

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PERMIAN GLOBAL INC., AND
MANTICORE FUELS, LLC
Petitioners

v.

FUEL AUTOMATION STATION, LLC,
Patent Owner

Case No. IPR2023-01238
Patent 10,974,955

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,974,955**

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EX1018	U.S. Patent Pub. No. 2007/0181212 to Joe Fell (“ <i>Fell</i> ”)
EX1019	Michael Morton, “Unlocking the Earth: A Short History of Hydraulic Fracturing,” <i>GEO ExPro</i> , Vol. 10, No. 6, December 2013
EX1020	Carl T. Montgomery and Michael B. Smith, “Hydraulic Fracturing: History of an Enduring Technology,” <i>Journal of Petroleum Technology</i> vol. 62 issue 12 (Dec. 2010)
EX1021	Bourgoyne, A. T., Jr., K. K. Millheim, M. E. Chenevert and F. S. Young, Jr. (1986). <i>Applied Drilling Engineering</i> , Society of Petroleum Engineers
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EX1023	Vassiliou, M. S. (2018), <i>Historical dictionary of the petroleum industry</i> , Rowman & Littlefield
EX1024	B.A. Wells and K.L. Wells. “Shooters – A “Fracking” History.” American Oil & Gas Historical Society, (https://aoghs.org/technology/hydraulic-fracturing) (last accessed July 17, 2023)
EX1025	U.S. Patent Application Publication No. 2013/0306322 to Sanborn <i>et al.</i> entitled “System and Process for Extracting Oil and Gas by

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EX1029	<u>AFD Onsite Refueling</u> , http://web.archive.org/web/20150922012312/https://www.afdpetroleum.com/fuel/onsite_refuelling (Sept. 22, 2015) (“ <i>AFD</i> ”)
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EX1034	Archived Rhino Sleeve Website, HT Rhino Sleeve HT, http://web.archive.org/web/20180815044032/http://rhinosleeve.com/rhino-sleeve-ht/ , (archived on August 15, 2018) (last accessed on August 4, 2023)
EX1035	Harlander, L. A. "Container System Design Developments over Two Decades." <i>Marine Technology and SNAME News</i> , vol. 19, no. 04, 1982, doi:10.5957/mt1.1982.19.4.364. available from http://www.onepetro.org

EX1036	Archived Xcaliber Website, Shipping Container Specialists, https://web.archive.org/web/20160308154429/https://www.xcalibercontainer.com/ (archived on Mar. 8, 2016) (last accessed on Aug. 4, 2023)
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EX1038	Archived Falcon Structures Website, Repurposed Shipping Containers for the Oil and Gas Industry, https://web.archive.org/web/20160419045503/http://www.falconstructures.com/oilfield-container-house (archived on Aug. 19, 2016) (last accessed on Aug. 4, 2023)

I. INTRODUCTION

Permian Global, Inc. and Manticore Fuels, LLC (collectively “Petitioners”) submits this Petition for *Inter Partes* Review (“IPR”) of Claims 1-20 of U.S. Patent No. 10,974,955 (the “’955 Patent”) under 35 U.S.C. §§ 311-319 and 37 C.F.R. § 42.100 *et seq.* Petitioner respectfully requests institution of *inter partes* review and a finding that all challenged claims are unpatentable.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(A)(1)

A. Real Party-in-Interest under 37 C.F.R. § 42.8(b)(1)

The real parties in interest are Permian Global, Inc. and Manticore Fuels, LLC, and further may include one or more of the following entities: Manticore Fuel Holding, LLC; Murphy Street Holdings, LLC; Permian Partners Inc.; Manticore Resources & Logistics, LLC; Bechra Holdings LLC; and Ethos Capital Management, LLC. No other parties exercised or could have exercised control over this Petition; no other parties funded or directed this Petition. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48759-60.

B. Related Matters under 37 C.F.R. § 42.8(b)(2)

Fuel Automation Station, LLC has asserted the ’955 Patent against Petitioners in a co-pending litigation, *Fuel Automation Station, LLC. v. Permian Global, Inc.*, Case No. 1-22-cv-00801 (WDTX Aug. 10, 2022). The Original Complaint in that litigation was filed on Aug. 10, 2022.

C. Lead and Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel.

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D. Service Information under 37 C.F.R. § 42.8(b)(4)

A copy of this entire Petition, including all Exhibits, are being served by FEDERAL EXPRESS, costs prepaid, to the address of the attorney or agent of record at the USPTO:

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Power of Attorney is filed concurrently herewith under 37 C.F.R. § 42.10(b).

III. FEES

The Office is authorized to charge any fees that become due in connection with this Petition to Deposit Account No. 02-0384 and any additional fees that are due.

IV. REQUIREMENTS UNDER 37 C.F.R. § 42.104

A. Certification of Grounds for Standing

Petitioners certify that the '955 Patent is eligible for IPR and that Petitioners are not barred or estopped from requesting IPR of the '955 Patent.

B. Priority Date

The application that issued as the '955 Patent was filed on Dec. 2, 2019. EX1001, Code 22. It claims priority to U.S. Patent No. 10,494,251, which was filed on February 7, 2018. U.S. Patent No. 10,494,251 claims priority to U.S. Patent No. 9,932,220, which was filed on January 26, 2017. U.S. Patent No. 9,932,220 claims priority to U.S. Patent No. 9,586,805, which was filed on October 11, 2016. Petitioner assumes for the purposes of this Petition, without conceding, that the '955 Patent is entitled to a priority date of October 11, 2016.

C. Prior Art

Exhibit 1004—U.S. Patent Pub. No. 2011/0197988 to Van Vliet et al. (“*Van Vliet*”) was filed on Feb. 16, 2011 and issued on Aug. 18, 2011. *Van Vliet* qualifies as prior art under at least 35 U.S.C. § 102(a)(1) and (2).

Exhibit 1005— U.S. Patent No. 3,810,487 to Cable et al. (“*Cable*”) was filed on Nov. 22, 1971 and issued on May 14, 1974. *Cable* qualifies as prior art under at least 35 U.S.C. § 102(a)(1) and (2).

Exhibit 1006—LectroCount LCR 600TM Electronic Register (“*LCR P*”) was

available online no later than May 21, 2014, as explained in the affidavit of Nathaniel E. Frank-White. EX1013;¹ *see also* EX1003, ¶ 113. Thus, *LCR I* qualifies as prior art under at least 35 U.S.C. § 102(a)(1).

Exhibit 1007—Liquid Controls Electronic Registers and Data Management Systems (“*LCR II*”) was available online no later than Oct. 10, 2015, as explained in the affidavit of Nathaniel E. Frank-White. EX1013;² *see also* EX1003, ¶ 114. Thus, *LCR II* qualifies as prior art under at least 35 U.S.C. § 102(a)(1).

Exhibit 1008—U.S. Patent No. 8,360,152 to DeFosse et al. (“*DeFosse*”) was filed on Nov. 27, 2009 and issued on Jan. 29, 2013. *DeFosse* qualifies as prior art under at least 35 U.S.C. § 102(a)(1) and (2).

D. Identification of Challenge & Statement of Precise Relief Requested

Petitioners requests IPR of Claims 1-20 based on the following grounds:

Ground	Type	Summary
1	§§102/103	Claims 1 and 11-12 are anticipated and/or rendered obvious by <i>Van Vliet</i>
2	§103	Claims 1-5 and 11-12 are rendered obvious by <i>Van Vliet</i> in view of <i>Cable</i>
3	§103	Claims 6-10 and 14-20 are rendered obvious by <i>Van Vliet</i> in view of <i>LCR I</i> and/or <i>LCR II</i>
3A	§103	Claims 6-10 and 14-20 are rendered obvious by <i>Van Vliet</i> in view of <i>Cable</i> and <i>LCR I</i> and/or <i>LCR II</i>

¹ EX1013 includes a copy of EX1006 as Exhibit A. Citations to EX1006 incorporate by reference the corresponding disclosure of EX1013, Exhibit A.

² EX1013 includes a copy of EX1007 as Exhibit A. Citations to EX1007 incorporate by reference the corresponding disclosure of EX1013, Exhibit A.

4	§103	Claim 13 is rendered obvious by <i>Van Vliet</i> in view of <i>DeFosse</i>
4A	§103	Claim 13 is rendered obvious by <i>Van Vliet</i> in view of <i>Cable</i> and <i>DeFosse</i>

Submitted with this Petition is a declaration of Petitioner’s expert (EX1003).

E. Institution is Proper under § 314(a)

The factors in *General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (P.T.A.B. Sept. 6, 2017) favor institution. This is the first and only petition challenging the ’955 Patent.

The factors in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (P.T.A.B. Mar. 20, 2020) (“*Fintiv*”) (precedential) also favor institution. Pursuant to *Fintiv* Factor 6, the merits of this petition are compelling and outweigh any inefficiencies of parallel litigation. *Id.* at 14-15. Factors 2 and 3 also strongly favor institution. The parallel litigation is just beginning; no trial date or other pretrial schedule is set, and the Court has not yet set any scheduling conference. The parties are in the early stages of discovery and no claim construction activities or disclosure of infringement or invalidity contentions have occurred. Regarding Factor 4, given the early stage of the district court litigation, it would be premature to conclude that the issues raised in this proceeding will overlap with those in the district court. Moreover, if Patent Owner raises § 314(a) arguments in a Preliminary Response, Petitioners respectfully request the opportunity to reply prior to institution to address

any update in the district court schedule and whether a *Sand Revolution* stipulation would be appropriate. Regarding Factor 1, no party in the District Court has requested a stay, and the Board does not speculate on how a district court will treat a motion to stay. *See, e.g., VMware, Inc. v. Intell. Ventures I LLC*, IPR2020-00859, Paper 13, Institution Decision, at 12 (P.T.A.B. Nov. 5, 2020) (informative). Finally, since Petitioners and Patent Owner are all parties to the co-pending litigation, Factor 5 is, at worst, neutral and need not be considered as a basis for discretionary denial. *Cisco Sys., Inc. v. Ramot at Tel Aviv Univ. Ltd.*, IPR2020-00122, Paper 15, Institution Decision, at 10 (P.T.A.B. May 15, 2020) (APJ Crumbley, dissenting).

F. Institution is Proper Under § 325(d) and *Advanced Bionics*.

Petitioner respectfully submits that the Board should not deny institution under 35 U.S.C. §325(d) under the *Becton* factors (*Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017)) and the two-step framework established in *Advanced Bionics LLC v. MED-EL Elektromedizinische Gerate GmbH*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020) (precedential).

Under *Advanced Bionics*, the Board must first decide whether the same or substantially the same art or argument were presented to the Office during the prosecution of the '955 Patent (*Becton* factors (a), (b), and (d)). If the Board finds that prong is satisfied, then the Board must determine whether “petitioner has

demonstrated that the Office erred on a manner material to the patentability of the challenged claims” (*Becton* factors (c), (e), and (f)).

1. *Advanced Bionics Step One*

This Petition does not present similar or substantially the same prior art or arguments. *Van Vliet* is the only reference asserted by this Petition that was reviewed by the Examiner—all other asserted prior art references were not disclosed or reviewed during prosecution of the ’955 patent. Most of the grounds in this Petition do not rely on *Van Vliet* for the claim limitations that the Examiner found to be lacking in the reference. In addition to the new prior art in this Petition, the Office will also have the expert declaration of Petitioner’s Expert, which the Examiner didn’t have. This report will bring new evidence to the Office’s attention which was not considered or reviewed during prosecution of the ’955 patent.

The Board has held that combining a secondary reference that was not previously considered by the Examiner with a primary reference that was considered by the Examiner favors institution of IPR. *Oticon Med. v. Cochlear Limited*, IPR2019-00975, at 18–20; *Qualcomm Inc. v. Monterey Rsch. LLC*, IPR2021-00120, Paper 17 at 18–19 (June 8, 2021). Almost every ground in this Petition combines *Van Vliet* with prior art that was not considered during prosecution or disclosed in IDS. Therefore, the combinations of the asserted art have not been previously considered by the Examiner. This further favors institution because the asserted

combinations of prior art references render the claimed invention obvious.

Furthermore, the asserted art is not cumulative of the prior art presented to the Examiner during prosecution. “A reference is cumulative when it ‘teaches no more than what a reasonable examiner would consider to be taught by the prior art already before the PTO.’” *Regeneron Pharms. Inc. v. Merus N.V.*, 864 F.3d 1343, 1350 (Fed. Cir. 2017); see *Oticon Med. v. Cochlear Limited*, IPR2019-00975, Paper 15 at 18–20 (PTAB Oct. 16, 2019) (the secondary reference was not cumulative of the primary reference because the structure and purpose of the grooves were different). *Cable* discloses a positioning of reels not highlighted by the Examiner in the prior art. Compare EX1005, Figs. 1-2, with EX1009. *LCR I* and *LCR II* disclose an electronic register not highlighted by the Examiner in the prior art. Compare EX1006, 2, and EX1007, 4, with EX1009. *DeFosse* discloses series pumping not highlighted by the Examiner in the prior art. Compare EX1008, Fig. 1, with EX1009. Therefore, *Cable*, *LCR I*, *LCR II*, and *DeFosse* are not cumulative. Indeed, the only art (other than priority applications) discussed by the Examiner during prosecution in relation to the '955 Patent's claims was U.S. Patent Application Publication 2007/0181212 to Fell, which is not relied upon or cumulative of any of the references relied upon in this Petition.

Because the combinations including two or more of *Van Vliet*, *Cable*, *LCR I*, *LCR II*, and *DeFosse* were never presented to the Examiner, and because *Cable*, *LCR*

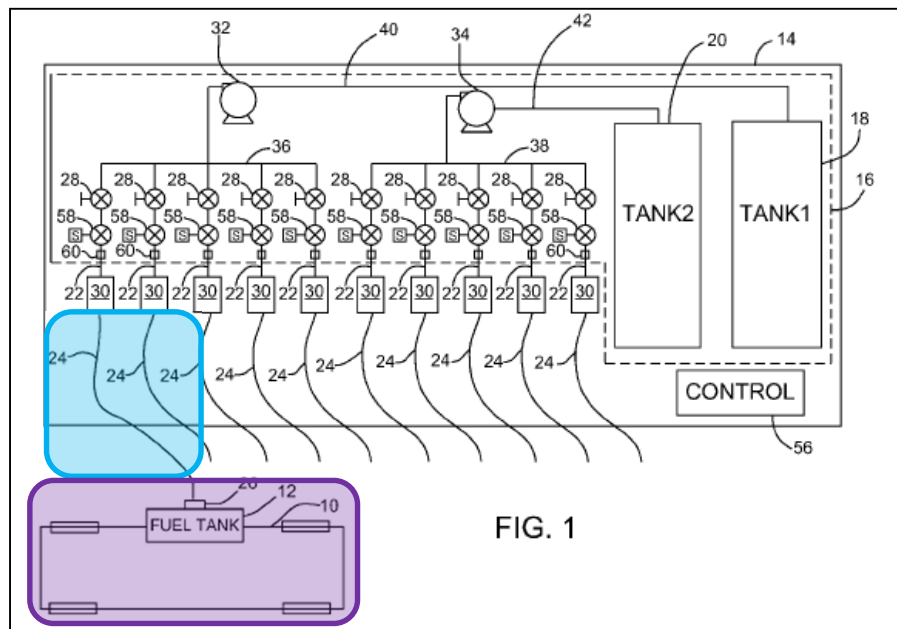
I, *LCR II*, and *DeFosse* are not cumulative of prior art considered, this Petition is not presenting same or substantially similar arguments considered during prosecution. Therefore, the Petition should be granted.

