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. IPR2023-01237
Patent 9,586,805

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 9,586,805

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I. 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 Petitioner Permian Global, Inc. and Petitioner Manticore Fuels, LLC (collectively "Petitioners"), 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 '805 Patent against Petitioners in a co-pending litigation, *Fuel Automation Station, LLC. v. Permian Global, Inc.*, Case No. 1-22-cv-00801 (W.D. Tx.). The Original Complaint in that litigation was filed on August 10, 2022.

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

Petitioners provide 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:

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

The same is also being served electronically to additional litigation counsel at the following address:

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Petitioners consent to electronic service at DLPermianIPR@bakerbotts.com. A Power of Attorney is filed concurrently herewith under 37 C.F.R. § 42.10(b).

II. STANDING AND FEES

Standing: Petitioners certify that the '805 Patent is eligible for *inter partes* review ("IPR") and none of Petitioners or other potential real parties in interest are barred or estopped from requesting IPR of the '805 Patent.

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 due.

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

A. Priority Date

The application that issued as the '805 Patent was filed on October 11, 2016.

EX1001. Petitioners assume for the purposes of this Petition, without conceding, that the '805 Patent is entitled to a priority date of October 11, 2016.

B. Prior Art

Exhibit 1004—U.S. Patent Pub. No. 2011/0197988 to Van Vliet et al. ("*Vliet"*) was filed on Feb. 16, 2011 and issued on Aug. 18, 2011. *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—U.S. Patent Pub. No. 2018/0057348 to Lowrie ("*Lowrie*") was filed on Aug. 23, 2017 and published on Mar. 1, 2018. *Lowrie* claims priority to Provisional Application No. 62/378,394, filed on Aug. 23, 2016. *Lowrie* qualifies as prior art under at least 35 U.S.C. §§ 102(a)(2) and 102(d)(2).

Exhibit 1007—AFD Onsite Refueling ("*AFD*") was made available online at least as early as Sept. 22, 2015 as explained in the affidavit of Nathaniel E. Frank-White. EX1012;[1] *see also* EX1003, ¶¶123-127. *AFD* qualifies as prior art under at least 35 U.S.C. § 102(a)(1).

[1] EX1012 includes a copy of EX1007 as Exhibit A. Citations to EX1007 incorporate by reference the corresponding disclosure of EX1012, Exhibit A.

Exhibit 1008— Coxreels 1125 Series Hand Crank and Motorized Hose Reels ("*Coxreels*") was made available online at least as early as Apr. 8, 2014 as explained in the affidavit of Nathaniel E. Frank-White. EX1030;[2] *see also* EX1003, ¶¶131-134. *Coxreels* qualifies as prior art under at least 35 U.S.C. § 102(a)(1).

C. Identification of Challenge & Relief Requested

Petitioners request institution of IPR on claims 1-22 of the '805 Patent based on the following grounds based on 35 U.S.C. §§ 102 and/or 103:

Ground	Type	Summary
1	§103	Claims 1-22 are rendered obvious by *Vliet* in view of *Cable*
2	§102/103	Claims 17 and 18 are anticipated and/or rendered obvious by *Vliet*
3	§103	Claims 9-10 are rendered obvious by *Vliet* in view of *Cable* and *AFD*
4	§103	Claims 4, 11, 12, and 20 are rendered obvious by *Vliet* in view of *Cable* and *Coxreels*
5	§103	Claims 1, 7-10, 13-18, and 22 are rendered obvious by *Vliet* in view of *AFD*
6	§103	Claims 2-3, 6, and 19 are rendered obvious by *Vliet* in view of *AFD* and *Lowrie*
7	§103	Claims 4, 5, 20 and 21 are rendered obvious by *Vliet* in view of *AFD*, *Lowrie*, and *Coxreels*
8	§103	Claims 11 and 12 are rendered obvious by *Vliet* in view of *AFD* and *Coxreels*

[2] EX1030 includes a copy of EX1008 as Exhibit A. Citations to EX1007 incorporate by reference the corresponding disclosure of EX1030, Exhibit A.

Submitted with this Petition is a declaration of Dr. Robert Durham, PE, FIEEE (EX1003).

D. Institution is Proper under § 314(a).

The factors in *General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017) favor institution. This is the first and only petition challenging the '805 Patent.

The factors in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB 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, at 12 (PTAB 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, at 10 (PTAB May 15, 2020) (APJ Crumbley, dissenting).

E. Institution is Proper Under § 325(d).

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) (precedential)), 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 ’805 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. *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 '805 Patent. All Grounds (besides Ground 2 with respect to limitation 17[h]) do not rely on *Vliet* for the claim limitations that the Examiner found to be missing in the reference.[3] 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 declaration brings new evidence to the Office's attention that was not considered or reviewed during the '805 Patent's prosecution.

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, Paper 15, at 18–20 (PTAB Oct. 16, 2019); *Qualcomm Inc. v. Monterey Rsch. LLC*, IPR2021-00120, Paper 17 at 18–19 (PTAB June 8, 2021). Almost every ground in this Petition combines *Vliet* with prior art that was not considered during prosecution or disclosed in IDS. Therefore, the combinations of

[3] *See* §VII.B.1, *infra*, for why *Vliet* teaches claim 17[h] and thus how the Examiner erred.

the asserted art have not been previously considered by the Examiner.

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*, IPR2019-00975, Paper 15 at 18–20 (secondary reference was not cumulative of the primary reference because the structure and purpose of the grooves were different). *AFD* and *Cable* explicitly disclose the claim elements the Examiner found to be missing in *Vliet* and the other prior art of record in the Notice of Allowance (*i.e.*, "wherein the reels are arranged on first and second opposed sides in the mobile trailer"; "and a first group of the hoses are deployable from the first trailer side wall and a second group of the hoses are deployable from the second trailer sidewall"),[4] and thus, those references go beyond the teachings of *Vliet*. Therefore, *AFD* and *Cable* are not cumulative.

Because the combinations of *Vliet* with *AFD* or *Cable* were never presented to the Examiner, and *AFD* and *Cable* are not cumulative of prior art considered, this Petition does not present the same or substantially similar arguments considered during prosecution. Therefore, IPR should be instituted.

[4] *See* §IV.B, *infra*.

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 *AFD* and *Cable*. 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 considered *AFD* and *Cable* because they teach the claim elements that the Examiner explicitly stated were missing in *Vliet*. It was because of that alleged deficiency in *Vliet* that the Examiner granted the patent. The combination of *Vliet* and *AFD* renders the '805 Patent obvious, which materially affects the patentability of the claims. Therefore, the Office erred in failing to consider *AFD* or *Cable* in combination with *Vliet*.

Additionally, regarding at least Ground 2, although the Examiner considered *Vliet*, its disclosure of deploying hoses through the trailer's side walls to opposite sides of a well is not depicted in *Vliet*'s figures, but rather is described in the text as a further refinement of the arrangement depicted. *Compare* EX1004, FIG. 1 (hoses 24 deployed to a single fuel tank 12 from only one side of system 14) *with id.*, [0024] ("hoses 24 are run out to equipment 10 through an opening in the trailer wall in whatever arrangement the well operator has requested that the fracturing equipment be placed around the well. For example, 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."). The Examiner also never cited paragraph [0024] of *Vliet* during prosecution. Therefore, the Examiner likely failed to appreciate *Vliet*'s teaching to deploy hoses through both side walls of the trailer.

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

IV. OVERVIEW OF THE '805 PATENT

A. Summary of the '805 Patent

The '805 Patent describes a station for distributing fuel or other fluids, *e.g.*, to equipment at a hydraulic fracturing site. EX1001, 1:21-27, 3:25-35. The "Background" section discusses several known aspects of hydraulic fracturing. *See id.*, 1:6-18. Specifically, the '805 Patent discusses that it was known to "hot-refuel" equipment while it was still running, *e.g.*, to reduce unwanted shutdowns. *See id.*, 1:10-15. The '805 Patent claims various combinations of known elements for fuel distribution to reach predictable results; these elements and results would have been known in the art by the '805 Patent's priority date. *See* EX1003, §§VIII.-XI.

B. Claim Listing

A full claim listing is included as EX1010 and an appendix at §X., *infra*.

C. Relevant Prosecution History of the '805 Patent

The application that issued as the '805 Patent, No. 15/290,371 (the "'371 Application"), was filed on October 11, 2016. EX1001. The prosecution history of

the ’371 Application is short; on December 29, 2016 the examiner issued a Notice of Allowance without any preceding Office Action. EX1011, 10-14.

In the Reasons for Allowance, the Examiner stated that “the prior art of record does not teach ‘wherein the reels are arranged on first and second opposed sides of the mobile trailer’” and that “the prior art of record does not teach ‘and a first group of the hoses are deployable from the first trailer side wall and a second group of the hoses are deployable from the second trailer sidewall.’” EX1011, 15-16. The Notice further stated that U.S. Patent Pub. No. 2011/0197988 “discloses a mobile fuel delivering system having a plurality of hoses connected to a plurality of manifolds, but doesn’t disclose reels arranged on opposed sides of the trailer or hoses deployable from the first and second sides of the trailer.” *Id.* However, as explained further in Section VII. below, all of these limitations were known in the art. *See also* EX1003, §§VIII.-XI. Thus, the ’805 Patent presents no novel or non-obvious advance over the prior art.

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 either (1) a Bachelor of Science in Mechanical Engineering, Electrical Engineering, Petroleum Engineering or an equivalent field and at least 2 years of academic or industry experience in the oil and gas industry, including well drilling, completion, or production, or (2) at least four years of

industry experience in the oil and gas industry including well drilling, completion, or production. This definition is approximate, and more education may substitute for industry experience or vice versa. EX1003, ¶105.

V. SUMMARY OF PRIOR ART

As explained by Dr. Robert Durham, the subject matter of the claims of the ’805 Patent was well known before the priority date of the ’805 Patent. EX1003, §§VIII.-XI. In addition to the background knowledge that a POSITA would have had, the following prior art demonstrates that distribution systems within the scope of the ‘805 Patent Claims would have been well-known and obvious to a POSITA.

A. *Vliet* (EX1004)

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, [0003].

Vliet describes “a fuel delivery system [that] may be contained on a single trailer,” a schematic of which is shown in Figure 1. EX1004, [0014].

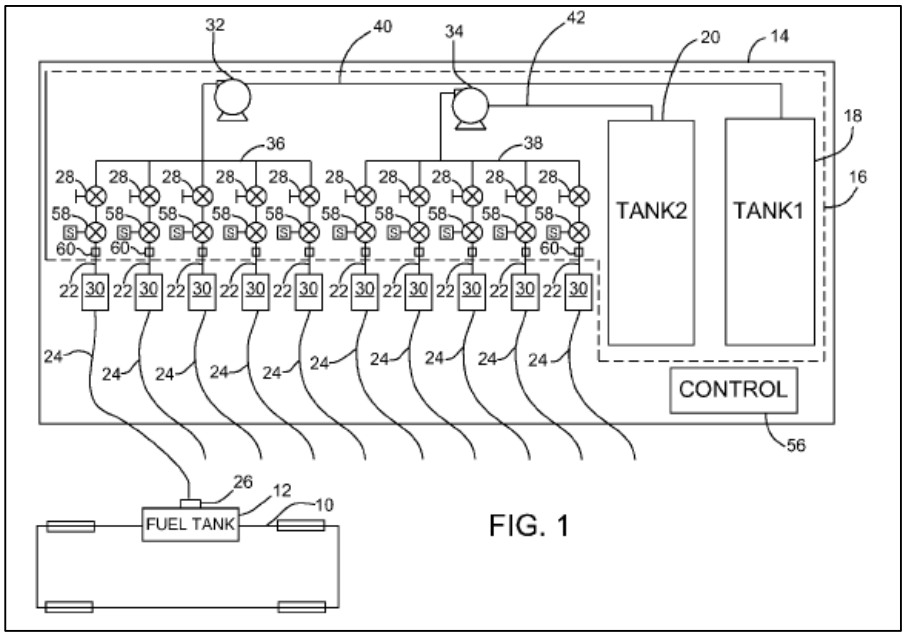
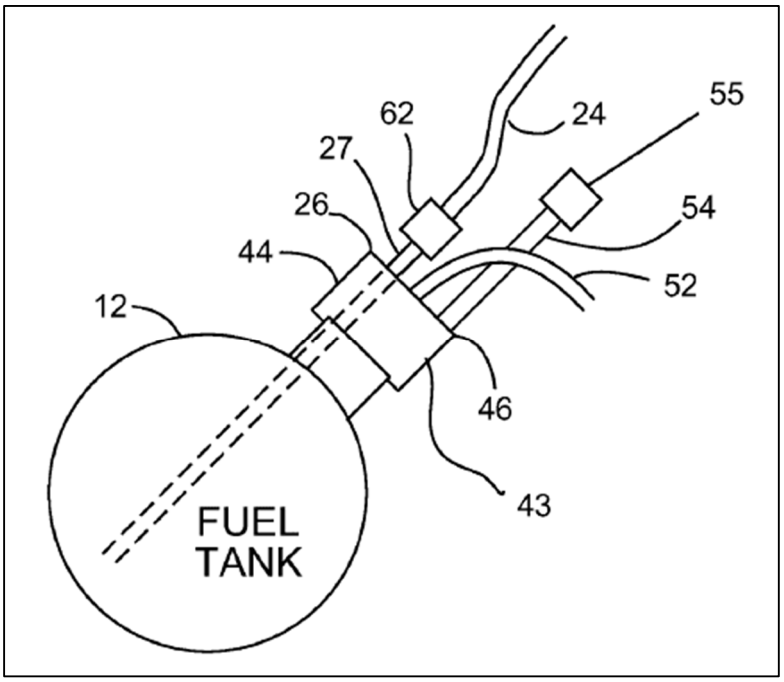


FIG. 1

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*. *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].

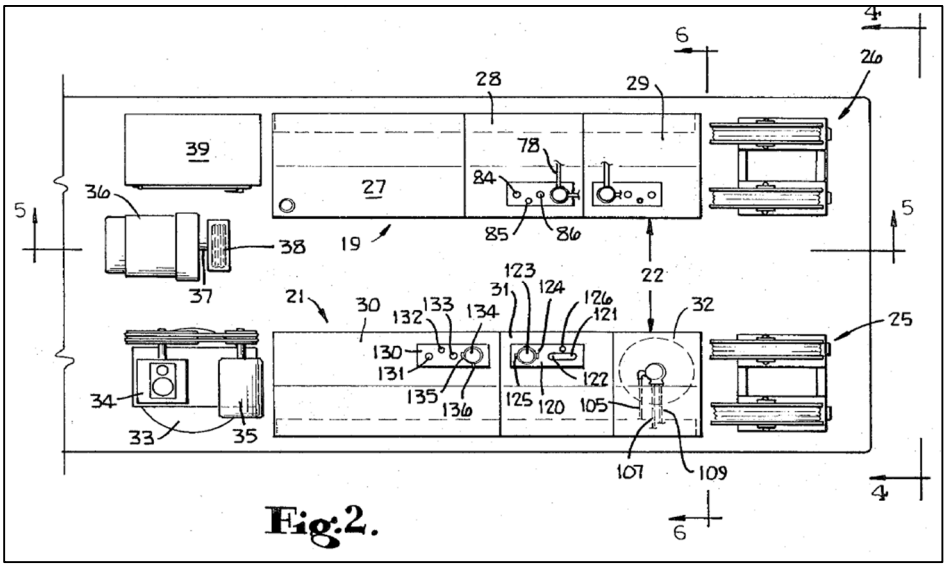
As shown below, a hose 24 connects to fuel tank 12, which is coupled to fuel level sensor 54:



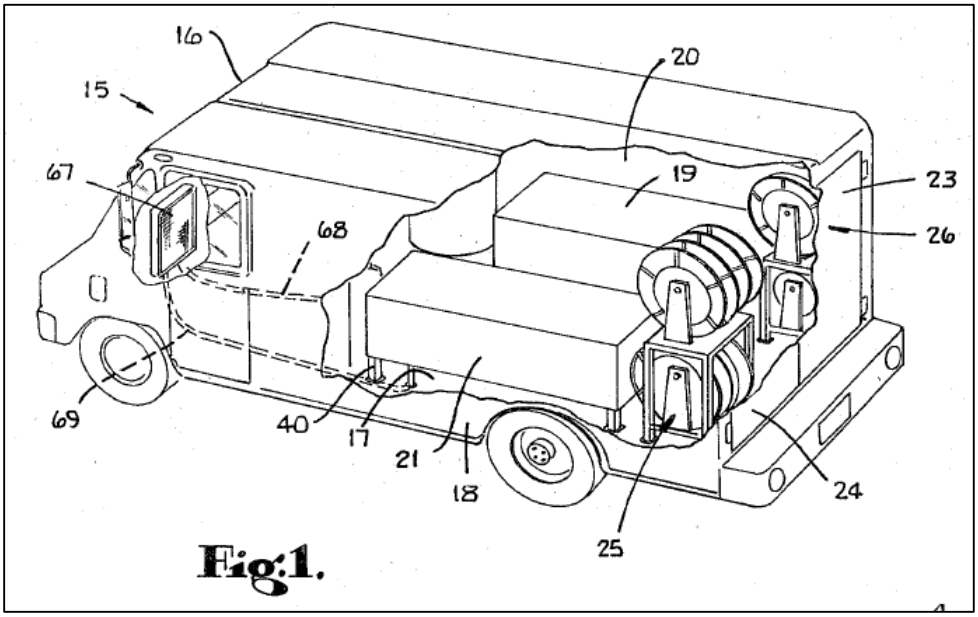
EX1004, FIG. 2, [0020]. The fuel level sensor 52 detects a level of fuel within fuel tank 12 and communicates the fuel level to a controller 56 (not shown above). EX1004, [0020]. The controller 56 may be used to control pumps 32, 34, thereby allowing the fuel passing through hoses 24 to be responsive to fuel levels in fuel tanks 12. *Id. Vliet* was cited by the Examiner during the '805 Patent's prosecution.

