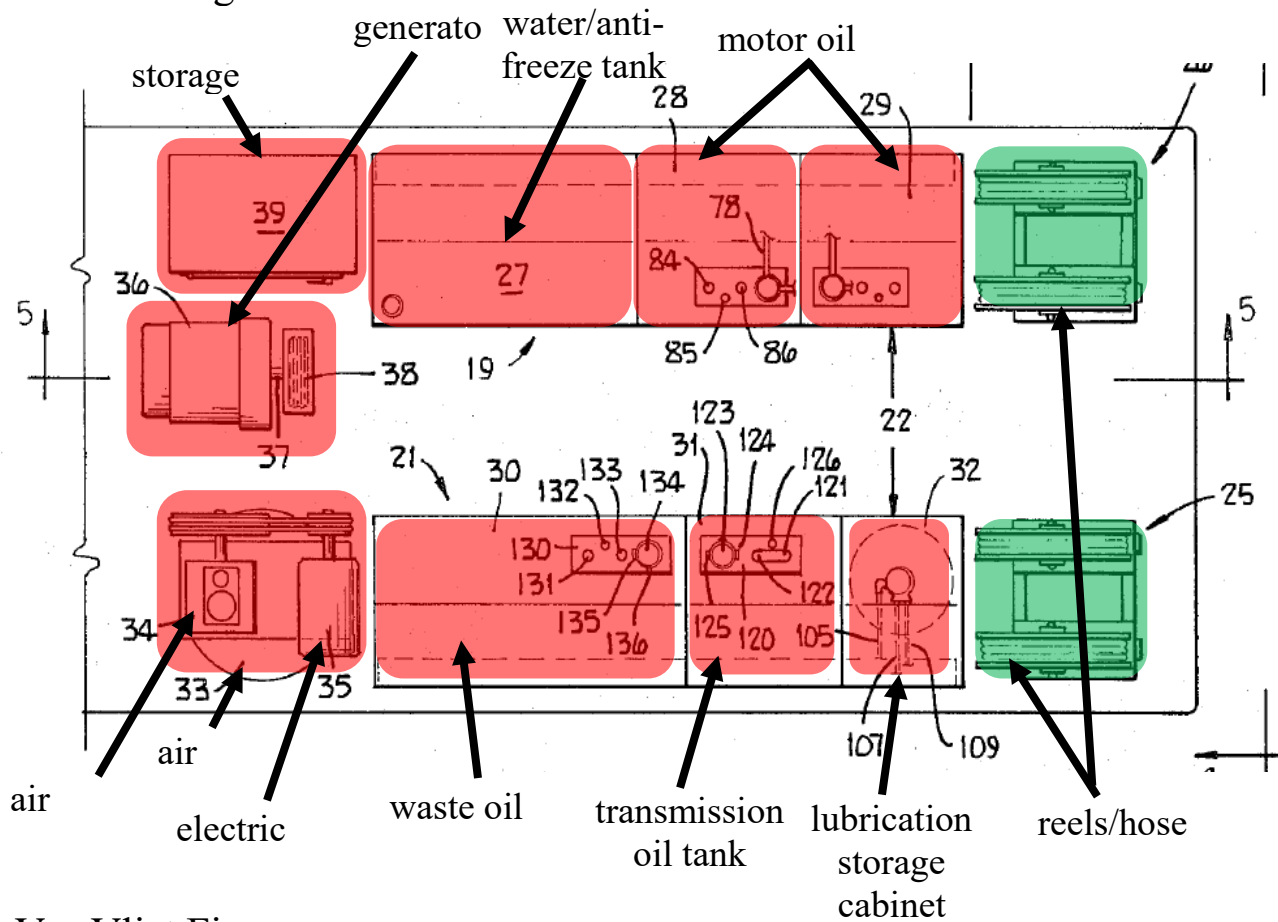
Despite Petitioner's characterization otherwise, a POSTA would not understand Cable and Van Vliet to be similar. For instance, Cable's lubrication system includes

equipment that is mostly different from the equipment in Van Vliet's system. The visual below shows a side-by-side comparison of the equipment in Cable and Van Vliet. Equipment that is found in both Cable's and Van Vliet's systems is identified in green, while equipment that is found only in Cable or only in Van Vliet, respectively, is identified in red.