2. Advanced Bionics Step Two

Even if it were found that the asserted art presents the same or substantially similar argument previously considered, the Office erred in failing to consider *Cable*, *LCR I*, and *LCR II* in a manner “material to the patentability of the challenged claims” of the ’955 Patent. In *Oticon*, the petition was granted because the secondary reference was not considered by the Examiner, and the reasonable examiner would have considered the reference when examining the disputed patent. *Id.* A reasonable Examiner should have viewed *Cable*, *LCR I*, and *LCR II* prior to granting the patent because they teach the claim elements of the ’955 Patent. Combinations of *Van Vliet* with *Cable*, *LCR I*, and/or *LCR II* render the ’955 patent obvious, which materially affects the patentability of the claims. Therefore, the Office erred in failing to consider the *Cable*, *LCR I*, and *LCR II* references in combination with *Van Vliet*.

Additionally, with regard to Ground 1 of the Petition, although *Van Vliet* was of record in the ’955 Patent, it is not clear that the Examiner substantively considered its content relative to the ’955 Patent’s claims. The Examiner never cited any specific paragraph or figure of *Van Vliet* at any time during the ’955 Patent’s prosecution. Moreover, the ’955 Patent’s great-grandparent application (U.S. App. No.

15/290,371) previously had been deemed allowable over *Van Vliet*, but by a different examiner and based on limitations not recited in the '955 Patent claims. EX1014, 6-7 (referencing hoses deployable from first and second trailer side walls). Finally, *Van Vliet*'s 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 descriptions. Figure 2 shows that fuel tank 12 has a fuel cap 26 secured thereon that is connected to both a hose 24 and a fuel level sensor 54. EX1004, Fig., [0017]. However, only Figure 1 shows that each hose 24 (blue below) leads to a respective different fuel tank 12 (purple below):



EX1004, Fig. 1 (annotated) & [0016]. As shown above, Figs. 1 and 2 demonstrate together that each fuel level sensor is associated with a respective different one of the hoses, but this understanding could have been missed in a cursory review of *Van*

Vliet. See EX1004, Fig. 1, Fig. 2, & [0016]-[0017]. Therefore, the Examiner likely failed to appreciate *Van Vliet*'s teaching of each fluid level sensor being associated with a different one of the hoses as recited in independent claims 1, 11, and 19 of the '955 Patent.

Therefore, the Office should not deny institution under 35 U.S.C. § 325(d).

V. OVERVIEW OF THE '955 Patent

A. Summary of '955 Patent Subject Matter

The '955 Patent describes a distribution station for distributing fuel or other fluids, *e.g.*, to equipment at a hydraulic fracturing site. EX1001, 2:12-32. More specifically, the '955 Patent is directed to a distribution station having a pump, manifolds, reels, and hoses located in a container/mobile trailer. *Id.*, 1:34-48 & 2:12-32. The '955 Patent claims various combinations of known elements for fuel distribution to reach predictable results; these elements and predictable results would have been known by a POSITA at the time of the '955 Patent's priority date. EX1003, ¶¶ 42-43; *see also* EX1001, Claims 1-20. Examples of known elements claimed by the '955 Patent include a container, walls, a pump, first and second manifolds, a plurality of reels, a plurality of hoses, a plurality of valves, a plurality of fluid level sensors, and a controller, among others. EX1003, ¶ 43; *see also* EX1001, Claims 1-20.

Claim 1 is representative of the claims of the '955 Patent and is reproduced

below:

1. A distribution station comprising:
 - a container including first and second opposed side walls that join first and second opposed end walls;
 - a pump in the container;
 - first and second manifolds in the container and fluidly connected with the pump;
 - a plurality of reels in the container;
 - a plurality of hoses, each said hose connected with a different one of the reels, 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;
 - a plurality of valves in the container, each said valve situated between one of the first or second manifolds and a respective different one of the reels;
 - a plurality of fluid level sensors, each said fluid level sensor being associated with a different one of the hoses; and
 - a controller configured to individually open and close the valves responsive to the fluid level sensors.

B. Claim Listing

A full claim listing is included as EX1011.

C. Relevant Prosecution History of the '955 Patent

The application that would issue as the '955 Patent, Patent Application No. 16/700,095 (the "'095 Application"), was filed on Dec. 2, 2019. EX1001, Code 22. Prosecution of the '095 Application was short and did not demonstrate any

significant discussion of §§ 102 or 103. EX1009, 57. The Examiner issued a Notice of Allowance on January 29, 2021 after only one non-final office action. *Id.*, 13. The Examiner did not state a reason for allowance. *Id.* In the one non-final office action issued during prosecution, the Examiner only made double-patenting rejections and did not discuss §§ 102 or 103. *Id.*, 57. In fact, the only reference mentioned by the Examiner in direct relation to the '095 Application's claims (other than patents to which the '095 Application claimed priority) was U.S. Patent Application Publication 2007/0181212 to Fell, which is not relied upon in this Petition. *Id.* Fell was relied upon in a single paragraph discussing a double-patenting rejection. *Id.*, 57-58.

D. Level of Ordinary Skill in the Art

As of the earliest claimed priority date, a person of ordinary skill in the art ("POSITA") would have a degree in mechanical, electrical, petroleum, or civil engineering and with at least two years' experience working in a field relating to energy production. This definition is approximate, and more education may substitute for industry experience or vice versa. EX1003, ¶ 101.

VI. SUMMARY OF PRIOR ART

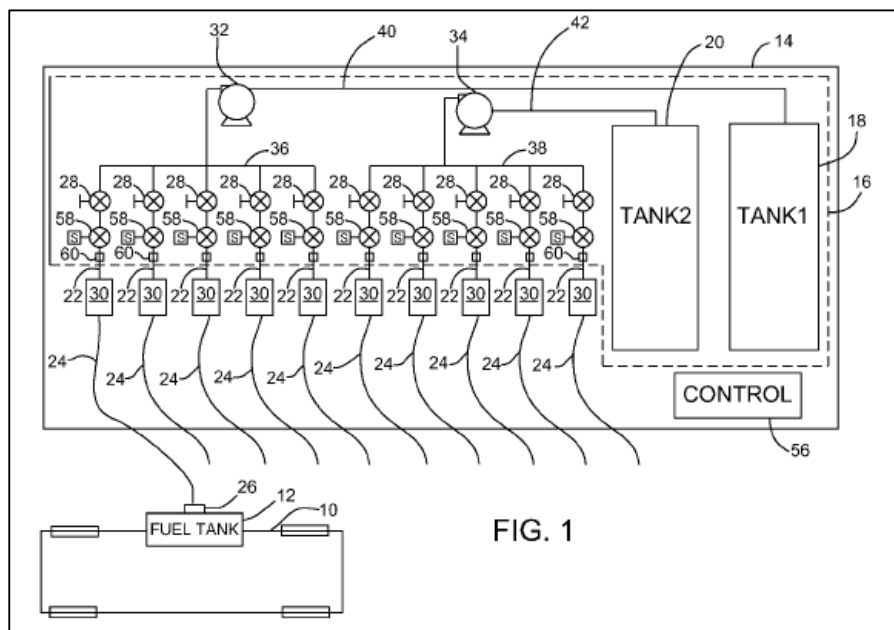
As explained by Petitioner's expert in the attached expert declaration (EX1003), the subject matter of the claims of the '955 Patent was well known before the priority date of the '955 Patent. EX1003, ¶ 103. In addition to the background

knowledge that a POSITA would have brought to bear on the subject matter discussed in the '955 Patent, the following prior art demonstrates that distribution systems within the scope of the '955 Patent claims would have been well-known and obvious to a POSITA. *Id.*

A. *Van Vliet* (EX1004)

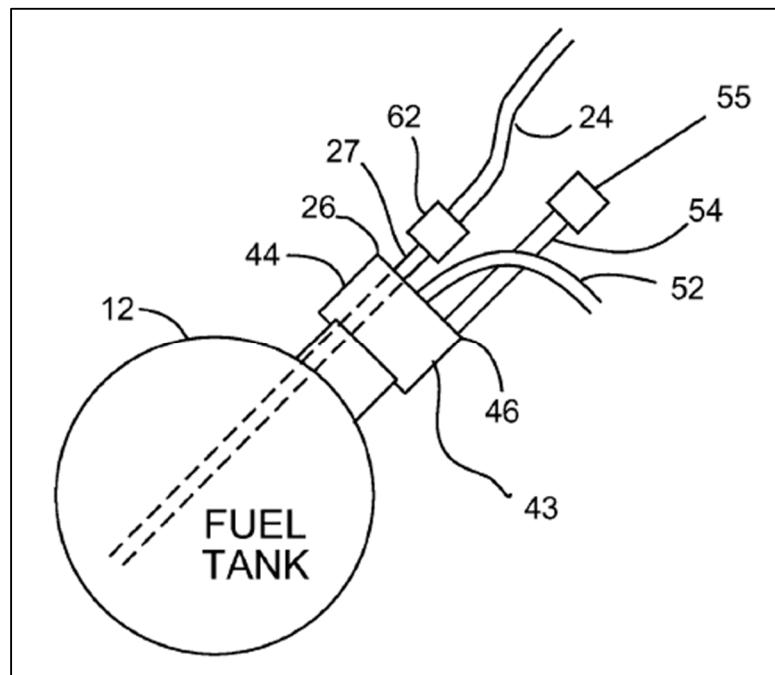
Van Vliet relates to “[f]uel delivery systems and methods,” and more specifically, to “[a] fuel delivery system and method” for equipment used in well fracturing operations “for reducing the likelihood that a fuel tank of [such] equipment ... will run out of fuel.” EX1004, Abstract; *id.*, [0003].

Van Vliet describes “a fuel delivery system [that] may be contained on a single trailer,” and is depicted in Figure 1. EX1004, [0014].



EX1004, Fig. 1.

In the above fuel delivery system 14, tanks 18 and 20 connect to pumps 32 and 34, which connect to manifold 36 and manifold 38 respectively. EX1004, Fig. 1. The manifolds connect to valves 28 and 58, which are in fluid communication with a plurality of hoses 24 via fuel outlets 22. *Id.* Each hose 24 is stored on a reel 30 and connects to a fuel tank 12. *Id.* *Van Vliet* notes that the spatial orientation of the reels 30, manifolds 36 and 38, tanks 18 and 20, and other equipment shown “is a matter of design choice for the manufacturer and will depend on space requirements.” *Id.*, [0027]. The connection between a hose 24 and a fuel tank 12 is depicted in more detail below:



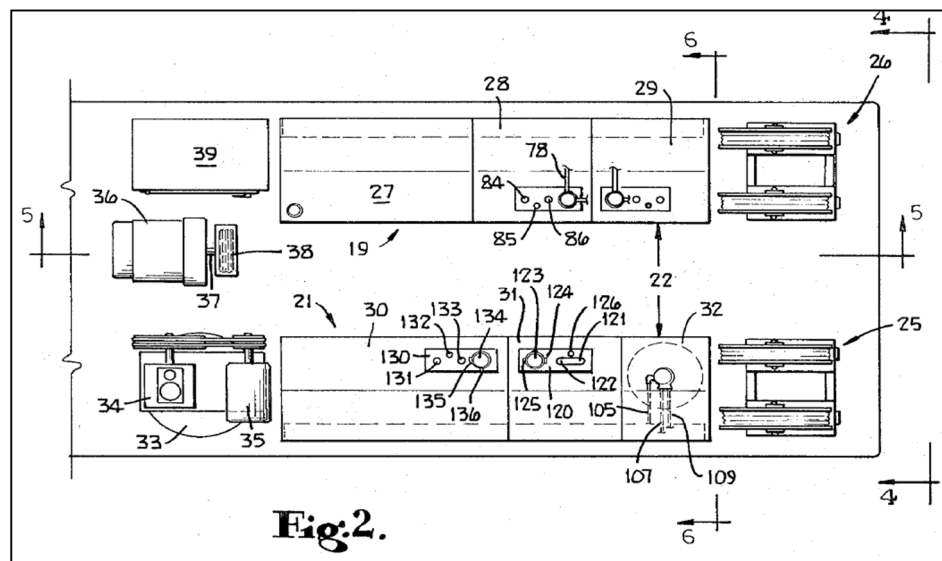
EX1004, Fig. 2.

As depicted above, hose 24 connects to fuel tank 12, which is coupled to fuel

level sensor 54. *See* EX1004, Fig. 2; *id.*, [0020]. The fuel level sensor 52 detects a level of fuel within fuel tank 12 and communicates the fuel level to a controller 56 (not shown above). EX1004, [0020]. The controller 56 may be used to control pumps 32, 34, thereby allowing the fuel passing through hoses 24 to be responsive to fuel levels in fuel tanks 12. *Van Vliet* was cited by the examiner during prosecution of the '955 Patent.

B. Cable (EX1005)

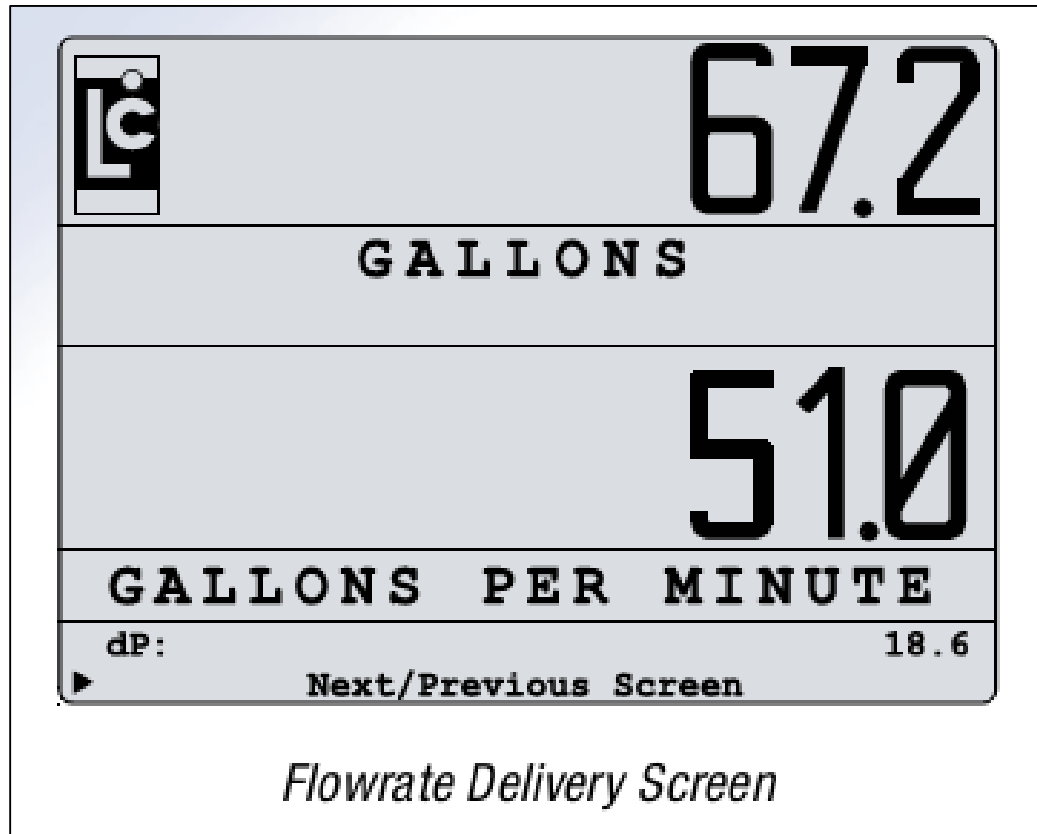
Cable relates to “mobile lubricating systems” for providing oil to a vehicle and more specifically to “a mobile lubrication apparatus having a van truck with storage tanks mounted therein connected to pressure hoses.” EX1005, Background of the Invention, Abstract. The rear compartment of *Cable*’s van truck has the following layout:



