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Paper 71
Date: January 27, 2025

NON-PUBLIC VERSION—PROTECTIVE ORDER MATERIAL

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BAZOOKA-FARMSTAR, LLC,
Petitioner,

v.

NUHN INDUSTRIES LTD.,
Patent Owner.

IPR2023-01161
Patent 11,358,425 C1

Before MEREDITH C. PETRAVICK, MATTHEW S. MEYERS, and BRENT M. DOUGAL, *Administrative Patent Judges.*

DOUGAL, *Administrative Patent Judge*.

JUDGMENT
Determining All Challenged Claims Unpatentable
Denying Patent Owner's Motion to Amend
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background and Summary

Petitioner, Bazooka-Farmstar, LLC, filed a Petition to institute an *inter partes* review challenging the patentability of claims 1–21 (the "challenged claims") of U.S. Patent 11,358,425 C1 (Ex. 1001, "the '425 patent"). Paper 1 ("Pet."). Patent Owner, Nuhn Industries LTD., filed a Preliminary Response.[1] Paper 6 ("Prelim. Resp."). Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review of all challenged claims. Paper 12 ("Dec.").

Patent Owner filed a Corrected Response (Papers 26 (redacted), 27 (sealed) "PO Resp."), Petitioner filed a Reply (Papers 41 (sealed), 42 (redacted) "Reply"), and Patent Owner filed a Sur-reply (Paper 49, "Sur-reply").

Patent Owner also filed a Conditional Motion to Amend. Paper 18, ("Motion" or "MTA."). The Motion requests that if any of claims 1–21 be found unpatentable, they should be replaced by substitute claims 22–42 ("proposed substitute claims" or "proposed claims"). MTA 1–2, Claims App. Petitioner filed an Opposition to the Motion. Paper 36 ("Opposition" or "Opp."). We issued Preliminary Guidance (Paper 39, "PG") on the Motion, which indicated, based on the record at that time, that Petitioner demonstrated a reasonable likelihood that the proposed substitute claims were unpatentable. *Id.* at 5.

Subsequent to the Preliminary Guidance, Patent Owner filed a Reply to the Opposition to the Motion (Paper 40, "PO MTA Reply"), and

[1] Petitioner also filed a Preliminary Reply (Paper 7) and Patent Owner filed a Preliminary Sur-reply (Paper 9).

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Petitioner filed a Sur-reply (Papers 51 (sealed), 52 (redacted), "Pet. MTA Sur-reply"). An oral hearing was held on October 11, 2024, and a copy of the transcript is in the record. Paper 69 ("Tr.").

Both parties also filed Motions to Exclude Evidence (Papers 53–55), which we address at the end of this Decision.

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the challenged claims. Having reviewed the arguments and supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence, that claims 1–21 are unpatentable. We further determine that Petitioner has established by a preponderance of the evidence that proposed substitute claims 22–42 are unpatentable.

B. Related Matters

The parties identify the following pending district court litigations as involving the '425 patent: *Nuhn Industries Ltd. v. Bazooka Farmstar, LLC*, No. 3:22-cv-00015-SMR (S.D. IA); and *Nuhn Industries Ltd. v. Atlas Ag Services, LLC*, No. 1:23-cv-368-JLS (W.D. NY). Pet. 1; Paper 10, 2.

C. The '425 Patent

The '425 patent is entitled, "Amphibious Pumping Vehicle," and is directed to "to manure pumps and amphibious vehicles equipped for pumping liquid manure, such as animal manure contained in a farm lagoon." Ex. 1001, code (54), 1: 26–30[2]. Figure 1, reproduced below, shows an embodiment of one such vehicle.

[2] In the *Ex Parte* Reexamination Certificate there is a second column one and two. We refer herein to the first column one and two, i.e., page 10 of Ex. 1001.

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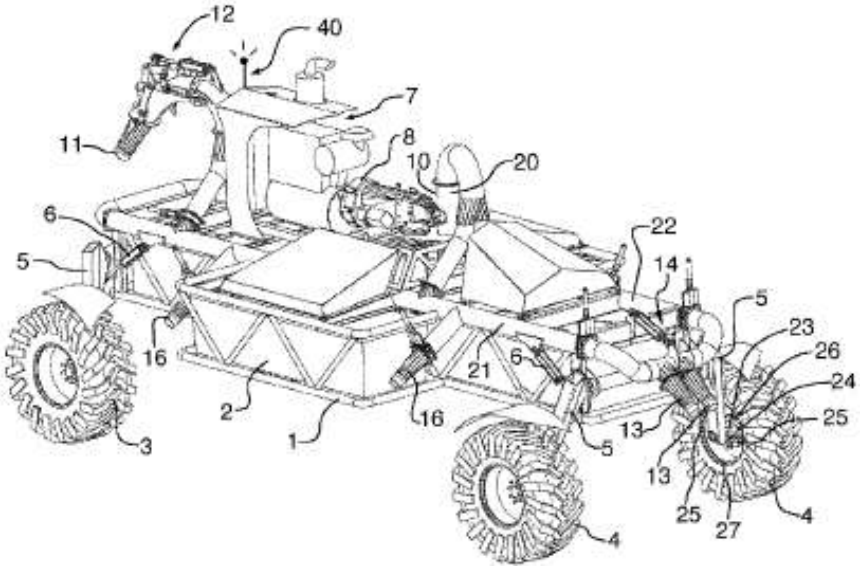

Figure 1 illustrates an amphibious vehicle with the following main components: a buoyant vehicle body (1, 2), a ground engaging propulsion structure of two sets of wheels (3, 4), a power source (7) such as an engine, a plurality of nozzles (11, 13, 16), and a remote control structure (40). *Id.* at 5:26–27, 5:36–38, 5:49, 5:53–54, 5:59–60, 7:55–57. The vehicle also includes a fluid pump which is fluidly connected to the nozzles, and a valve used to control flow of fluid from the pump to the nozzles. *Id.* at 5:42–48, 5:63–67.

The ’425 patent discusses using the vehicle in a large manure pit or lagoon to break up the crust that develops on top of the pit or lagoon “prior to removal [of the manure] for land application or further processing.” *Id.* at 1:33–38, 1:45–49, 8:18–20. This is done by remotely driving the vehicle into and through the lagoon over remote control; first using the wheels, and then when floating, using fluid flow through the various nozzles. *Id.* at 8:5–14. “Once the vehicle is in the desired position, the valves associated with the first fluid nozzle are opened and” this nozzle can be controlled “so that the fluid is sprayed widely to break crusts of material floating on the surface of the lagoon. *Id.* at 8:14–21. In this manner, fluid is recirculated and directed

to desired locations in the lagoon." *Id.* The manure can then be removed from the lagoon. *Id.* at 21–23.

D. Illustrative Claim

Of the challenged claims, claim 1 is the sole independent:

> 1. An amphibious vehicle comprising:
>
> a floatable vehicle body;
>
> ground engaging propulsion structure comprising a plurality of ground engaging elements powered by a hydraulic motor;
>
> a fluid pump for pumping liquid manure;
>
> a power source connected to a hydraulic pump, the power source configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,
>
> a wireless remote control configured to enable an operator who is remote from the vehicle to: (1) control the ground engaging propulsion structure; (2) control a flow of liquid manure from the fluid pump; (3) control at least one of the speed and direction of the vehicle when the vehicle is ground engaging; and, (4) control at least one of the speed and direction of the vehicle when the vehicle is floating.

Ex. 1001, 8:36–52.

E. Evidence

Petitioner's grounds of unpatentability of the challenged claims rely on the following patents and printed publications:

Name	Patent Document	Exhibit
Carrier	US 2012/0185129 A1 (July 19, 2012)	1005
Yoon	KR 10-2013-0016490 (Feb. 18, 2013)	1010/1011[3]
Puck	US 2014/0112093 A1 (Apr. 24, 2014)	1014
Bryham	US 7,314,395 B1 (Jan. 1, 2008)	1015
Bennett-II	US 2021/0331752 A1 (Oct. 28, 2021)	1017

[3] English language translation.

Name	Non-Patent Document	Exhibit
Truxor	Dorotea Mekaniska AB, Truxor Amphibian Tool Carrier	1006
SenwaTec	SenwaTec, Schröer Environment and Water Technology, Light Amphibious Boat/Vehicle "Amphi-King®" SWT-AB380	1012
Lyseng	Ron Lyseng, *Float your boat in a slurry moat*, THE WESTERN PRODUCER (Aug. 29, 2013)	1019[4]

F. Asserted Grounds

Petitioner asserts the following grounds of unpatentability of the challenged claims (Pet. 36–38), supported by the declarations of Eric Winkel, Ph.D., P.E. (Exs. 1004, 1112):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–21	102	Carrier
1–21	103	Puck, Bryham
1–21	103	Puck, Bryham, Bennett II
1–7, 12–19	103	Truxor, Yoon
1–7, 12–19	103	Truxor, Carrier
1–7, 12–19	103	SenwaTec, Yoon
1–7, 12–19	103	SenwaTec, Carrier
1–21	103	Lyseng

II. PATENTABILITY OF CHALLENGED CLAIMS

A. Legal Standards

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

[4] The Petition incorrectly lists Lyseng as Exhibit 1017. Pet. 38.

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). Moreover, "[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements 'arranged as in the claim.'" *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). Whether a reference anticipates is assessed from the perspective of an ordinarily skilled artisan. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) ("'[T]he dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference's] teaching' that every claim element was disclosed in that single reference.").

A claim is unpatentable as obvious under 35 U.S.C. 103 if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of obviousness or nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition's challenges.

B. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention ("POSA" or "POSITA"). *Id.* at 13, 17. In assessing the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986)). "In a given case, every factor may not be present, and one or more factors may predominate." *Id.*

Petitioner asserts that a person of ordinary skill in the art

> had a bachelor's degree in mechanical engineering or similar field, and two years of professional experience in marine and off-road vehicles. A POSA would have had a working knowledge of fluid pumps and livestock manure. Lack of work experience can be remedied by additional education, and vice versa.

Pet. 31 (citing Ex. 1004 ¶ 82).

Patent Owner disagrees, arguing that a person of ordinary skill in the art is

> a livestock farmer or commercial manure applicator familiar with manure agitation equipment or an engineer with at least 2 years of experience designing agricultural equipment and knowledge of manure agitation equipment.

PO Resp. 13 (quoting Ex. 2004 ¶ 63) (emphasis omitted). In support, Patent Owner identifies problems encountered in the art and prior art solutions to those problems. *Id.* at 12–14.

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Patent Owner notes that the ’425 patent “repeatably mentions farming, manure, and the problems encountered when storing animal manure in farm lagoons or pits.” *Id.* at 12; *see also e.g.*, Ex. 1001, 1:33–52. Patent Owner also notes that prior art solutions “included design changes to pumps and floating barges.” PO Resp. 12 (citing US Patent 8,944,752; Ex. 1014).

Petitioner does not directly address Patent Owner’s evidence. Though Petitioner does argue, and we agree, that a working “knowledge of livestock manure . . . includes knowledge of how it is stored.” Reply 4 (citing Ex. 1112 ¶ 32). We determine that this includes knowledge of storing animal manure in farm lagoons or pits.