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, Abstract. The rear compartment of *Cable*'s van truck has the following layout:



EX1005, FIG. 2.



EX1005, FIG. 1.

Cable's van truck includes storage tanks for fluids such as oil, water, and anti-freeze, "pumps mounted atop the tanks," and "rotatably mounted reels with a hose wrapped around each reel" to convey fluids to a vehicle. EX1005, Abstract. The hose

assemblies 25 and 26 that include the reels reside near the rear of the compartment, and an aisle walkway extends down the length of the compartment between them. EX1005, 2:48-62, FIG. 2. *Cable* was not of record during the '805 Patent's prosecution.

C. *Lowrie* (EX1006)

Lowrie "relates generally to refueling systems and methods" and more specifically to systems and methods for simultaneously refueling the fuel tanks of multiple pieces of machinery in the field. EX1006, Field of the Invention, Abstract. Its refueling system that includes a mobile tanker, hoses, reels, valves, a supply tank, and a controller. EX1006, Abstract, [0036]-[0037]. In *Lowrie*, "refueling hose[s] 110" "may be wound on a reel for storage, and pulled out for dispensing fuel to a receiving fuel tank at a work site." *Id.*, [0037]. As shown below, the reels are arranged in upper, middle, and lower rows along the length of tanker 100's interior:

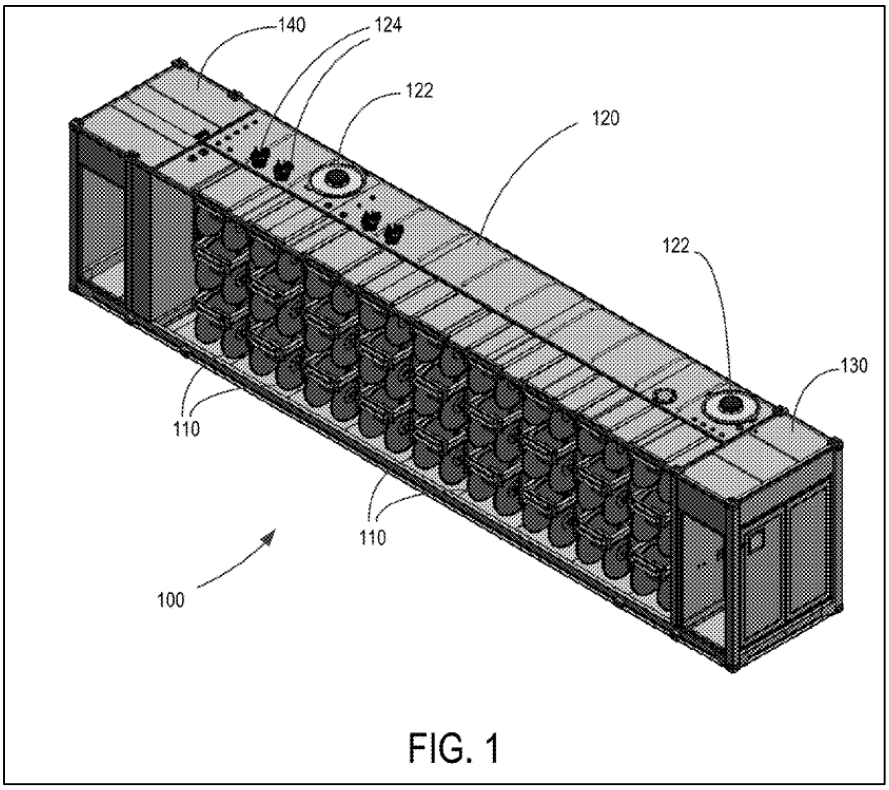


FIG. 1

EX1006, FIG. 1. *Lowrie* was not of record during the '805 Patent's prosecution.

Lowrie's provisional specification (EX1013) describes the same refueling system comprising a fuel supply tank 120, controller 320 for supplying fuel to fuel lines (in banks 330 and 340), refueling hoses 110 connected to each of the fuel lines at the upstream end, and mechanical open-close valves 370 / 400 connected to the downstream ends of each hose 110 having a buoyant body 420. *Id.* at 1-2, 5-8, Figs. 2A/2B, 3, & 4A/4B. In applying *Lowrie* to the '805 Patent claims, this Petition also

cites identical disclosures of the claim elements in *Lowrie*'s provisional.[5]

D. *AFD* (EX1007)

AFD is an archived webpage from September 22, 2015 describing the AFD Onsite Refueling System. EX1007. An image of *AFD*'s system is provided below:

EX1007 (excerpted).

The *AFD* system includes a trailer having a main compartment having 24 fuel reels, 24 hoses, a 10,000L fuel tank. *Id.* Each hose includes sensors and transmitters that send data to a control room equipped with "two touch screen display monitors that control and provide fuel status for each reel and the main tank." *Id*. *AFD* shows hoses being deployed through the opposing sidewalls of the trailer. *AFD* was not of record during the '805 Patent's prosecution.

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[5] Under 35 U.S.C. §102(d)(2), *Lowrie*'s claims need not be entitled to the provisional filing date to qualify as prior art. *See Penumbra, Inc. v. RapidPulse, Inc.*, IPR2021-01466, Paper 34 at 32 (PTAB Mar. 10, 2023).

E. *Coxreels* (EX1008)

Coxreels is a website from April 8, 2014 describing the Coxreels 1125 Series hand crank and motorized hose reels, shown below.

EX1008.

The *Coxreels* reels come in various heights and widths; the length/diameter of each reel is 17-and-5/8 inches. *Id.*, 1-2. *Coxreels* was not of record during the '805 Patent's prosecution.

VI. CLAIM CONSTRUCTION

For purposes of this Petition, Petitioners apply the ordinary and customary

meanings of the claim terms.[6] Express constructions are not required here because the prior art invalidates the claims under any plausible construction.

VII. ASSERTED GROUNDS OF INVALIDITY

A. Ground 1: Claims 1-22 are rendered obvious by *Vliet* in view of *Cable*

1. Rationale for Combining *Vliet* and *Cable*

Vliet and *Cable* describe a mobile truck/trailer system for delivery of fuel, lubricants or other hydrocarbons. EX1003, ¶137. Both 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, 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 *Vliet* to make *Vliet*'s system more easily traversable by operators for repairs, maintenance, and/or physical inspection. *Id.* Further, a POSITA would have been motivated to apply *Cable's* teaching of an occupant compartment separated by an interior wall and accessible

[6] Petitioners reserve all rights to challenge the claims under §112 and/or seek constructions of terms in district court or any other venue.

via the interior walkway (and exterior doors at the rear of the truck/trailer) to provide a separate occupant compartment not exposed to the fluids stored in the compartment with tanks. *Id.*

Both *Vliet* and *Cable* are in the same field of endeavor and directed to solving the same problem as each other and the ’805 Patent—distributing hydrocarbon fluids—and are therefore analogous art to each other and the ‘805 Patent claims. *See* EX1004, [0003], [0014], Abstract; EX1005, 1:40-65; EX1001, 1:13-15 (“to avoid shut-downs fuel is replenished in a hot-refueling operation while the equipment continues to run”), 1:22-35; EX1003, ¶138. The references are similar. Both *Vliet* and *Cable* include (1) storage tanks (EX1004, [0014]; EX1005, 1:40-65); (2) reels (EX1004, [0015]; EX1005, 1:40-65); (3) hoses on the reels (EX1004, [0015]; EX1005, 1:40-65); (4) pumps coupled to the storage tanks (EX1004, [0016]; EX1005, 1:40-65); and (5) valves for controlling fluid flow (EX1004, [0020]; EX1005, 4:22-46). Both combine these 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. EX1003, ¶138.

A POSITA would have recognized the advantages of the central aisle with equipment located on opposed sides of the aisle, *e.g.*, to easily traverse the tank compartment for maintenance or operations. EX1003, ¶138. Further, a POSITA would have recognized the advantage of locating equipment on both sides of the aisle to facilitate delivery of fluids to vehicles in multiple locations (*e.g.*, on both sides of the trailer). *Id. 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 benefits *Cable*'s arrangement 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 opposite side of the vehicle. EX1003, ¶138. 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.*

Vliet also contains an express motivation to combine. EX1003, ¶139. *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]. *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." EX1004, [0027]. A POSITA would then look 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, ¶139. A POSITA, reading *Cable* would have 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.*

A POSITA would have further understood that an outside door would be useful for accessing the aisle walkway from the outside the trailer, and an inside door would be useful for accessing the aisle walkway from the driver's compartment or control cabin. *Id.*; *see* EX1005, [0031]. Further, a POSITA would have understood that separating the compartment with tanks, valves and hoses from the occupant compartment would not only be a conventional way of arranging a vehicle (*see* EX1005 2:49-51 ("there is shown a conventional van truck 16 having a driver compartment as well as a rear compartment.")), but would further have the advantage of separating the occupant from the combustible liquids contained in the tanks, and would keep any spills from directly impacting electrical or electronic equipment (*e.g.*, *Vliet's* controller). EX1003, ¶139. Lastly, 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 *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* door and wall configuration to gain the advantages of such a configuration described above. *Id.*

A POSITA would have had a reasonable expectation of success in combining *Vliet* with *Cable*. EX1003, ¶140. As explained above, *Vliet* and *Cable* describe similar systems for delivering fluid from a mobile trailer via hoses to multiple destinations. *Id.* Further, the elements incorporated into *Vliet* from *Cable* are either already present in *Vliet* (*e.g.*, reels) or were well-known in the art at the time of the '805 Patent. *Id.* Incorporating *Cable*'s aisle walkway, doors, and reel configuration into *Vliet*'s fuel delivery system would merely involve combining prior art elements according to known methods to yield predictable results. *Id.*

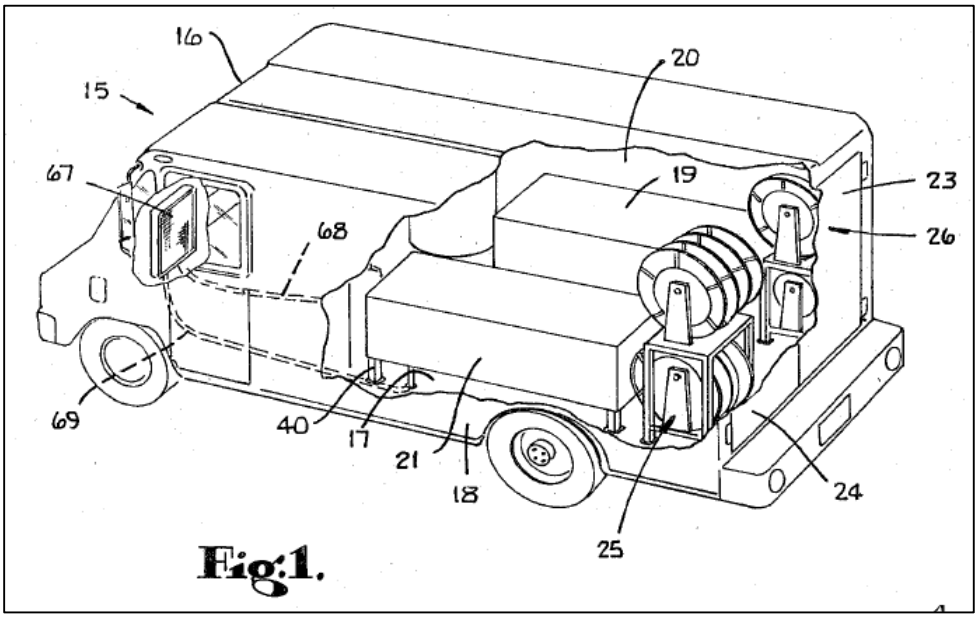
2. Claim 1

Claim 1[p]: "A distribution station comprising:"

To the extent the preamble is limiting, each of *Vliet* and *Cable* discloses or teaches it. EX1003, ¶¶142-143. *Vliet* discloses "a fuel delivery system [that] may be contained on a single trailer." EX1004, [0014], [0003]. *Cable* discloses a "mobile lubrication system" contained within a van truck for providing lubrication fluids to vehicles. EX1005, 1:41-65.

Claim 1[a]: "a mobile trailer"

Vliet describes that the fuel delivery system "may be contained on a single trailer," *e.g.*, a commercially available trailer from Sea-Can Containers. EX1004, [0014], [0024]. Similarly, *Cable* discloses a "mobile lubrication system" contained within a van truck. EX1005, 1:41-65, 2:48-63. *Cable*'s van truck is depicted in FIG. 1:



EX1005. Like the mobile trailer described in the '805 Patent, *Cable*'s van truck is a mobile wheeled ground vehicle with a rear compartment that includes walls, a closed top, and a width. EX1005, FIG. 1; *compare* EX1001, 3:35-44. A POSITA would have understood that the van truck of *Cable* provides the same function as the trailer in *Vliet* and the '805 Patent. EX1003, ¶146. A POSITA would have understood that *Cable's* van truck would be interchangeable with a mobile trailer, *e.g.*, a trailer as

disclosed in *Vliet*, and that an internal layout similar to that shown in the rear compartment of the van truck in *Cable* could be used in the trailer of *Vliet*. EX1003, ¶146; see EX1005, 1:41-65.