C. *LCR I* (EX1006) and *LCR II* (EX1007)

LCR I and *LCR II* are each online documents released by the same company, Liquid Controls LLC, relating to their electronic fluid register products. *LCR II* is a product overview brochure for Electronic Registers and Data Management Systems offered by Liquid Controls LLC. EX1007, 1. *LCR I* is a product specification for the LectroCount LCR 600 Electronic Register, one of the electronic fluid registers discussed in *LCR II*. See EX1006, 2; see also EX1007, 5.³ *LCR I* relates to an electronic register capable of recording fuel flow from a pump, communicating with a controller, and printing an invoice for the delivered fuel. EX1006, 2; EX1007, 4 & 8. *LCR II* describes that the LectroCount LCR 600 displays gross quantity and flow rate in increments of 0.1 gallons and 0.1 gallons per minute:

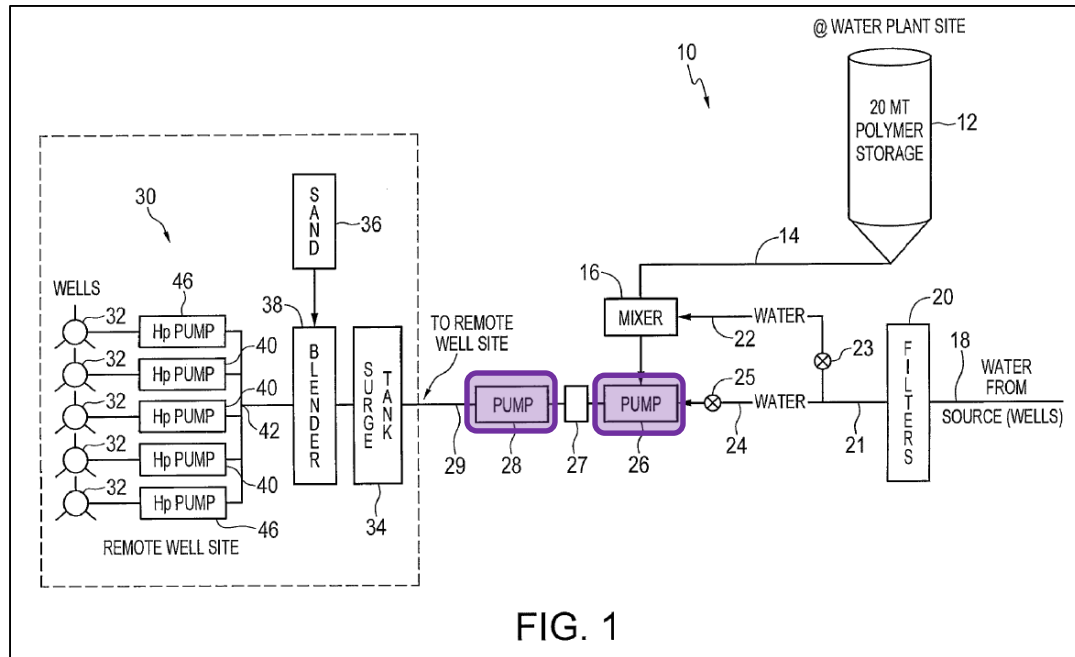
³ Further evidence of how a POSITA would have understood the installation and operation of the LectroCount LCR 600 register is described in the Setup and Operation Manual for that register, a copy of which is provided as EX1012 (bearing a copyright date of 2010); see EX1003, ¶ 115.



EX1007, 5. Neither *LCR I* nor *LCR II* was prior art of record during prosecution of the '955 Patent.

D. *DeFosse* (EX1008)

DeFosse relates to hydraulic fracturing, and more particularly, to a process for preparing a fracturing fluid at a central location. EX1008, 1:10-13. *DeFosse* discloses a fracturing fluid preparation/blending system having two pumps (purple below) arranged in fluid series:



EX1008, Fig. 1 (annotated), 4:65-5:1, 5:23-27. The practice of using pumps in series (as depicted in Fig. 1 of *DeFosse* above) was well known throughout all aspects of the fracturing industry at the time of the '955 Patent. EX1003, ¶ 118. *DeFosse* was not prior art of record during prosecution of the '955 Patent.

VII. CLAIM CONSTRUCTION

For purposes of this Petition, Petitioner applies the ordinary and customary meanings of the claim terms.⁴ Express constructions are not required in this

⁴ Petitioner reserves all rights to challenge the claims under § 112 and/or seek claim constructions of certain terms in district court or any other venue.

proceeding because the prior art invalidates the claims under any plausible construction.

VIII. ASSERTED GROUNDS OF INVALIDITY

A. Ground 1: Claims 1 and 11-12 are anticipated and/or rendered obvious by *Van Vliet*

1. *Claim 1*

a) Claim 1[p]: “A distribution station comprising:”

To the extent the preamble is limiting, *Van Vliet* discloses “[a] distribution station.” EX1004, [0003], [0014]. Specifically, *Van Vliet* discloses “a fuel delivery system [that] may be contained on a single trailer.” EX1004, [0014].

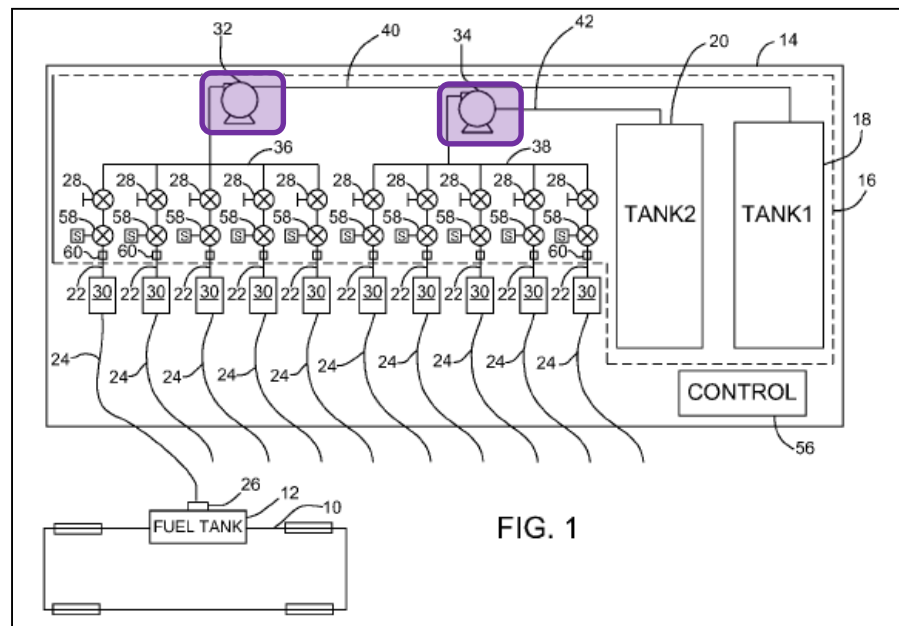
b) Claim 1[a]: “a container including first and second opposed side walls that join first and second opposed end walls;”

Van Vliet discloses a “fuel delivery system 14 [that] may be contained on a single trailer.” EX1004, [0014]. *Van Vliet* teaches that a commercially-available trailer may be used, *e.g.*, the type made by Sea-Can Containers of Edmonton, Canada, which a POSITA would have understood to include a back wall and a front wall joined by two opposed side walls. *Id.*, [0024]; *see also id.*, [0024] & [0026] (describing that the trailer has “trailer walls” on which other components may be mounted and having openings through which hoses on the trailer may be routed); EX1003, ¶¶ 122-25. Thus, a POSITA would have understood that the “trailer” of *Van Vliet* is a container having opposed side walls and opposed end walls as

described in Claim 1[a]. EX1003, ¶¶ 122-25. In fact, the '955 Patent's "container" is a trailer. *Compare* EX1001, Fig. 1 & 2:24-32, *with* EX1004, [0014]. Thus, *Van Vliet*, either alone or in view of the knowledge of a POSITA, teaches or discloses element 1[a]. *See* EX1004, [0014]; *see also* EX1003, ¶ 126.

c) Claim 1[b]: “a pump in the container;”

Van Vliet discloses “a pump in the container.” EX1003, ¶ 127. As shown in Fig. 1 of *Van Vliet*, the fuel delivery system 14 includes pumps 32 and 34 that are each connected to respective tanks 18 and 20(EX1004, [0016]):



EX1004, Fig. 1 (annotated: pumps highlighted in purple).

Because pumps 32, 34 are part of the “fuel delivery system 14” that “may be contained on a single trailer,” either or both of those pumps are “in the container” of

Van Vliet. EX1004, [0008], [0014], & Fig. 1. Alternatively, to the extent that *Van Vliet* does not expressly disclose that the pumps 32, 34 are located inside the trailer, such an arrangement would have been an obvious design choice for a POSITA. EX1003, ¶ 129; *see also* EX1004, [0027] (spatial orientation of equipment is a matter of design choice).

d) Claim 1[c]: “first and second manifolds in the container and fluidly connected with the pump;”⁵

Van Vliet discloses “first and second manifolds in the container and fluidly connected with the pump.” EX1003, ¶ 131. *Van Vliet* describes that the fuel delivery system 14 includes “one or more manifolds with associated pumps and fuel line or lines.” EX1004, [0003] (annotated). The fuel delivery system (which includes manifolds 36 and 38) is on a mobile trailer. EX1004, [0008], [0014]. In the embodiment shown in Figure 1, manifold 36 is connected to pump 32 and manifold 38 is connected to pump 34. *Id.*, [0015] & Fig. 1. A POSITA would have understood that the connection between the manifolds and the associated pumps would be a fluid connection because the pumps and manifold distribute liquid fuel (*i.e.*, a fluid).

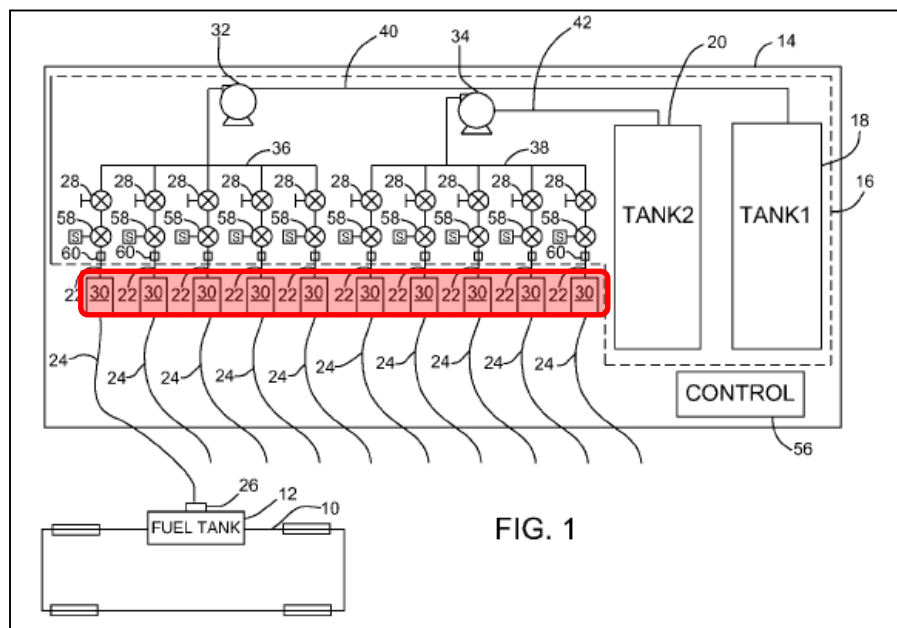
⁵ Petitioners have applied *Van Vliet* to the claimed “manifolds” based on its *in haec verba* disclosure of that element and Patent Owner’s allegations relating to infringement. However, Petitioners do not concede that any other structure, even one having a schematic similar to that shown or described in *Van Vliet*, would have been considered a “manifold” by a POSITA.

EX1003, ¶ 132. Thus, a POSITA would have understood that *Van Vliet* discloses limitation 1[c]. *Id.*

To the extent claim 1[c] requires that each of the first and second manifolds be connected to a single pump, modifying *Van Vliet* to connect manifolds 36 and 38 to a single pump would have been an obvious design choice for a POSITA to implement, and a POSITA would have been motivated to do so, for example, to minimize the amount of components needed in *Van Vliet*'s system. *Id.*, ¶ 133.

e) Claim 1[d]: “a plurality of reels in the container;”

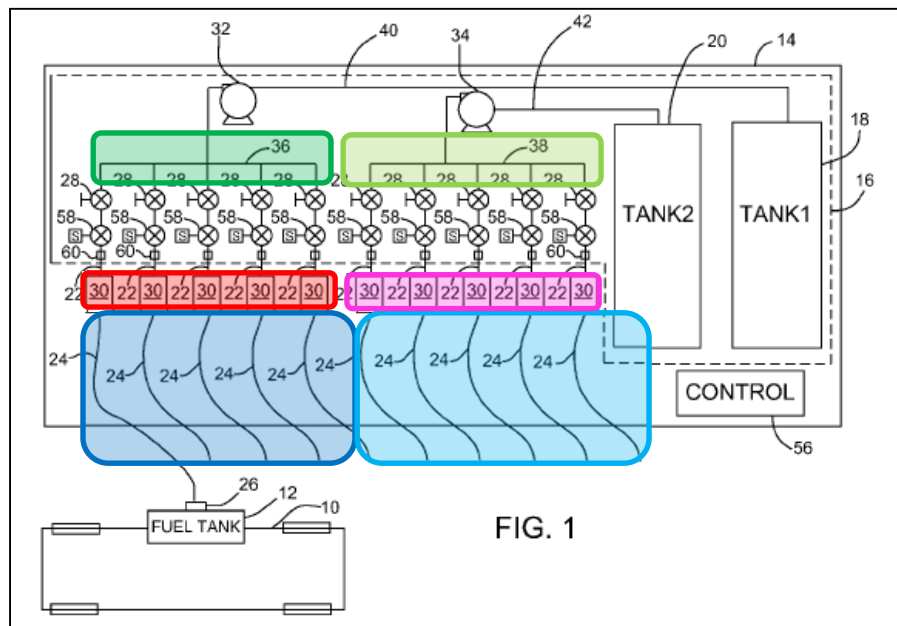
In *Van Vliet*'s fuel delivery system, “[t]he hoses 24 are preferably stored on reels 30” (EX1004, [0015]). Figure 1 below shows at least ten “reels 30” on the fuel delivery system 14, which is in the mobile trailer:



EX1004, Fig. 1 (annotated: reels 30 highlighted in red); *see also id.* at [0008], [0014]; EX1003, ¶¶ 134-35.

f) Claim 1[e]: “a plurality of hoses, each said hose connected with a different one of the reels, 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;”

Van Vliet discloses “a plurality of hoses connected, respectively, with the reels” *See* EX1003, ¶ 136; *see also* EX1004, [0015] (“The hoses 24 are preferably stored on reels 30”), Fig. 1 (showing a hose 24 extending from each reel 30).