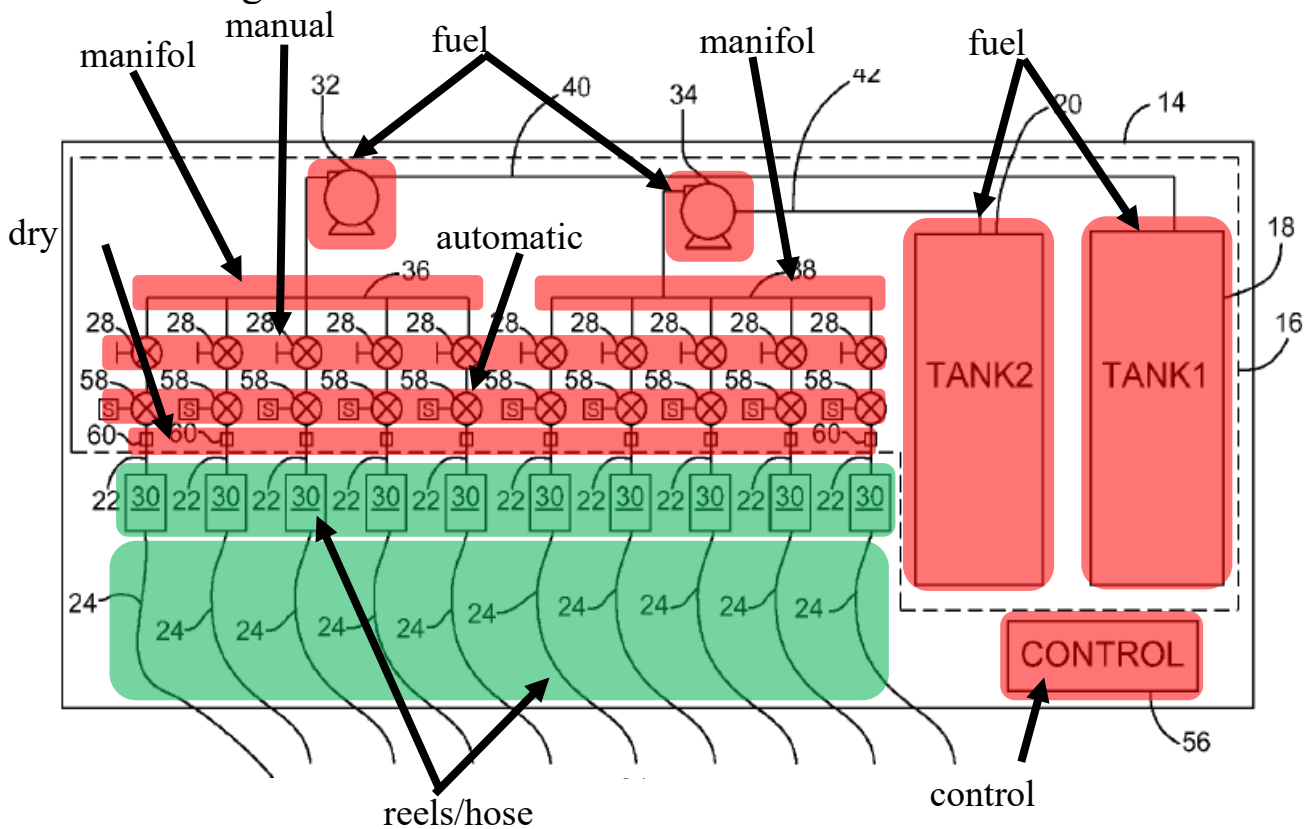
For instance, the arrangement shown in Cable includes a storage cabinet 39, a generator 36, an air compressor 34, an air tank 33, an electric motor 35, a water/anti-freeze tank 27, motor oil tanks 28/29, a waste oil tank 30, a transmission oil tank 31, and a lubrication storage cabinet 32. None of these pieces of equipment of Cable are found in Van Vliet.

Conversely, Van Vliet's fuel delivery system also includes many pieces of equipment that are not found in Cable's lubrication system, such as fuel sources 18/20, fuel pumps 32/34, manifolds 36/38, manual valves 28, automatic valves 58, dry connections 60, and control station 56.

Cable Fig.



Van Vliet Fig.