We determine that Petitioner’s level of skill most closely aligns with the problems and solutions in the ’425 patent and prior art of record. For example, Petitioner’s definition allows for those most familiar with manure agitation equipment – livestock farmers and commercial manure applicators – through the definition’s statement that “[a] POSA would have had a working knowledge of fluid pumps and livestock manure” and that “[l]ack of work experience can be remedied by additional education, and vice versa.” This aligns with the ’425 patent’s focus on farming, manure, and the problems encountered when storing animal manure in farm lagoons or pits. *See e.g.*, Ex. 1001, 1:33–52.

Petitioner’s definition is also not limited to those with agricultural experience. This is consistent with the ’425 patent’s claims being directed to “[a]n amphibious vehicle,” and the technical field which broadly states that the ’425 patent relates to “vehicles equipped for pumping.” *Id.* at 1:25–27; 8:36.

At the same time, Petitioner’s attempt to limit a POSA’s professional experience to solely “marine and off-road vehicles” conflicts with these

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broader statements and is inconsistent with the teachings of the ’425 patent. This can be seen in Petitioner’s Motion to Exclude (Papers 53 (sealed), 54 (public)). We preliminarily held that Petitioner’s definition “allows for those most familiar with manure agitation equipment” similar to our finding above. Dec. 9. However, Petitioner argues that it does not and is limited to those with two years of “professional experience with marine vehicles.” Paper 53, 4. This is inconsistent with the teachings of the ’425 patent[5]. Rather, we determine that a POSA’s professional experience is not limited to marine and off-road vehicles, but would also include agricultural vehicles and machinery. *See e.g.*, Ex. 1001, 1:25–52 (discussing the agricultural background of the invention); Ex. 1014 ¶¶ 1–10 (Puck discussing the agricultural background of its invention; *id.* ¶ 4 (“Prior art methods of agitating the manure include attaching a shaft with a propeller or auger to the power takeoff of a tractor or other farm vehicle resting on the shore.”); Exs. 1088–1089 (Manure Manager publications provide extensive evidence of the use of agricultural machinery).

Thus, for these reasons, we adopt Petitioner’s level of skill in the art as modified below:

> a person of ordinary skill in the art had a bachelor’s degree in mechanical engineering or similar field, and two years of professional experience in marine and off-road vehicles or agricultural vehicles and machinery. A POSA would have had a working knowledge of fluid pumps and livestock manure. Lack

[5] According to Ex. 2080, Ian Nuhn, the inventor of the ’425 patent, did not have an engineering degree at the time of invention, but was experienced with agricultural manure agitation machinery. There is no cited evidence that he has two years professional experience with marine vehicles either. Thus, it is possible that the inventor would not be considered a POSA under Petitioner’s rigid view of the level of skill in the art.

of work experience can be remedied by additional education, and vice versa.

C. Claim Construction

In *inter partes* review, we construe claims using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2022).

In our below analysis, we only address the claim construction arguments necessary to resolve the present dispute. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

1. "For Pumping Liquid Manure" and "To Control a Flow of Liquid Manure"

Claim 1 recites "an amphibious vehicle" having "a fluid pump for pumping liquid manure" and "a wireless remote control configured to enable an operator . . . to: . . . (2) control a flow of liquid manure from the fluid pump." Ex. 1001, 8:39, 8:45–48.

In our Institution Decision, we preliminarily determined that "for pumping liquid manure" and "to control a flow of liquid manure" should be construed as functional limitations. Dec. 12. As "both parties agree that liquid manure includes suspended solids" (*id.* (citing Pet. 34–35 (citing Ex. 1004 ¶¶ 90–92; Ex. 1066, 89); Prelim. Resp. 28 (citing Ex. 2004 ¶ 82)), we

determined "that pumping liquid manure requires a pump with a structure that is capable of pumping liquid with suspended solids" (*id.*).

Both parties agree with our initial construction, but do not define the exact structure required to pump liquid with suspended solids. PO Resp. 14–16; Reply 5–7. Given the record evidence, this is understandable as there are many different types of pumps, with differing characteristics used to pump liquid manure. *See e.g.*, Ex. 1040, 52 ("Liquid Manure Application Systems Design Manual," Table 3.2 showing characteristics of ten different pump types that can be used to pump liquid manure including solid content under different circumstances); Ex. 1054, 76 ("Livestock Waste Facilities Handbook," Table 8-1 Waste handling pumps). At the same time, we determine that it is not necessary to determine what specific structure(s) is required to pump liquid with suspended solids in order to resolve the below disputes.

Patent Owner also argues that we should go further and determine that the pump must actually be used to pump liquid manure. PO Resp. 16–17. This is because, according to Patent Owner:

> During reexamination of [a related] Patent, the Patent Owner attempted to add a claim reciting "a fluid pump configured to pump liquid manure." Critically, the CRU [(Central Reexamination Unit)] rejected the claim under 35 U.S.C. § 305 as enlarging the scope of the claims, stating that the "configured to" language was broader than the original "for pumping" language.

Id. at 17 (citing Ex. 1037, 26, 38).

We need not reassess the work of the CRU and determine which language is broader. Rather, as agreed by the parties, we simply construe the claim to include a functional limitation. "'Functional' terminology may render a claim quite broad. By its own literal terms, a claim employing such

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language covers any and all embodiments which perform the recited function." *In re Swinehart*, 439 F.2d 210, 213 (CCPA 1971).

In view of the above, we determine that "for pumping liquid manure" and "to control a flow of liquid manure" requires a pump with structure capable of pumping liquid with suspended solids.

2. Fluid Mover

Claims 7 and 19 both recite "wherein the at least one of speed and direction of the vehicle when the vehicle is floating is controlled by a fluid mover." Ex. 1001, 8:63–65, 10:10–12.

Patent Owner argues that '"fluid mover' refers to any component or system capable of moving fluid, which may be a wide variety of different structures." PO Resp. 18 (citing Ex. 2029 ¶ 115). For this reason, Patent Owner argues that "fluid mover" is a means-plus-function limitation under 35 U.S.C. §112(f). PO Resp. 18. Petitioner does not contest the issue of whether "fluid mover" is a means plus function limitation. *See* Reply 8.

The statute states:

> An element in a claim . . . may be expressed as a means or step for performing a specified function without the recital of structure . . . , and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. §112(f).

Patent Owner correctly argues that the function is defined by the claims as "to control 'at least one of the speed and direction of the vehicle when the vehicle is floating.'" PO Resp. 18–19 (quoting Ex. 1001, 5:63–6:8). This is also not contested by Petitioner. *See* Reply 8.

The parties do disagree as to the corresponding structure. Patent Owner argues that the structure in the '425 Patent is "the valves 15 and the

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plurality of fluid nozzles" (*id.* at 18–19 (citing Ex. 1001, 5:63–6:8)) while Petitioner argues that the structure "should be a '*pump, conduit, and nozzle*"' (Reply 8 (citing Ex. 1001, 5:42–48, 6:16–18).

As laid out by Patent Owner, the '425 Patent primarily discusses the valves and fluid nozzles as performing the function of controlling the speed and direction of the vehicle when the vehicle is floating. Ex. 1001, 5:63–6:8. However, the '425 Patent also states that these controls can be *enhanced* with the flow rate control of the fluid pump. *Id.* at 6:16–18.

Thus, at a minimum, the corresponding structure includes the valves and fluid nozzles. *See id.* at 5:63–6:8. However, in order to resolve the dispute between the parties it is unnecessary to determine whether a pump and conduit are further required structure. As explained below, the cited prior art teaches the corresponding structure of either construction.

D. 35 U.S.C. 102 – Carrier

Petitioner argues that Carrier anticipates claims 1–21. Pet. 39–47. Patent Owner disagrees. PO Resp. 19–30. In our analysis below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–21 are unpatentable over Carrier.

1. Carrier

Carrier is titled "All-Terrain Hostile Environment Vehicle." Ex. 1005, code (54). One embodiment of the vehicle is shown in Figure 1, reproduced below.

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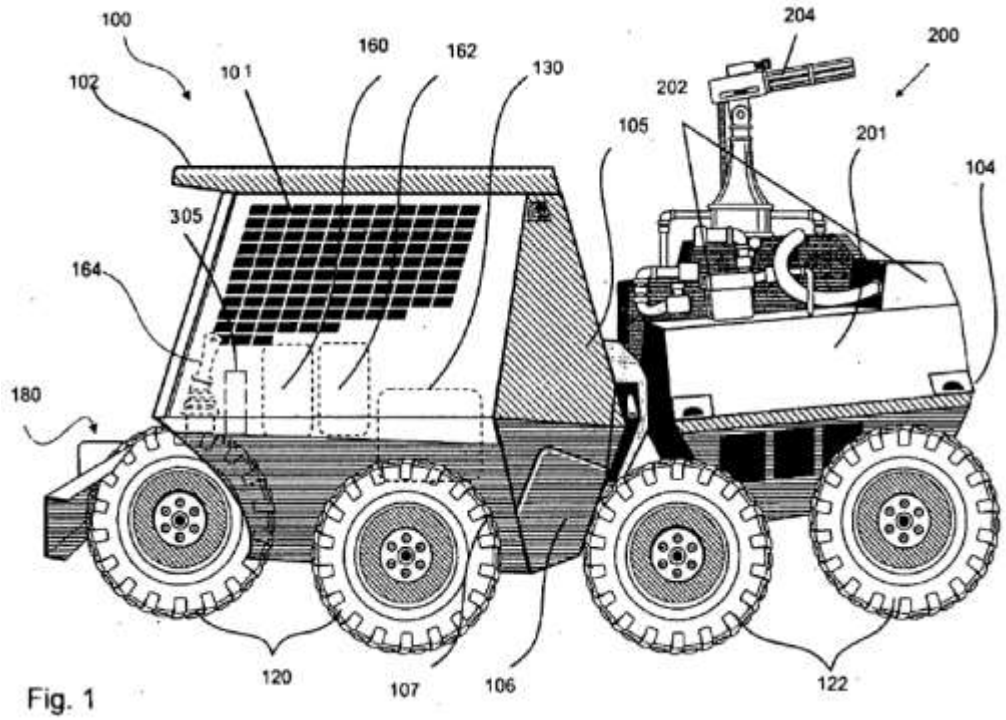

Fig. 1

Carrier Figure 1 shows a wheeled vehicle with a two-part chassis. *Id.* ¶ 39. The vehicle is shown with firefighting equipment (200) including a pump (202), hoses, and nozzles (204). *Id.* ¶¶ 50–52. The vehicle and water cannon can be operated through wired or wireless connection. *Id.* ¶¶ 59, 64–65.

2. Claim 1

Petitioner argues that Carrier anticipates independent claim 1. Pet. 39–47. Patent Owner disagrees. PO Resp. 19–30. We first address the uncontested limitations.

a) Uncontested Limitations

Claim 1 includes:

1. An amphibious vehicle comprising:

a floatable vehicle body;

ground engaging propulsion structure comprising a plurality of ground engaging elements powered by a hydraulic motor;

> a fluid pump . . . ;
>
> a power source connected to a hydraulic pump, the power source configured to provide power to both the ground engaging propulsion structure and the fluid pump.