EX1004, Fig. 1 (annotated to show left hoses 24 in dark blue, right hoses 24 in light blue, left reels 30 in red, right reels 30 in pink, left manifold 36 in dark green, and right manifold 38 in light green). The fuel delivery system (including hoses 24) is on a mobile trailer. EX1004, [0008], [0014].

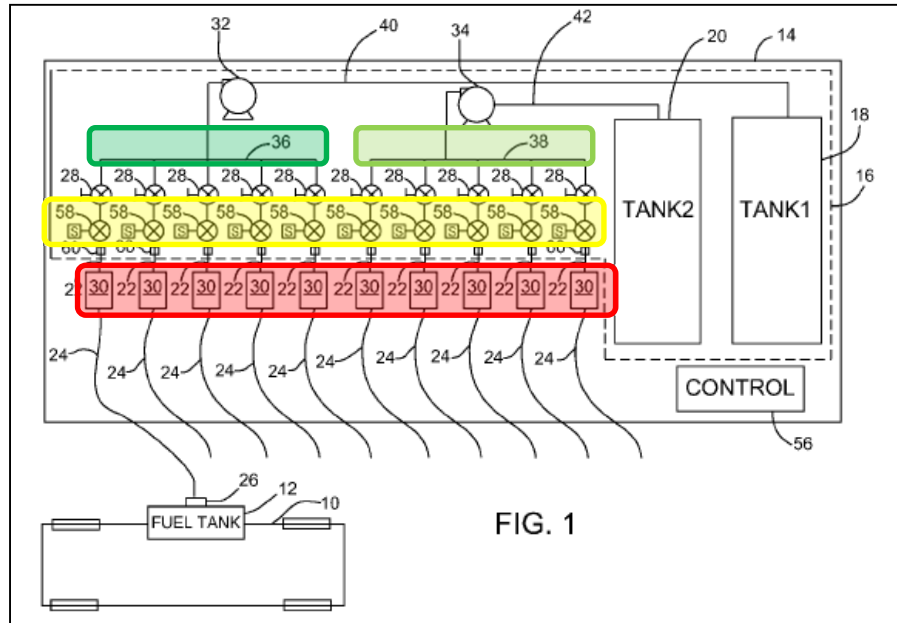
As depicted above, hoses 24 on the left (dark blue) are connected to a first set of reels 30 (red), and the hoses 24 on the right (light blue) are connected to another set of reels 30 (pink). EX1004, Fig. 1. One portion of the hoses 24 on the left (dark blue) are connected via fluid outlets 22 to receive fuel from manifold 36 on the left (dark green). A second portion of the hoses 24 on the right (light blue) are connected via fluid outlets 22 to receive fuel from manifold 38 (light green). *Id.*; *see also id.*, [0023] (describing fuel flow). Thus, a POSITA would have understood that *Van Vliet* discloses element 1[e].⁶ EX1003, ¶ 144.

g) Claim 1[f]: “a plurality of valves in the container, each said valve situated between one of the first or second manifolds and a respective different one of the reels;”

As depicted below, *Van Vliet* discloses a plurality of valves 58 (yellow). The fuel delivery system (including valves 58) is on a mobile trailer. EX1004, [0008], [0014]. Each of the valves 58 (yellow) is illustrated schematically downstream of one of first manifold 36 (dark green) or second manifold 38 (green). EX1004, Fig.

⁶ Claims 1[e], 11[d], and 11[e] do not require that the hoses or the manifolds are *fluidly* connected with or through the reels. Indeed, claims 1 and 11 separately and expressly recite that the manifolds are “fluidly connected with” the pump, and the ‘955 Patent’s disclosure of how the hoses are “connected with” the reels mirrors that of *Van Vliet*. EX1001, 4:14-16. However, to the extent Patent Owner argues that the claimed hoses or manifolds must be fluidly connected with or through the reels, such an arrangement would have been an obvious design choice for a POSITA to implement in the systems of *Van Vliet*. EX1003, ¶¶139-40; *see also infra* § VIII.B.2.

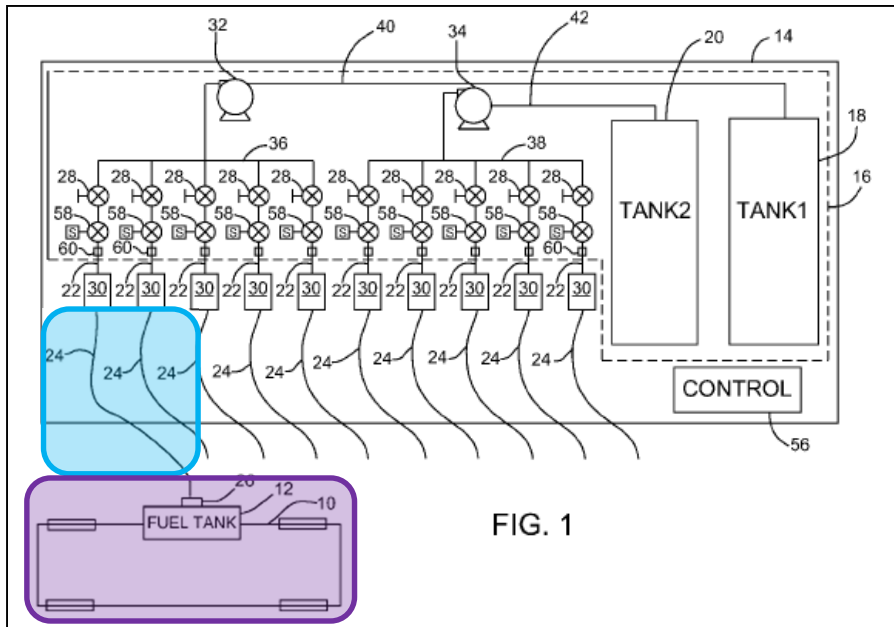
1. Furthermore, each of the valves 58 (yellow) is illustrated schematically upstream of a respective different one of the reels 30 (red). *Id.*



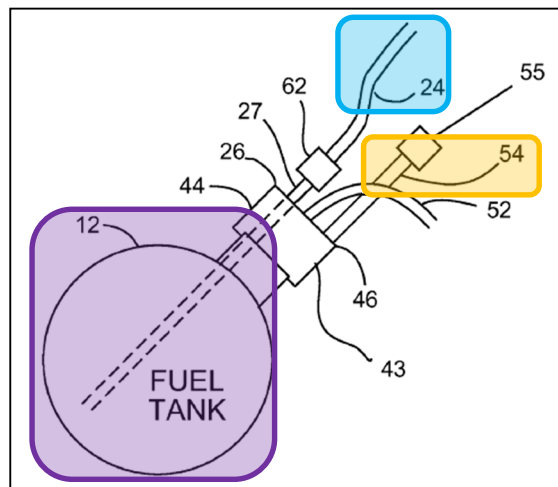
EX1004, Fig. 1 (annotated); *see also* EX1003, ¶ 145.

h) Claim 1[g]: “a plurality of fluid level sensors, each said fluid level sensor being associated with a different one of the hoses;”

In using *Van Vliet*’s system, each hose 24 (blue below) leads to a respective different fuel tank 12 (purple below):



EX1004, Fig. 1 (annotated) & [0016]. Each fuel tank 12 has a fuel cap 26 secured thereon that is connected to both one of the hoses 24 and a fuel level sensor 54 (in orange below), as shown in Figure 2:



EX1004, Fig. 2 (annotated) & [0017]. “The fuel level sensor 54 may be any suitable sensor such as float sensor, vibrating level switch, or pressure transducer.” EX1004,

[0017]. Thus, each fuel level sensor is associated with a respective different one of the hoses. EX1004, Fig 1. & Fig. 2; EX1003, ¶¶ 147-49.

i) Claim 1[h]: “a controller configured to individually open and close the valves responsive to the fluid level sensors.”

The “controller 56” of *Van Vliet* is responsive to “signals supplied from each fuel level sensor 54 . . . to provide control signals to the respective automatically operable valves 58” EX1004, [0020].⁷ A POSITA would have understood that the “control signals” would comprise signals to open and close the valves. EX1003, ¶ 150. *Van Vliet* describes that the controller responds to signals from the sensor at each fuel tank 12 (which would be connected to its own hose 24 and valve 58) to start or stop fluid flow to each fuel tank 12 “independently of flow to other fuel tanks”. EX1004, [0020]. Thus, a POSITA would have understood that the controller can individually open and close each of the valves 58. EX1003, ¶¶ 150-52.

2. Claim 11

a) Claim 11[p]: “A distribution station comprising:”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[p] obvious. *See supra* §

⁷ Emphasis has been added unless otherwise noted.

VIII.A.1.a); *see also* EX1003, ¶ 154.

b) Claim 11[a]: “a container including first and second opposed side walls that join first and second opposed end walls;”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[a] obvious. *See supra* § VIII.A.1.b); *see also* EX1003, ¶ 155.

c) Claim 11[b]: “at least one pump in the container;”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[b] obvious. *See supra* § VIII.A.1.c); *see also* EX1003, ¶ 156.

d) Claim 11[c]: “at least one manifold in the container and fluidly connected with the at least one pump;”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[c] obvious. *See supra* § VIII.A.1.d); *see also* EX1003, ¶ 157.

e) Claim 11[d]: “a plurality of reels in the container, each said reel individually connected with the at least one manifold;”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders obvious “a plurality of reels in the container.” *See supra* § VIII.A.1.e); *see also* EX1003, ¶ 158.

As further explained with respect to Claim 1 above, and incorporated herein

by reference, *Van Vliet* further anticipates or renders obvious “each said reel individually connected with the at least one manifold.” *See supra* §§ VIII.A.1.f); *see also* EX1003, ¶¶ 159-61.⁸

f) Claim 11[e]: “a plurality of hoses, each said hose connected with a different one of the reels;”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[e] obvious. *See supra* § VIII.A.1.f); *see also* EX1003, ¶ 162.

g) Claim 11[f]: “a plurality of valves in the container, each said valve situated between the at least one manifold and a respective different one of the reels;”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[f] obvious. *See supra* § VIII.A.1.g); *see also* EX1003, ¶ 163.

h) Claim 11[g]: “a plurality of fluid level sensors, each said fluid level sensor connectable to an end of a different one of the hoses; and”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[g] obvious. *See supra* § VIII.A.1.h); *see also* EX1003, ¶¶ 164-66.

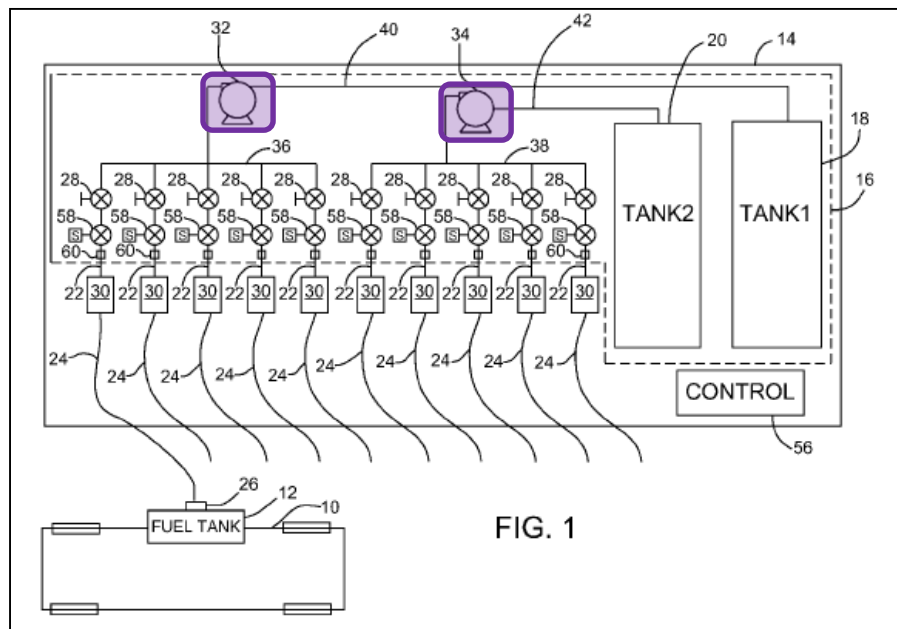
⁸ Claims 1[e], 11[d], and 11[e] do not require that the hoses or the manifolds are *fluidly* connected with or through the reels, nor does the ‘955 Patent disclose such an arrangement. *See supra* note 6.

i) Claim 11[h]: “a controller configured to individually open and close the valves responsive to the fluid level sensors.”

As explained with respect to Claim 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 11[h] obvious. *See supra* § VIII.A.1.i); *see also* EX1003, ¶ 167.

3. Claim 12: “The distribution station as recited in claim 11, wherein the at least one pump includes two pumps.”

Van Vliet’s system includes two pumps 32, 34 that are fluidly connected with at least one of manifold 36, 38:



EX1004, Fig. 1 (annotated: pumps 32, 34 highlighted in purple) & [0015]; *see also* EX1003, ¶¶ 168-71. Thus, *Van Vliet* discloses Claim 12.

B. Ground 2: Claims 1-5 and 11-12 are rendered obvious by *Van Vliet* in view of *Cable*

1. Rationale and Motivation for Combining *Van*

Vliet and Cable

Van Vliet and *Cable* describe a mobile truck/trailer system for delivery of fuel, lubricants or other hydrocarbons. EX1003, ¶ 172. Both references use deployable hoses stored on reels arranged so that multiple hoses can be delivering fuel or other fluids to the receiving equipment at the same time. *Id.* In both references, to deliver the fluids, the hoses are “pulled out” from the reels and extending to the receiving equipment, and then “reeled up” onto the reels for storage or transportation. *Id.* A POSITA would have been motivated to apply *Cable*’s teaching of a walkable reel deployment compartment with a central aisle walkway, and reels deployed on opposing sides of the walkway adjacent to the sidewalls, to the trailer of *Van Vliet* to allow *Van Vliet*’s system to be more easily traversable by operators for the purpose of repairs, maintenance, and/or physical inspection. *Id.*

Both *Van Vliet* and *Cable* are in the same field of endeavor and directed to solving the same problem as each other and the ’955 Patent—distributing hydrocarbon fluids—and are therefore analogous art both to each other and to the ’955 Patent claims. *See* EX1001, 2:12-23; EX1004, [0003], [0014], Abstract; EX1005, 1:40-65. The references are similar. Both *Van Vliet* and *Cable* include (1) storage tanks (EX1004, [0003], [0014]; EX1005, 1:40-65); (2) reels (EX1004, [0014], [0015]; EX1005, 1:40-65); (3) hoses on the reels (EX1004, [0014], [0015]; EX1005, 1:40-65); (4) pumps coupled to the storage tanks (EX1004, [0016];