Claim 1[b]: "a pump on the mobile trailer"

As shown in *Vliet*, the fuel delivery system 14 includes tanks 18 and 20 that are each "connected to respective pumps 32, 34":

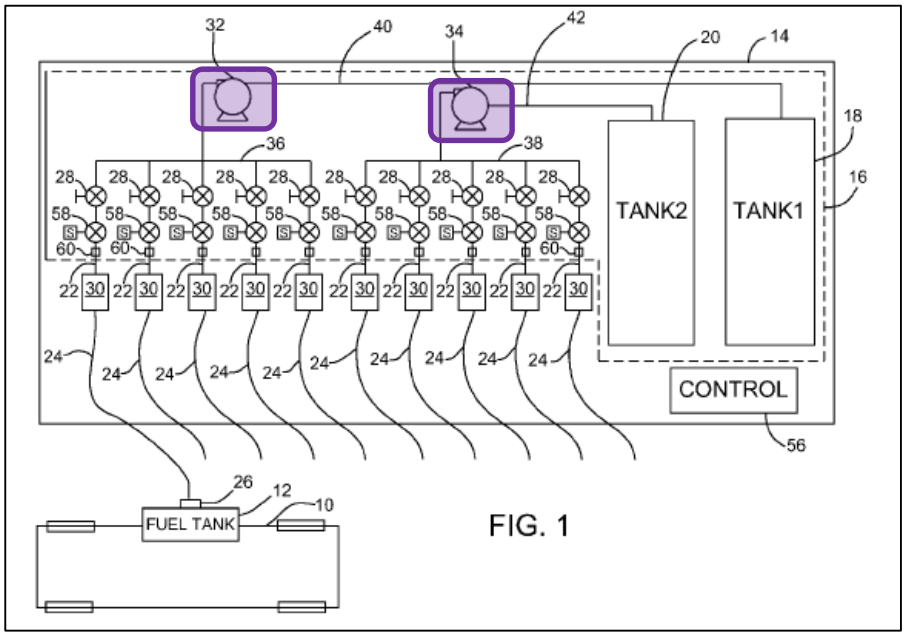


FIG. 1

EX1004, FIG. 1 (annotated: pumps in purple), [0016]. Because the pumps are part of the "fuel delivery system 14" that "may be contained on a single trailer," they are, either individually or together, "a pump on the mobile trailer." EX1004, [0008], [0014], FIG. 1; EX1003, ¶148. Similarly, *Cable* discloses "a van truck with storage tanks mounted therein," and "pumps are mounted atop the tanks." EX1005, Abstract, 4:47-67, & FIG. 5 (pumps 88 and 92 mounted to tanks 28 and 29).

Claim 1[c]: "first and second manifolds on the mobile trailer and fluidly connected with the pump"[7]

Vliet describes that the fuel delivery system 14 includes "one or more manifolds with associated pumps and fuel line or lines." EX1004, [0003]. In the schematic shown in Figure 1, manifolds 36 and 38 are connected to pumps 32 and 34. *Id.*, [0015]-[0016] & FIG. 1. A POSITA would have understood that the manifolds and the associated pumps are fluidly connected because the pumps and manifolds distribute liquid fuel. EX1003, ¶150.

Alternatively, to the extent that claim 1[c] requires that both the first and second manifolds be connected to a single pump, modifying *Vliet* to connect manifolds 36 and 38 to a single pump would be an obvious design choice for a POSITA to implement, and a POSITA would have been motivated to do so, *e.g.*, to minimize the amount of components needed in *Vliet*'s system. EX1003, ¶151.

Claim 1[d]: "a plurality of reels on the mobile trailer"

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[7] Petitioners have applied *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 *Vliet*, would be considered a "manifold" by a POSITA.

In *Vliet*'s fuel delivery system 14 of FIG. 1, "[t]he hoses 24 are preferably stored on reels 30":

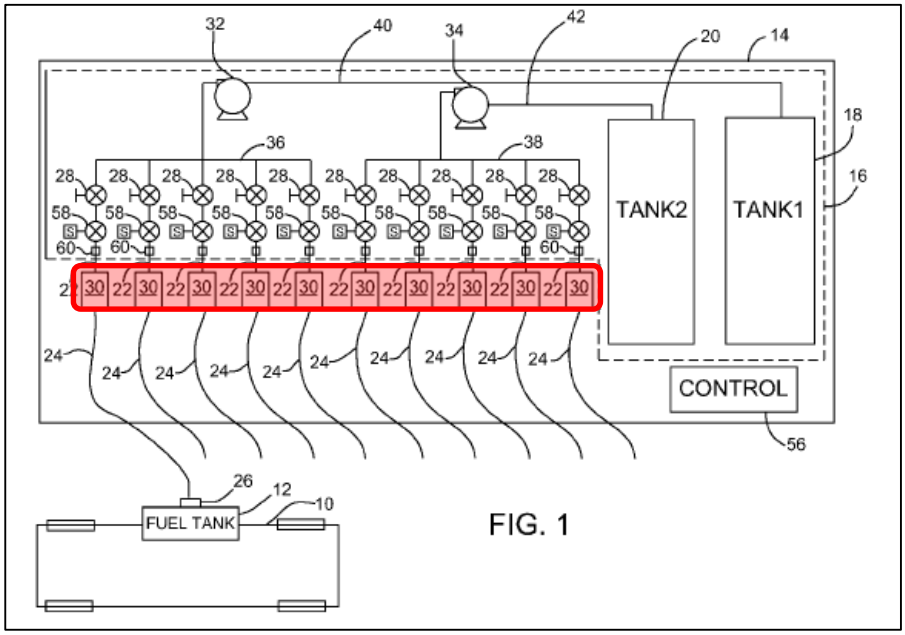


FIG. 1

EX1004, FIG. 1 (annotated: reels 30 in red), [0015]. Similarly, *Cable* discloses two hose assemblies 25 and 26 mounted on a platform on the van truck. EX1005, 2:63-3:5, Figs. 1, 2, 4, 5, Abstract. Each of the hose assemblies includes a pair of upper reels and lower reels rotatably mounted to the frame of a wheel assembly. *Id.* Thus, *Vliet* and *Cable* each discloses Claim 1[d]. *See* EX1003, ¶¶152-153.

Claim 1[e]: "a plurality of hoses connected, respectively, with the reels, wherein a portion of the reels are connected with the first manifold and another portion of the reels are connected with the second manifold"

Vliet discloses a plurality of hoses, with one hose 24 stored on and extending from each reel 30. EX1004, [0015], FIG. 1. *Cable* also discloses hoses that are wrapped around each of the rotatably mounted reels. EX1005, Abstract. Thus, *Vliet*

and *Cable* both disclose or teach "a plurality of hoses connected, respectively, with the reels." EX1003, ¶154.

As shown below, *Vliet* further discloses that left hoses 24 (dark blue) and right hoses 24 (light blue) are connected to reels 30 (red or pink). EX1004, FIG. 1. A portion of the reels 30 on the left (red) connect to manifold 36 (dark green), and the portion of the reels 30 on the right (pink) connect to manifold 38 (light green):

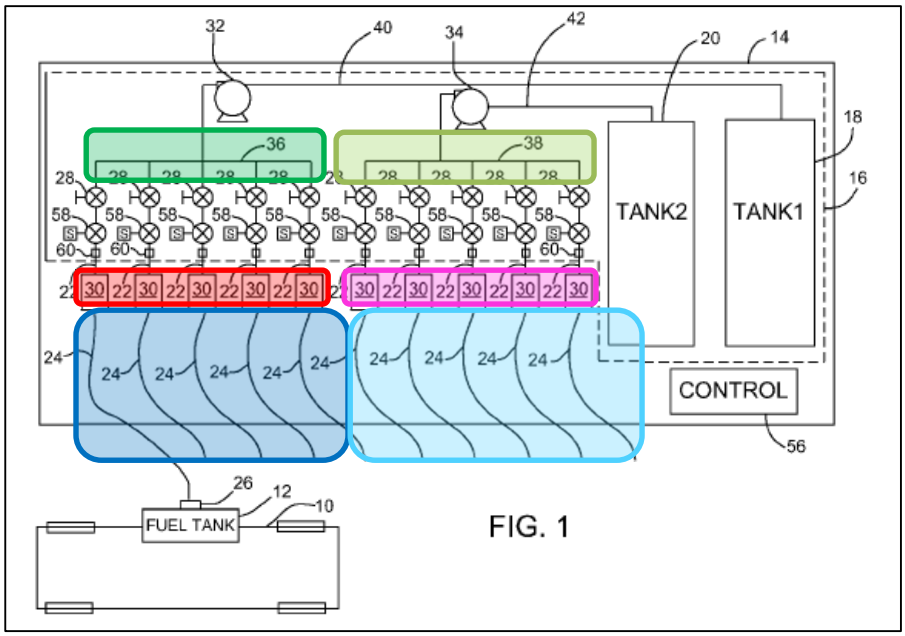


FIG. 1

EX1004, FIG. 1 (annotated); EX1003, ¶¶161-162.

Claims 1[e] and 17[e] do not require that the hoses or manifolds are fluidly

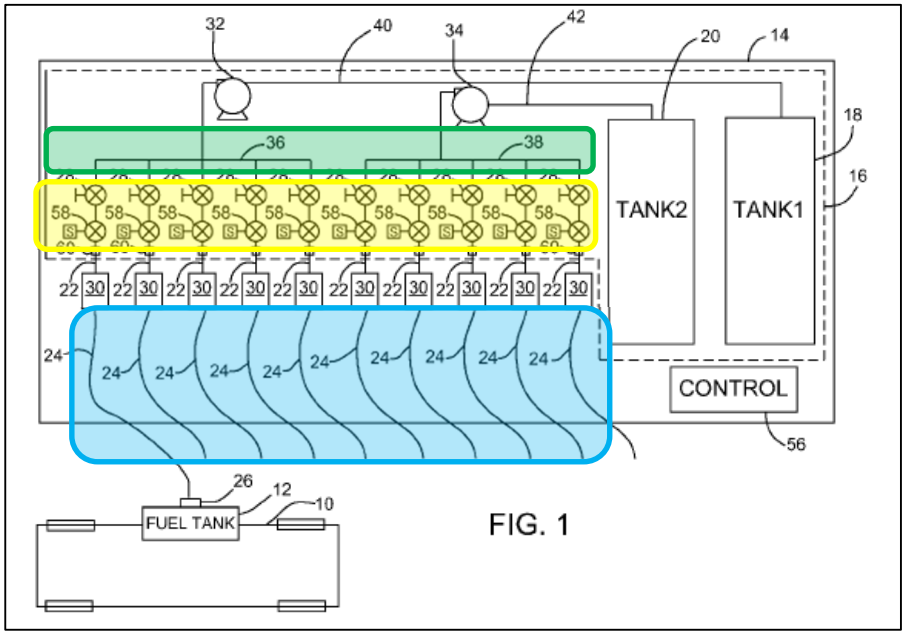
connected with the reels.[8] However, to the extent Patent Owner argues that the claims require that arrangement, *Cable* also teaches it. Fluids in tank 27 of *Cable* flow out of "pump outlet tube 46" to one or more of the hoses (*e.g.*, hoses 64 and 65) that are stored on reels (*e.g.*, reels 62 and 63). EX1005, 4:22-33. "Tube 46 is connected by a conventional reel rotatable coupling to hose 65." *Id.*, 4:33-36 & FIG. 5. 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 that allows fluid to flow through the reels into the hose. EX1003, ¶158; *see* EX1028. Alternatively, that arrangement is taught by *Vliet* and/or would be an obvious design choice for a POSITA to implement in the systems of *Vliet*, *Cable*, and *AFD*. EX1003, ¶¶154-160.

Claim 1[f]: "a plurality of valves on the mobile trailer, each of the valves situated between one of the first or second manifolds and a respective different one of the hoses"

As depicted below, *Vliet* discloses a plurality of valves 28 and 58 (yellow) as part of the fuel delivery system on the mobile trailer. EX1004, [0008], [0014], [0020]; EX1003, ¶¶163-164. Each of the valves 28 and 58 is situated downstream

[8] Indeed, claims 1[c] and 17[c] separately recite that the manifolds are "fluidly connected with" the pump, and the '805 Patent's disclosure of how hoses are "connected with" reels mirrors that of *Vliet* and *Cable*. EX1001, 4:14-16.

of one of manifold 36 and manifold 38 (green) and upstream of a respective different one of the hoses 24 (blue). *Id*.



EX1004, FIG. 1 (annotated).

Claim 1[g]: "a plurality of fluid level sensors, each of the fluid level sensors being associated a respective different one of the hoses"

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

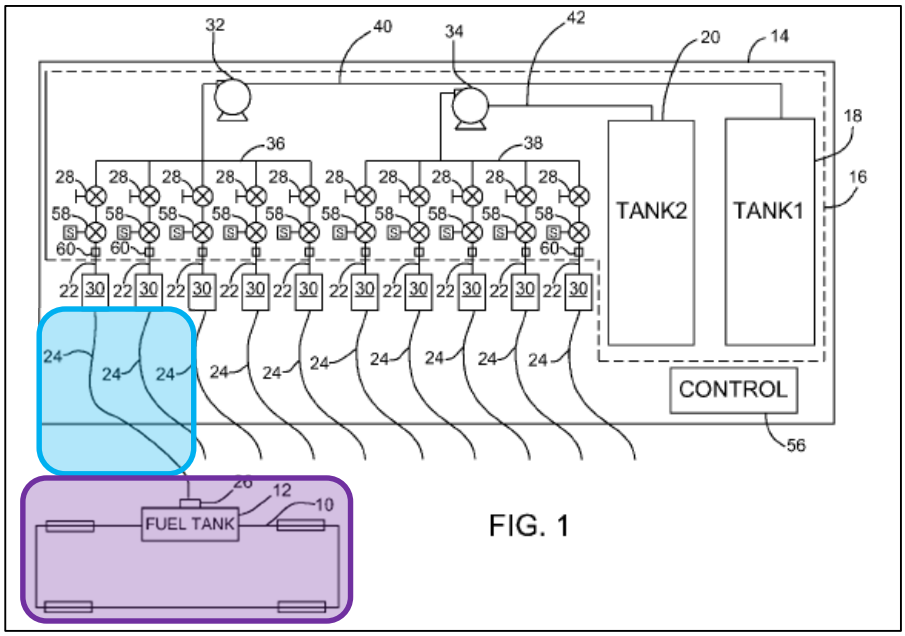
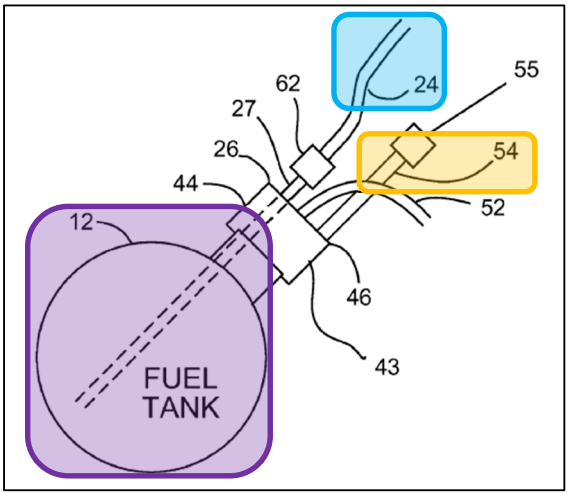


FIG. 1

EX1004, FIG. 1 (annotated); *see* EX1003, ¶165. 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 (orange below), as shown in Figure 2 below:

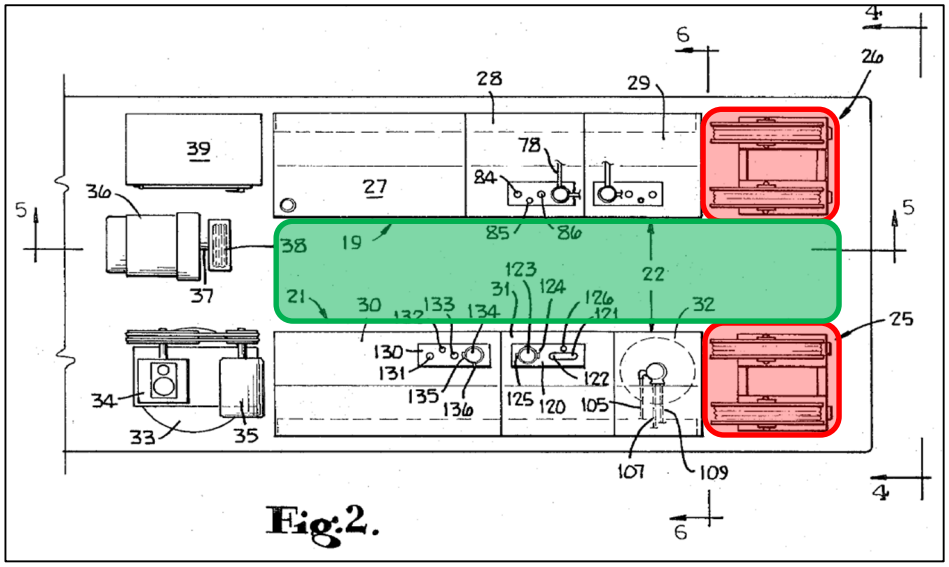


EX1004, FIG. 2 (annotated). "The fuel level sensor 54 may be any suitable sensor such as float sensor, vibrating level switch, or pressure transducer." *Id.*, [0017]; *see*

EX1003, ¶¶166-168.