Ex. 1001, 8:36–44.

The Petition correctly identifies Carrier as teaching "an all-terrain vehicle equipped to 'facilitate amphibious operations'" with a "floating vehicle hull." Pet. 39 (citing Ex. 1005 ¶¶ 26, 79). Further, the Petition cites Carrier as teaching "the vehicle may include 'preferably eight wheels' that are driven by hydraulic motors." *Id.* at 40 (citing Ex. 1005 ¶¶ 45, 54).

Petitioner further correctly argues that

> Carrier teaches an engine connected to and powering a hydraulic pump. EX1005, ¶[0039] (The "hydraulic pump … [is] operably connected to an engine 130."). The power source, through the hydraulic system, powers the wheel motors. *Id.*, (The "wheel motors … are operably connected [to] a … hydraulic pump."). The fluid pump is "powered by the vehicle engine 130 through stacked hydrostatic PTO (Power Take Off)." *Id.*, ¶[0051].

Pet 42.

None of these teachings are contested by Patent Owner. *See generally*, PO Resp. 19–30.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that Carrier teaches these claim limitations.

b) A Fluid Pump for Pumping Liquid Manure

Claim 1 includes: "a fluid pump for pumping liquid manure." Ex. 1001, 8:41.

Petitioner correctly notes that "Carrier teaches an amphibious vehicle including a fluid pump," and that "[t]he pumping system is configured to

pump water from lakes, ponds, or streams and can pump water, foam, dry chemicals, and decontamination solutions." Pet. 40 (citing Ex. 1005 ¶¶ 50–52, 63). Patent Owner does not contest these teachings of Carrier. *See generally,* PO Resp. 19–30.

In the Petition, Petitioner focused on its argument that liquid manure is similar to water to argue that Carrier's pump is capable of pumping liquid manure. Pet. 40. In the Institution Decision, and in view of our preliminary claim construction ("pumping liquid manure requires a pump with a structure that is capable of pumping liquid with suspended solids") (Dec. 12), we determined that the question of whether the Carrier water pump is capable of pumping liquid manure was best left for trial after further development of the record (*id.* at 27).

In response, Petitioner provides evidence that the firefighting water pump disclosed in Carrier is capable of pumping liquid manure (i.e., liquid with suspended solids). Reply 9. Petitioner provides the testimony of "Mr. Puck, the inventor of EX1014, . . . that high-volume firefighting pumps [of the type disclosed in Carrier] can pump liquid manure." *Id.* (citing Ex. 1114 ¶ 6). Mr. Puck testifies that "[s]uch pumps are . . . capable of pumping liquid manure (mixtures of water and animal waste with a total solid content of less than about 5%). Such pumps could also pump mixtures of water and animal waste with even higher solid contents." Ex. 1114 ¶ 6.

Petitioner's declarant, Dr. Winkel, similarly testifies that "a POSA would have understood that the Carrier pump necessarily pumps liquid with suspended solids." Ex. 1112 ¶ 61; *see also* Reply 9–10. Dr. Winkel explains that

> A POSA would have understood that Carrier would be used in environments where the pump would need to handle fluid

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> containing debris and other suspended solids. A POSA would also have understood that in order to function in lakes, ponds, and rivers, and draw fluids from these bodies of water, the Carrier pump would need to handle fluids laden with stones, clay, mud, sand, muck, vegetation, and other potential debris or even biological life. If the fluid pump of Carrier were incapable of pumping fluid containing some suspended solids, it would not be capable of pumping water from lakes, ponds, or streams.

Ex. 1112 ¶ 61.

Petitioner also offers the testimony of Mr. Sundstrom, which is essentially seconded by Dr. Winkel, that water and irrigation pumps of the type in Carrier can pump liquid manure. Ex. 1115 ¶ 15; Ex. 1112 ¶ 62; *see also* Reply 9–10.

Petitioner also argues that "POSAs would have understood Carrier's disclosure of high-volume firefighting pumps refer to centrifugal or positive displacement pumps," which were "used to pump liquid manure." Reply 10 (citing Ex. 1112 ¶¶ 63–65 (Dr. Winkel discussing centrifugal or positive displacement pumps in Ex. 1113 "USDA Forest Service Wildland Fire Engine Guide" and centrifugal or positive displacement pumps in the liquid manure guides in Ex. 1040, 51–52 and Ex. 1054, 76–77).

As summarized above, Petitioner provides extensive evidence which shows that the firefighting water pump disclosed in Carrier is capable of pumping liquid manure.

In response, Patent Owner argues, without citation to legal support, that "capable of" pumping liquid manure requires specifically "designed to," "advertised and sold as," or "tested and validated." PO Sur-reply 10. This argument does not stand up to scrutiny. The Federal Circuit has explained that "[i]t is well settled that the recitation of a new intended use for an old product does not make a claim to that old product patentable." *In re*

Schreiber, 128 F.3d 1473, 1477 (Fed. Cir. 1997). Thus, there is no requirement that the old product be "designed to," "advertised and sold as," or "tested and validated," as argued by Patent Owner.

Patent Owner also argues that "capable of" pumping liquid manure requires the Carrier pump have "substantially the same structure as the example provided in the '425 Patent." PO Sur-reply 10. Patent Owner seems to be implying that "for pumping liquid manure" is a means-plus-function limitation. We decline to address this undeveloped argument.[6]

Patent Owner also argues that Carrier discloses a screen that can get clogged when used in liquid manure pumping applications. *Id.* at 10–11; PO Resp. 19–20. However, Carrier discloses that the screen is optional (Ex. 1005 ¶ 63) and Petitioner does not rely on the screen in its proposed ground of unpatentability (Pet. 39–47). Thus, this argument does not address the ground before us.

Patent Owner also argues that liquid manure is highly corrosive. PO Sur-reply 11. Patent Owner argues that Petitioner should have provided evidence that Carrier's pump "could withstand the corrosiveness of liquid manure." *Id.* We decline to address this late argument.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that Carrier teaches a fluid pump capable of pumping liquid manure, and therefore teaches the noted claim limitation.

[6] The Board does not guess or presume a party's position or argument when that party provides a bare assertion without explanation or discussion.

c) Wireless Remote Control

Claim 1 includes:

> a wireless remote control configured to enable an operator who is remote from the vehicle to: (1) control the ground engaging propulsion structure; (2) control a flow of liquid manure from the fluid pump; (3) control at least one of the speed and direction of the vehicle when the vehicle is ground engaging; and, (4) control at least one of the speed and direction of the vehicle when the vehicle is floating.

Ex. 1001, 8:45–52.

Patent Owner admits that Carrier teaches "remote control of its vehicle." PO Resp. 20 (citing Ex. 1005 ¶ 64). However, Patent Owner argues[7] that "Carrier does not disclose, within the four corners of the document, at a minimum, a wireless remote-control system that controls all of the functions recited in Claim 1." *Id.* We disagree.

As admitted by Patent Owner, Carrier teaches broadly that remote control can be used to control operation of the vehicle. Ex. 1005 ¶ 64. The Petition also relies on this teaching to show how Carrier anticipates the above wireless remote control limitations. *See* Pet. 42–43 (citing Ex. 1005 ¶ 64). The Petition also identifies that Carrier teaches remote control operation of "steering, braking, engine, [and] transmission" of the vehicle. *Id.* (quoting Ex. 1005 ¶ 65). The Petition identifies that Carrier teaches that the vehicle can be both ground engaging and floating. *Id.* (citing Ex. 1005 ¶¶ 58, 64–65, 79). The Petition also identifies that Carrier expressly teaches that the water cannon can be remote controlled. *Id.* at 43 (citing Ex. 1005 ¶

[7] Patent Owner also argues that this limitation is not taught by Carrier for the same reasons discussed and rejected above with respect to pumping liquid manure. PO Resp. 26.

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59). Thus, the Petition identifies how Carrier teaches all of the features of this claim limitation.

Patent Owner also argues that

> when the claim elements are considered together as a claimed combination it is clear that what is claimed is an amphibious vehicle that is specially adapted for the particular purpose of disrupting the crust and recirculating liquid manure in a manure lagoon, where the vehicle can drive into, out of, and navigate through the manure lagoon by wireless remote control.

PO Resp. 27.

This argument largely addresses features of the specification that are not in the claims. Claim 1 does not require "disrupting the crust and recirculating liquid manure in a manure lagoon" or "driv[ing] into, out of, and navigate through the manure lagoon." Even if it included some of this language, claim 1 is an apparatus claim and not a method claim, and thus would only require structure capable of performing those functions.

In view of the above evidence and argument, we determine that Petitioner has shown by a preponderance of the evidence that Carrier teaches the wireless remote control limitations.

d) Conclusion

In view of the evidence and argument, we determine that Petitioner has shown by a preponderance of the evidence that Carrier teaches Claim 1.

3. Claims 7, 19

Claims 7 and 19 recite "wherein the at least one of speed and direction of the vehicle when the vehicle is floating is controlled by a fluid mover." Ex. 1001, 8:63–65, 10:10–12.

Petitioner argues that "[t]he water cannon disclosed in Carrier could be used to propel the vehicle and control the speed and direction when

floating." Pet. 44; *see also id*. at 45 (citing Ex. 1005 ¶¶ 51, 58, 79; Ex. 1004 ¶¶ 231–233) (discussing how Carrier's pumps, hoses, and nozzles could be used to control the vehicle).

Patent Owner first presents two arguments not directed to the ground presented, that the water cannon could not be used 1) for controlling speed and direction when firefighting or 2) when removed from the vehicle. PO Resp. 28. The Petition does not rely on either of these scenarios and thus this argument does not address the presented ground.

Patent Owner then argues that "fluid mover" is a means-plus-function limitation and that:

> the structure associated with this means-plus-function limitation is the "valve(s) and fluid nozzle(s)" described in '425 Patent specification, which utilize proportional fluid flow to maneuver the vehicle. No equivalent structure is disclosed in Carrier.

Id.

As noted above, we agree that "fluid mover" is a means-plus-function limitation. *See supra* § II.C.2.

In response, Petitioner correctly identifies that "Carrier also discloses valves for controlling the pump's flow," which could be used for "controlling the vehicle's speed and direction when floating." Reply 11 (citing Ex. 1005 ¶ 51; Ex. 1112 ¶ 87). Carrier specifically teaches a "valve flow system" that can be used to control the pump systems. Ex. 1005 ¶ 51; *see also* Ex. 1112 ¶ 87. As noted above, the Petition also explains how Carrier's pumps, hoses, and nozzles could be used to control the vehicle. Pet. 45 (citing Ex. 1005 ¶¶ 51, 58, 79; Ex. 1004 ¶¶ 231–233). This initial discussion did not address Carrier's valves. But, in view of this supplemental discussion which is in direct response to Patent Owner's argument and claim construction, we determine that Petitioner identifies that Carrier teaches all

of the corresponding structure taught by the '425 patent under Patent Owner's means-plus-function construction (valve(s) and fluid nozzle(s)) or Petitioner's means-plus-function construction (pump, conduit, and nozzle).