EX1005, 1:40-65); and (5) valves for controlling the flow of a fluid (EX1004, [0003], [0020]; EX1005, 4:22-46). Both references describe the combination of these individual elements in a similar manner to deliver fluids to equipment not located on the truck/trailer. *See* EX1004, [0014]; *see also* EX1005 Abstract, 1:62-65. Although *Vliet* does not detail the physical arrangement of all components in its trailer, *Cable* does and describes a central walkway, reels arranged on opposed sides of the walkway adjacent to sidewalls, orientation of pumps and manifolds, use of stacked rows of reels arranged on racks, and the like. A POSITA would have recognized the advantages of the central aisle with equipment located on opposed sides of the aisle, for example to easily traverse the tank compartment for maintenance or operations. EX1003, ¶ 173. Further, a POSITA would have recognized the advantage of locating equipment on both sides of the aisle to make delivery of fluids to vehicles in multiple locations (such as on both sides of the trailer) easier and more efficient. *Id.* *Van Vliet* already teaches that “one manifold 36 may supply fluid to equipment 10 lined up on one side of a well, while another manifold 38 may supply fluid to equipment 10 lined up on the other side.” EX1004, [0024]. A POSITA would have recognized the obvious benefits of the spatial orientation taught by *Cable* so that reel equipment on one side of the well (*e.g.*, the passenger’s side of the vehicle) are fed from reels on the same side of the vehicle, while equipment on the other side of the well is fed from reels on the opposed side

of the vehicle. EX1003, ¶ 173. This would allow the vehicle to be backed in directly opposite the well and allow for deployment of hoses to equipment on both sides of the well with limited crossing or tangling of hoses. *Id.*

Van Vliet also contains an express motivation to combine. *Id.* *Van Vliet* states that “[t]he manual valves 28 should be readily accessible to an operator on the trailer 14. This can be arranged with the manifolds 36, 38 mounted on a wall of the trailer with the outlets 22 extending inward of the trailer wall.” EX1004, [0026]. To the extent that *Van Vliet* does not explicitly disclose a central aisle for access to the valves, *Van Vliet* does note that the spatial orientation of the reels 30, manifolds 36 and 38, tanks 18 and 20, and other equipment shown “is a matter of design choice for the manufacturer and will depend on space requirements.” EX1004, [0027]. A POSITA would have then looked to other references, such as *Cable*, for spatial configurations that allow for easy access to various equipment, such as valves, manifolds and pumps. *See* EX1003, ¶ 174. A POSITA reading *Cable* would have easily understood that an aisle walkway, such as the one taught by *Cable*, would be an effective and simple way to allow an operator to access manual valves inside the trailer. *Id.* Furthermore, a POSITA would have understood that positioning the reels on either side of the aisle walkway would allow an operator to access more reels at any given location on the walkway than a configuration with reels on only one side of the walkway. *Id.* Accordingly, a POSITA would have been motivated to modify

Van Vliet's system to include *Cable*'s aisle configuration to be more easily traversable on foot and would have been motivated to incorporate *Cable*'s reel configuration to gain the advantages of such a configuration described above. *Id.*

A POSITA would have had a reasonable expectation of success in combining *Van Vliet* with *Cable*. *Id.* As explained above, *Van Vliet* and *Cable* describe similar systems for delivering fluid from a mobile trailer via hoses to multiple destinations. *Id.* Further, the elements incorporated into *Van Vliet* from *Cable* are either already present in *Van Vliet* (e.g., reels) or were simple elements well-known in the art at the time of the '955 Patent. *Id.* Incorporating *Cable*'s aisle walkway and reel configuration into *Van Vliet*'s mobile fuel delivery system would merely involve combining prior art elements according to known methods to yield predictable results. *Id.*

2. Claims 1[e] and 11[e]

To the extent Patent Owner argues that Claims 1[e] and 11[e] require that the claimed hoses or manifolds must be fluidly connected with or through the reels, *Cable* teaches that arrangement. Fluids dispensed using *Cable*'s system are stored in tank 27 and flow out of "pump outlet tube 46" to one or more of the hoses (e.g., hoses 64 and 65) that are stored on reels (e.g., reels 62 and 63) in the van truck.

EX1005, 4:22-33. *Cable* describes that “[t]ube 46 is connected by a conventional reel rotatable coupling to hose 65.” *Id.*, 4:33-36 & Fig. 5.

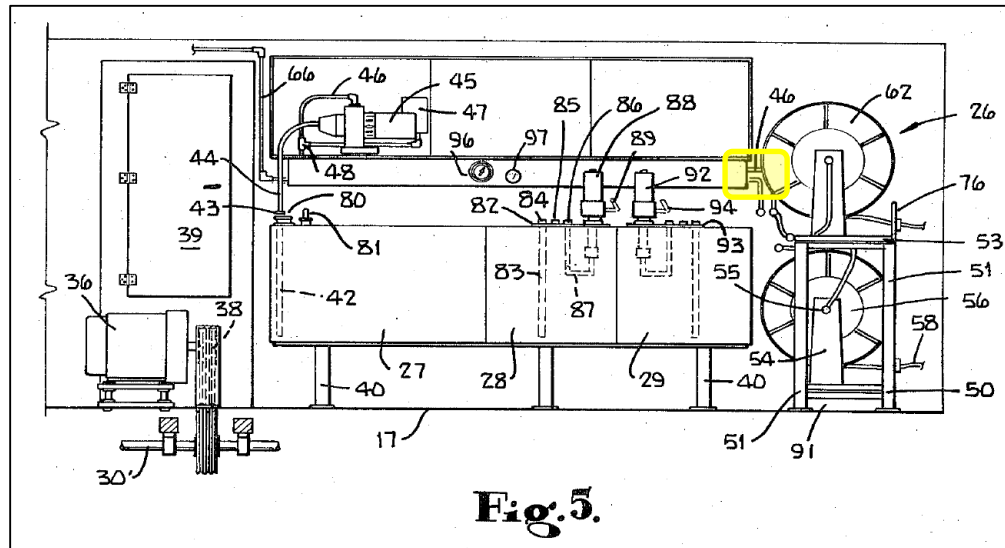
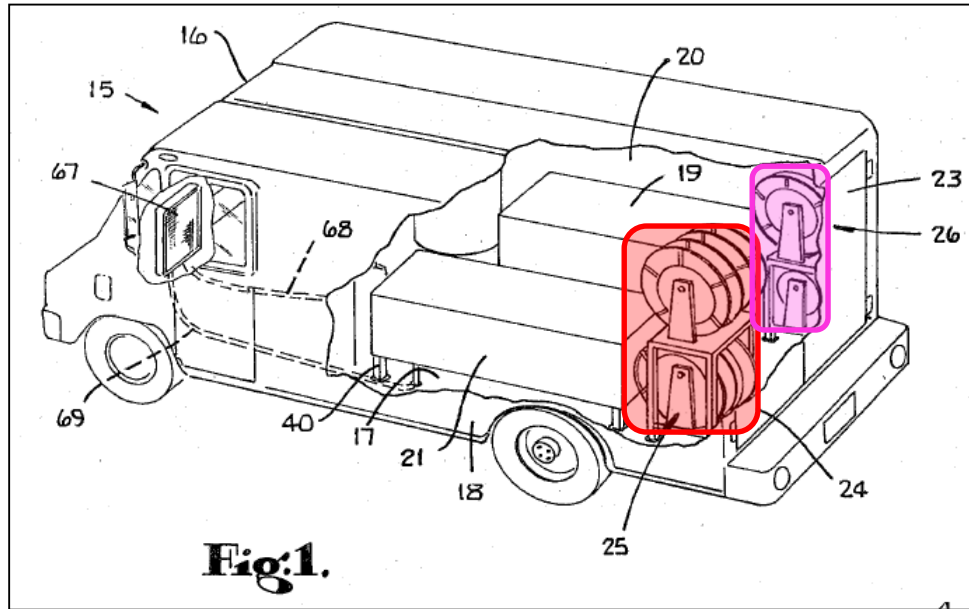


Fig. 5 (annotated: tube 46 highlighted in yellow). A POSITA would have understood that a conventional reel rotatable coupling (also known as a swivel joint) would be connected to a flow path in the reel to allow fluid to flow through the reels into the hose. EX1003, EX1003, ¶¶ 64-74; EX1016. Moreover, hose reels having fluid connections for connecting a hose to a fluid source were commercially-available and well known to POSITAs before the ‘955 Patent’s priority date. *Id.*; EX1015. It would have been an obvious design choice for a POSITA to implement these kinds of reels and connections to connect the hoses of *Van Vliet* to be fed by the manifolds, in view of *Van Vliet* alone and/or in combination with *Cable*. *Id.*, ¶¶ 178-79, 197.

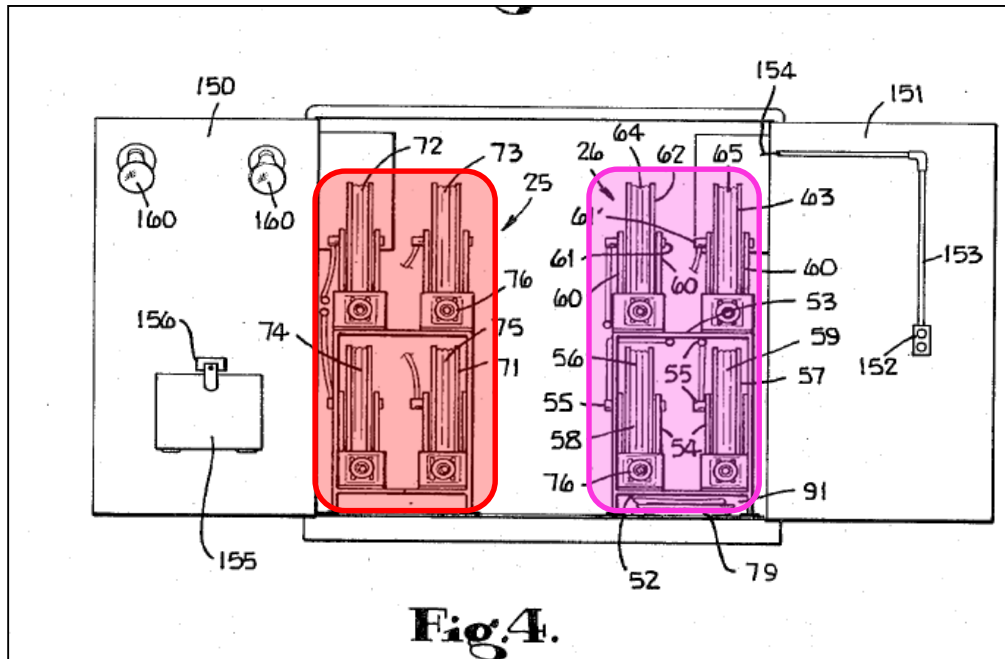
3. **Claim 2:** “The distribution station as recited in

claim 1, wherein the reels are arranged on first and second opposed sides in the container.”

Figures 1 and 4 of *Cable* show hose assemblies that comprise reels in the claimed arrangement:



EX1005, Fig. 1. (annotated: reels on left side of container in red; reels on right side of container in pink), 2:63-3:5.

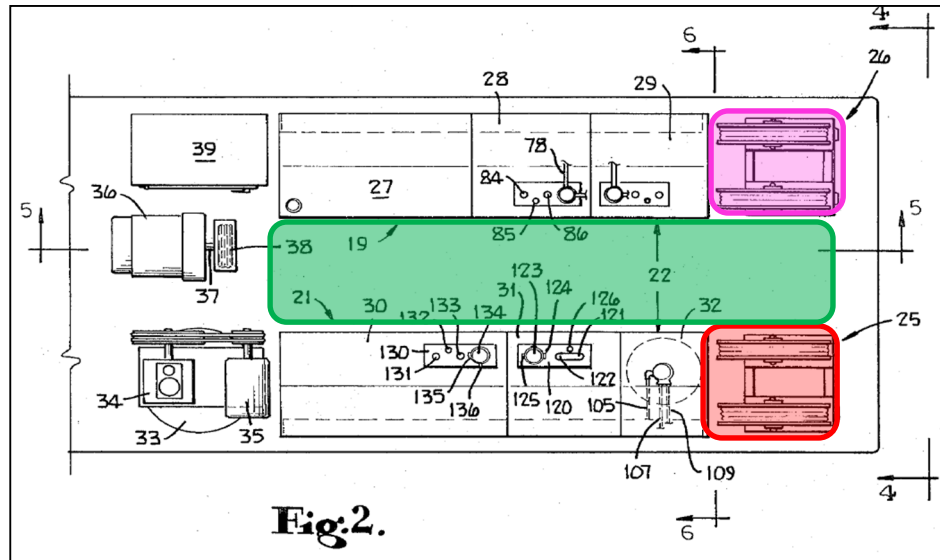


EX1005, Fig. 4 (annotated, same colors).

It would have been obvious to a POSITA to use *Cable*'s reel arrangement in *Van Vliet*'s trailer. EX1003, ¶¶ 181-85.

4. Claim 3: “The distribution station as recited in claim 2, further comprising an aisle walkway down the middle of the container between the reels on the first and second opposed sides in the container.”

As depicted in Figure 2 of *Cable*, the hose assemblies 25 and 26 that include reels (red and pink) are located on opposed sides of the interior of the van truck. EX1005, Fig. 2 (top view). An aisle walkway (green) is depicted between tank bays 19 and 21 along the length of the van truck and extending to the rear end of the van truck between the reels. *Id.*



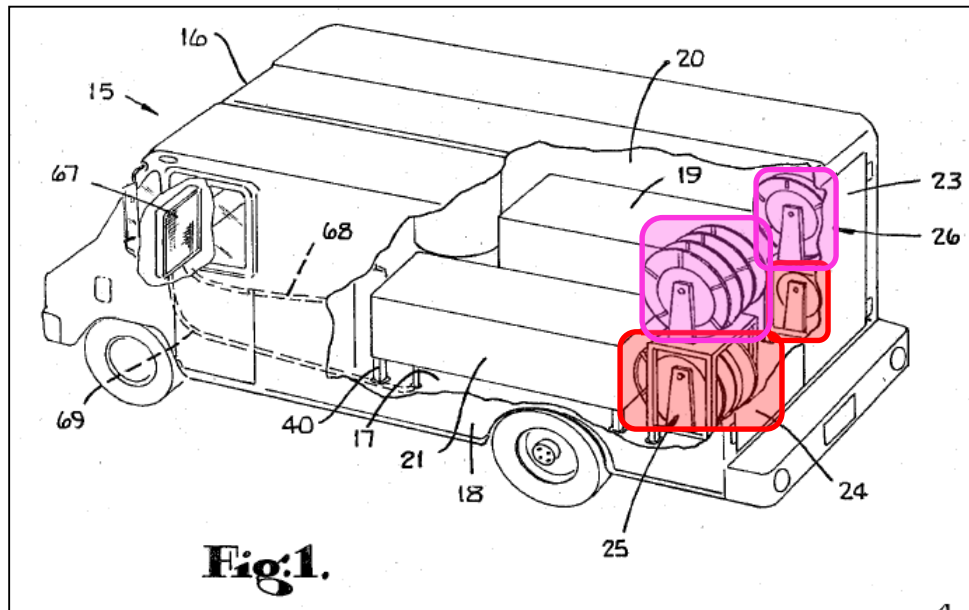
EX1005, 2:55-63 & Fig. 2 (annotated: reels highlighted in red and pink, aisle/walkway in green). It would have been obvious to a POSITA to use *Cable*'s reel / walkway arrangement in arranging the hose reels in *Van Vliet*'s trailer. EX1003, ¶ 186.