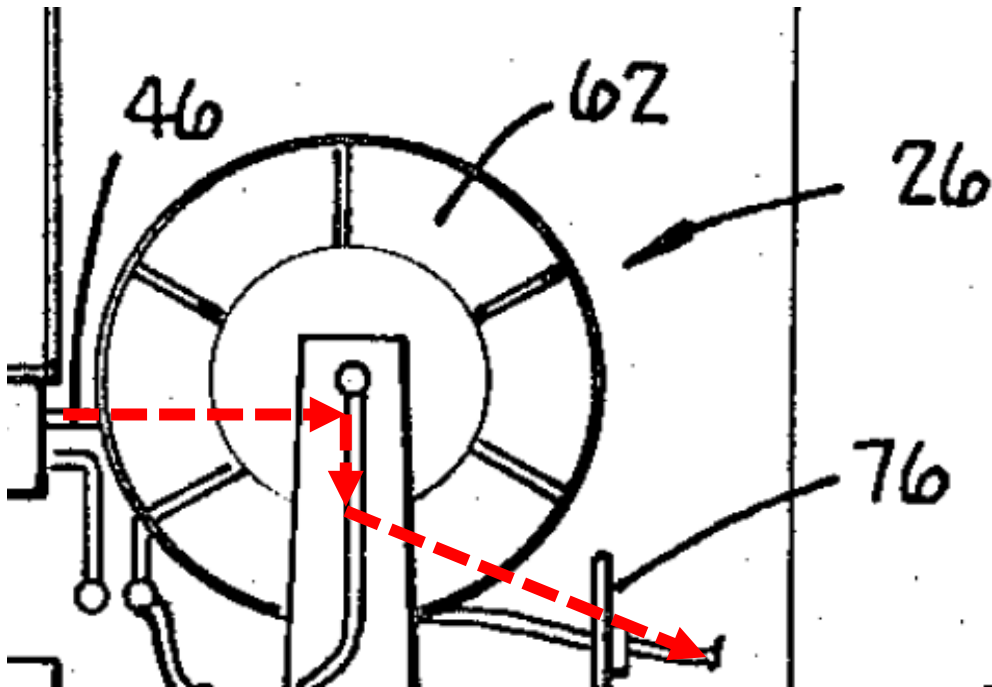


Most of the equipment taking up space in the systems, except for the reels and the hoses, is different between Cable and Van Vliet. Insofar as Petitioner asserts that Cable and Van Vliet both generally have tanks, valves, and pumps, Petitioner does not explain in its Petition why a POSITA would consider Cable's equipment, such as *water* valves, *lubrication/oil/water* tanks, and *lubrication/oil/water* pumps, to be particularly informative of Van Vliet's *fuel* valves, *fuel* tanks, and *fuel* pumps. For instance, as oil and fuel would inherently be of different viscosities, it is unclear that the same type and size pumps would be used for both. Accordingly, with the understanding that most of the equipment is different between Cable and Van Vliet, a POSITA would not be motivated to look to Cable to modify the equipment of Van Vliet.

Additionally, a POSITA would not look to Cable for connection of the reels. Van Vliet is a fuel delivery system. EX1004, [0001]. Cable, on the other hand, is not for fuel but rather for waste oil, transmission oil, chassis lubrication, air, water, and motor oil. EX1005, col. 1, ll. 26-30. Cable thus handles numerous types of fluids, none of which are a fuel in the context of Van Vliet (e.g., diesel). As the fluids that Cable handles are different than that of Van Vliet, any fluid connection that Cable's reels may have are not informative for a reel that is in a fuel system as in Van Vliet. Accordingly, the mere commonality of reels and hoses is insufficient to motivate the combination.

3. There is no suggestion to combine Van Vliet and Cable.

Contrary to Petitioner's contentions, it is unclear why a POSITA would modify Van Vliet with the fluid connection of Cable's reel. Routing flow of fuel in a fluid passage that runs through a reel would require the fuel to flow along a tortuous path. For example, as shown by the annotated excerpt from Cable's Fig. 2 below, fuel would need to flow into the reel, and then at a minimum take one turn, if not more, to flow along the spindle to the outlet of the reel and into the hose. It is well-known in mechanical engineering that features such as turns in pipes/flow passages cause a pressure drop in the fluid flowing through the pipe. FAS2009 and FAS2010. Indeed, this basic principle is familiar to anyone who has used a garden hose and kinked the hose to reduce or stop water flow through the hose. As a result, a POSITA would understand that the tortuous path through the reel of Cable would cause a pressure drop in fluid flowing through the reel and that because of this either i) a higher pumping pressure would be needed to overcome the pressure drop in order to obtain the same flow to the hose as without the reel or ii) there would be a lower flow of fuel to the hoses if the pressure drop was not overcome, which would result in longer times to fill the fuel tanks.