Patent Owner then argues that: "It is not enough for the prior art to simply disclose the 112(f) structure. It must also disclose the identified structure performs the same function." Sur-reply 11.

However, the question here is one of anticipation of an apparatus. The claims are not method claims directed to a new way of using (function) an old device (structure). Patent Owner does not direct us to any case law that states that means-plus-function claims are treated differently from other the claims and would allow them to claim a method of use in an apparatus claim. Thus, we disagree with Patent Owner's premise.

After our review of the arguments and evidence cited above, we determine that Petitioner has shown by a preponderance of the evidence that Carrier anticipates claims 7 and 19.

4. Claims 8–11, 20–21

Claims 8, 10, and 20 all require "a plurality of fluid nozzles fluidly connected to the fluid pump." Ex. 1001, 8:66–67, 9:5–6, 10:13–14. Claims 9, 11, and 21 depend from claims 8, 10, and 20, respectively. The Petition correctly notes that Carrier teaches a plurality of nozzles 204 connected to the pump. *See e.g.*, Pet. 45 (citing Ex. 1005 ¶ 50, Fig. 1).

Patent Owner admits that Carrier teaches "multiple outlets," but argues that Carrier would be understood to produce "a singular jet of water" instead of multiple nozzles pointed in different directions. PO Resp. 29.

These claims do not require multiple nozzles pointed in different directions. Thus, Patent Owner's argument does not apply to these claims.

After our review of the arguments and evidence cited above, we determine that Petitioner has shown by a preponderance of the evidence that Carrier anticipates claims 8–11 and 20–21.

5. Claim 12

Claim 12 includes "wherein the power source is connected to the hydraulic pump by a mechanical drive and connected to the fluid pump by the mechanical drive." Ex. 1001, 9:11–13. Claims 13–21 depend from claim 12.

Concerning claim 12, the Petition argues that "Carrier discloses a mechanical connection between the diesel engine and hydraulic pump" in the form of a shaft transmitting power from the engine to the pump. Pet. 46 (citing Ex. 1005 ¶ 39). The Petition then argues that Carrier teaches "the fluid pump, 'can be powered by the vehicle engine 130 through stacked hydrostatic PTO (Power Take Off)'" which "is a mechanical drive between the fluid pump and the engine." *Id.* (citing Ex. 1005 ¶¶ 50–51; Ex. 1004 ¶ 241 (Petitioner's declarant making the same statement)). Petitioner later clarifies that "the hydrostatic PTO used to power the fluid pump from the engine comprises a mechanical drive shaft" and "[a] POSA would have understood this shaft to be a "mechanical drive." Reply 11 (citing Ex. 1112 ¶¶ 93–97).[8]

[8] Though this position with reference to Carrier is made clear in the Reply, a review of the Petition's discussion of PTOs and mechanical drives with respect to claim 12 makes clear that this is consistent with Petitioner's understanding in the Petition. *See e.g.*, Pet. 58 (citing Ex. 1004 ¶ 278 listing examples of mechanical drives as "a gearbox, transmission, and/or a drive shaft"), 59 (discussing fluid pumps with input and output shafts as being mechanical drives), 71 (same), 84 (discussing the splined shaft in Bryham's PTO and the input and output shafts in Puck's slurry pump as being mechanical drives).

Patent Owner argues that "a hydrostatic drive is a hydraulic drive system – not a mechanical drive as Claim 12 requires." Sur-reply 13 (citing Ex. 2029 ¶¶ 171–173 ()); *see also* PO Resp. 30. Patent Owner further argues that Petitioner is attempting to re-write the claim "to only require 'a mechanical drive shaft' as opposed to a 'mechanical drive' for the fluid pump." Sur-reply 13. Patent Owner argues that the '425 patent distinguishes between a hydraulic connection and a mechanical drive, when it states that "[t]he power source may be connected to the fluid pump hydraulically, electrically, or via a mechanical drive." *Id.* (quoting Ex 1001, 2:54–55).

Though we agree that the '425 patent distinguishes between a hydraulic *connection* and a mechanical drive, it does not address mechanical drive shafts, or distinguish between mechanical verses hydraulic components of a system.

As noted by Patent Owner, the '425 patent states that "[t]he mechanical drive may comprise a gearbox." Ex 1001, 62–64; PO Resp. 30. This is a non-limiting statement that does not define the extent of a mechanical drive. We see no reason why a mechanical drive should be exclusive of mechanical drive shafts, such as the input or output shafts that Petitioner argues are taught by Carrier.

Thus, after our review of the arguments and evidence cited above, we determine that Petitioner has shown by a preponderance of the evidence that Carrier anticipates claim 12.

6. Claims 2–6, 13–18

Petitioner argues that Carrier anticipates claims 2–6 which depend from claim 1. Pet. 43–44 (citing e.g., Ex. 1005 ¶¶ 50, 59, Fig. 1; Ex. 1004 ¶¶ 228–229). Patent Owner disagrees "for at least the same reasons described above with respect to Claim 1." PO Resp. 27.

Petitioner argues that Carrier anticipates claims 13–18 which depend from claim 12. Pet. 47 (citing e.g., Ex. 1005 ¶¶ 26, 45, 56, 64–65). Patent Owner disagrees for the same reasons described above with respect to Claims 1 and 12. PO Resp. 30.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that Carrier anticipates claims 2–6 and 13–18.

E. 35 U.S.C. 103 – Puck, Bryham

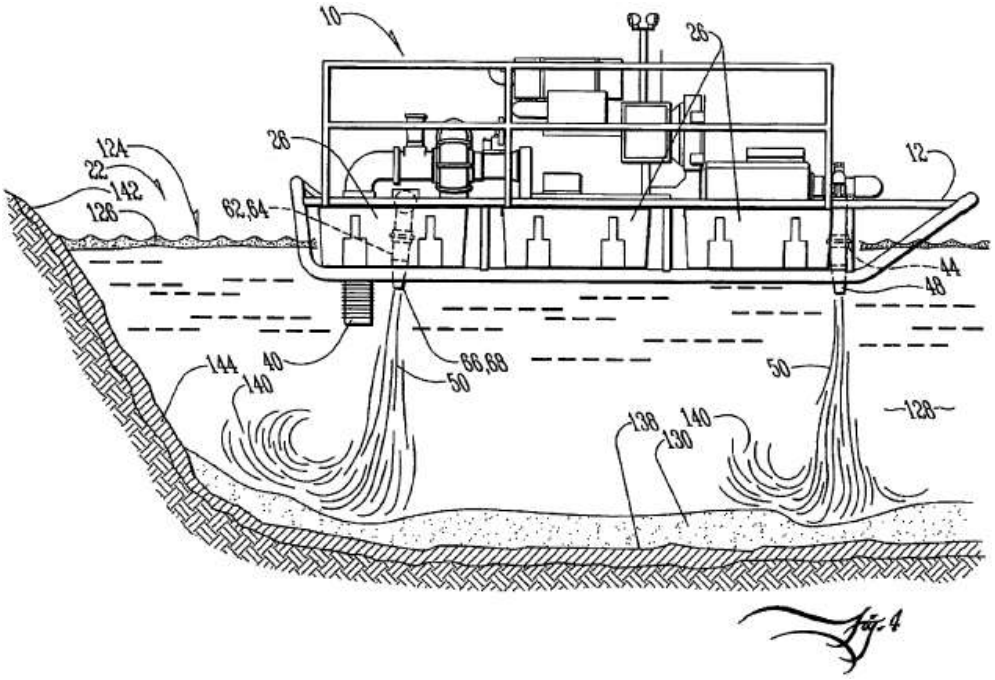
In the above analysis, we determined that claims 1–21 are anticipated by Carrier. Thus, it is unnecessary to address any additional grounds. *See* 35 U.S.C. § 318(a) ("If an inter partes review is instituted and not dismissed under this chapter, the Patent Trial and Appeal Board shall issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 316(d)."). At the same time, the only ground presented by Petitioner that addresses all of the proposed substitute claims in the Motion to Amend is based on the Puck and Bryham obviousness ground. For this reason, we also address this ground.

Petitioner argues that the combination of Puck and Bryham renders obvious claims 1–21. Pet. 72–88. Patent Owner disagrees. PO Resp. 31–45 (secondary considerations), 61–68 (Puck and Bryham specific arguments). In our analysis below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–21 are unpatentable over the combination of Puck and Bryham.

After summarizing the prior art, we address the arguments specific to Puck and Bryham. We then address the evidence and arguments related to secondary considerations.

1. Puck

Puck is entitled "Floating Manure Agitator" and is directed to a vehicle that floats in a manure lagoon "that may be remotely controlled to agitate manure supernatant into a slurry." Ex. 1014, codes (54), (57). The floating manure agitator has a power source coupled to "a liquid manure pump such as a slurry pump" that is "capable of handling both solid and liquid material." *Id.* ¶ 25. The floating manure agitator (10) is shown on a manure lagoon (22) in Figure 4, reproduced below.

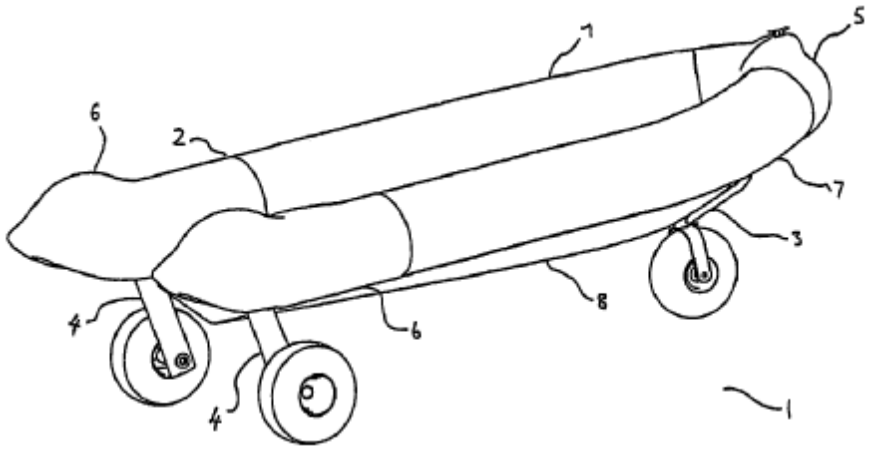


The illustrated floating manure agitator (10) in Figure 4 has an intake pipe (40) connected to the slurry pump, which pump directs the liquid manure through downward facing nozzles (48, 66, 68) into the manure lagoon. *Id.* ¶¶ 26–27, 29. In this way, the floating manure agitator can be used "to agitate manure (124), that has separated into crust (126), supernatant (128) and sludge (130), into a slurry (50)." *Id.* ¶ 34.

Puck also teaches the system can be controlled by remote control. *Id.* ¶ 32.