5. Claim 4: “The distribution station as recited in claim 3, further comprising a floor pan in the container.”

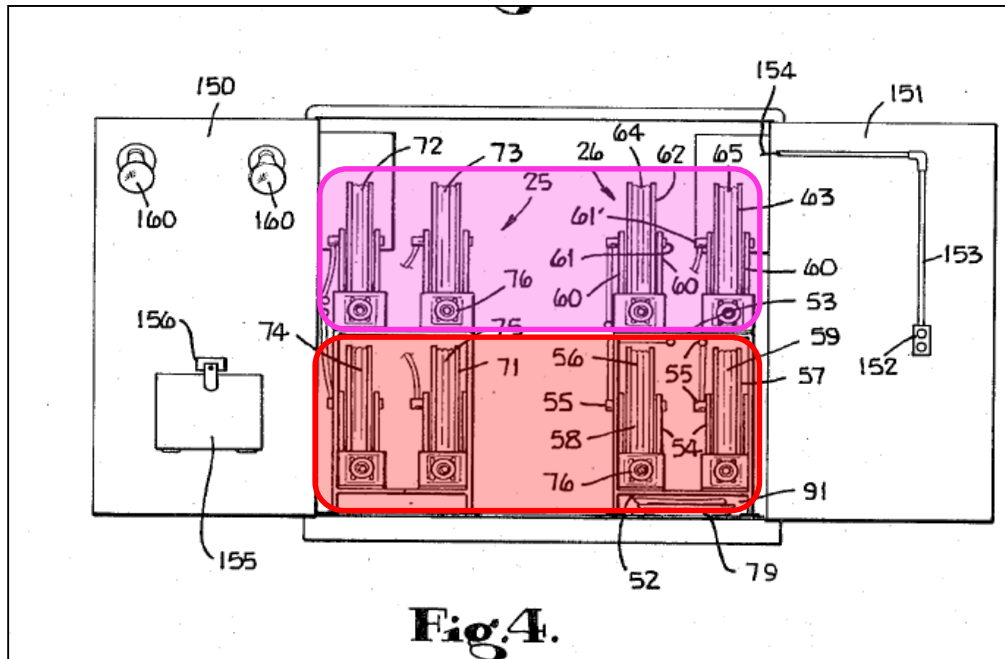
Van Vliet describes “spill containment pans” on board the trailer. EX1004, [0022]. Like the '955 Patent, *Van Vliet* describes that such pans may be positioned to catch fluids leaking from the manifolds and hose reels. *Id.*; compare EX1001 at 9:34-39 (describing floor pan 80 in the bottom portion of the trailer “such that any fluid or fuel that leaks in the trailer is caught and contained in the floor pan”). Thus, a POSITA would have understood that Claim 4 is rendered obvious by *Van Vliet* in view of *Cable*. See EX1003, ¶¶ 187-89.

6. *Claim 5: “The distribution station as recited in claim 1, wherein the reels on each of the first and second opposed sides are arranged in upper and lower rows of reels.”*

Figures 1 and 4 of *Cable* show this element:



EX1005, Fig. 1. (annotated: lower row of reels in red, upper row of reels in pink).



EX1005, Fig. 4 (annotated, same colors).

As depicted above, *Cable*'s mobile trailer includes two reels on the left side in an upper row; two reels on the left side in a lower row; two reels on the right side in an upper row; and two reels on the right side in a lower row. *Id.* It would have been obvious to a POSITA to use *Cable*'s reel arrangement to arrange the hose reels in *Van Vliet*'s trailer. EX1003, ¶¶ 190-91.

7. Claims 11 and 12

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claims 11 and 12 obvious. *See supra* §§ VIII.A.2-VIII.A.3; *see also* EX1003, ¶¶ 192-98.

To the extent Patent Owner argues that Claims 11[d] and 11[e] require that the claimed hoses or manifolds must be fluidly connected with or through the reels, *Cable* discloses that arrangement. Fluids dispensed using *Cable*'s system are stored in tank 27 and flow out of "pump outlet tube 46" to one or more of the hoses (e.g., hoses 64 and 65) that are stored on reels (e.g., reels 62 and 63) in the van truck. EX1005, 4:22-33. *Cable* describes that "[t]ube 46 is connected by a conventional reel rotatable coupling to hose 65." *Id.*, 4:33-36 & Fig. 5.

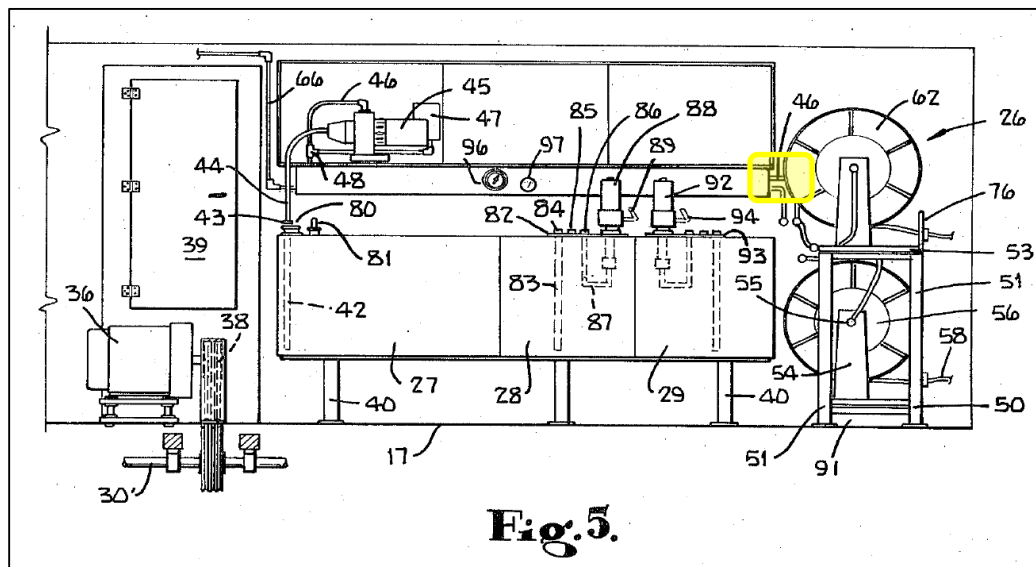


Fig. 5 (annotated: tube 46 highlighted in yellow). A POSITA would have understood that a conventional reel rotatable coupling (also known as a swivel joint) would be connected to a flow path in the reel to allow fluid to flow through the reels into the hose. EX1003, ¶¶ 64-71; EX1016. Moreover, hose reels having fluid connections for connecting a hose to a fluid source were commercially-available and well known

to POSITAs before the '955 Patent's priority date. *Id.*; EX1015. It would have been an obvious design choice for a POSITA to implement these kinds of reels and connections to connect the hoses of *Van Vliet* to be fed by the manifolds, in view of *Van Vliet* alone and/or in combination with *Cable*. *Id.*, ¶¶ 192-98.

C. Ground 3: Claims 6-10 and 14-20 are rendered obvious by *Van Vliet* in view of *LCR I* and/or *LCR II*

1. *Rationale and Motivation for Combining Van Vliet, LCR I, and LCR II.*

A POSITA would have been motivated to combine *LCR I* and/or *II* with *Van Vliet*. *LCR I* and *II* are in the same field of endeavor as *Van Vliet* (as well as the '955 Patent) and are directed to solving the same problem—monitoring fluid flow while delivering fuel pumped through a hose. EX1001, 1:34-48 & 2:12-23; EX1004, [0003], [0020], & Abstract; EX1006, 2-3; EX1007, 3-5; *see* EX1003, ¶ 199. *LCR I* and *II* are therefore analogous art..

It would have been obvious to a POSITA to combine *LCR I* and/or *II*'s teaching of an electronic register with *Van Vliet*. EX1003, ¶ 200. *Van Vliet* discloses the use of hoses, sensors, pumps, and controllers. EX1004, [0015] & [0020]. *LCR I* and *II* each disclose a commercially available fuel register for use with hoses, sensors, pumps, and controllers.⁹ EX1003, ¶ 201; EX1006, 2-3; EX1007, 3. A

⁹ Moreover, to the extent required by Ground 3, it would have been obvious to a POSITA to combine the teachings of *LCR I* and *LCR II* with each other, at least

POSITA designing a system of *Van Vliet* would have looked to existing, commercially available fuel registers as a cost-effective and readily available option (e.g., as compared to a custom-made register) to enable more convenient display of flow measurements. EX1003, ¶ 201. A POSITA would have recognized the advantage of using *LCR I* and *II*'s electronic register in *Van Vliet*'s mobile fuel delivery system to display the flow data of *Van Vliet*'s sensors and controllers. *Id.*

A POSITA would have had a reasonable expectation of success in combining *LCR I* and/or *II* with *Van Vliet*. EX1003, ¶ 202. To combine *Van Vliet* with *LCR I* and/or *II*, a POSITA would have needed only to connect *LCR I* and *II*'s register to *Van Vliet*'s controller and other components and operate it according to its conventional operation, e.g., according to the instructions provided by the manufacturer. EX1003, ¶ 202; *see* EX1012. Incorporating *LCR I* and *II*'s register into *Van Vliet*'s mobile fuel delivery system would merely involve combining prior art elements according to known methods to yield predictable results—e.g., enabling *Van Vliet*'s system to display fluid flow data via a screen and/or invoice. *See* EX1003, ¶ 202; *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) (“When a work is available in one field of endeavor, design incentives and other market

because they are product literature from the same company from the same timeframe that describe the same product. *See* EX1006, 2-3; EX1007, 3-5; EX1003, ¶¶ 113-15.

forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.”).

2. Claim 6: “The distribution station as recited in claim 1, further comprising a register configured to measure an amount of fluid from the pump.”

LCR I and *II* each teach that the LCR 600 is a register that measures an amount of fluid flowing through a conduit. EX1007, 3; *see* EX 1006, 2. It is designed to work with a pump; thus, a POSITA would have understood that the fluid measured is fluid from the pump. EX1006, 2; EX1007, 4; EX1003, ¶ 203. It would have been obvious to a POSITA to install a register such as the LCR 600 of *LCR I* and *II* downstream of the pumps 32, 34 of *Van Vliet* to measure the amount of fuel being dispensed by that system. EX1003, ¶ 203.

3. Claim 7: “The distribution station as recited in claim 6, wherein the register is in communication with the controller.”

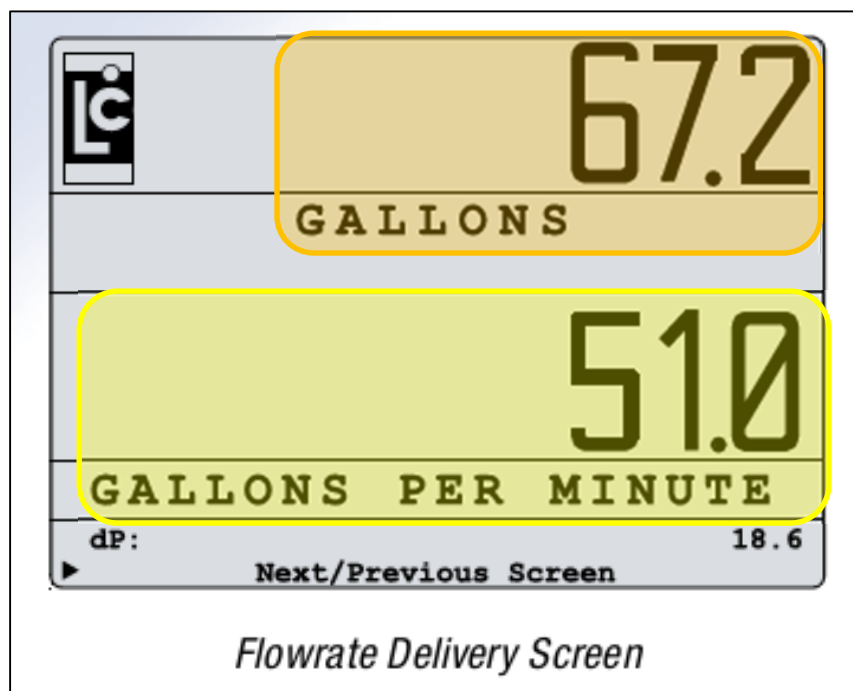
LCR I and/or *II* teaches this element. *LCR I* describes that the LCR 600 can “control a meter system as a stand-alone unit or be used as a slave to a host controller such as a process controller or an in-cab data management system.” EX1006, 2. *LCR II* similarly describes that the LCR 600’s primary functions include “interfacing with the electronic components of the meter system”. EX1007. A POSITA would have understood that a slave-to-host controller must be in communication with the

controller. EX1003, ¶ 204-05; *see also* EX1006, 2. For a POSITA using the LCR 600 register of *LCR I* and *II* in the system of *Van Vliet*, it would have been obvious to connect the register to the controller 56 of *Van Vliet*. EX1003, ¶ 204-05.

4. Claim 8: “The distribution station as recited in claim 7, wherein the controller is configured to track the amount of fluid provided from the pump over a selected time interval.”

As explained with respect to Claims 6 and 7 above, and incorporated herein by reference, *LCR I* and *II* disclose that the LCR 600 measures fluid flow from a pump and communicates the measurement to a controller. *See supra* §§ VIII.C.2 & VIII.C.3; *see also* EX1003, ¶ 206.

LCR I and/or *II* also teach that the LCR 600 displays flow rate and gross quantity on the “Flowrate Delivery Screen”:



EX1007, 5 (annotated: flow rate in yellow; gross quantity in orange); *see* EX1006 (referring to “four delivery screens” and “flow rate” visible during delivery). A POSITA would have understood that the displayed flow rate is calculated by measuring the gross quantity and dividing it by the amount of time (as determined by the internal clock) that has passed since fueling began. EX1003, ¶ 208; *see also* EX1007, 5. To the extent that Patent Owner contests that the LCR 600 calculates flow rate by measuring the gross quantity and dividing it by the amount of time that has passed since fueling began, it would be an obvious design choice to one skilled in the art to calculate flow rate by measuring the gross quantity and dividing by time passed. EX1003, ¶¶ 208-09. Thus, *LCR I* and/or *II* discloses or renders obvious tracking a time interval of fluid flow from a pump. *Id.*

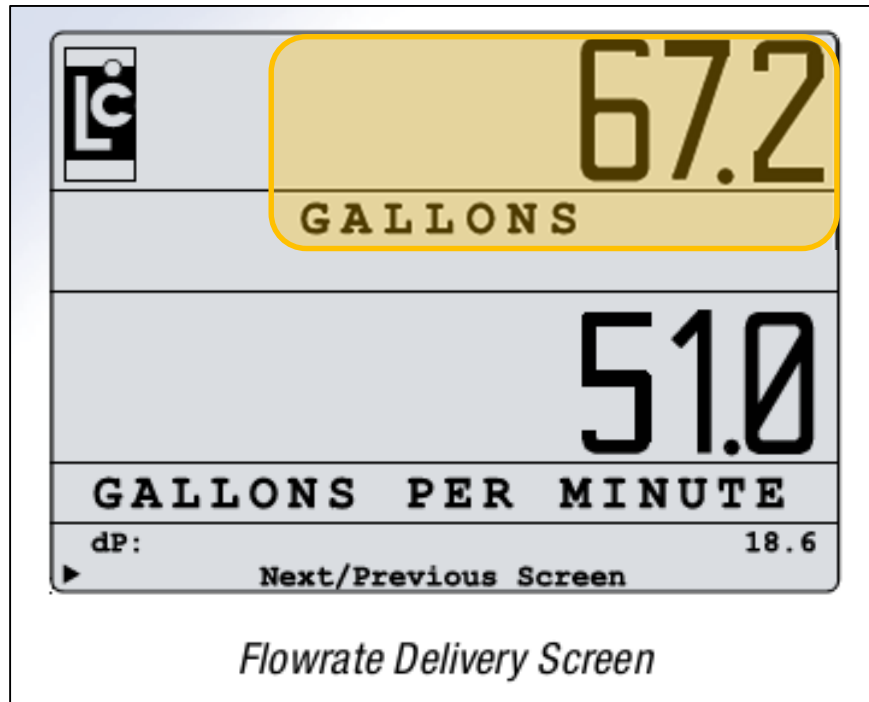
In light of at least *LCR I*'s disclosure that the LCR 600 may operate as “a slave to a host controller,” it would have been obvious to a POSITA that the LCR 600 would communicate the above-described data to the controller 56 of *Van Vliet* such that the controller 56 could track the amount of fluid provided from the pumps 32, 34 over a selected time interval. EX1003, ¶¶ 206-09; *see also* EX1006, 2; *see also* EX1004, [0020].