A POSITA would further understand from Van Vliet that high pressure in the system is a concern, due to safety considerations of handling fuel in an environment with extreme temperatures. EX1003, [0002]. For instance, Van Vliet teaches a pressure switch to stop power to the pump when pressure builds-up to a predetermined level and then allow power to the pump once the pressure drops off. EX1004, [0021]. The pressure switch is thus, in effect, a safety measure intended to prevent or reduce the chance of dangerous over-pressure conditions in the system.

Given the pressure drop that would be caused by adding fluid connections through ten Cable-type reels in Van Vliet (one for each of the ten hoses) and the prospect of either having to use higher pumping pressure or having to settle for lower flow to the

hoses, particularly when coupled with Van Vliet's concern for over-pressure in the system, a POSITA would not be motivated to add fluidly connected reels in Van Vliet.

For at these reasons, Ground 2 does not support institution. Insofar as Grounds 3A and 4A rely on Ground 2 for the combination of Van Vliet and Cable, Grounds 3A and 4A also fail to support institution.

4. A POSITA would not look to Cable to modify Van Vliet as to claims 2 and 3.

The mere commonality of reels and hoses is insufficient to motivate a POSITA to modify Van Vliet with Cable's arrangement of reels. For instance, the visual below shows an annotated excerpt from Cable Fig. 4 in which each reel of Cable is highlighted in a color. Each different color represents a different fluid that Cable delivers. For example, hose 72 highlighted in orange handles waste oil (EX1005, col. 6, ll. 35-36); hose 73 highlighted in red handles transmission oil (EX1005, col. 6, ll. 21-27); hoses 74 and 75 highlighted in green handle chassis lubrication (EX1005, col. 6, ll. 13-16); hose 64 handles air (EX1005, col. 67 ll. 28-30); hose 65 handles water (EX1005, col. 4, ll. 35-38); hose 58 handles a first motor oil (EX1005, col. 4, ll. 48-67); and hose 59 handles a different viscosity of motor oil (*Id.*). As depicted, only two of the hoses/reels handle the same [common] fluid, i.e., the hoses/reels highlighted in green, and those hoses/reels are both on the same side of Cable's van truck. Thus, Cable does not teach that reels/hoses that handle a common fluid are arranged on opposite sides of the van truck or aisleway. Accordingly, a POSITA would not be prompted by Cable to arrange

Van Vliet's hoses (that all deliver fuel) on opposite sides of the trailer with an aisle walkway down the middle. EX1004, [0015].