2. Bryham

Bryham is entitled "Amphibious Vehicle" and is directed to "an inflatable boat . . . [that] has a self propelled and steerable retractable undercarriage system, enabling the vehicle to enter and exit the water under its own power." Ex. 1015, codes (54), (57). Bryham Figure 1 is reproduced below showing the amphibious vehicle.



As can be seen in Bryham Figure 1, the amphibious vehicle includes an inflatable craft (2) with three undercarriage assemblies (3, 4) including wheels.

3. Claim 1

Petitioner argues that the combination of Puck and Bryham renders obvious claim 1. Pet. 72–79. Petitioner lays out its position generally as, "[i]t would have been obvious to a POSA to add the steerable, hydraulically powered, all-terrain wheels of Bryham to the Puck manure boat, and extend the remote-control functions of Puck to the wheels of Bryham." *Id.* at 76.

Patent Owner provides a number of different arguments over the combination. PO Resp. 61–68.

a) Claim 1 – Puck

Claim 1 includes:

> a floatable vehicle body;
>
> . . .
>
> a fluid pump for pumping liquid manure;
>
> a power source . . . , the power source configured to provide power to . . . the fluid pump; and,
>
> a wireless remote control configured to enable an operator who is remote from the vehicle to: . . . (2) control a flow of liquid manure from the fluid pump; . . . and, (4) control at least one of the speed and direction of the vehicle when the vehicle is floating.

Ex. 1001, 8:36–52.

Petitioner argues, and we agree, that Puck teaches the basic structure of claim 1, including a "floating manure agitator," a "liquid manure pump," a "diesel engine" that powers the pump, and a remote control to control flow of the pump and speed and direction of the vehicle. Pet. 76–79 (citing e.g., Ex. 1014 ¶¶ 9, 11, 24, 25, 27, 35, 37). This is not contested by Patent Owner. *See generally*, PO Resp. 61–68.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests these claim limitations.[9]

[9] Organizationally, we address the various claim limitations and arguments separately. However, we note that the final determinations are made with consideration of the claim as a whole and in view of the evidence of secondary considerations of non-obviousness.

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b) Ground Engaging Propulsion Structure

Claim 1 includes:

> 1. An amphibious vehicle comprising:
>
> . . .
>
> ground engaging propulsion structure comprising a plurality of ground engaging elements powered by a hydraulic motor.

Ex. 1001, 8:36–40.

Petitioner argues that "Bryham teaches creating an amphibious vehicle by adding steerable, hydraulically powered wheels to jet boats." Pet. 76 (citing Ex. 1015, 2:19–45); *see also id.* at 77 (citing Ex. 1015, 2:66–67, 16:4–6). Petitioner further argues that "[a] POSA would have been motivated to add Bryham's ground engaging propulsion structure to Puck's jet boat creating an amphibious vehicle facilitating safer, easier, and better-for-equipment ingress and egress from a manure lagoon." *Id.* at 76 (citing Ex. 1004 ¶¶ 331–340); *see also id.* at 73–76 (discussing the motivation to combine in more detail, related in particular to the drawbacks of using trailers to launch and load vessels).

Patent Owner argues that "Petitioner cites **ZERO evidence** . . . explaining why a POSITA would have had a reasonable expectation of success in adding Bryham's wheels to [Puck's] manure agitation boat." PO Resp. 65; *see also id.* at 64–65 (making general assertion).

Rather than address the overall teachings of Puck and Bryham, Patent Owner argues about potential issues that may arise with particular embodiments of Puck and Bryham.

We first note that none of these specific features in Puck and Bryham identified by Patent Owner are required by claim 1.

Patent Owner focuses on one embodiment of Puck to argue that "Puck is more barge-like" and doesn't have a hull like Bryham. *Id.* at 65. Patent Owner argues that Puck's hull "is constructed from modular floating dock sections 26" and that "[a]dding Bryham's wheels would seemingly interfere with the modular dock sections required in Puck for floatation and the two cannot occupy the same space." *Id.* at 65–67 (citing Ex. 1014 ¶¶ 22–23, Figs. 2–3; Ex. 2004 ¶ 201).

Petitioner argues convincingly, and with declaration support, that one of skill in the art would not attach wheels to Puck's modular dock sections, but would rather attach them to the supporting frame to which the modular dock section also connects. Reply 26–27 (citing Ex. 1112 ¶¶ 218–219, 221–223).

However, independent of Petitioner's response, claim 1 does not require any particular type of hull design or that the ground engaging structure have any relationship to the claimed floatable vehicle body. Puck specifically teaches its "vessel . . . may be constructed with a more standard hull, such as those known in the art." Ex. 1014 ¶ 22; *see also* Reply 27. Patent Owner's argument does not address the more general teachings of Puck or the understanding of a POSA in view of these teachings.

Similarly, Bryham teaches that its invention can be used with any number of different types of boats, "not limited to a boat, jet-boat, an inflatable boat, jet-ski, hydrofoil or air boat." Ex. 1015, 2:43–45; *see also* Ex. 1112 ¶ 218 (Petitioner's Declarant discussing why a POSA would understand the teachings of Bryham as also applying to barge-like boats).

Thus, both references teach that they are not limited to any particular type of hull or boat design, and claim 1 similarly does not include any requirements in this regard. Further, Bryham teaches how to put wheels (i.e.,

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ground engaging elements) on a boat. Pet. 76 (citing Ex. 1015, 2:19–45); *see also id.* at 77 (citing Ex. 1015, 2:66–67, 16:4–6). These teachings are uncontested by Patent Owner. Thus, we determine that the teachings of Bryham provide a POSA with a reasonable expectation of success in adding Bryham's wheels to different types of boats, including that of Puck.

Next, Patent Owner argues that if Puck were modified to only include three wheels, as in Bryham's illustrated embodiment, it could create a number of issues, such as instability and poor traction. PO Resp. 67–69 (citing Ex. 2004 ¶ 205).

Claim 1 does not require a specific number of ground engaging elements. The Petition does not argue that only three wheels would be added to Puck with respect to claim 1.

At the same time, claim 14 requires a set of wheels, claim 15 requires two powered wheels and claim 16 requires four powered wheels. Ex. 1001, 9:18–10:4. In addressing claim 14, the Petition identifies that "Bryham discloses a 'ground engaging means [that] consists of *at least* three wheels.'" Pet. 86 (quoting Ex. 1015, 2:46–47). Concerning four powered wheels the Petition argues that:

> It would be a matter of design choice for a POSA to use four independently-powered wheels, especially given Puck's rectangular shape, and Bryham teaches *at least* three independently powered wheels, including four powered wheels. EX1004, ¶372. Such modification would not have provided unexpected results and would have amounted to an "obvious variation[] consistent with the principles known in th[e] art." *Id.*; *Ostendorff*, No. 2016-004235, at 9.

Pet. 88.

Patent Owner does not address claims 14–16, or the obviousness of including four wheels. Further, Patent Owner's argument concerning the

drawbacks of three wheels supports Petitioner's position that one of skill in the art would in fact use four wheels as discussed with respect to the dependent claims.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests this claim limitation.

c) Power Source

Claim 1 includes the following:

> a power source connected to a hydraulic pump, the power source configured to provide power to both the ground engaging propulsion structure and the fluid pump.

Ex. 1001, 8:42–44.

Petitioner argues that the Puck vehicle uses a diesel engine to power the slurry pump and that Bryham teaches a "hydraulic drivetrain" where a combustion engine drives the wheels through a hydraulic motor. Pet. 77 (citing Ex. 1014 ¶¶ 11, 24; Ex. 1015, 16:1–6). Petitioner further argues that one of skill in the art would have used Puck's "internal combustion engine to power the hydraulic pump, ground engagement means, and the fluid pump of Bryham" because "the high-powered engine of Puck would easily power each of these components, and . . . doing so would be cheaper, lighter, and more efficient than providing separate engines for each component." *Id.* (citing Ex. 1004 ¶ 348).

Patent Owner argues that the testimony of Petitioner's declarant is conclusory and that it does not explain why the combination would be cheaper, lighter and more efficient. PO Resp. 62–63.

However, Petitioner explains that it "would be cheaper, lighter, and more efficient than providing *separate engines* for each component." Pet. 77

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(citing Ex. 1004 ¶ 348). Patent Owner's mere assertions that Petitioner has not done enough does not actually address Petitioner's reasoning. Though we agree that Petitioner does not include a lengthy discussion, it is not clear why such detail would be required to explain that one engine can be more efficient than multiple engines.

Patent Owner also identifies that Bryham teaches an embodiment with "separate electric motors to power Bryham's wheels." PO Resp. 62–63. However, the presence of alternative ways of achieving the same result does not negate Petitioner's reasoning.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests this claim limitation.

d) Remote Control

Claim 1 includes:

> a wireless remote control configured to enable an operator who is remote from the vehicle to: (1) control the ground engaging propulsion structure; . . . (3) control at least one of the speed and direction of the vehicle when the vehicle is ground engaging . . . .

Ex. 1001, 8:45–52.

Petitioner argues that "Puck teaches a vessel with a wireless remote-control that controls the flow of fluid from the fluid pump and the speed and direction of the vehicle while it is floating." Pet. 77–78 (citing Ex. 1014 ¶¶ 9, 11, 27, 35, 37). Petitioner argues that Bryham discloses a vehicle with wheels that are steerable by a steering wheel. *Id.* at 78 (citing Ex. 1015, 5:32–37, 60–62).

Petitioner further argues that "[r]emote-control technology is well known and readily adaptable to power wheeled vehicles" and that one of

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skill in the art "would have recognized that the remote-control steering system would control the speed and direction of the vehicle of Puck with Bryham's powered, steerable wheels while the vehicle is ground engaging." *Id.* at 78–79 (citing Ex. 1004 ¶¶ 349–350).

Patent Owner argues that the combination is complicated and not a simple plug and play situation. PO Resp. 63; *see also id.* at 61–62. Patent Owner continues, "[t]he problem with Petitioner's theory is that substantial modifications to Puck's remote-control system would have to be made and there is no discussion in the references or even the Winkel Declaration as to how a POSITA could make those modifications to arrive at a successful combination." *Id.* at 63–64.

Patent Owner does not argue that the combination is beyond the ability of one of skill of the art and we see no reason to determine that it would be. *See KSR Int'l Co.*, 550 at 421 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton."). Further, the record contains ample evidence of remote control systems capable of controlling a variety of systems and components. As noted by Petitioner's declarant:

> remote control systems were known in the art and were capable of controlling a variety of systems and components. Specifically, to the operation of wheel motors, Carrier teaches the remote control of a ground engaging propulsion system consisting of wheels driven by hydraulic motors and a series of valves to regulate the flow to control the vehicle. EX1005, ¶¶[0039]-[0045], [0064]-[0065]. Other patents teach the remote control of amphibious vehicles, including Yoon, Carrier, and Bennett-II. A POSA would have understood that the implementation of remote control of an amphibious vehicle and its land-based propulsion system is a straightforward and predictable process.

Ex. 1112 ¶ 210.