Claim 1[h]: "wherein the reels are arranged on first and second opposed sides in the mobile trailer, with an aisle walkway down the middle of the mobile trailer"

As depicted in Figure 2 of *Cable*, the hose assemblies 25 and 26 that include reels (red) are located on opposed sides of the interior of the van truck. EX1005, FIG. 2. Furthermore, 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*.



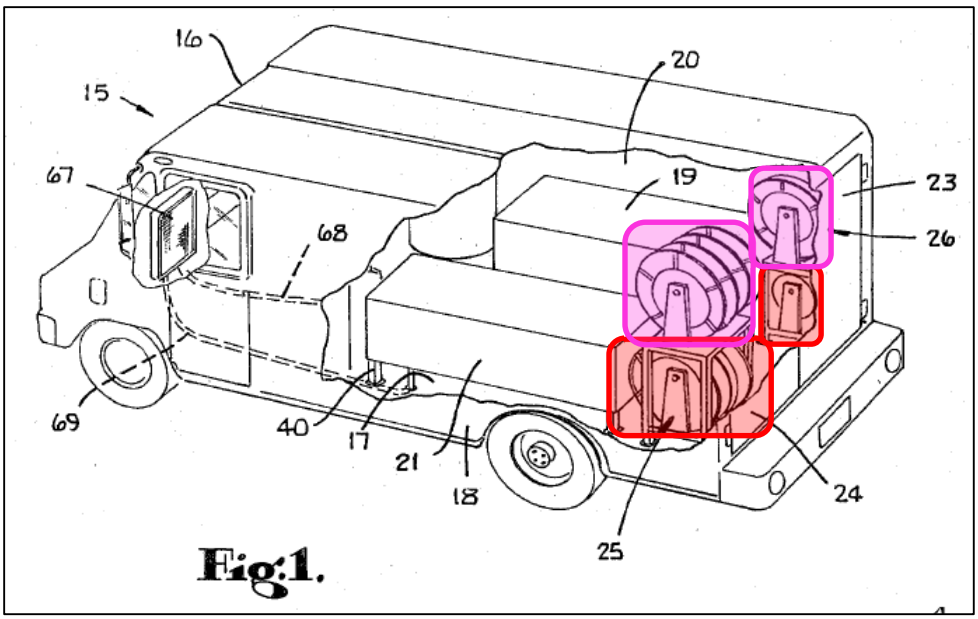
EX1005, FIG. 2 (annotated), 2:55-68; *see* EX1003, ¶169.

Using the arrangement disclosed in *Cable* in the trailer of *Vliet* would have been obvious. EX1003, ¶¶170-173. *Vliet* contemplates various arrangements of its on-trailer equipment, stating that "[t]he spatial orientation of the control station 56, reels 30, manifolds 36, 38, tanks 18, 20, and other equipment such as the generators

is a matter of design choice for the manufacturer and will depend on space requirements." EX1004, [0027]. It would have been obvious to a POSITA to use *Cable*'s reel-and-aisle arrangement as a matter of design choice. EX1003, ¶170; *see KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

3. Claim 2: "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 in pink), 2:63-3:5.

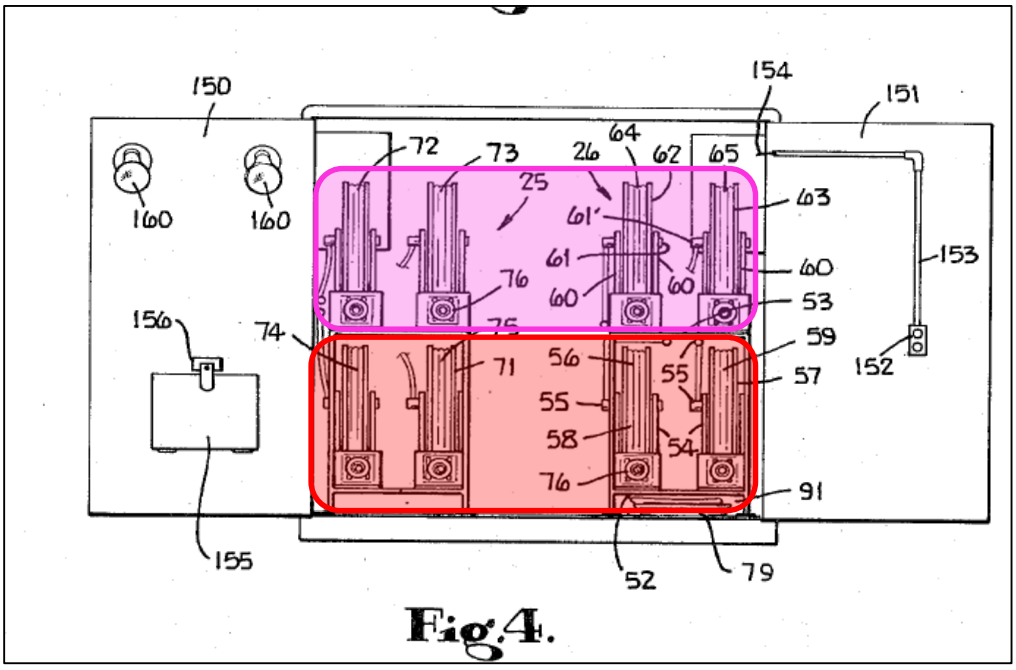


Fig.4.

EX1005, FIG. 4 (annotated).

As depicted above, *Cable*'s mobile trailer includes two reels on the first side arranged in an upper row; two reels on the first side arranged in a lower row; two reels on the second side arranged in an upper row; and two reels on the second side arranged in a lower row. *Id*. It would have been obvious for a POSITA to combine *Vliet*'s trailer with *Cable*'s reel arrangement. EX1003, ¶¶174-175.

4. Claim 3: "first and second support racks on which the reels are supported, the first support rack arranged on the first side and the second support rack arranged on the second side"

Cable shows this arrangement in Figures 1 and 4:

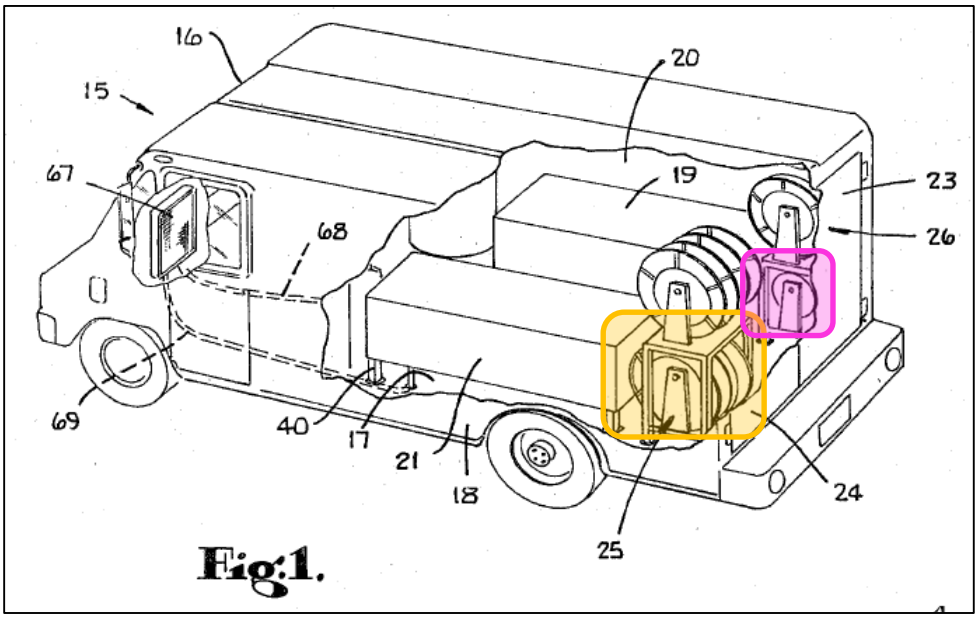


Fig.1.

EX1005, FIG. 1 (annotated: first support rack in orange, second support rack in pink), 3:1-3 (reels "rotatably mounted to the frame of a wheel assembly"), 3:43-62 (describing mounting structure); *see* EX1003, ¶¶176-177. To the extent *Cable* does not explicitly state that the wheel assembly frames are "support rack[s]," a POSITA would have understood that support racks would be the most traditional means by which rows of reels could be supported. EX1003, ¶¶178-179. Furthermore, it would have been obvious to a POSITA to combine the stacked reel arrangement of *Cable* with the trailer of *Vliet*, and it would have been obvious to use whatever support structure is necessary to achieve stacked rows of reels. *Id.*

5. Claim 4: "the aisle walkway has an aisle width and the reels have a reel diameter, and the aisle width is greater than the reel diameter by a factor of at least 1.3"

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." EX1004, [0027]. For example, because a human operates the manual shut-off valves, relevant safety standards would require and exit path that is at least 28 inches wide at all points. *See* EX1003, ¶180; EX1031, §1910.36(g)(2). An example reel typical to the industry at the time of the '805 Patent had a 17-and-5/8" diameter. EX1003, ¶180; EX1008. Thus, the *Vliet* system using a typical reel and aisle width would have a ratio between the walkway and the reel diameter of 1.588 (28" ÷ 17.625"), which falls within the range of Claim 4.

Accordingly, it would be an obvious matter of design choice to design the distribution station of *Vliet*, as modified by *Cable*, so that the aisle width is greater than the reel diameter by a factor of at least 1.3. *See* EX1003, ¶¶180-183.

6. Claim 5: "a trailer width of no greater than about 96 inches"

Vliet discloses that its trailer may be a commercially-available trailer, *e.g.*, made by Sea-Can Containers. EX1004, [0024]. A typical width for such trailers was 8 feet (96 inches). EX1003, ¶184.

Moreover, when the '805 Patent was filed, a POSITA would have recognized that many oil and gas drilling and fracturing sites were located on State or County maintained roads. EX1003, ¶184. Further, a POSITA would have been motivated to follow regulations regarding the maximum width of vehicles, including trailers and

loads, on such roads. *Id.* A POSITA would know that many parts of the U.S. restrict vehicle trailer and/or loads to a maximum width of 96 inches on certain roads. *See* EX1003, §VIII.C; EX1009, 5-6; EX1032-EX1038. A POSITA would have known and/or been motivated to design and construct the trailer of *Vliet* and/or the van truck of *Cable* so that it would be able to access all oil and gas fracturing sites, including those on State and County maintained roads where many drilling and fracturing locations are located. EX1003, ¶184. Therefore, it would have been obvious to a POSITA to design a trailer of *Vliet* and/or van truck of *Cable* to have a trailer width of no greater than the legal limit for use on those roads (*i.e.*., 96 inches). *Id*.

7. Claim 6: "a ratio of a number of reels in the upper row to a number of reels in the lower row is 1:1"

As shown below in *Cable*, the upper (pink) and lower (red) rows of reels each have four reels, producing a ratio of 1:1.

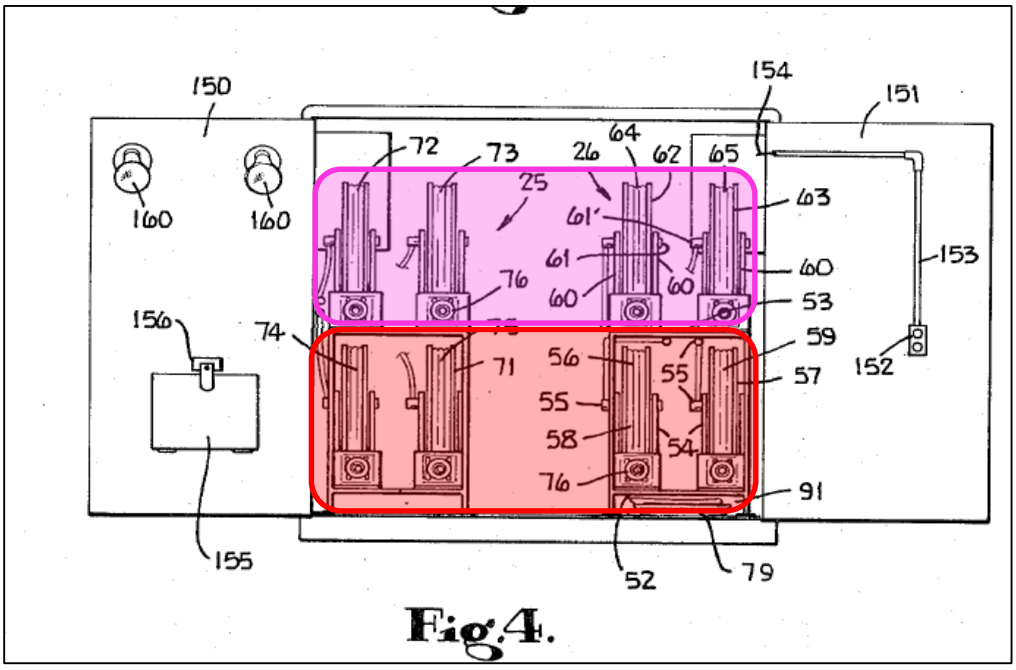


Fig.4.

EX1005, FIG. 4 (annotated); *see* EX1003, ¶¶185-186.

8. Claim 7: "the mobile trailer includes trailer end wall that has an outside door, an inside wall that defines first and second compartments in the mobile trailer, the outside door opening into the first compartment, and at least the manifolds and the reels are in the first compartment"

Vliet and *Cable* disclose and/or teach these elements. As discussed above, *Vliet* discloses manifolds 36 and 38 and reels 30 in the body of a trailer (first compartment). EX1004, [0003], [0016]. *Vliet* also discloses a cabin (second compartment) that may comprise various control equipment and other items used by an operator, and may have a window with a line of sight to the fracturing equipment as well as a dashboard containing readouts of system characteristics. EX1004, [0032]. A POSITA would have understood that this cabin would be separate from

the first compartment where the reels and manifolds are located, and that the cabin would be separated from the other compartment by at least an inside wall. EX1003, ¶188.

Cable further discloses a wall at the rear end of the van truck that includes outside doors 150 and 151 that open from outside the van truck:

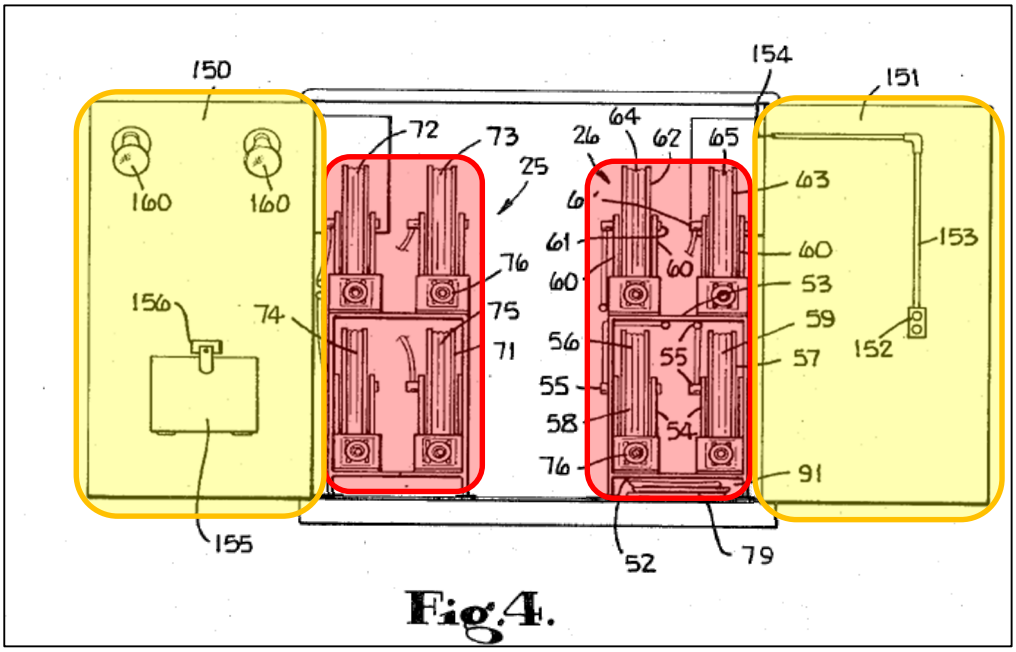


Fig.4.