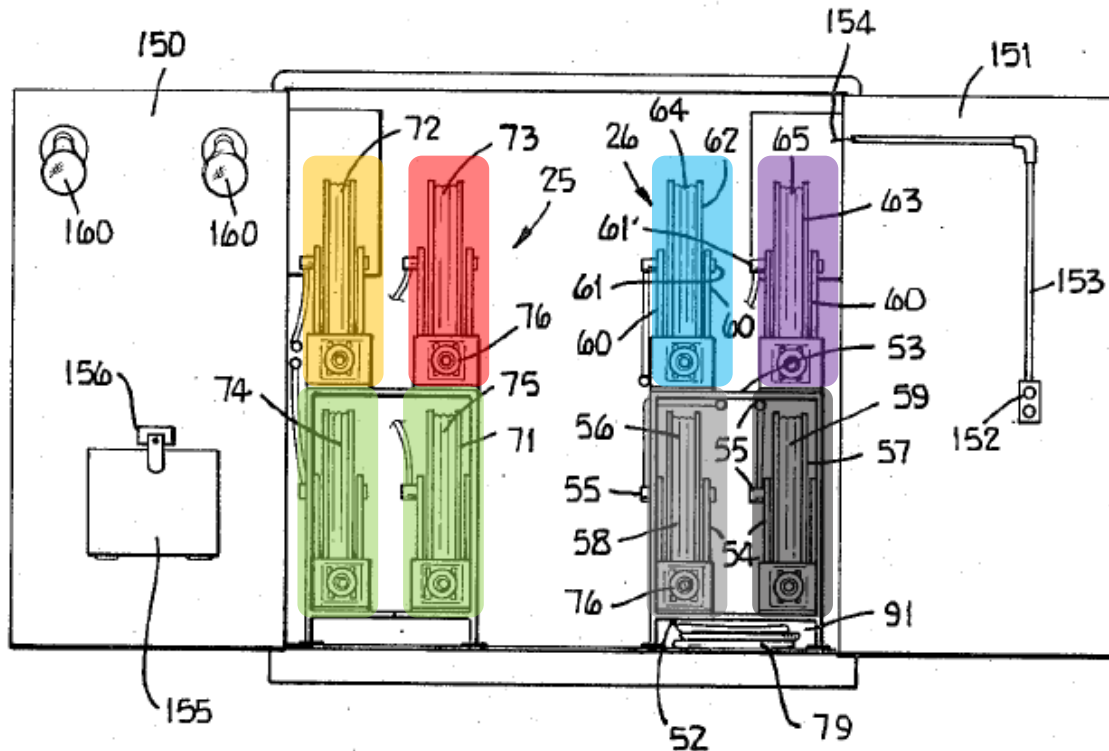


Fig. 4.

C. Grounds 3 and 3A: Petitioner fails to account for the claimed register location as to claim 19[d].

1. Petitioner does not provide sufficient support for the claimed location of the register.

Claim 19[d] recites "a register between the at least one pump and the at least one manifold."

Petitioner contends that a POSITA would have understood that a register installed to be used with a pump should be installed *directly* downstream of the pump in order to

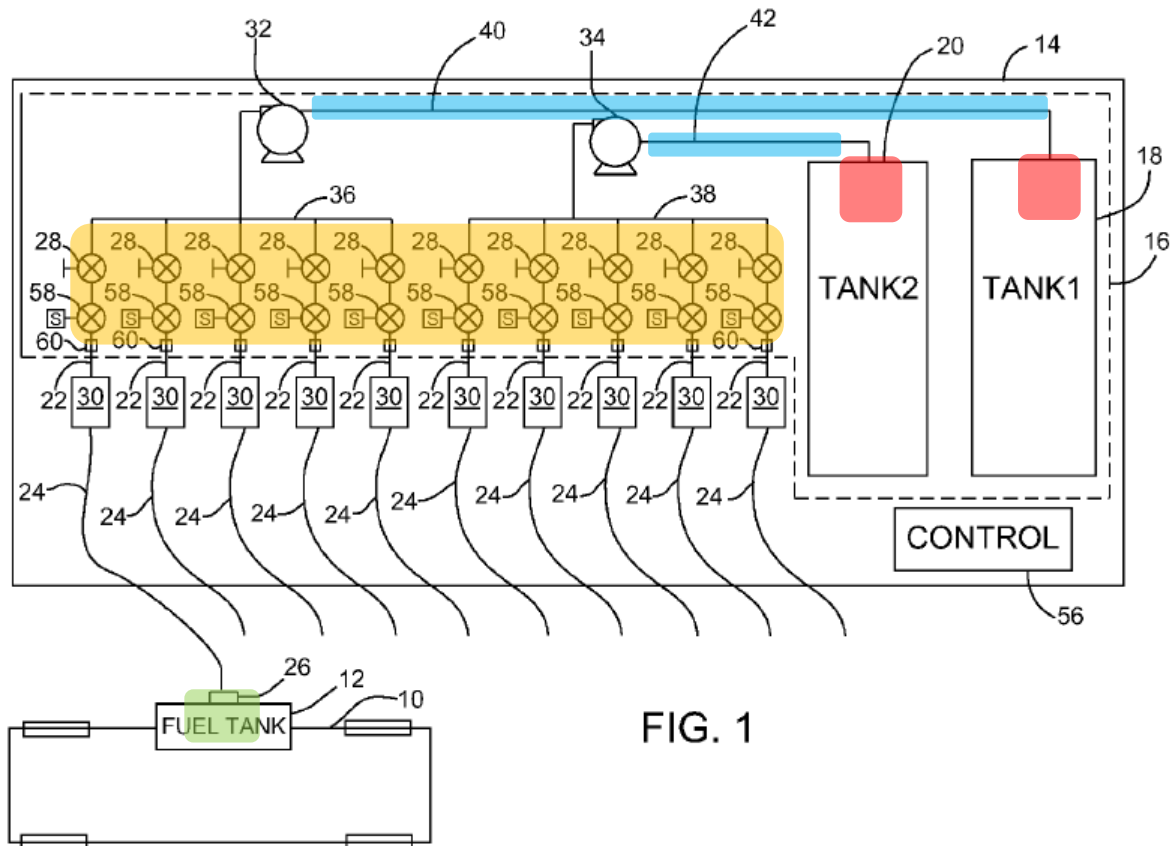
obtain the most accurate flow rate measurements possible. Petition at 55, 57. Petitioner does not provide any explanation in support but relies on its expert (citing to EX1003, ¶¶224-226. Petitioner's expert, however, also does not provide any support for why a register should be installed *directly* downstream of the pump in order to obtain the most accurate flow rate measurements possible. For instance, Petitioner's expert posits that the electronic register of LCR is designed to be installed downstream of a pump, but he fails to explain what basis, if any, there is for this assertion. In footnote 243 he cites to EX1006 at 3. That citation does not mention a pump or self-evidently give any indication that the LCR register must be installed directly downstream of a pump. Petitioner's expert then continues on to conclude without any analysis that a POSITA would have understood that a register installed downstream of a pump would be installed between pump 32 and manifold 36 [in Van Vliet] in order to capture all of the fluid that was flowing out of pump. *Id.*, ¶225. Petitioner's expert cites to footnote 245, but that footnote does not exist at the bottom of the page. The effect of the oversights above by Petitioner and its expert is that there is no support to explain why a POSITA would have modified Van Vliet to include a register in the claimed location between the pump and the manifold.