5. Claim 9: “The distribution station as recited in claim 8, wherein the controller is configured to trigger generation of an invoice for the amount of fluid.”

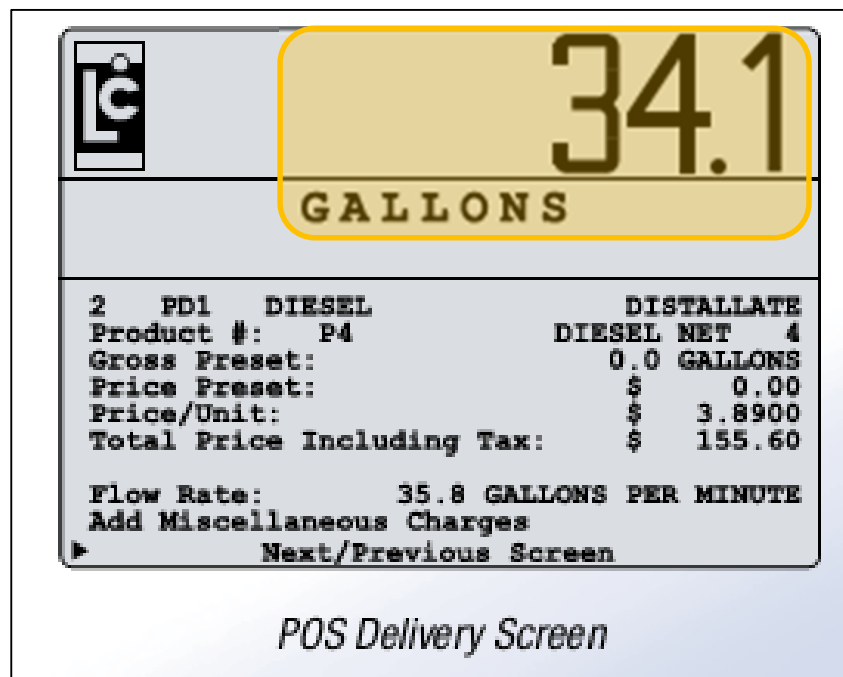
LCR I and *II* teach that the LCR 600 “reduce[s] delivery times and billing errors with priced and taxed delivery tickets” when used with a point-of-sale (POS) system. EX1007, 5; EX1006, 2. *LCR II* also describes POS systems and commercially-available printers provided by Liquid Controls to “combine[] metrological, customer, and transaction data, print[] a priced and taxed ticket, and transfer the data back to the office.” EX1007, 8; *see also id.* at 9, 11. The LCR 600 tracks fluid volume, and a POSITA would have understood that fluid volume is a standard data output to include on a fuel invoice. EX1003, ¶ 210; EX1007, 5. Because the LCR 600 may operate as “a slave to a host controller,” it would have been obvious to a POSITA to use the controller 56 of *Van Vliet* to trigger the LCR 600 to generate an invoice for the measured amount of fluid. EX1003, ¶¶ 210-11; *see also* EX1006, 2; *see also* EX1007, 5 & 8; *see also* EX1004, [0020].

6. Claim 10: “The distribution station as recited in claim 8, wherein the register is an electronic register that has a resolution of about 0.1 gallons.”

LCR I and *II* each teach that the LCR 600 is an electronic register (EX1007, 4 (“the LECTROCOUNT LCR-II is the electronic register of choice for those who have experienced its performance in the field”); EX1006, 2 (“Full Screen Electronic Registration with POS Capabilities”)) that has a resolution of 0.1 gallons:



EX1007, 5 (annotated: gallon measurement in orange).



Id. (annotated: gallon measurement in orange).



EX1006, 2 (annotated: gallon measurement in pink).

7. Claim 14: “The distribution station as recited in claim 11, further comprising a register configured to measure an amount of fluid from the pump.”

As explained with respect to Claim 6 above, and incorporated herein by reference, *Van Vliet* in view of *LCR I* and/or *II* renders Claim 14 obvious. *See supra* § VIII.C.2; *see also* EX1003, ¶ 214.

8. Claim 15: “The distribution station as recited in claim 14, wherein the register is in communication with the controller.”

As explained with respect to Claim 7 above, and incorporated herein by

reference, *Van Vliet* in view of *LCR I* and/or *II* renders Claim 15 obvious. *See supra* § VIII.C.3; *see also* EX1003, ¶ 215.

9. Claim 16: “The distribution station as recited in claim 15, wherein the controller is configured to track the amount of fluid provided from the pump over a selected time interval.”

As explained with respect to Claim 8 above, and incorporated herein by reference, *Van Vliet* in view of *LCR I* and/or *II* renders Claim 16 obvious. *See supra* § VIII.C.4; *see also* EX1003, ¶ 216.

10. Claim 17: “The distribution station as recited in claim 16, wherein the controller is configured to trigger generation of an invoice for the amount of fluid.”

As explained with respect to Claim 9 above, and incorporated herein by reference, *Van Vliet* in view of *LCR I* and/or *II* renders Claim 17 obvious. *See supra* § VIII.C.5; *see also* EX1003, ¶ 217.

11. Claim 18: “The distribution station as recited in claim 16, wherein the register is an electronic register that has a resolution of about 0.1 gallons.”

As explained with respect to Claim 10 above, and incorporated herein by reference, *Van Vliet* in view of *LCR I* and/or *II* renders Claim 18 obvious. *See supra* § VIII.C.6; *see also* EX1003, ¶ 218.

12. Claim 19

a) Claim 19[p]: “A distribution station comprising:”

As explained with respect to Ground 1 above, and incorporated herein by

reference, *Van Vliet* anticipates or renders Claim 19[p] obvious. *See supra* §VIII.A.1.a); *see also* EX1003, ¶ 220.

b) Claim 19[a]: “a container including first and second opposed side walls that join first and second opposed end walls;”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[a] obvious. *See supra* §VIII.A.1.b); *see also* EX1003, ¶ 221.

c) Claim 19[b]: “at least one pump in the container;”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[b] obvious. *See supra* §VIII.A.1.c); *see also* EX1003, ¶ 222.

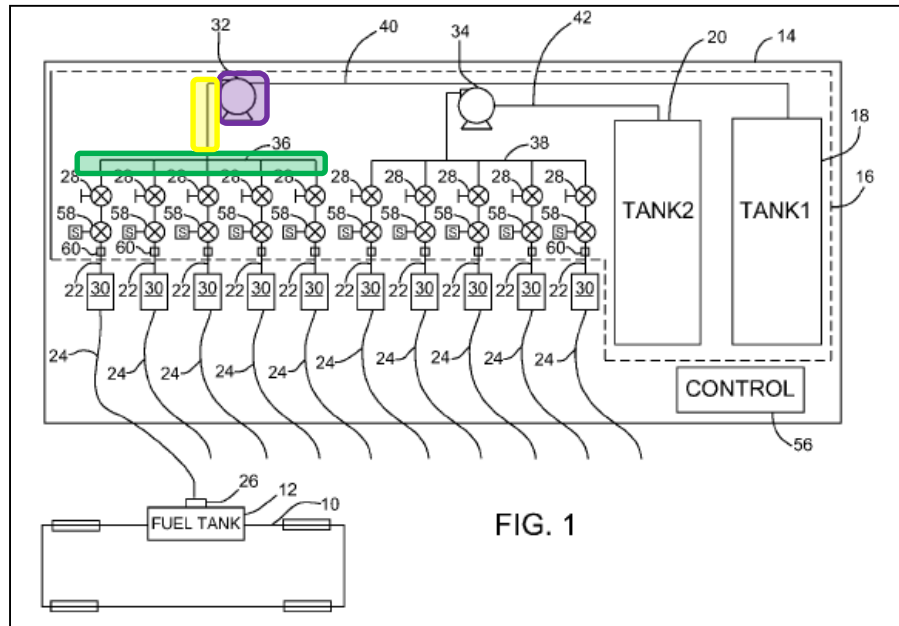
d) Claim 19[c]: “at least one manifold in the container and fluidly connected with the at least one pump;”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[c] obvious. *See supra* §VIII.A.1.d); *see also* EX1003, ¶ 223.

e) Claim 19[d]: “a register between the at least one pump and the at least one manifold;”

The LCR 600 of *LCR I* and *II* is an electronic register designed to be used with a pump. EX1006, 2; EX1007, 4. As shown in Figure 1 below, *Van Vliet* discloses a

fuel distribution system with at least one pump 34 (purple) connected to at least one manifold 36 (green) by a flow line (yellow):



EX1004, Fig. 1 (annotated) & [0016]. A POSITA would have understood that a register installed to be used with a pump 32 should be installed *directly* downstream of the pump 32 in order to obtain the most accurate flow rate measurements possible. EX1003, ¶¶ 224-26; *see also* EX1006, 2. Alternatively, installing a register that is designed to be used with a pump directly downstream of the pump is an obvious design choice. *Id.* In either case, it would have been obvious to a POSITA to install the register of *LCR I* and/or *II* in the yellow flow path area of the version of *Van Vliet's* Fig. 1 provided above. *Id.* The yellow flow path area for the register is between the pump 32 and the manifolds 36.

f) Claim 19[e]: “a plurality of reels in the container and connected with the at least one manifold;”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[e] obvious. *See supra* § VIII.A.2.e); *see also* EX1003, ¶ 227.

g) Claim 19[f]: “a plurality of hoses, each said hose connected with a different one of the reels;”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[f] obvious. *See supra* § VIII.A.1.f); *see also* EX1003, ¶ 228.

h) Claim 19[g]: “a plurality of valves in the container, each said valve situated between the at least one manifold and a respective different one of the reels;”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[g] obvious. *See supra* § VIII.A.1.g); *see also* EX1003, ¶ 229.

i) Claim 19[h]: “a plurality of fluid level sensors, each said fluid level sensor being associated with a different one of the hoses; and”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[h] obvious. *See supra* § VIII.A.1.h); *see also* EX1003, ¶ 230.

j) Claim 19[i]: “a controller configured to individually open and close the valves responsive to the fluid level sensors.”

As explained with respect to Ground 1 above, and incorporated herein by reference, *Van Vliet* anticipates or renders Claim 19[i] obvious. *See supra* § VIII.A.1.i); *see also* EX1003, ¶ 231.

13. Claim 20: “The distribution station as recited in claim 19, wherein the register is configured to generate measurement data representative of an amount of fluid provided from the at least one pump, and the register is in communication with the controller to send the measurement data to the controller.”

For the same reasons discussed with respect to Claims 6-7 above, and incorporated herein by reference, *Van Vliet* in view of *LCR I* and/or *II* renders Claim 20 obvious. *See supra* §§ VIII.C.2 & VIII.C.3; *see also* EX1003, ¶ 232.

D. Ground 3A: Claims 6-10 and 14-20 are rendered obvious by *Van Vliet* in view of *Cable* and *LCR I* and/or *LCR II*

As explained with respect to Ground 3 above, and incorporated herein by reference, *Van Vliet* in view of *LCR I* and/or *LCR II* renders Claims 6-10 and 14-20 obvious. *See supra* § VIII.C; *see also* EX1003, ¶¶ 235-42. To the extent Patent Owner argues that Claims 1[e], 11[d], and 11[e], 19[e] and/or 19[f] (from which one or more of those claims depend) require that the claimed hoses or manifolds must be fluidly connected with or through the reels, *Van Vliet* in view of *Cable* and *LCR I* and/or *LCR II* also renders claims 6-10 and 14-20 obvious under that interpretation.

A POSITA would have been motivated to combine *Van Vliet* with *Cable* and *LCR I* and/or *LCR II* for the same reasons discussed in Sections VIII.B.1 and

VIII.C.1, *supra*. As discussed above, *Cable* also teaches connecting the hoses and manifolds fluidly with or through the reels. *See* Section VIII.B.2, *supra*.

E. Ground 4: Claim 13 is rendered obvious by *Van Vliet* in view of *DeFosse*

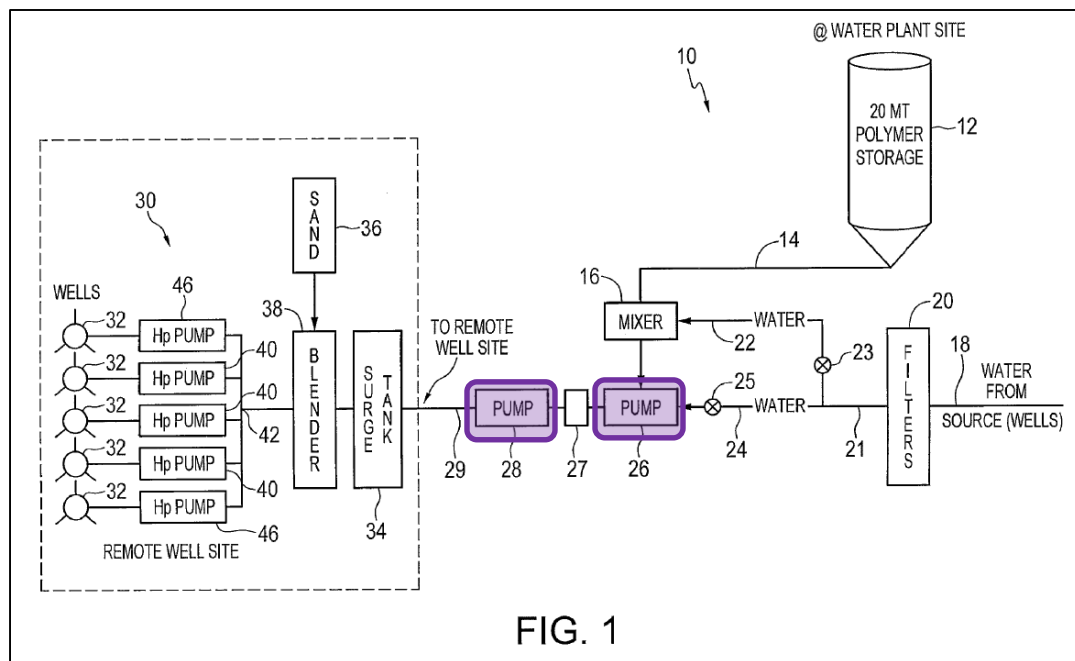
1. *Rationale and Motivation for Combining Van Vliet and DeFosse*

A POSITA would have been motivated to combine *DeFosse* with *Van Vliet*. *DeFosse* is in the same field of endeavor as *Van Vliet* (as well as the '955 Patent) and is directed to solving the same problem—pumping fluids in the context of fracturing. EX1001, 1:18-30 & 1:34-48; EX1004, [0003], & [0014]; EX1008, 2:21-32 & 5:16-37; *see* EX1003, ¶ 243. *DeFosse* is therefore analogous art.