EX1005, FIG. 4 (annotated: reels in red, outside doors in yellow).

Furthermore, *Cable* includes an inside wall that defines first and second compartments in its van truck. EX1005, 2:48-54; *see* EX1005, FIG. 1. The van truck of *Cable* has a rear (first) compartment that contains the tank bays 19 and 21 and the hose assemblies that include reels (red), and a driver (second) compartment. *Id.* A POSITA would have understood that the driver compartment would be separate from the rear compartment where the tank bays and hose assemblies are located, and

that the driver compartment would be separated from the rear compartment by an inside wall. EX1003, ¶¶189-191. As shown, the outside doors 150 and 151 in the rear wall open into the rear end of the rear compartment.

To the extent *Vliet* lacks one or more elements of Claim 7, it would have been obvious to a POSITA before the '805 Patent was filed to use the layout for the first and second compartments, inside wall, and outside door as disclosed in *Cable* in *Vliet*'s mobile trailer. EX1003, ¶192.

9. Claim 8: "the inside wall includes an inside door providing access between the first compartment and the second compartment, the aisle walkway extending from the outside door to the inside door"

As discussed above with regard to Claims 1 and 7, *Vliet* and *Cable* disclose or render obvious the aisle walkway, the first and second compartments, and the inside wall. *See supra* §§VII.A.2, VII.A.8.

Cable further discloses or renders obvious an inside door between the compartments. *Cable* states that "a person [can] walk between the tanks [in the rear compartment] from the driver compartment toward the back doors"—thus, *Cable* describes a system where it is possible to travel from the driver compartment to the rear compartment. EX1005, 2:48-54; *see* EX1003, ¶194. A POSITA would have understood that the most natural design choice to enable travel between two compartments separated by an inside wall would be to provide an inside door in the

inside wall. *Id.*

10. Claim 9: "a controller in the second compartment, the controller configured to operate the valves."

Vliet discloses a control station 56 that allows for "remote operation of the valves 58." EX1004, [0018]. *Vliet* also teaches that such "control equipment" for the system may be located in a cabin added to the system shown in Figure 1. *Id*. at [0032]; EX1003, ¶¶195-196.[9]

11. Claim 10: "the second compartment is insulated with a fire resistant or retardant material"

A POSITA would have understood that *Vliet*'s cabin with an operator desk must be built to meet worker safety standards, and so must be insulated with a fire resistant or retardant material. EX1003, ¶197. To the extent *Vliet* does not explicitly teach "a fire resistant or retardant material," it would have been obvious to a POSITA before the '805 Patent complying with safety standards to use fire resistant or retardant material. EX1003, ¶198; *see also* EX1031, §1910.36(a)(2).

12. Claim 11: "the aisle walkway has an aisle width and the reels have a reel diameter, and the aisle width is greater than the reel diameter by a factor of at least 1.3"

See supra §VII.A.5; EX1003, ¶199.

[9] Emphasis added unless otherwise noted.

13. Claim 12: "the aisle width is greater than the reel diameter by a factor of at least 1.5"

As discussed above with respect to Claim 4, *Vliet* in view of *Cable*, when using aisle width and reel diameter values typical in the industry, teaches an aisle-width-to-reel-diameter ratio of 1.588, which falls within the range in this claim (at least 1.5). *See supra* §VII.A.5; EX1003, ¶200.

14. Claim 13: "the aisle walkway has an aisle width and the mobile trailer has a trailer width, and a ratio of the trailer width to the aisle width is no greater than 5"

Figures 2 and 4 of *Cable* show a distribution station having an aisle walkway along the length of the trailer. EX1005. When Figure 4 is printed and measured at its original aspect ratio, the aisle walkway width measures 1.00 inches and the trailer width measured 3.38 inches. EX1003, ¶202. These measurements yield a trailer-width-to-aisle-width ratio of 3.38, which does not exceed 5. *Id.* Alternatively, a POSITA would have understood that relevant safety standards would have required the width of the walkway in *Cable* to be at least 28 inches, and many state regulations would have allowed *Cable*'s vehicle to be no wider than 96 inches. EX1003, ¶203; EX1009, 5-6; EX1032-EX1038; EX1031, §1910.36(g)(2). Using those measurements would yield a trailer-width-to-aisle-width ratio of 3.43, which also does not exceed 5. EX1003, ¶¶203-204.

Alternatively, to the extent *Cable* does not expressly disclose this element, a

POSITA would have understood that this would be an obvious design choice. *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." EX1004, [0027]. In view of the above, it would be an obvious matter of design choice to design the distribution station of *Vliet*, as modified by *Cable*, so that the ratio of the trailer width to the aisle width is no greater than 5. EX1003, ¶205.

15. Claim 14: "the ratio of the trailer width to the aisle width is greater than 2"

Cable teaches a trailer-width-to-aisle-width ratio of 3.38 or 3.43, s*ee* §VII.A.14, *supra*, both of which are greater than 2. Alternatively, for the reasons in §VII.A.14, *supra*, a POSITA modifying *Vliet*'s trailer to include *Cable*'s walkway would have employed a trailer-width-to-aisle-width ratio of more than 2. EX1003, ¶206.

16. Claim 15: "the ratio of the trailer width to the aisle width is equal to or less than 4"

Cable teaches a trailer-width-to-aisle-width ratio of 3.38 or 3.43, *see* §VII.A.14, *supra*, both of which are less than 4. Alternatively, for the reasons discussed in §VII.A.14, *supra*, a POSITA modifying *Vliet*'s trailer to include *Cable*'s walkway would have employed a trailer-width-to-aisle-width ratio of less than or equal to 4. EX1003, ¶207.

17.Claim 16: "a floor pan in the mobile trailer"

Vliet describes "spill containment pans" on board the trailer. EX1004, [0022]. Like the '805 Patent, *Vliet* describes that such pans may be positioned to catch fluids leaking from the manifolds and hose reels. *Id.*; *compare* EX1001, 9:34-39 (floor pan 80 in bottom portion of trailer "such that any fluid or fuel that leaks in the trailer is caught and contained in the floor pan"); *see also* EX1003, ¶¶208-209 (citing safety codes requiring spill protection).

18.Claim 17

For the same reasons explained below for Ground 2, *Vliet* renders obvious Claim 17. *See infra* §VII.B.1; EX1003, ¶¶210-223.

19.Claim 18: "the reels are arranged on first and second opposed sides in the mobile trailer such that there is an aisle walkway down the middle of the mobile trailer"

See supra §VII.A.2, Claim 1[h]; *infra* §VII.B.2; EX1003, ¶224.

20.Claim 19: "the reels on each of the first and second opposed sides are arranged in upper and lower rows of reels"

See supra §VII.A.3; EX1003, ¶225.

21.Claim 20: "the aisle walkway has an aisle width and the reels have a reel diameter, and the aisle width is greater than the reel diameter by a factor of at least 1.3"

See supra §VII.A.5; EX1003, ¶226.

22. Claim 21: "the mobile trailer has a trailer width of no greater than about 96 inches"

See supra §VII.A.6; EX1003, ¶227.

23. Claim 22: "a floor pan in the mobile trailer"

See supra §VII.A.17; EX1003, ¶228.

B. Ground 2: Claims 17 and 18 are anticipated by and/or obvious in view of *Vliet*

1. Claim 17

Vliet discloses and teaches limitations 17[p]-17[g] for the reasons described in §VII.A.2, Claim 1[p]-1[g], respectively; EX1003, ¶¶210-223, ¶230.

Vliet also discloses or teaches element 17[h]. *Vliet* discloses a mobile trailer having first and second opposed trailer side walls. EX1004, [0014], [0024], & [0026]. *Vliet*'s hoses "are run out to equipment 10 through an opening in the trailer wall in whatever arrangement the well operator has requested that the fracturing equipment be placed around the well." *Id.*, [0024]. In an embodiment, *Vliet*'s manifolds and associated hoses are arranged such 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." *Id*. A POSITA would have understood this disclosure describes two groups of hoses each deployable through one of two opposite side walls. EX1003, ¶231.

Alternatively, to the extent that *Vliet* does not explicitly disclose hoses

deployable through two opposite side walls, it would have been obvious to a POSITA to arrange the system of *Vliet* in that manner. *Vliet* teaches that its hose arrangement may be "whatever arrangement the well operator has requested." EX1004, [0024]. *Vliet* further describes that each of its two manifolds and associated hoses may be assigned to or associated with a respective opposite side of a well. EX1003, ¶233. The most obvious arrangement for a POSITA seeking to connect each of *Vliet*'s manifolds to a respective opposite side of a well would be an arrangement in which the trailer faces directly toward or away from the well and the hoses extend from each side of the trailer to a corresponding side of the well. *Id.*; *see also* EX1004, [0024].

2. Claim 18

The elements of claim 18 were obvious implementation details to incorporate in *Vliet's* system. *Vliet* teaches arranging the hoses to be deployable from each opposing side wall of the trailer. *See* §VII.B.1, *supra*. A POSITA would have recognized that, in that arrangement, the reels would not be arranged along only one side wall at least because this would result in a tripping hazard that would obstruct the exit route. EX1003, ¶234. Thus, the most obvious arrangement would be to arrange the reels carrying the hoses along the first and second opposed side walls of the trailer. *Id.*

Vliet also explains that its hoses have "manually operated valves 28" capable

of providing "[e]mergency shut down." *See* EX1004, [0023]. These valves 28 are arranged in *Vliet*'s system before the reels 30 as shown in below:

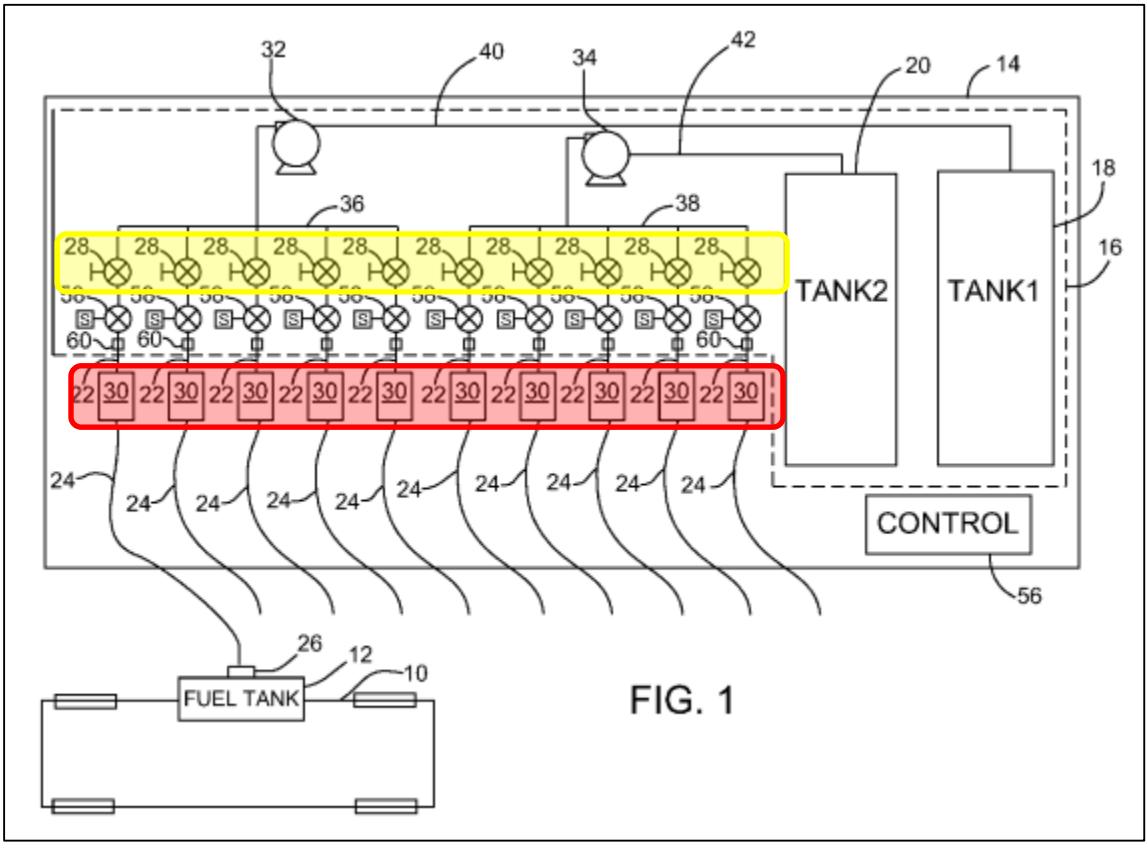


FIG. 1

EX1004, FIG. 1, [0016] ("manually controlled valves 28 are preferably located on and formed as part of the manifolds 36, 38."). A POSITA implementing *Vliet*'s system would have recognized that in order to implement the manually-operated valves, an operator would need to have access to them. *See* EX1003, ¶¶235-236. With reels and hoses arranged on both sides of the trailer, it would have been obvious to include an aisle walkway down the middle of the trailer to provide access to these valves. *Id*.

C. Ground 3: Claims 9-10 are rendered obvious by *Vliet* in view of *Cable* and *AFD*

1. Rationale for combining *Vliet* and *Cable* with *AFD*

The rationale and motivation for combining *Vliet* and *Cable* is the same as discussed for Ground 1. *See supra* §VII.A.1. A POSITA would have been further motivated to combine *AFD* with *Vliet* (modified by *Cable*). EX1003, ¶237. *AFD* is in the same field of endeavor as *Vliet* and *Cable* (and the '805 Patent) and is directed to solving the same problem—delivering hydrocarbon fluids from a mobile trailer via hoses to multiple pieces of equipment. *See* EX1004, [0003], [0014], Abstract; EX1005, 1:40-65; EX1007, 2-3; *see also* EX1001, 1:13-15, 22-35. More specifically, both *Vliet* and *AFD* involve mobile refueling systems. *Id. AFD* is therefore analogous art to both *Vliet* and *Cable* and the '805 Patent claims.

It would have been obvious to a POSITA to combine *AFD*'s control system, compartment configuration, and hose configuration with *Vliet* (modified by *Cable*). A POSITA would recognize the benefits of the control compartment of *AFD*, including having the controller in the compartment with the operator. EX1003, ¶238. *Vliet* already teaches a cabin comprising a heater, desk, control equipment, and a dashboard visible from the cabin with readouts of system characteristics such as fuel tank levels. EX1004, [0032]. A POSITA would be motivated to combine this teaching with the teaching of *AFD* that the controller and dashboard are in the cabin

with the operator to help the operator see and interface with *AFD*'s dashboard. EX1003, ¶238. This would have predictably enabled *Vliet*'s system (modified by *Cable*) to distribute fuel more safely and efficiently, as the operator could monitor and adjust fuel delivery parameters without having to leave the cabin. *Id.*

AFD is similar to *Cable* and *Vliet*. Both *Vliet* (modified by *Cable*) and *AFD* include (1) mobile trailers (EX1004, [0014]; EX1007); (2) storage tanks on the trailers (EX1004, [0014]; EX1007); (3) reels on the trailers (EX1004, [0015]; EX1007); (4) hoses on the reels (EX1004, [0015]; EX1007); (5) pumps on the trailers coupled to the storage tanks (EX1004, [0016]; EX1007, 2); and (6) valves for controlling fluid flow (EX1004, [0020]; EX1007, 3).