Additionally, there are numerous other locations where a register could be located in Van Vliet. As shown in annotated Fig. 1 of Van Vliet below, there are at least four other locations that would seem to be suitable for a register because there is fuel flow.

For instance, since fuel flows out of the tanks 18/20, registers could be located at the exits of the tanks, highlighted in red. Fuel also flows to the pumps 32/34 in lines 40/42, and registers could thus be located in the lines 40/42 between the pumps and the tanks, highlighted in blue. There is also flow in the multiple fuel outlets from the manifolds, downstream of the pumps, and registers could thus be located there, highlighted in orange. Finally, there is also flow into the fuel tanks of the equipment that is being refueled, and registers could thus be located at the fuel caps on the fuel tanks, highlighted in green. Neither Petitioner nor its expert consider any of these locations or provide any supported reason that a POSITA would favor Petitioner's proposed location between the pumps and the manifolds over any other location.

In fact, contrary to Petitioner's proposed location, given that Van Vliet discloses that there can be leaks in its system (EX1004, [0015]), the location at the fuel cap (highlighted green) would seem to be the "most accurate," because it would not count fuel that has leaked upstream in the system. In contrast, if the register was directly downstream of the pump as Petitioner proposes would be "most accurate," fuel would be counted before it leaks at a downstream location in the system, resulting in charging the customer for fuel that the customer did not actually receive. Additionally, there is likely to be substantially stagnant fuel in the volume leading from the manifold to any one of the valves that are closed. It would thus seem that if the register was directly downstream of the pump, upstream of the manifold, as Petitioner proposes, the stagnant

fuel would be counted before entering the manifold and becoming stagnant, again resulting in charging the customer for fuel that the customer did not actually receive. Moreover, insofar as the hoses could be run to equipment of different customers, it is not clear how a register directly downstream of the pump could determine how much fuel goes to each customer since all the fuel, regardless of which customer, would pass through the register at that location. Accordingly, not only did Petitioner fail to support its proposed location, but there also appears to be several reasons not to put the register there and at least one different location that would be "more accurate" than Petitioner's location.



Petitioner alternatively contends that a register directly downstream of the pump is an obvious design choice. However, as discussed above in Section VII.A.4. (footnote 5), Petitioner's arguments of design choice can be given no weight.