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After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests this claim limitation.

e) Secondary Considerations of Non-obviousness

When presented, secondary considerations "must always . . . be considered in the overall obviousness analysis." *Adapt Pharma Operations Ltd. v. Teva Pharms. USA, Inc.*, 25 F.4th 1354, 1372 (Fed. Cir. 2022). However, "a strong showing of obviousness may stand even in the face of considerable evidence of [secondary considerations]." *Id.*

Based on the evidence of record and findings discussed above, we determine that any evidence of secondary considerations would need to be given substantial weight in order to determine that claim 1 has not been shown to be unpatentable by a preponderance of the evidence.

In order for secondary considerations to be awarded "substantial weight" "in an obviousness analysis," the Federal Circuit has advised that the "secondary considerations must have a nexus to the claims." *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (internal quotations omitted). The Federal Circuit has further instructed that "[t]he patentee bears the burden of showing that a nexus exists." *Id.* (quoting *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999)). Finally, the Federal Circuit instructs that "[t]o determine whether the patentee has met that burden, we consider the correspondence between the objective evidence and the claim scope." *Id.* (quoting *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019)).

We first analyze Patent Owner's evidence of secondary considerations of nonobvious, before addressing nexus.

(1) Commercial Success

Patent Owner provides evidence of commercial success by indicating that over 450 Lagoon Crawlers (i.e., the asserted patented product)[10] have been sold and [redacted] in revenue generated over about 9 years. PO Resp. 33 (citing Ex. 2083[11] ¶ 25). Patent Owner asserts that "[t]his is a huge number of sales considering the niche nature of this market" of manure agitation boats. *Id.*

Patent Owner asserts that Puck Enterprises was once the market leader, but is now likely making less than 5 manure agitation boats a year. *Id.* (citing Ex. 2083 ¶ 27). In contrast, Patent Owner states that it made "close to 80" Lagoon Crawlers in 2023 and that it is "the market leader in manure pumping 'boats.'" *Id.*

At the same time, Patent Owner acknowledges that Petitioner's product is also part of the market, but provides no information or estimates as to those sales or market share. *Id.* We also do not know if there are any other relevant players in the market of manure agitation boats. From the evidence provided we cannot determine the size of the market, the major players, or the market share of the major players. *See, e.g.*, *In re Applied Materials, Inc.*, 692 F.3d 1289, 1300 (Fed. Cir. 2012) ("An important component of the commercial success inquiry in the present case is determining whether [Patent Owner] had a significant market share relative to *all* competing [products] based on the merits of the claimed invention."); *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (noting that "evidence

[10] Patent Owner identifies four generations of manure lagoon agitation vehicles. *See* Ex. 2029 ¶¶ 406–431 (Gen 1), 434–458 (Gen 2), 461–484 (Gen 3), 487–505 (Crawler X).
[11] Citation to Ex. 2032 appears to be a typographical error.

related solely to the number of units sold provides a very weak showing of commercial success, if any"). Not all markets have sales and market share information readily available; but we also do not have evidence as to whether this is the case here.

Further, Patent Owner provides no evidence to help us determine what is the relevant market. We do not know whether the market should be limited to manure agitation boats, or whether all manure agitation devices (such as pit pumps) should be considered.

However, it is uncontested by Petitioner that the over 450 Lagoon Crawlers sold and [redacted] in revenue generated are both significant amounts. *See generally* Reply 12–15.

Because of the constraints on how we can characterize these numbers in view of the market generally, we can at best give this evidence some weight.

(2) Long-Felt Unmet Need

Patent Owner asserts that there was a long-felt need "of ***breaking a crust formed on a lagoon to 'both*** *[mix] the solids and [form] a slurry* with the liquids in the reservoir ***as well as to have a*** pumping apparatus for pumping the so-formed slurring into the tank for spreading apparatuses.'"[12] PO Resp. 35. However, after making this assertion, Patent Owner acknowledges that "advancements were made," but that "breaking up thick crust and maneuverability through an agricultural manure lagoon still proved difficult." *Id.*

[12] In the Sur-reply, Patent Owner attempts to advance new theories concerning problems to be solved "with floating agitation boats." Sur-reply 17. We decline to consider these late arguments.

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Establishing long-felt need requires objective evidence that an art-recognized problem existed in the art for a long period of time without solution. *Newell Cos. v. Kenney Mfg. Co*., 864 F.2d 757, 768 (Fed. Cir. 1988); *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc*., 707 F.2d 1376, 1379 (Fed. Cir. 1983). Establishing long-felt need also requires objective evidence that the invention satisfies the long-felt need. *In re Cavanagh*, 436 F.2d 491, 496 (CCPA 1971).

Being a difficult, but solved problem is very different from being an unsolved problem. As shown by Puck, the problem of "of ***breaking a crust formed on a lagoon to 'both*** *[mix] the solids and [form] a slurry* with the liquids in the reservoir" has been previously solved. *See e.g.*, Ex. 1014, Abstr.; *see also* Reply 16. Though Patent Owner has developed another way to address the problem, it has not established that there is a long-felt and previously unsatisfied need.

Patent Owner also lists "***a*** pumping apparatus for pumping the so-formed slurring into the tank for spreading apparatuses" as another problem that needs to be solved. PO Resp. 35. However, Patent Owner presents no evidence that the present claimed invention is addressed to solve this problem. To the extent this problem is solved by pumps and nozzles on a manure agitation device, we are not informed of how this problem was not previously solved, by for example, the pump and nozzle of Puck.

Thus, there is insufficient evidence to establish that the invention solved a long-felt, previously unmet need.

(3) Copying By Others

Next, Patent Owner asserts that Petitioner copied the patented product with their Wolverine Agitation Boat. *Id.* at 36–37. As evidence, Patent Owner provides a picture of each vehicle and Patent Owner asserts that the

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vehicles "share[] substantial similarity." *Id.* at 37. Patent Owner also argues that Petitioner had access to the Lagoon Crawler. *Id.* at 36 (citing Ex. 2083 ¶¶ 65–66). This is insufficient to establish copying.

For example, we are not presented with evidence that the Wolverine Agitation Boat is covered by any of the claims of the '425 patent. With merely a picture, we have insufficient evidence to determine whether Petitioner copied the patented product, or the extent of any potential copying.

In Sur-reply, and for the first time, Patent Owner argues that Petitioner overlooks "the comparison made by Nuhn's expert." Sur-reply 18 (citing Ex. 2029 ¶¶ 514–532). However, Patent Owner never referred to or advanced this testimony in the arguments of its Patent Owner Response. There is no obligation for either party to address evidence that could have been relied on but was not. Further, a party is not required to advance the same position as it's declarants. Thus, we do not assume that evidence not relied on by a party is the position of that party. We decline to consider these late arguments.

Thus, there is insufficient evidence to establish copying of the patented invention.

(4) Unexpected Results

Patent Owner argues that the invention "produced a new and unexpected result that revolutionized the agricultural farming industry." PO Resp. 38. Specifically, Patent Owner argues that the unexpected result is "an amphibious vehicle, remotely operated and controlled, configured to crawl ***through*** (not over) an agricultural manure lagoon, acting like an icebreaker against a solid-formed crust up to six feet thick, all meanwhile agitating, mixing, jetting, and pumping liquid manure." *Id.* Patent Owner states that

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the invention as a whole produces unexpected results, and provides two screen shots, one of a Lagoon Crawler in use, and one of Petitioner's product, that it asserts show unexpected results. *Id.* at 38–41. Patent Owner closes with a list of six items that it asserts are unexpected. *Id.* at 41–42. Other than the two screenshots, Patent Owner cites no evidence in support of its assertions of unexpected results.

Patent Owner's argument is mere unsupported attorney argument. Patent Owner does not cite to any evidence that one of skill in the art found the noted results to be unexpected.[13]

Thus, there is insufficient evidence to establish unexpected results of the patented invention.

(5) Praise By Others

Patent Owner argues that their "patented Lagoon Crawlers have been extensively praised for innovation in printed publications and have received industry awards." PO Resp. 42 (citing Ex. 2083[14] ¶¶ 33–50). Patent Owner includes 18 articles for support. *See* Exs. 2060–2074, 2080.

Patent Owner and its Lagoon Crawlers have definitely generated publicity over the years. Most of the cited articles are from newspapers or other publications talking generally about the Crawler and Patent Owner's

[13] Consistent with our prior statement that "we do not assume that evidence not relied on by a party is the position of that party," here Patent Owner argues that the invention as a whole produces unexpected results (PO Resp. 38–41), while Dr. Prairie takes a different position that it is the powered wheels that provide unexpected results (Ex. 2029 ¶ 512 ("a POSITA would not have expected the powered wheels to . . . or that the wheels would have . . ."). As claim 1 does not require wheels, Patent Owner advances a different position than Dr. Prairie and we only address the position advanced by Patent Owner.

[14] Citation to Ex. 2082 appears to be a typographical error.

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participation in various trade shows (Ex. 2062, 2; Ex. 2063, 1; Ex. 2064[15], 1; Ex. 2067, 2), or their unveiling of the 100th Crawler off the production line and expansion of their facility (Ex. 2069, 8; Ex. 2070, 52; Ex. 2071, 1; Ex. 2072[16], 3; 2074, 26). The Crawler was also featured during Extreme Machine Week on the Discovery Channel in 2015. Ex. 2080; *see also* Ex. 2073, 1 (reporting the upcoming airing).

Some of the articles note that a prototype Lagoon Crawler won an innovation award at the Farm Progress Show in 2013. Ex. 2061, 20; Ex. 2063, 1; Ex. 2064. One article notes that the previous year, Patent Owner won the innovation award for its manure header pump which is it states is on the Lagoon Crawler. Ex. 2063, 1. Diesel Progress featured Patent Owner's Lagoon Crawler in its "Newsmarker[s] of the Year 2014, Innovative Uses of Horsepower" series Ex. 2068, 1, 28.

Mr. Nuhn also testifies that he was invited to speak about the Lagoon Crawler during the New Products session "at the 30th Annual AMC (Ag Machinery Conference) Engineering Conference in Waterloo, Iowa" on May 7, 2015. Ex. 2083 ¶ 35; *see also* Ex. 2065, 4 (conference brochure listing Mr. Nuhn's presentation). Mr. Nuhn was awarded a "Certificate of Service" based at least in part on his providing this presentation. Ex. 2066; Ex. 2083 ¶ 36. The Lagoon Crawler was also featured on the front page of the conference brochure. Ex. 2065, 1.

In view of this evidence, Petitioner argues "that any success is due to [the Lagoon Crawler's] appearance." Reply 14. Petitioner argues that it is

[15] This appears to be the same article as Ex. 2063, but in a different newspaper.
[16] This appears to be the same article as Ex. 2071, but in a different newspaper.

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the "'massive wheels [and] the brilliant red paint job' rather than the claimed features," that have resulted in its success. *Id.* (quoting Ex. 2067, 2). Petitioner argues that Mr. Nuhn statements provide support of this position. *Id.* They state that he calls the Lagoon Crawler a "jacked-up Ferrari" (*id.* (quoting Ex. 2064) and he stated that:

> if we would have just slapped metal together and made a simple barge, I don't think we would have received the same response. ***I think because we made it look the way it does people are proud to fork over that kind of change and they are proud to own it***.