A POSITA would have been motivated to modify *Vliet* (modified by *Cable*) to include *AFD*'s control system, *e.g.*, to achieve efficient control of the mobile fuel delivery system's hoses. *Vliet* discloses a control station (EX1004, [0018]), a control cabin (*Id.*, [0032]), and fuel level sensors associated with hoses (*Id.*, FIG. 2), but does not describe all functionality of those systems. *AFD*'s control system is used in a similar refueling system, and *AFD* describes its "Intuitive Control Panel" as useful to "control and provide fuel status for each reel and the main tank." EX1007. A POSITA would use in the *Vliet* control system to efficiently control fuel delivery through the various reels to equipment tanks and monitor the main fuel tank. EX1003, ¶240. Furthermore, *Vliet* discusses the importance of addressing fire

hazards, and *AFD* expressly states that its system is "built to meet and exceed fire code and hazardous location standards". EX1004, [0002]. A POSITA would have recognized the advantage of augmenting *Vliet*'s control systems with *AFD*'s control system architecture and fire safety precautions. EX1003, ¶¶240-241.

A POSITA would have had a reasonable expectation of success in combining *AFD* with *Vliet* (modified by *Cable*). EX1003, ¶243. *AFD* and *Vliet* are similar, and the aspects of *AFD* added to *Vliet* merely modify existing elements of *Vliet* rather than add new elements. *Id.* Incorporating *AFD*'s control system architecture, fire and hazardous area protection, and arrangement of hoses into *Vliet*'s mobile fuel delivery system would merely involve combining known prior art elements according to known methods to yield predictable results. *Id.*

2. Claim 9

Vliet discloses or teaches the claimed elements. *See supra* §VII.A.10; EX1003, ¶244.

Alternatively, to the extent that *Vliet* does not disclose a controller in a second compartment, *AFD* does. EX1007, 2-3. The control room of *AFD* is highlighted below in yellow:

EX1007, 2 (annotated). The control room "contains two touch screen display monitors that control and provide fuel status for each reel and the main tank. The color coded monitoring system allows for easy recognition of each individual reel, as well as a visual of all 24 reels at one time." EX1007, 3. A POSITA would have understood that the controller in the control room would control fuel status of the system described in *AFD* by controlling valves therein. EX1003, ¶246.

Alternatively, to the extent that *AFD* does not expressly disclose that the controller controls valves, a POSITA would have found it obvious to use the controller of *AFD* to control the valves 58 described in *Vliet*. EX1003, ¶¶246-247.

3. Claim 10

Vliet renders obvious the elements of claim 10. *See supra* §VII.A.11; EX1003, ¶¶197-198. Alternatively, *AFD* teaches them. The self-contained unit of *AFD* (including the second compartment control room) "has been built to meet and exceed fire code and hazardous location standards." EX1007, 2. A POSITA would have

understood that a self-contained controller unit "built to meet and exceed fire code . . . standards" would be insulated with a fire resistant or retardant material. EX1003, ¶248. To the extent that *AFD* does not explicitly teach "a fire resistant or retardant material," it would have been obvious to one skilled in the art at the time of the '805 Patent seeking to meet or exceed applicable standards to do so. EX1003, §VIII.F.-G., ¶248 (citing standards); *see also* EX1031, §1910.36(a)(2).

D. Ground 4: Claims 4, 11, 12, and 20 are rendered obvious by *Vliet* in view of *Cable* and *Coxreels*.

1. Rationale for combining *Vliet* and *Cable* with *Coxreels*

The rationale and motivation for combining *Vliet* and *Cable* is the same as for Ground 1. *See supra.* §VII.A.1. A POSITA would have been further motivated to combine *Coxreels* with *Vliet* (modified by *Cable*). EX1003, ¶249. *Coxreels* is in the same field of endeavor as *Vliet* and *Cable* and the '805 Patent and is directed to solving the same problem—using reels to support hoses for use in distributing hydrocarbon liquids. EX1001, 1:13:15, 22-35; EX1004, [0003], [0014], Abstract; EX1005, 1:40-65; EX1008. *Coxreels* is therefore analogous art to both *Vliet* and *Cable* as well as the '805 Patent claims.

Based on *Vliet*'s and *Cable*'s teachings to store hoses on reels, a POSITA would have been motivated to reference information on commercially available hose reels, such as the ones disclosed in *Coxreels* when designing the layout of the fuel

distribution station. EX1003, ¶249. Information contained in *Coxreels*, such as dimensions and capacities of commercially available reels, would have been helpful to the designer when evaluating the size, layout, location, and spatial orientation of equipment on the mobile distribution station. *Id.*

A POSITA would have been motivated to use *Coxreels*' reel in the system of *Vliet* (modified by *Cable*). *Vliet* discloses the use of reels. EX1004, [0015]. A POSITA designing a system of *Vliet* would have looked to commercially available reel components like those described in *Coxreels*, among other reasons, as a cost-effective and readily available option (*e.g.*, as compared to a custom-made reel) for that system. EX1003, ¶250. Before the '805 Patent, reels such as those of *Coxreels* were marketed for use in the oil and gas industry. *Id.*; EX1030, 5-6. Accordingly, a POSITA would have recognized the advantage of using *Coxreels*' reel in *Vliet*'s mobile fuel delivery system. EX1003, ¶250. This would have predictably resulted in enabling *Vliet*'s system to operate using a specified reel of a specified size. *Id.*

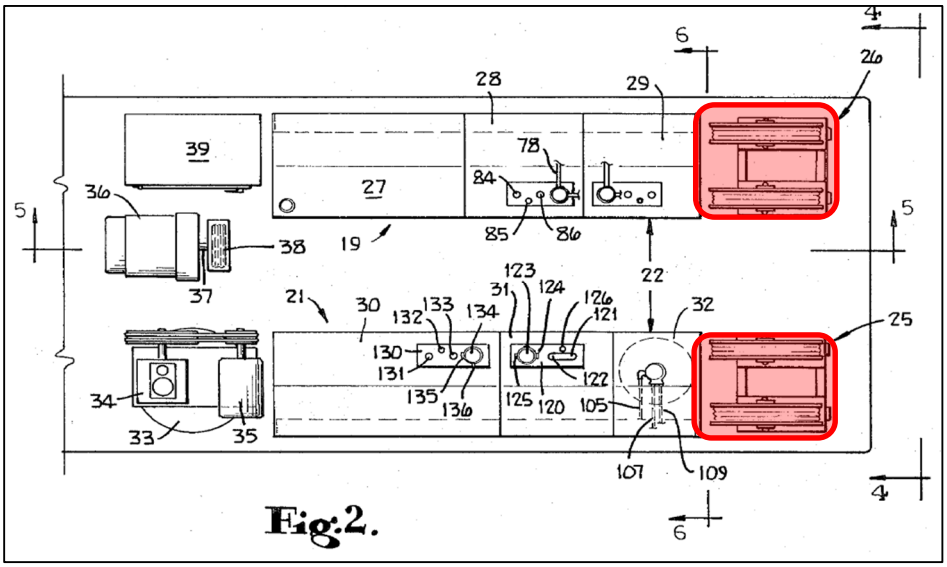
Coxreels describes that the "1125 Series hand crank and motorized hose reels have the features demanded by industry professionals." EX1008. *Coxreels* describes "industry preferred design features [such as] a sturdy one piece all welded 'A' frame base, low profile outlet riser and open drum slot design provides a non-crimping, flat smooth hose wrap." *Id.* A POSITA would have recognized the advantage of using *Coxreels*' reels with *Vliet*'s system (modified by *Cable*). EX1003, ¶251.

A POSITA would have had a reasonable expectation of success in combining *Coxreels* with *Vliet* (modified by *Cable*). EX1003, ¶252. To combine *Vliet* with *Coxreels*, a POSITA would have needed only to select *Coxreels*' reel when choosing which reel to implement. *Id.* Incorporating *Coxreels*' reel into *Vliet*'s mobile fuel delivery system (modified by *Cable*) would merely involve combining a known prior art reel according to known methods, installing and using the reel in a conventional way. *Id.* Therefore, a POSITA would have expected that the *Coxreels* reel would work successfully and according to its known functionality in combination with *Vliet* and *Cable*. *Id.*

2. Claims 4, 11, and 20

For at least the reasons in §VII.A.5, *supra*, *Vliet* in view of *Cable* renders the elements in these claims obvious.

The combination of *Vliet* and *Cable* is strengthened by *Coxreels*. *Coxreels* discloses reels having a diameter of 17-and-5/8 inches. EX1008, 1. A system using *Coxreels*' reels and *Cable*'s aisle walkway would be arranged as shown below:



EX1005, FIG. 2 (annotated: reels in red); EX1003, ¶254.

It would have been obvious to a POSITA to combine a mobile trailer having *Cable*'s layout of a reel on each side of a central aisle with *Coxreels*' 17-and-5/8-inch reels to achieve a wider walkway. EX1003, ¶255; *see also* EX1005, FIG. 2; EX1008, 1. Relevant safety standards would have required a minimum aisle width of 28 inches. EX1003, ¶255; EX1031, §1910.36(g)(2); *see also* EX1005, FIG. 2 (providing mobile trailer layout); EX1008, 1 (providing reels). A 28-inch aisle and a 17-and-5/8-inch reel would yield an aisle-width-to-reel-diameter ratio of 1.59 (28" ÷ 17.625"), which is greater than the claimed ratio (at least 1.3). EX1003, ¶¶255-256, 258.

3. Claim 12

For the reasons described above on Claims 4, 11, and 20, *Vliet* in view of

Cable and *Coxreels* teaches an aisle-width-to-reel-diameter ratio of 1.59, which falls within the range recited in claim 12 (at least 1.5). EX1003, ¶257.

E. Ground 5: *Vliet* in view of *AFD* renders obvious Claims 1, 7-10, 13-18, and 22

1. Rationale for combining *Vliet* with *AFD*

A POSITA would have been motivated to combine *AFD* with *Vliet*. EX1003, ¶259. *AFD* is in the same field of endeavor as *Vliet* (and the '805 Patent) and is directed to solving the same problem—delivering hydrocarbon fluids, specifically fuel, from a mobile trailer via hoses to multiple pieces of equipment. EX1004, [0003], [0014], Abstract; EX1007; *see also* EX1001, 1:13-15, 22-35. More specifically, both *Vliet* and *AFD,* as well as the '805 Patent claims, involve mobile refueling systems. *Id.*; EX1003, ¶259. *AFD* is therefore analogous art to *Vliet* as well as the '805 Patent claims.

It would have been obvious to a POSITA to combine *AFD*'s control system, hose configuration, and compartment configuration with *Vliet*. EX1003, ¶260. A POSITA would recognize the benefits of the control compartment of AFD, including having the controller in the compartment with the operator. *Id. Vliet* already teaches a cabin including a heater, desk, access to relevant control equipment, and a dashboard containing readouts of system characteristics such as fuel tank levels. EX1004, [0032]. A POSITA would be motivated to combine this teaching with the

teaching of *AFD* that the controller, and the dashboard, are in the cabin with the operator to take advantage of the ease of interaction between the operator and the dashboard that *AFD* provides. EX1003, ¶260. This would have predictably enabled *Vliet*'s system (modified by *Cable*) to distribute fuel more safely and efficiently, as the operator would monitor and adjust parameters relating to fuel delivery without having to leave the cabin. *Id.*

Vliet also contains an express motivation to combine. EX1003, ¶261. *Vliet* teaches a mobile trailer having first and second opposed trailer side walls. EX1004, [0014], [0024], [0026]. The hoses of *Vliet* "are run out to equipment 10 through an opening in the trailer wall in whatever arrangement the well operator has requested that the fracturing equipment be placed around the well." *Id.*, [0024]. In an embodiment, *Vliet*'s manifolds and associated hoses are arranged such 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." *Id.* A POSITA would be motivated to incorporate the specific teachings of *AFD*'s hose deployment configuration (*i.e.*, through both a first and second sidewall) to help meet *Vliet*'s goal of serving equipment on one side of the well from one manifold and equipment on the other side of the well from a separate manifold. EX1003, ¶261. This would have predictably enabled *Vliet*'s system to distribute fuel more safely

and efficiently by reducing the hoses to be extended a minimal length, as well as reducing crossing and clutter of hoses at the wellsite. *Id.*

Vliet and *AFD* describe similar systems used for the same purpose and would have provided a POSITA with complementary teachings and implementation details. EX1003, ¶262. Both references include (1) mobile trailers (EX1004, [0014]; EX1007); (2) storage tanks on the mobile trailers (EX1004, [0014]; EX1007); (3) reels on the mobile trailers (EX1004, [0015]; EX1007); (4) hoses on the reels (EX1004, [0015]; EX1007); (5) pumps on the mobile trailers coupled to the storage tanks (EX1004, [0016]; EX1007); and (6) valves for controlling fluid flow (EX1004, [0020]; EX1007 (providing for control of each reel)).

A POSITA would have been motivated to modify *Vliet* (modified by *Cable*) to include *AFD*'s control system, *e.g.*, to achieve efficient control of the mobile fuel delivery system's hoses. *Vliet* discloses a control station in a cabin (EX1004, [0018], [0032]), and fuel level sensors associated with hoses (*id.*, FIG. 2), but does not disclose all the functionality of those systems. *AFD*'s control system is used in the context of a similar refueling system, and *AFD* describes the functionality of *AFD*'s "Intuitive Control Panel" useful to "control and provide fuel status for each reel and the main tank." EX1007. A POSITA would have found desirable to use in the *Vliet* control system to efficiently control fuel delivery to through the various reels to the equipment tanks, and to monitor the main fuel tank. EX1003, ¶263. Furthermore,

Vliet discusses the importance of addressing fire hazards (EX1004, [0002]), and *AFD* expressly states that its system "has been built to meet and exceed fire code and hazardous location standards" for that purpose (EX1007). A POSITA would have recognized the advantage of augmenting *Vliet*'s control systems with *AFD*'s control system architecture and fire safety precautions. EX1003, ¶263.

A POSITA would further have been motivated to modify *Vliet* to include *AFD*'s reel and hose configuration to enable *Vliet*'s system to more efficiently and safely fuel satellite tanks located on either side of a mobile trailer. EX1003, ¶264. This would allow an operator to access reels more efficiently for maintenance and increases the number of reels practicably deployable from the trailer. *Id.*

A POSITA would have had a reasonable expectation of success in combining *AFD* with *Vliet*. EX1003, ¶265. *AFD* and *Vliet* describe highly similar systems, and the aspects of *AFD* added to *Vliet* in the proposed combination merely modify existing elements in conventional ways. *Id.* Incorporating *AFD*'s control system architecture and arrangement of hoses into *Vliet*'s mobile fuel delivery system would merely involve combining prior art elements according to known methods to yield predictable results. *Id.*

2. Claim 1

Claim 1[p]

To the extent the preamble is limiting *see supra* §VII.A.2, Claim 1[p], and

EX1003, ¶142 for discussion of *Vliet*. *AFD* also discloses a distribution station. *See* EX1007 ("AFD's innovative refueling system"); EX1003, ¶267.

Claim 1[a]

See supra §VII.A.2, Claim 1[a], and EX1003, ¶144 for discussion of *Vliet*. *AFD* also discloses a mobile trailer. *See* EX1007 (images of trailer, describing "main body of the trailer" as containing 24 fuel reels); EX1003, ¶268.

Claim 1[b]

See supra §VII.A.2, Claim 1[b], and EX1003, ¶147 for discussion of *Vliet*. *AFD* also discloses a pump on the mobile trailer. *See* EX1007 ("10,000L fuel tank" has "an internal pump to attach to an alternative fuel source in addition to connections to the 24 fuel reels."); EX1003, ¶270.

Claim 1[c]

See supra §VII.A.2, Claim 1[c], and EX1003, ¶¶149-151 for discussion of *Vliet*; *see* EX1003, ¶271.