For at these reasons, Grounds 3 and 3A do not support institution.

D. Grounds 4 and 4A do not support institution.

1. Petitioner's rationale and motivation for DeFosse is insufficient.

Petitioner first suggests that a POSITA would have been motivated because Van Vliet and DeFosse are analogous art. Petition at 58. However, a mere allegation of analogous art is not sufficient to demonstrate obviousness. The fact that references may be analogous to a claimed invention or even share the same design incentives with each other and with the patent at hand does not establish that it would have been obvious to combine their features. Petitioner must show some reason why a person of ordinary skill in the art would have thought to combine particular available elements of knowledge, as evidenced by the prior art, to reach the claimed invention. Conclusory labels do not substitute for a fact-based analysis in a Petition to establish what is being modified and why, based on the differences between the prior art and the claimed invention, it would have been obvious to a person of ordinary skill to make the modification. See *Shopkick, Inc. v. Novitaz, Inc.*, IPR2015-00279, Paper 7, slip op. at 26–30 (May 29, 2015). Beyond conclusory labels, Petitioner provides no meaningful explanation of a reason why mere analogous art would have prompted the proposed combination.

Next, Petitioner posits that the combination would have been obvious because Van Vliet discloses use of pumps and pumping fluids, and DeFosse discloses pumps in series for pumping fluids in a related context in fracturing operation. However, there are several issues with such an assertion.

First, Petitioner mischaracterizes Van Vliet in attempt to make Van Vliet fit Petitioner's narrative. The characterization of Van Vliet disclosing "pumping fluids" is an unsupported over-generalization. Van Vliet, in no uncertain terms, is particularly directed to fuel. For instance, the title of Van Vliet's disclosure is "Fuel Delivery System and Method" (emphasis provided). EX1004, cover page. Van Vliet uses the word "fuel" approximately 521 times, and nowhere does Van Vliet disclose or suggest that his invention is designed for anything other than fuel. Indeed, delivering water or anything besides fuel to the fuel tanks of the wellsite pumpers would likely ruin the pumpers, or at the very least render the pumpers inoperable. Additionally, Van Vliet's claims are directed to fuel delivery systems that include a fuel source (Van Vliet claims 1 and 16), a method of delivering fuel that include pumping fuel from a fuel source (Van Vliet claim 11), or a cap for a fuel tank that has a fuel level sensor (Van Vliet claim 20), all of which suggest that Van Vliet intended his invention in the context of fuel, not fluids more generally. And while fuel is a fluid, Petitioner has pointed to nothing in particular that would lead a POSITA to conclude that Van Vliet's disclosure is more broadly

directed to fluids in general. Accordingly, Petitioner's over-generalization of Van Vliet does not support combining Van Vliet and DeFosse.

Second, as to Petitioner's contention that DeFosse discloses pumps in series for pumping fluids *in a related context in fracturing operations*, Petitioner does not explain what the alleged "related context" is. In fact, contrary to Petitioner's assertion, DeFosse's pumping of fluids is not a "related context" to Van Vliet's pumping of fuel. For instance, DeFosse is directed to a process for preparing a friction-reduced hydraulic fracturing fluid at a central location which can be readily transported to an oil or gas well in a formation at a well site. EX1008, Abstract. In this regard, a mixture of water and polymer from a 20 metric tonne storage tank is delivered to the pumps 26/28, which pump the mixture to a surge tank at the wellsite. The water/polymer mixture from the surge tank is then mixed with a proppant before transport to pump 40 to pump the mixture into the well for well stimulation. EX1008, col. 1, ll. 24-29; col. 4, ll. 25-28, 61-64; col. 5, ll. 28-37; Fig. 1. The pumps 26/28 that Petitioner relies upon in DeFosse thus serve at the wellsite to pump large quantities (as indicated by the 20 metric tonnes of polymer that is needed) of a water polymer mixture for injection into the well.

In contrast, Van Vliet's pumps do not serve to pump large quantities of water or polymer into a well. Rather, Van Vliet's system provides fuel to run the pumpers at the wellsite. EX1004, [0014] "pumpers and blenders" and "pumper 10." The pumper 10 in Van Vliet would be analogous to the pumps 40 in DeFosse that are used in combination

with blender 38 (EX1008, Fig. 1). Thus, although both are at a wellsite, a POSITA would certainly understand that Van Vliet's pumps serve for an entirely different purpose than the pumps 26/28 of DeFosse -- Van Vliet's pumps deliver fuel to run the frac pumps, while DeFosse's pumps deliver a working fluid, i.e., hydraulic frac fluid, for injection into the well at high pressures to stimulate the well. Accordingly, DeFosse's pumping of fluids is not a "related context" to Van Vliet's pumping of fuel.