Id. (quoting Ex. 2068, 30 (Petitioner's emphasis)).

The Lagoon Crawler's appearance may have influenced the amount of publicity it received. But, we agree with Patent Owner when it states that "[m]ost farm tractors sport bright paint and large knobby tires, but don't get the same media attention." Sur-reply 20. We do not agree that appearance alone would be sufficient for Patent Owner's Crawler to receive an innovation award from the Farm Progress Show, or to be featured in Diesel Progress's "Newsmarker[s] of the Year 2014, Innovative Uses of Horsepower" series.

At the same time, we note that there is no evidence, from the Farm Progress Show, or otherwise providing the details of the innovation award, other than that it was awarded to the prototype Lagoon Crawler. Thus, we do not know if there were any particular details of the Lagoon Crawler that set it apart, or if it was the general concept that was found to be innovative.

In view of the above, we determine that the industry did praise Patent Owner for the perceived innovations in the industry for its Lagoon Crawler product.

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(6) Licensing

Patent Owner states that "Puck Enterprises – reached out to Nuhn and sought a license to Nuhn's Lagoon Crawler patents." PO Resp. 43. Again, no citation to evidence is provided.

Though not relied on by Patent Owner, we note that Mr. Nuhn states that Exhibit 2075 is an email he received from Puck Enterprises in this regard. Ex. 2083 ¶¶ 60–62.

An inquiry is not the same as an executed licensing agreement. Neither Patent Owner, nor Mr. Nuhn, point us to any evidence that a license was obtained after this email. Neither Patent Owner, nor Mr. Nuhn, point us to any evidence that the '425 patent has been licensed.

Thus, there is insufficient evidence to establish licensing of the patented invention.

(7) Skepticism

Patent Owner argues that the Lagoon Crawler "went against conventional wisdom at the time it was introduced." PO Resp. 43. In support of this argument, Patent Owner relies on the testimony of Mr. Nuhn where he states that there were individuals who expressed skepticism with various aspects of the Lagoon Crawler. *Id.* at 44 (citing Ex. 2083 ¶¶ 52–59).

Mr. Nuhn identifies a number of different groups of individuals who expressed skepticism. Ex. 2083 ¶¶ 52–59. For example, he states that there were individuals at various trade shows who expressed concerns with various aspects of the Lagoon Crawler. *Id.* ¶¶ 53, 55–56. However, whether one or more individuals may have been skeptical about certain aspects of the product does not mean that Patent Owner "went against conventional wisdom" or that the "industry" was skeptical that the Lagoon Crawler would function as advertised. We also note that Mr. Nuhn's testimony concerning

trade show attendees is unsubstantiated, and therefore entitled to little weight.

Similarly unsubstantiated, is Mr. Nuhn's testimony that "some of our customers . . . told [Patent Owner] that they would never buy a Lagoon Crawler . . . . But now these skeptical customers each own a couple of Lagoon Crawlers." *Id.* ¶ 58.

Mr. Nuhn testifies that his father said he should be "focus[ed] . . . on more important matters" when working on the prototype. *Id.* ¶ 54. This general statement could be interpreted many ways and is too vague to support Patent Owner's position that the Lagoon Crawler "went against conventional wisdom."

Finally, Mr. Nuhn cites "Mr. Koscamp—the dairy farmer whose manure lagoon was pumped by the Lagoon Crawler in the Discovery Channel segment" as saying he '"need[ed] to be sold on this' because he 'never thought it could be done.'" *Id.* ¶ 59 (citing Ex. 2080). Mr. Nuhn argues this is also evidence of skepticism. *Id.* Again, one person's individual skepticism and the only skepticism that is substantiated, does not evidence that Patent Owner "went against conventional wisdom" or that the "industry" was skeptical that the Lagoon Crawler would function as advertised.

Thus, there is insufficient evidence to establish that Patent Owner "went against conventional wisdom" or that the "industry" was skeptical that the Lagoon Crawler would function as advertised.

(8) Nexus and Conclusion

After our review of the evidence of secondary considerations relied on by Patent Owner, it is unnecessary for us to make a determination of nexus

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between Patent Owner's manure lagoon agitation vehicles and claim 1.[17] This is because even in view of the evidence of commercial success and industry praise, we determine that this evidence is insufficient to overcome the strong case of obviousness in view of Puck and Bryham.

As noted above, concerning commercial success, we are unable to determine the correct market or the market share of the various players. We are not able to determine how Patent Owner's sales compare across the market. Thus, we are only able to give this evidence some weight.

As also noted above, there is evidence of that the industry did praise Patent Owner for the perceived innovations in the industry for its Lagoon Crawler product. But this evidence, most significantly an innovation award and a magazine article highlighting innovations in diesel engines, is not sufficient, even with the commercial success evidence, to overcome the strong case of obviousness.

f) Conclusion for Claim 1

After our review of Petitioner's assertions with respect to claim 1 and the supporting evidence (as summarized above), we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests claim 1.

4. Claims 2–21

Petitioner argues that the combination of Puck and Bryham renders obvious claims 2–21. Pet. 79–88 (citing e.g., Ex. 1014 ¶¶ 8, 11, 25, 27–29, 31–33, 35, 37, Figs. 4–7; Ex. 1015, 2:46–47, 6:47–48, 15:61–67, 16:4–6,

[17] Patent Owner's declarant, Dr. Prairie, only provides details for how the various lagoon agitation vehicles are covered by claim 1. Ex. 2029 ¶¶ 405–506. Because the evidence of nexus only addresses claim 1, we need not address the secondary considerations with respect to any other claim.

Figs. 1, 23; Ex. 1004 ¶¶ 357, 363–368, 371–372). Patent Owner states that claims 2–21 "are not rendered obvious over Puck in view of Bryham for at least the same reasons described above." PO Resp. 68. Patent Owner does not otherwise address the dependent claims.

After our review of Petitioner's assertions and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests claims 2–21.

F. Other Proposed Grounds under 35 U.S.C. 103

As noted previously, Petitioner presents a number of other grounds of unpatentability of the challenged claims. *See e.g.*, Pet. 36–38.

As we have determined that claims 1–21 are unpatentable as anticipated by Carrier and obvious over Puck and Bryham, it is unnecessary to address the additional grounds. *See* 35 U.S.C. § 318(a). Thus, there is no additional dispute to resolve between the parties regarding these claims, and we decline to separately address these additional asserted grounds of unpatentability.

III. MOTION TO AMEND

In its Conditional Motion to Amend, Patent Owner requests that if any of claims 1–21 be found unpatentable, they should be replaced by proposed substitute claims 22–42.[18] Mot. 1, Claims App'x.

As discussed above, we determine that original claims 1–21 have been shown by a preponderance of the evidence to be unpatentable. *See supra*

[18] In an *inter partes* review, amended claims are not added to a patent as of right, but rather must be proposed as a part of a motion to amend. 35 U.S.C. § 316(d).

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§§ II.D, E. We, therefore, proceed to address Patent Owner's Conditional Motion to Amend.

A. Proposed Substitute Claims

Patent Owner submits the below proposed substitute independent claim 22 (with brackets indicating deleted text, and underscoring indicating added text). Patent Owner also submits proposed substitute dependent claims 23–42. *See* Mot. Claims App'x.

22. An amphibious vehicle, comprising:

a floatable vehicle body with a front, a rear, and an underside;

ground engaging propulsion structure comprising a plurality of ground engaging elements powered by a hydraulic motor;

a ~~fluid~~ liquid manure pump for pumping liquid manure, the liquid manure pump including a housing and an impeller that are positioned along the underside of the floatable vehicle body between at least two of the ground engaging elements such that the housing and the impeller are rearward of the front of the vehicle body and forward of the rear of the floatable vehicle body and such that the impeller is immersed in and configured to pump the liquid manure when the vehicle is floating;

a power source connected to a hydraulic pump, the power source configured to provide power to both the ground engaging propulsion structure and the ~~fluid~~ liquid manure pump; and,

a wireless remote control configured to enable an operator who is remote from the vehicle to: (1) control the ground engaging propulsion structure; (2) control a flow of liquid manure from the ~~fluid~~ liquid manure pump; (3) control at least one of the speed and direction of the vehicle when the vehicle is ground engaging; and, (4) control at least one of the speed and direction of the vehicle when the vehicle is floating.

Id.

B. Statutory and Regulatory Requirements

"Before considering the patentability of any substitute claims, . . . the Board first must determine whether the motion to amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121." *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4 (PTAB Feb. 25, 2019) (precedential) ("*Lectrosonics*"). In its Opposition, Petitioner only disputes whether the claim amendments have written description support. Opp. 23–25. For the reasons set forth below, we determine that Patent Owner has satisfied these statutory and regulatory requirements.

First, the Motion proposes one substitute claim for each challenged claim, which is a reasonable number of substitute claims. 35 U.S.C. § 316(d)(1)(B); *Lectrosonics*, Paper 15 at 4–5 (citing 37 C.F.R. § 42.121(a)(3)). Petitioner does not argue otherwise. *See generally* Opp.

Second, the proposed substitute claims respond to a ground of unpatentability involved in this trial. *Lectrosonics*, Paper 15 at 5–6. Patent Owner presents the claim amendments in an attempt to add features to further distinguish the proposed substitute claims as patentable over the references asserted in the instituted grounds. Mot. 19–25. Petitioner does not argue otherwise. *See generally* Opp.

Third, "[a] motion to amend may not present substitute claims that enlarge the scope of the claims of the challenged patent or introduce new subject matter." *Lectrosonics*, Paper 15 at 6–8 (citing 35 U.S.C. § 316(d)(3); 37 C.F.R. § 41.121(a)(2)(ii)). We determine that the proposed amendments do not enlarge the scope of the claims or introduce new subject matter. Petitioner only provides argument with respect to one aspect of proposed claim 22. Opp. 23–25.

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Proposed claim 22 replaces "a fluid pump for pumping liquid manure" in claim 1 with "a liquid manure pump for pumping liquid manure." Mot. Claims App'x. We first determine that the modification from "fluid" to "liquid" does not enlarge the scope of the claims. Petitioner does not argue otherwise. *See generally* Opp.

For written description support, Patent Owner cites, among other things, paragraph 1 of U.S. Provisional Application No. 61/867,598. Mot. 5. This paragraph recites, in part, "the invention relates to manure pumps and amphibious vehicles equipped for pumping liquid manure." Ex. 2081 ¶ 1. This reference to "manure pumps" and "pumping liquid manure" provides written description support for the change in the proposed claim.

Petitioner objects to the term "liquid manure pump" to the extent that it is construed to require a specific type of pump not disclosed in the '425 patent. Opp. 24–25. Thus, even though Petitioner couches this argument as one of "written description support," Petitioner acknowledges that the '425 patent teaches "a 'pump' or a 'fluid pump' used for 'pumping fluid from rivers, ponds, [and] lakes' in addition to liquid manure. EX1029, 4:7–8 (incorporated-by-reference into the '425 Patent)." *Id.* at 25. To the extent necessary, we address any claim construction issues below.