Claim 1[d]

See supra §VII.A.2, Claim 1[d], and EX1003, ¶152 for discussion of *Vliet*. *AFD* also discloses a plurality of reels on the mobile trailer. *See* EX1007 ("The main body of the trailer contains 24 fuel reels, each with 300 – 450' of 1" hose…."); EX1003, ¶272.

Claim 1[e]

See supra §VII.A.2, Claim 1[e], and EX1003, ¶¶154-157, 159-162 for discussion of *Vliet*. *AFD* also discloses a plurality of hoses connected, respectively, with the reels. *See* EX1007 ("The main body of the trailer contains 24 fuel reels, each with 300 – 450' of 1" hose…."); EX1003, ¶273.

Claim 1[f]

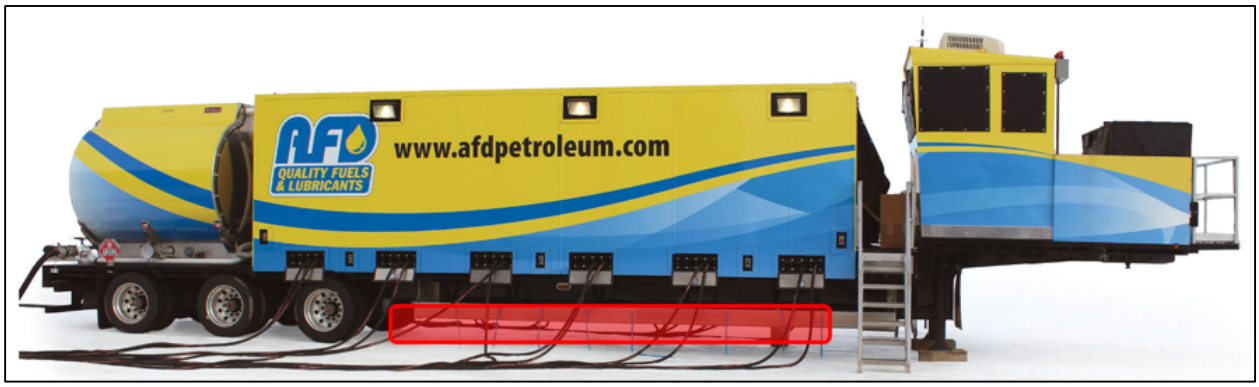
See supra §VII.A.2, Claim 1[f], and EX1003, ¶¶163-164 for discussion of *Vliet*.

Claim 1[g]

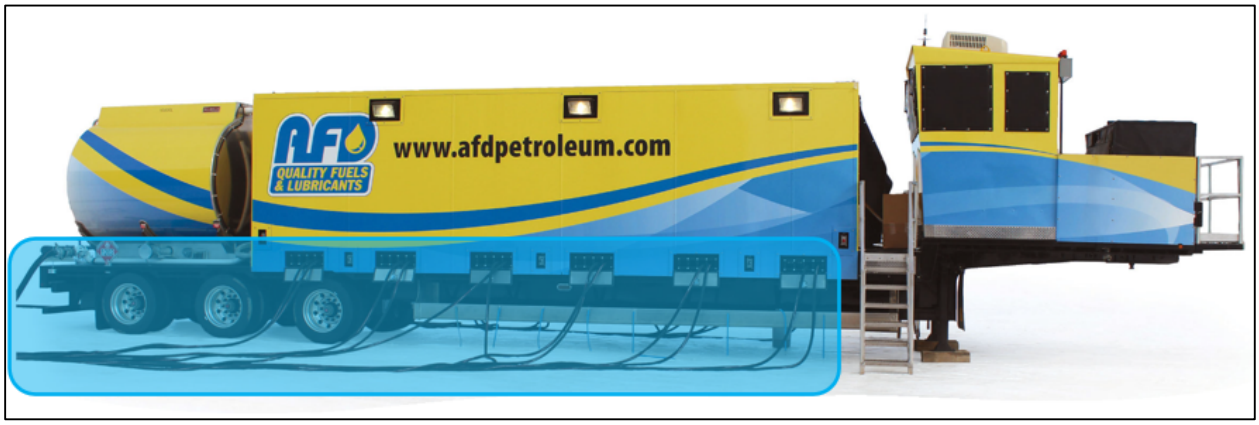
See supra §VII.A.2, Claim 1[g], and EX1003, ¶¶165-168 for discussion of *Vliet*. *AFD* also discloses a plurality of fluid level sensors, each of the fluid level sensors being associated a respective different one of the hoses. *See* EX1007 ("Each hose includes sensors and transmitters that generate real time data to the control room….The Control Room contains two touch screen display monitors that control and provide fuel status for each reel and the main tank. The color coded monitoring system allows for easy recognition of each individual reel…."); EX1003, ¶275.

Claim 1[h]

AFD describes "[t]he main body of the trailer contains 24 fuel reels, each with 300 – 450' of 1" hose …." EX1007. *AFD* includes an image of its trailer showing hoses coming out of both sides of the main body of the trailer:



EX1007 (excerpted, annotated) (hoses coming from far side of main body, visible underneath main body).



EX1007 (excerpted, annotated; hoses coming from near side of main body). In the second image, 12 hoses are deployed on the near side. *See id*. *AFD* describes that there are 24 hoses in total. *Id.* ("The main body of the trailer contains 24 fuel reels, each with 300 – 450' of 1" hose ….") . Thus a POSITA would have understood that the remaining 12 hoses are deployed on the far side of the trailer. EX1003, ¶¶277-278. Because *AFD* describes a hose associated with each reel, a POSITA would have recognized that 12 reels are arranged along the near wall of the main body of the

trailer and 12 reels are arranged along the far wall of the main body of the trailer (as oriented in the annotated images above). *Id*.

AFD further teaches or suggests "an aisle walkway down the middle of the mobile trailer." In light of the arrangement discussed above, a POSITA would have understood that the system shown in *AFD* must be arranged to have an aisle walkway between the reels for maintenance (*e.g.*, replacing reels, attaching hoses, operating the reels to retract hoses, etc.) and safety (*e.g.*, to provide access to manual shut-off valves). *See* EX1003, ¶¶278-279. *AFD*'s set of stairs (green below) for access to the main body of the mobile trailer and flap (yellow below) that has been partially removed to allow access to the main body of the trailer further confirm to a POSITA that the system in *AFD* includes an aisle walkway down the middle of the mobile trailer. EX1003, ¶279; EX1007 (excerpted, annotated below).

Alternatively, to the extent that *AFD* does not disclose that element, it would have been obvious in view of *Vliet* to incorporate. *See* §VII.B.2, *supra*; EX1003, ¶280.

3. Claim 7

AFD describes a "main body" of the trailer (blue below) that "contains 24 fuel reels, each with 300 - 450' of 1" hose," which maps to the first compartment. EX1007; EX1003, ¶281. *AFD* also describes a "Control Room" on the trailer (red below) that contains touch screen display monitors that control and provide fuel status for each reel and the main tank, which maps to the second compartment. *Id.* As discussed above, *AFD* further discloses a removable flap providing access to the main body, *see supra* §VII.E.2, Claim 1[h], which maps to the outside door and would be in the yellow region below. *Id.*

EX1007, (excerpted, annotated).

4. Claim 8

It would have been obvious that the second compartment discussed above with respect to Claim 7 includes a door (mapping to the claimed "inside door" for access to the control room, *i.e.*, the claimed second compartment). *See supra* §VII.E.3. *AFD* further discloses or at least suggests that the aisle walkway provides access to this door because there is no other ingress/egress shown. *See* EX1007; EX1003, ¶283. In other words, the aisle walkway allowing for maintenance to be conducted in the main body of the trailer is shown or at least suggested to be connected to the entrance to the control room (*i.e.*, the claimed second compartment) because there is not a separate ingress/egress point depicted. EX1003, ¶284.

5. Claim 9

AFD describes a control room depicted below that "contains two touch screen display monitors that control and provide fuel status for each reel and the main tank."

EX1007 (excerpted, annotated); *see* EX1003, ¶286.

See id. (inside of control room).

A POSITA would have understood that a controller in the control room would control valves which, in turn, control the flow of fuel in the system described in

AFD. *See* EX1003, ¶287. Alternatively, to the extent that *AFD* does not expressly disclose that the controller controls the claimed valves, a POSITA would have found it obvious to use the control room described in *AFD* to control the valves 58 as described in *Vliet* at least to provide a centralized location for controlling and monitoring the combined system. *Id.*

6. Claim 10

The self-contained unit of *AFD* [including the second compartment control room] "has been built to meet and exceed fire code and hazardous location standards." EX1007, 2. A POSITA would have understood that a self-contained controller unit that has been "built to meet and exceed fire code . . . standards" would be insulated with a fire resistant or retardant material. EX1003, ¶288. To the extent that *AFD* does not explicitly teach "a fire resistant or retardant material," it would have been obvious to a POSITA seeking to meet or exceed relevant standards to use fire resistant or retardant material. EX1003, §VIII.F.-.G., ¶288 (citing standards); *see also* EX1031, §1910.36(a)(2).

7. Claim 13

As explained in §VII.A.6, *supra*, a POSITA would have used a trailer with a maximum width of 96 inches. As explained in §VII.A.14, *infra*, relevant safety standards require a minimum exit route width of 28 inches. It would have been obvious to a POSITA implementing *Vliet*'s system as modified by *AFD* to use the

largest trailer width permitted and to comply with safety standards. EX1003, ¶¶289-290. The corresponding ratio between the trailer width and aisle width is 3.43 (96" ÷ 28"), which falls within the range recited in claim 13.

8. Claim 14

For the same reasons explained with respect to Claim 13 above, *Vliet* in combination with *AFD* render obvious "wherein the ratio of the trailer width to the aisle width is greater than 2." *See supra.* §VII.E.7; *see also* EX1003, ¶291.

9. Claim 15

For the same reasons explained with respect to Claim 13 above, *Vliet* in combination with *AFD* render obvious "wherein the ratio of the trailer width to the aisle width is equal to or less than 4." *See supra* §VII.E.7; EX1003, ¶292.

10. Claim 16

See supra §VII.A.17; EX1003, ¶293.

11. Claim 17

Claim 17[p]

See supra §VII.A.2, Claim 1[p], §VII.E.2, Claim 1[p]; EX1003, ¶295.

Claim 17[a]

See supra §VII.A.2, Claim 1[a]; §VII.E.2, Claim 1[a]; EX1003, ¶296.

Claim 17[b]

See supra §VII.A.2, Claim 1[b]; §VII.E.2, Claim 1[b]; EX1003, ¶297.

Claim 17[c]

See supra. §VII.A.2, Claim 1[c]; EX1003, ¶298.

Claim 17[d]

See supra §VII.A.2, Claim 1[d]; §VII.E.2, Claim 1[d]; EX1003, ¶299.

Claim 17[e]

See supra §VII.A.2, Claim 1[e]; §VII.E.2, Claim 1[e]; EX1003, ¶300.

Claim 17[f]

See supra §VII.A.2, Claim 1[f]; EX1003, ¶301.

Claim 17[g]

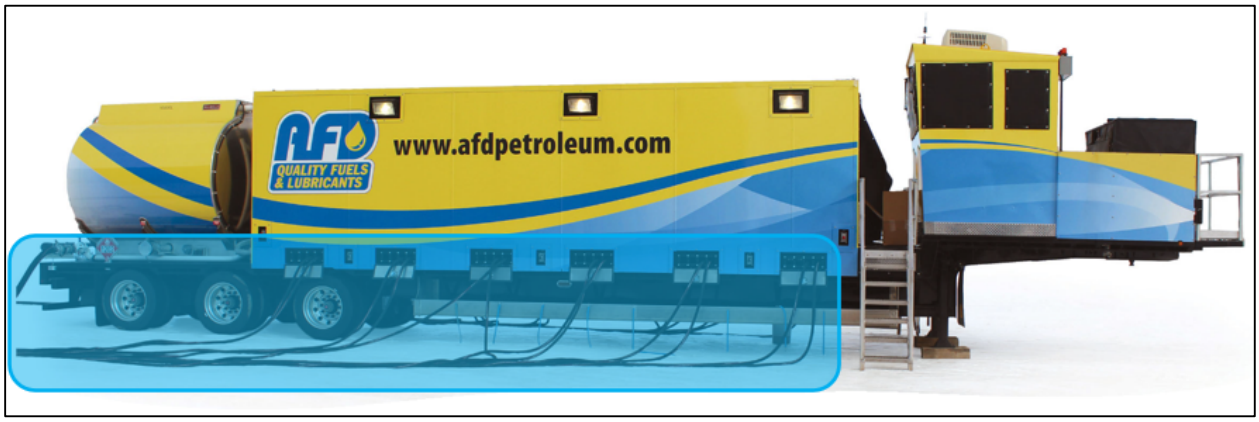
See supra §VII.A.2, Claim 1[g]; §VII.E.2, Claim 1[g]; EX1003, ¶302.

Claim 17[h]

AFD describes "[t]he main body of the trailer contains 24 fuel reels, each with 300 – 450' of 1" hose …." EX1007. *AFD* includes an image of its trailer showing hoses coming out of the side walls on both sides of the trailer's main body:

EX1007 (excerpted, annotated; hoses coming from far side of main body, visible

underneath main body).



EX1007 (excerpted, annotated; hoses coming from near side of main body). In the second image, 12 hoses are deployed on the near side. *See id*. *AFD* describes that there are 24 hoses in total. EX1007 ("The main body of the trailer contains 24 fuel reels, each with 300 – 450' of 1" hose ….")). Thus, a POSITA would have understood that the remaining 12 hoses are deployed on the far side of the trailer. EX1003, ¶303.

12. Claim 18

See supra §VII.E.2, Claim 1[h]; EX1003, ¶304.

13. Claim 22

See supra §VII.E.10; EX1003, ¶305.

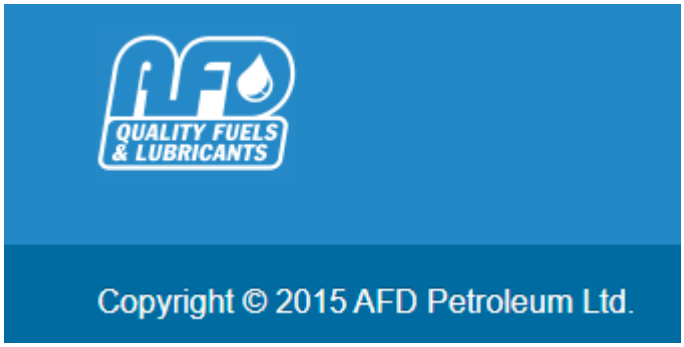
F. Ground 6: Claims 2-3, 6, and 19 are rendered obvious by *Vliet* in view of *AFD* and *Lowrie*

1. Rationale and motivation for combining *Vliet* with *AFD* and *Lowrie*

A POSITA would have been motivated to combine *Lowrie* with *Vliet*

(modified by *AFD*). EX1003, ¶306. *Lowrie* is in the same field of endeavor as *Vliet*, *AFD*, and the '805 Patent and is directed to solving the same problem—distribution of hydrocarbon liquids. *Id*. More specifically, all of *Vliet*, *AFD*, *Lowrie*, and the '805 Patent involve mobile refueling systems. *See* EX1007; EX1008, [0002]; EX1013, 1:3; EX1001, 1:13-15, 22-35. *Lowrie* is therefore analogous art to the '805 Patent, *Vliet*, and *AFD*.

Specifically with respect to *AFD*, *Lowrie* is assigned to AFD Petroleum Ltd., who published and owned the copyright on *AFD*, ostensibly using *AFD* to market the system described therein:



EX1007 (excerpted). It would have been obvious to a POSITA to use *Lowrie*'s reel organization and storage with the system described in *AFD* (as combined with *Vliet*). EX1003, ¶307. This would have predictably enabled *Vliet*'s system to more safely and efficiently distribute fuel. *Id*.

Like *AFD*, *Lowrie* describes a similar system to *Vliet* and would have provided a POSITA with complementary teachings and implementation details.