Additionally, insofar as Petitioner relies on its expert, most of its expert's findings are not supported by an underlying factual basis. For instance, in support of its assertion that a POSITA would have been motivated to use two pumps in series in order to produce sufficient pumping capacity using two or more smaller pumps that would individually fall below the necessary pumping capacity and/or to take advantage of the fast startup and protection from cavitation that such a system would provide (Petition at 58-59), Petitioner cites to EX1003, ¶¶244-251. However, Petitioner's expert provides no factual basis for any of the opinions he attests to in those paragraphs. For example, in ¶244 he asserts "[a] POSITA would have recognized that the benefits of a series pumping system are multifold." He then continues on to explain why, but nowhere in that explanation does he provide any factual basis for his assertions. Similarly, he explains in ¶246 that "[o]ne common method of maintaining NPSH on a discharge pump is through the use of a 'boost pump'," but he again does not provide an underlying factual basis for that explanation. The explanations in ¶¶247-249 likewise do not

contain any factual basis. Paragraph ¶244 is the only one of the paragraphs in which Petitioner's expert cites to any factual basis, but even there it is merely for the vapor pressures of diesel fuel and water, not to support the overall premise of the paragraph that a POSITA would know to maintain equal or similar net positive suction head. Under 37 C.F.R § 42.65(a), "Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight." Accordingly, as Petitioner's expert does not disclose any underlying basis for his opinions in the paragraphs above, Petitioner's assertion that a POSITA would have been motivated to combine Van Vliet and DeFosse is without support.

2. A POSITA would not be motivated to combine Van Vliet and DeFosse.

As discussed above in Section VII.D.1, although the pumps of both Van Vliet and DeFosse are at a wellsite, a POSITA would understand that Van Vliet's pumps serve for an entirely different purpose than the pumps 26/28 of DeFosse. For instance, pumps 26/28 in DeFosse pump the water/polymer mixture to a surge tank 34 at the wellsite. The water/polymer mixture from the surge tank is then mixed with a proppant before transport to pump 40 to pump the mixture into the well for well stimulation. EX1008, col. 1, ll. 24-29; col. 4, ll. 25-28, 61-64; col. 5, ll. 28-37; Fig. 1. There is also an in-line

static mixer 27 between the pump 26/28 to ensure complete hydration of the polymer⁷. Id. col. 5, ll. 21-25. The pumps 26/28 that Petitioner relies upon in DeFosse thus serve at the wellsite to move the water/polymer mixture downstream to another pump 40 (Fig. 1) that injects the mixture into the well. Of course, Van Vliet does not do any mixing of water and polymer, or any two fluids for that matter. Rather, Van Vliet's pumps simply deliver fuel to run the frac pumps. Given that DeFosse's pumps function for mixing of hydraulic frac fluid and Van Vliet's pumps handle fuel and have no need for mixing, it is not at all clear what reason a POSITA would have to look to DeFosse's pumps to modify Van Vliet.

For at least the reasons above, Grounds 4 and 4A do not support institution.

VIII. CONCLUSION

For the foregoing reasons, Patent Owner respectfully submits that the instant Petition should be denied.

⁷ Element 27 is not explicitly used in Defosse's description. However, from the description at col. 5, ll. 21-25 it appears that in-line static mixer was intended to be element 27 because it is in the described location between pumps 26/28.

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STATEMENT OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(b)(1), the undersigned hereby certifies that the foregoing document is produced using a 14-point Times New Roman font and contains 11,862 words (excluding a table of contents, table of authorities, certificate of service, and appendix of exhibits), which is fewer than the 14,000 words permitted by PTAB rules. Counsel relies on the word count of the computer program used to prepare the brief.

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on November 29, 2023, a true and correct copy of the foregoing document was served electronically via e-mail in its entirety on counsel identified below by Petitioner for service at DLPermianIPR@bakerbotts.com.

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