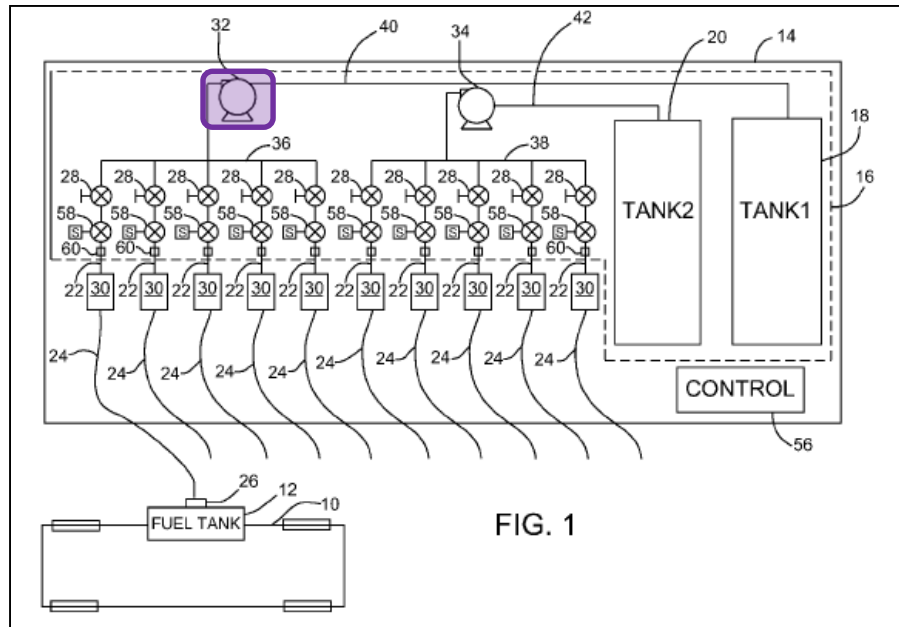
It would have been obvious to a POSITA to combine *DeFosse*'s teaching of pumps arranged in series with *Van Vliet*. EX1003, ¶ 251. *Van Vliet* discloses the use of pumps for pumping fluids. EX1004, [0003], & [0014]. *DeFosse* discloses pumps arranged in series for pumping fluids in a related context in fracturing operations. EX1008, Fig. 1. A POSITA designing a system of *Van Vliet* would have looked to existing pumping systems in the context of fracturing to allow the work of multiple pumps to be used cohesively. EX1003, ¶ 251. 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. *Id.*, ¶¶ 244-251.

A POSITA would have had a reasonable expectation of success in combining *DeFosse* with *Van Vliet*. EX1003, EX1003, ¶ 252. To combine *Van Vliet* with *DeFosse*, a POSITA would have needed only to use *DeFosse*'s pumping arrangement in *Van Vliet*'s fuel distribution system. *Id.* The portion of *DeFosse*'s pumping arrangement needed to incorporate series pumping is highlighted in purple below:

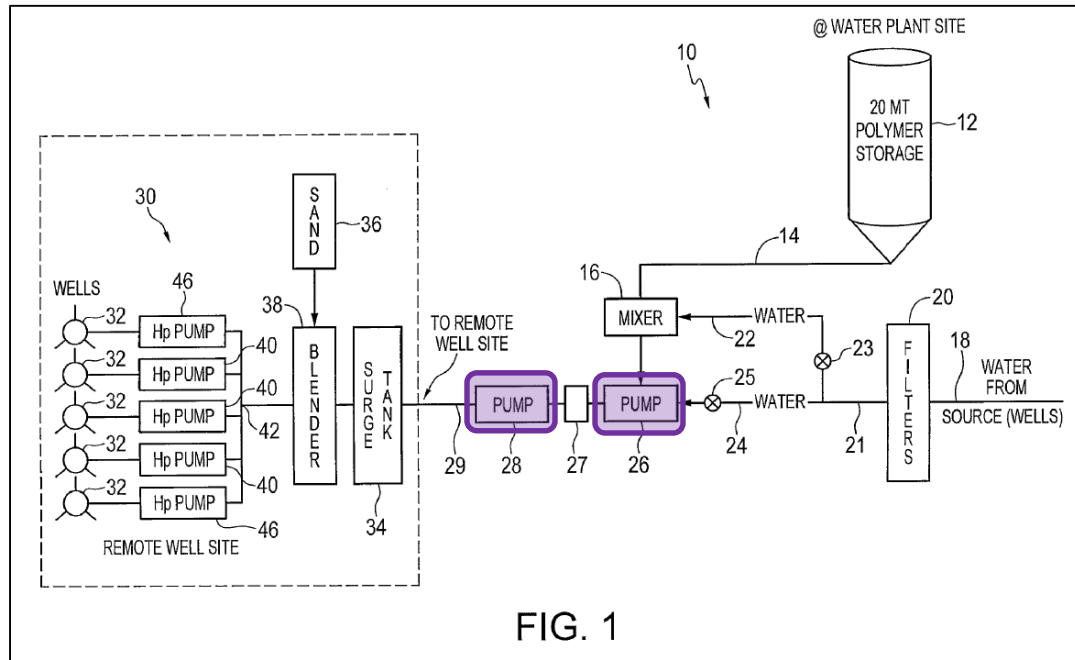


EX1008, Fig. 1 (annotated). A POSITA would have understood that pumps 26, 28 of *DeFosse* could be implemented in place of pump 32 of *Van Vliet* (purple below):



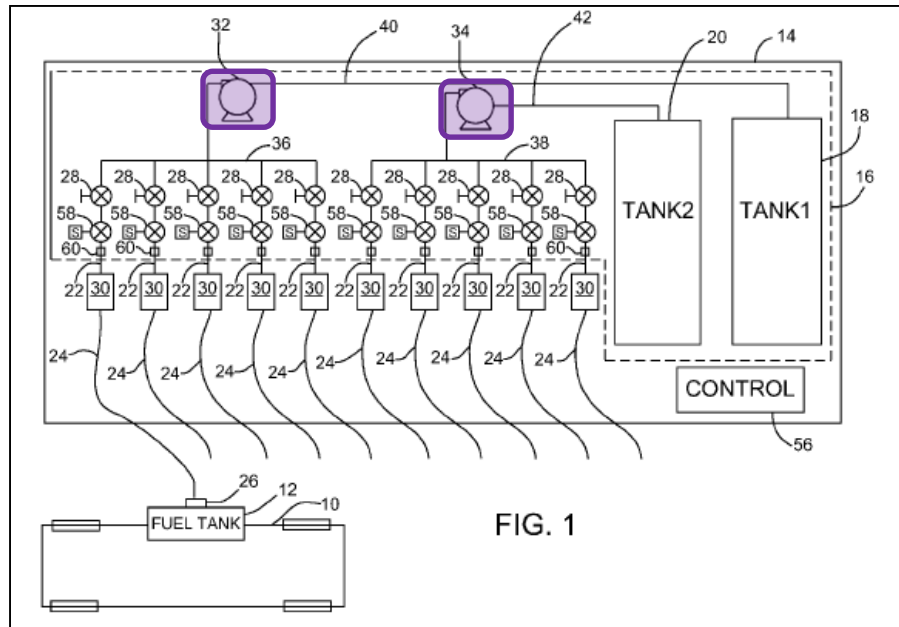
EX1004, Fig. 1 (annotated). A POSITA would have been aware of how to arrange pumps in series given its common use in the fracturing industry. EX1003, ¶ 254. Incorporating *DeFosse*’s series pumping into *Van Vliet*’s fuel delivery system would merely involve combining prior art elements according to known methods to yield predictable results—that is, enabling *Van Vliet*’s system to utilize pumps in series. *See id.*; *see also KSR*, 550 U.S. 398, 417 (2007) (“When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.”).

DeFosse discloses a fracturing fluid preparation/blending system having two pumps (purple below) arranged in fluid series:



EX1008, Fig. 1 (annotated), 4:65-5:1, 5:23-27.

Van Vliet also discloses two pumps 32 and 34 in its fuel distribution system, one for each of manifolds 36 and 38:



EX1004, Fig. 1 (annotated: pumps 32, 34 highlighted in purple). *DeFosse* demonstrates that using pumps in fluid series was a known concept in the fracturing industry at the time of the '955 Patent, and POSITAs using the systems of *Van Vliet* to deliver fuel at fracturing sites would have been exposed to or otherwise known about systems like those of *DeFosse* for preparing fracturing fluids. EX1003, EX1003, ¶ 257. Thus, it would have been obvious to a POSITA to arrange the pumps 32, 34 of *Van Vliet* in fluid series if only one of manifold 36 or 38 was used, or to add another pump in fluid series with either or both of pumps 32 and 34, *e.g.*, to increase the flow rate of fuel being pumped from the tank 18 or 20 into the manifold. *Id.*

F. Ground 4A: Claim 13 is rendered obvious by *Van Vliet* in view of *Cable* and *DeFosse*

As explained with respect to Ground 4 above, and incorporated herein by

reference, *Van Vliet* in view of *DeFosse* and *Cable* renders Claim 13 obvious. *See supra* § VIII.E; *see also* EX1003, ¶ 259. To the extent Patent Owner argues that Claims 11[d] and 11[e] (from which claim 13 depends) require that the claimed hoses or manifolds must be fluidly connected with or through the reels, *Van Vliet* in view of *Cable* and *DeFosse* also renders claim 13 obvious under that interpretation.

A POSITA would have been motivated to combine *Van Vliet* with *Cable* and *DeFosse* for the same reasons discussed in Sections VIII.B.1 and VIII.E.1, *supra*. As discussed above, *Cable* also teaches connecting the hoses and manifolds fluidly with or through the reels. *See* Section VIII.B.2, *supra*.

IX. SECONDARY CONSIDERATIONS

Patent Owner has not identified any evidence of secondary considerations of non-obviousness tied to the '955 Patent claims in the parallel litigation or this proceeding. Petitioners reserve the right to address any such evidence if Patent Owner presents it. However, even if Patent Owner could establish secondary considerations and nexus, they would be insufficient to overcome the strong case of obviousness. *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

X. CONCLUSION

Petitioners respectfully request that *inter partes* review of the '955 Patent be instituted and that Claims 1-20 be cancelled as unpatentable under 35 U.S.C.

§ 318(b).

Respectfully submitted,

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/Elizabeth Durham Flannery/
Elizabeth Durham Flannery (Reg. No. 59,509)
Lead Attorney for Petitioner

Date: August 7, 2023

XI. APPENDIX: CLAIM LIMITATIONS

Claim Element	Claim Language from '955 Patent
1[pre]	A distribution station comprising:
1[a]	a container including first and second opposed side walls that join first and second opposed end walls;
1[b]	a pump in the container;
1[c]	first and second manifolds in the container and fluidly connected with the pump;
1[d]	a plurality of reels in the container;
1[e]	a plurality of hoses, each said hose connected with a different one of the reels, 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;
1[f]	a plurality of valves in the container, each said valve situated between one of the first or second manifolds and a respective different one of the reels;
1[g]	a plurality of fluid level sensors, each aid fluid level sensors being associated with a respective different one of the hoses; and
1[h]	a controller configured to individually open and close the valves responsive to the fluid level sensors.
2	The distribution station as recited in claim 1, wherein the reels are arranged on first and second opposed sides in the container.
3	The distribution station as recited in claim 2, further comprising an aisle walkway down the middle of the container between the reels on the first and second opposed sides in the container.
4	The distribution station as recited in claim 3, further comprising a floor pan in the container.

Claim Element	Claim Language from '955 Patent
5	The distribution station as recited in claim 1, wherein the reels on each of the first and second opposed sides are arranged in upper and lower rows of reels.
6	The distribution station as recited in claim 1, further comprising a register configured to measure an amount of fluid from the pump.
7	The distribution station as recited in claim 6, wherein the register is in communication with the controller.
8	The distribution station as recited in claim 7, wherein the controller is configured to track the amount of fluid provided from the pump over a selected time interval.
9	The distribution station as recited in claim 8, wherein the controller is configured to trigger generation of an invoice for the amount of fluid.
10	The distribution station as recited in claim 8, wherein the register is an electronic register that has a resolution of about 0.1 gallons.
11[pre]	A distribution station comprising:
11[a]	a container including first and second opposed side walls that join first and second opposed end walls;
11[b]	at least one pump in the container;
11[c]	at least one manifold in the container and fluidly connected with the at least one pump;
11[d]	a plurality of reels in the container, each said reel individually connected with the at least one manifold;
11[e]	a plurality of hoses, each said hose connected with a different one of the reels;

Claim Element	Claim Language from '955 Patent
11[f]	a plurality of valves in the container, each said valve situated between the at least one manifold and a respective different one of the reels;
11[g]	a plurality of fluid level sensors, each said fluid level sensor connectable to an end of a different one of the hoses; and
11[h]	a controller configured to individually open and close the valves responsive to the fluid level sensors.
12	The distribution station as recited in claim 11, wherein the at least one pump includes two pumps.
13	The distribution station as recited in claim 12, wherein the two pumps are arranged in fluid series.
14	The distribution station as recited in claim 11, further comprising a register configured to measure an amount of fluid from the pump.
15	The distribution station as recited in claim 14, wherein the register is in communication with the controller.
16	The distribution station as recited in claim 15, wherein the controller is configured to track the amount of fluid provided from the pump over a selected time interval.
17	The distribution station as recited in claim 16, wherein the controller is configured to trigger generation of an invoice for the amount of fluid
18	The distribution station as recited in claim 16, wherein the register is an electronic register that has a resolution of about 0.1 gallons.
19[pre]	A distribution station comprising:
19 [a]	a container including first and second opposed side walls that join first and second opposed end walls;

Claim Element	Claim Language from '955 Patent
19[b]	at least one pump in the container;
19[c]	at least one manifold in the container and fluidly connected with the at least one pump;
19[d]	a register between the at least one pump and the at least one manifold;
19[e]	a plurality of reels in the container and connected with the at least one manifold;
19[f]	a plurality of hoses, each said hose connected with a different one of the reels;
19[g]	a plurality of valves in the container, each said valve situated between the at least one manifold and a respective different one of the reels;
19[h]	a plurality of fluid level sensors, each said fluid level sensor being associated with a different one of the hoses; and
19[i]	a controller configured to individually open and close the valves responsive to the fluid level sensors.
20	The distribution station as recited in claim 19, wherein the register is configured to generate measurement data representative of an amount of fluid provided from the at least one pump, and the register is in communication with the controller to send the measurement data to the controller.

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Petition, exclusive of the exempted portions as provided in 37 C.F.R. § 42.24(a), contains no more than 11,428 words and therefore complies with the type-volume limitations of 37 C.F.R. § 42.24(a). This Petition complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word in 14-point Times New Roman.

Respectfully submitted,

BAKER BOTTS L.L.P.

/Elizabeth Durham Flannery/
Elizabeth Durham Flannery (Reg. No. 59,509)
Lead Attorney for Petitioner

CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on the August 7, 2023, a complete and entire copy of this Petition for *Inter Partes* Review under 35 U.S.C. § 311 and 37 C.F.R. § 42.104, and all supporting exhibits were provided via Federal Express, postage prepaid, to the Patent Owner and its known representatives by serving the correspondence address of record for the '955 Patent holder and the patent holder's counsel:

**CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD
SUITE 350 BIRMINGHAM, MI 48009 UNITED STATES**

The undersigned further certifies that a courtesy copy of the complete and entire Petition, and all supporting exhibits, were provided by electronic service to counsel retained by Patent Owner in the Related Matters identified herein:

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Date: August 7, 2023