EX1003, ¶308. Both include (1) storage tanks (EX1004, [0014]; EX1006, [0033]; EX1013, 5:9-14), (2) reels (EX1004, [0015]; EX1006, FIG. 1; EX1013, FIG. 1), (3) hoses on the reels (EX1004, [0015]; EX1006, [0037]; EX1013, 6:13-16), (4) pumps coupled to the storage tanks (EX1004, [0016]; EX1006, [0036]; EX1013, 6:9-12), and (5) valves for controlling flow (EX1004, [0020]; EX1006, [0007], [0044]; EX1013, 2:6-9, 8:6-14).

A POSITA would have been motivated to further modify *Vliet* (modified by *AFD*) to include *Lowrie*'s reel organization and storage to more efficiently store hoses. EX1003, ¶309. A POSITA would have recognized the advantage of augmenting *Vliet*'s hose and reel organization with *Lowrie*'s technique of stacking reels. *Id.*

A POSITA would have had a reasonable expectation of success in combining *Lowrie* with *Vliet* (modified by *AFD*). EX1003, ¶310. *Lowrie* and *Vliet* are highly similar, and the aspects of *Lowrie* added to *Vliet* in the proposed combination (arrangement and storage of reels/hoses) merely modify existing elements in conventional ways. *Id.* Incorporating *Lowrie'*s reel and hose organization and storage into *Vliet*'s mobile fuel delivery system (modified by *AFD*) would merely involve combining prior art elements according to known methods to yield predictable results. *Id.*

2. Claim 2

Figure 1 of *Lowrie* illustrates the claimed arrangement in "mobile tanker 100":

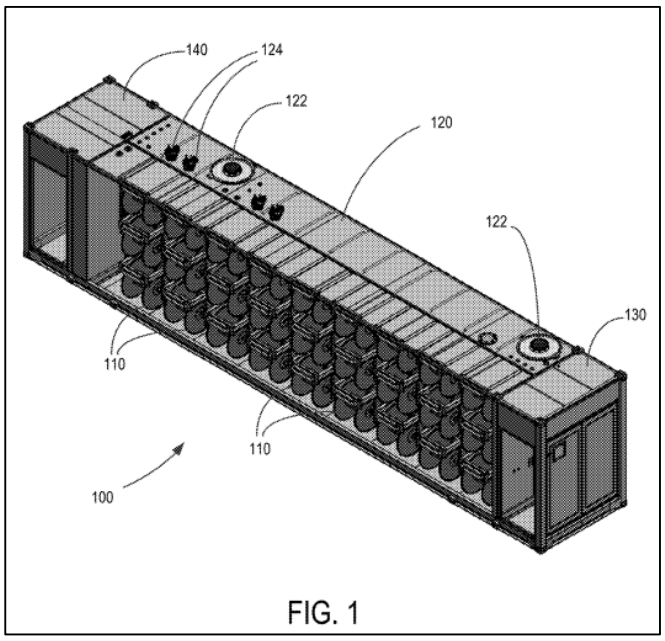
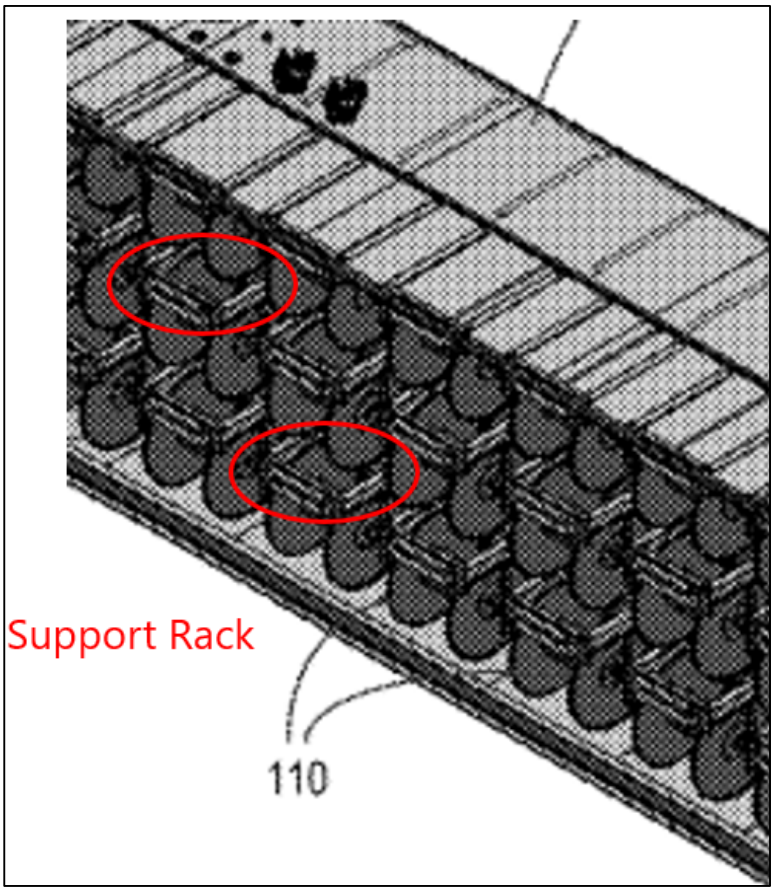


FIG. 1

EX1006, FIG. 1, [0033]; EX1013, FIG. 1 & 5:9-14. As shown, *Lowrie* teaches multiple rows of reels with hoses 110. EX1006, [0037] ("Each refueling hose 110 may be wound on a reel for storage, and pulled out for dispensing fuel…."); EX1013, 6:13-16. A POSITA would have understood that *Lowrie*'s teaching of multiple rows of reels, resulting an upper and lower row of reels, combined with *AFD*'s teaching of reels and hoses arranged on opposing sides of a trailer, teaches the limitations of claim 2. EX1003, ¶¶312-313.

3. Claim 3

A support rack is depicted in FIG. 1:



EX1006, FIG. 1 (excerpted, annotated); EX1013, FIG. 1 (same). A POSITA would have understood that *Lowrie*'s teaching of multiple rows of reels require a support structure (*i.e.*, the claimed support rack) and thus—combined with *AFD*'s teaching of reels and hoses arranged on opposing sides of a trailer—teaches the limitation as claimed. EX1003, ¶¶315-316.

Alternatively, to the extent that *Lowrie* does not disclose a support rack to support its multiple rows of reels, a POSITA would have recognized that a rack is a common, well-known means of supporting rows of reels. EX1003, ¶¶316-317. A POSITA would have been motivated to modify *Lowrie* to include a support rack to

effectuate *Lowrie*'s teaching using multiple rows of reels. *Id.* Further, a POSITA would have a reasonable expectation of success in implementing a support rack in this way because it would merely involve the use of well-known components in a conventional way. *Id.*

4. Claim 6

Figure 1 of *Lowrie* shows an equal number of reels in the top and bottom rows—resulting in a 1:1 ratio.

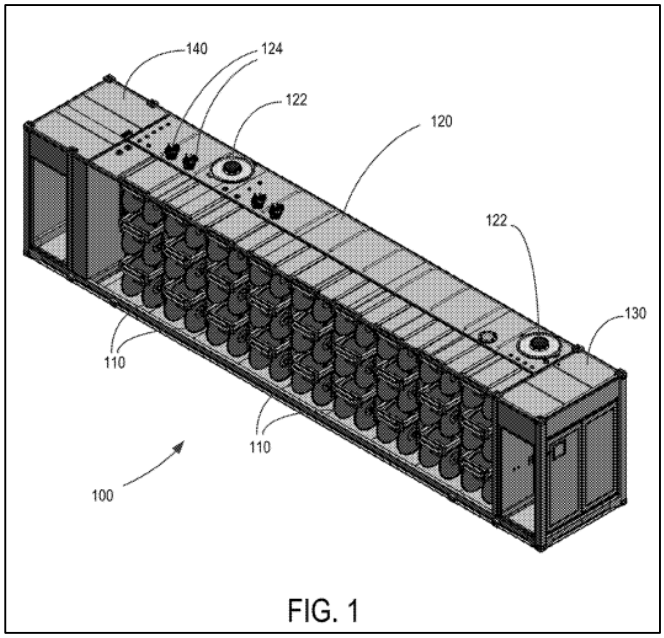


FIG. 1

EX1006, FIG. 1; EX1013, FIG. 1; EX1003, ¶318.

5. Claim 19

See supra §VII.F.2; EX1003, ¶319.

G. Ground 7: Claims 4, 5, 20, and 21 are rendered obvious by *Vliet* in view of *AFD*, *Lowrie* and *Coxreels*

1. Rationale and motivation for combining *Vliet, AFD*, and *Lowrie* with *Coxreels*

A POSITA would have been motivated to combine *Coxreels* with *Vliet*, *AFD*, and *Lowrie*. EX1003, ¶320. For example, *Coxreels* is in the same field of endeavor as *Vliet*, *AFD*, *Lowrie* and the '805 Patent and is directed to solving the same problem—distribution of hydrocarbon liquids. *Id*. *Coxreels* is therefore analogous art to those references and the '805 Patent.

A POSITA would have been motivated to use *Coxreels*' reel in the system of *Vliet* (modified by *AFD* and *Lowrie*), for the same reasons discussed in §VII.D.1, *supra*. A POSITA also would have had a reasonable expectation of success in combining *Coxreels* with *Vliet* (modified by *AFD* and *Lowrie*) for the same reasons discussed in §VII.D.1, *supra*; EX1003, ¶¶321-324.

2. Claims 4 and 20

As discussed with regard to claim 1[h], *AFD* teaches or renders obvious a trailer with an aisle walkway down the middle to allow access to reels. Because a human operates the manual shut-off valves in the combined system as taught by *Vliet*, applicable safety standards would have required an exit path that is at least 28 inches wide at all points. *See* EX1003, ¶325; EX1031, §1910.36(g)(2); *see also* EX1007 ("The self-contained unit has been built to meet and exceed fire code and

hazardous location standards…."). *Coxreels* teaches a reel with a 17-and-5/8" diameter. *See* EX1008. Thus, the *Vliet-AFD* system using *Coxreels*' 1125 Series reel described in EX1008 would have a ratio between the walkway and the reel diameter of 1.588 (28" ÷ 17.625"), which falls within the claimed range (at least 1.3). EX1003, ¶¶325-326, 328.

3. Claims 5 and 21

Vliet discloses a commercially-available trailer that was 96 inches wide, and the maximum width of a vehicle on many roads in the U.S. was 96 inches. *See supra* §VII.A.6; EX1003, ¶¶327, 329. It would have been obvious to a POSITA to design a trailer in *Vliet* or *AFD* having a trailer width of no greater than that limit. *Id.*

H. Ground 8: Claims 11 and 12 are rendered obvious by *Vliet* in view of *AFD* and *Coxreels*

1. Rationale and motivation for combining *Vliet*, and *AFD* with *Coxreels*

The rationale and motivation for combining *Vliet* with *AFD* and *Coxreels* and expectation of success for that combination are the same as discussed for Ground 7 and is incorporated herein. *See supra* §VII.G.1; EX1003, ¶330.

2. Claim 11

See supra §VII.D.2; EX1003, ¶¶331-332.

3. Claim 12

See supra. §VII.D.3; EX1003, ¶333.

VIII. SECONDARY CONSIDERATIONS

Patent Owner has not identified any evidence of secondary considerations of non-obviousness tied to the '805 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).

IX. CONCLUSION

Petitioners request that IPR of the '805 Patent be instituted and that Claims 1-22 be cancelled under 35 U.S.C. §318(b).

Respectfully submitted,

BAKER BOTTS L.L.P.

/Elizabeth Durham Flannery/

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

Date: August 07, 2023

X. APPENDIX: CLAIM LIMITATIONS

Claim Element	Claim Language from '805 Patent
1(pre)	A distribution station comprising:
1(a)	a mobile trailer;
1(b)	a pump on the mobile trailer;
1(c)	first and second manifolds on the mobile trailer and fluidly connected with the pump;
1(d)	a plurality of reels on the mobile trailer;
1(e)	a plurality of hoses connected, respectively, with the reels;
1(f)	a plurality of valves on the mobile trailer, each of the valves situated between one of the first or second manifolds and a respective different one of the hoses;
1(g)	a plurality of fluid level sensors, each of the fluid level sensors being associated a respective different one of the hoses;
1(h)	wherein the reels are arranged on first and second opposed sides in the mobile trailer, with an aisle walkway down the middle of the mobile trailer.
2	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.
3	The distribution station as recited in claim 2, further comprising first and second support racks on which the reels are supported, the first support rack arranged on the first side and the second support rack arranged on the second side.

Claim Element	Claim Language from ’805 Patent
4	The distribution station as recited in claim 3, wherein the aisle walkway has an aisle width and the reels have a reel diameter, and the aisle width is greater than the reel diameter by a factor of at least 1.3.
5	The distribution station as recited in claim 4, wherein the trailer has a trailer width of no greater than about 96 inches.
6	The distribution station as recited in claim 2, wherein a ratio of a number of reels in the upper row to a number of reels in the lower row is 1:1.
7	The distribution station as recited in claim 1, wherein the mobile trailer includes trailer end wall that has an outside door, an inside wall that defines first and second compartments in the mobile trailer, the outside door opening into the first compartment, and at least the manifolds and the reels are in the first compartment.
8	The distribution station as recited in claim 7, wherein the inside wall includes an inside door providing access between the first compartment and the second compartment, the aisle walkway extending from the outside door to the inside door.
9	The distributions station as recited in claim 7, further comprising a controller in the second compartment, the controller configured to operate the valves.
10	The distribution station as recited in claim 9, wherein the second compartment is insulated with a fire resistant or retardant material.
11	The distribution station as recited in claim 1, wherein the aisle walkway has an aisle width and the reels have a reel diameter, and the aisle width is greater than the reel diameter by a factor of at least 1.3.

Claim Element	Claim Language from ’805 Patent
12	The distribution station as recited in claim 11, wherein the aisle width is greater than the reel diameter by a factor of at least 1.5.
13	The distribution station as recited in claim 1, wherein the aisle walkway has an aisle width and the mobile trailer has a trailer width, and a ratio of the trailer width to the aisle width is no greater than 5.
14	The distribution station as recited in claim 13, wherein the ratio of the trailer width to the aisle width is greater than 2.
15	The distribution station as recited in claim 1, wherein the ratio of the trailer width to the aisle width is equal to or less than 4.
16	The distribution station as recited in claim 1, further comprising a floor pan in the mobile trailer.
17(pre)	A distribution station comprising:
17(a)	a mobile trailer,
17(b)	a pump on the mobile trailer,
17(c)	first and second manifolds on the mobile trailer and fluidly connected with the pump,
17(d)	a plurality of reels on the mobile trailer,
17(e)	a plurality of hoses connected, respectively, with the reels, wherein a portion of the reels are connected with the first manifold and another portion of the reels are connected with the second manifold;
17(f)	a plurality of valves on the mobile trailer, each of the valves situated between one of the first or second manifolds and a respective different one of the hoses;

Claim Element	Claim Language from ’805 Patent
17(g)	a plurality of fluid level sensors, each of the fluid level sensors being associated a respective different one of the hoses;
17(h)	wherein the mobile trailer includes first and second opposed trailer side walls, and a first group of the hoses are deployable from the first trailer side wall and a second group of the hoses are deployable from the second trailer side wall.
18	The distribution station as recited in claim 17, wherein the reels are arranged on first and second opposed sides in the mobile trailer such that there is an aisle walkway down the middle of the trailer.
19	The distribution station as recited in claim 18, wherein the reels on each of the first and second opposed sides are arranged in upper and lower rows of reels.
20	The distribution station as recited in claim 19, wherein the aisle walkway has an aisle width and the reels have a reel diameter, and the aisle width is greater than the reel diameter by a factor of at least 1.3.
21	The distribution station as recited in claim 20, wherein the mobile trailer has a trailer width of no greater than about 96 inches.
22	The distribution station as recited in claim 17, further comprising a floor pan in the mobile trailer.

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 13,849 words using Microsoft® Word's word count function 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

Date: August 07, 2023

CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on the 7th of August 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 '805 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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