However, in view of the above, we are not persuaded that the term "liquid manure pump" amounts to new matter.

Upon review of the other proposed changes to the claims, we determine that the proposed claims do not add new matter. *See* Mot. 2–3. Petitioner does not argue otherwise. *See generally* Opp. Further, we determine Patent Owner has set forth sufficient written description support for the other proposed amendments. Mot. 4–19. Petitioner does not argue otherwise. *See generally* Opp.

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In addition, the Motion includes a claim listing, as required by 37 C.F.R. § 42.121(b). Mot. Claim App'x.

We determine that the Motion meets the statutory requirements of 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121.

C. Burdens for Patentability of Proposed Claims

Ordinarily, "the petitioner bears the burden of proving that the proposed amended claims are unpatentable by a preponderance of the evidence." *Bosch Automotive Service Solutions, LLC v. Matal*, 878 F.3d 1027, 1040 (Fed. Cir. 2017) (as amended on reh'g in part) (Mar. 15, 2018); *see* Lectrosonics, Paper 15 at 3–4. In determining whether a petitioner has proven unpatentability of the substitute claims, the Board focuses on "arguments and theories raised by the petitioner in its petition or opposition to the motion to amend." *Nike, Inc. v. Adidas AG*, 955 F.3d 45, 51 (Fed. Cir. 2020).

D. Evidence

In addition to the patents and printed publications relied on in its original grounds of unpatentability, Petitioner relies on:

Name	Patent Document	Exhibit
Cheramie	US 6,922,922 B2 (Aug. 2, 2005)	1087

Name	Non-Patent Document	Exhibit
Manure Manager	Manure Manager, Jan./Feb. 2011	1088

E. Asserted Grounds

Petitioner asserts in its Opposition that the proposed substitute claims are unpatentable on the following grounds:[19]

Claim(s) Challenged	35 U.S.C. §	References
22–42	103	Puck, Bryham, Manure Manager
22–25, 27, 28, 33–40	103	Cheramie, Yoon
22–25, 27, 28, 33–40	103	Cheramie, Carrier
22–25, 27, 28, 33–40	103	SenwaTec, Yoon
22–25, 27, 28, 33–40	103	SenwaTec, Carrier
22–25, 27, 28, 33–40	103	Truxor, Yoon
22–25, 27, 28, 33–40	103	Truxor, Carrier

F. Level of Ordinary Skill

When analyzing the proposed substitute claims, we apply the same formulation regarding the level of ordinary skill in the art that we applied when analyzing the original claims. *See supra* § II.B.

G. Claim Construction

Patent Owner does not identify any terms that need to be construed in the proposed substitute claims. *See* Mot. 19. Petitioner argues that "liquid manure pump" should be construed consistent with "fluid pump for pumping liquid manure." Opp. 4–5. Patent Owner does not respond (*see* PO MTA Reply), and we determine that it is unnecessary to formally construe "liquid manure pump" as it is uncontested that Manure Manager teaches such a pump.

H. 35 U.S.C. 103 – Puck, Bryham, Manure Manager

Petitioner argues that the combination of Puck, Bryham, and Manure Manager would have rendered obvious the added limitations of the proposed

[19] Petitioner supports its challenge with an additional declaration from Dr. Eric Winkel (Ex. 1109).

substitute claims. Opp. 20–23. Patent Owner disagrees. PO MTA Reply 9–12. In our analysis below, we determine that Petitioner has shown by a preponderance of the evidence that the proposed substitute claims are unpatentable over the combination of Puck, Bryham, and Manure Manager.

1. Manure Manager

Manure Manager refers to an advertisement for products sold by Patent Owner in the Manure Manager publication. Ex. 1088, 27; Opp. 3–4; Ex. 2099 ¶ 138. Petitioner relies on only one part of the advertisement, showing the G-Force Vertical Pit Pump ("Pit Pump"), which portion is reproduced below.

The Figure shows the Pit Pump attached to a tractor in use, presumably within a manure lagoon. It also shows the Pit Pump by itself. The Figure includes the following statement: "This pump features dual ported and tapered housing, as well as a tapered fan. It includes radio remote

control, an oversized gear box with oil cooker, a fully enclosed drive line, a hardened and balanced drive shaft, and a modular design. Experience the fastest load times in the industry."

Patent Owner's declarant, Dr. Prairie, states that it also shows:

> a tractor mounted / tractor powered manure lagoon agitation pump assembly, which includes an impeller and pump housing located on the far end of the boom arm while the other end of the boom arm is connected to the rear hitch of a farm tractor. This boom arm is about 10 feet in length and the pump impeller is driven by the PTO of the tractor through a gearbox assembly in the boom arm.

Ex. 2099 ¶ 138.

2. Claim 22

Regarding proposed substitute claim 22, the majority of elements are identical to corresponding elements in original claim 1. *Compare* Mot., Claim App'x. 26–27, *with* Ex. 1001, 8:36–52. As discussed above, Petitioner has offered persuasive evidence in support of its contentions that the combination of Puck and Bryham teaches or suggests each of these claim limitations. *See supra* § II.E.3.

Claim 22 also requires:

> the liquid manure pump including
>
> > a housing and an impeller that are positioned along the underside of the floatable vehicle body between at least two of the ground engaging elements
> >
> > such that the housing and the impeller are rearward of the front of the vehicle body and forward of the rear of the floatable vehicle body and
> >
> > such that the impeller is immersed in and configured to pump the liquid manure when the vehicle is floating.

Mot. Claim App'x. (paragraphing added).

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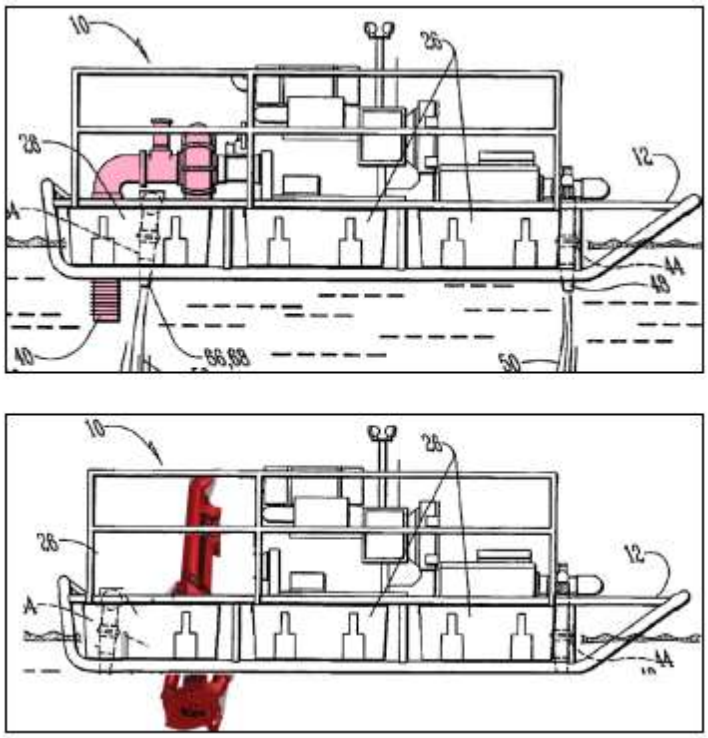
Petitioner argues that the combination of Puck, Bryham, and Manure Manager would have rendered obvious the added limitations in proposed substitute claim 22. Opp. 20–22.

Petitioner asserts that a person of ordinary skill in the art would have "understood that the most logical location for attaching the wheels of Bryham would have been to place one wheel at each corner of the steel frame . . . of the Puck vehicle, which is the typical arrangement of wheels on a four sided vehicle." *Id.* at 21 (citing Ex. 1109 ¶ 144). This is not contested by Patent Owner. *See* PO MTA Reply 9–12.

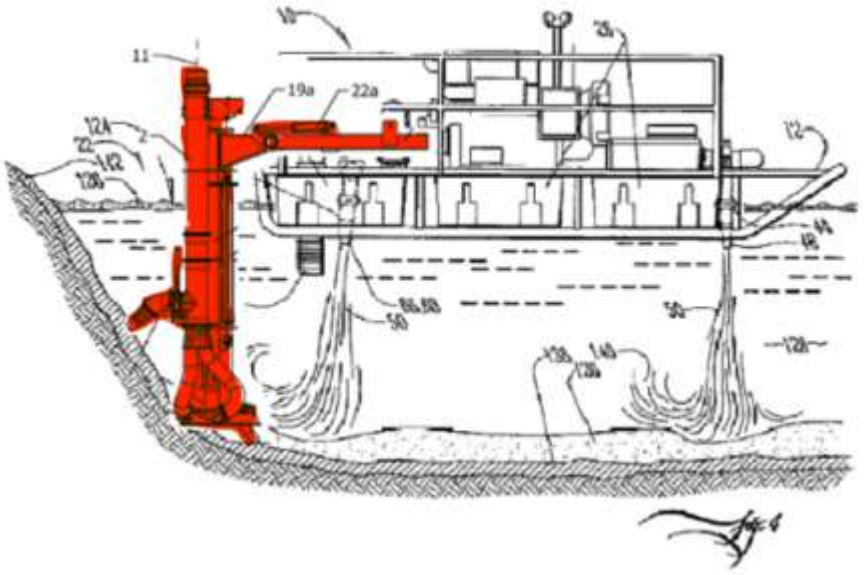
Petitioner also asserts that a person of ordinary skill in the art would "have substituted the Puck pump with . . . [the Pit] pump described in Manure Manager, to take advantage of [the noted] . . . improved efficiency and manure pumping capabilities." Opp. 20–21 (citing Ex. 1088, 27; Ex. 1109 ¶¶ 128–137). Petitioner also argues that the Pit pump "includes a housing and immersible impeller." *Id.* These positions are also not contested by Patent Owner. *See* PO MTA Reply 9–12.

Petitioner further asserts that a person of ordinary skill in the art "would have located the [Pit] Pump in the same location as the location in which Puck's pump was arranged, as the vehicle already includes an access point through which the pump could extend into the liquid of the manure lagoon." Opp. 21 (citing Ex. 1109 ¶ 143). Petitioner illustrates this with the below two Figures.



The top figure shows a portion of Puck Figure 4, including Puck's manure boat. The Figure has been modified to highlight Puck's pump in pink. The bottom figure shows Puck's manure boat from Figure 4 modified such that Puck's pump is removed, and the Pit Pump is added in its place. Though not addressed by any of the parties, the figure is also modified to move one of the nozzles toward the back of the boat.

In response, Patent Owner disagrees with Petitioner's positioning of the Pit Pump on Puck's manure boat and argues that the Pit Pump would be attached "in a similar manner to the way it attaches to the rear of a tractor." PO MTA Reply 9. Patent Owner provides the below figure to illustrate their position. *Id.* at 11.



The above figure shows Puck's manure boat from Figure 4 modified with a drawing of a pump colored in red overlayed on a portion of Puck's manure boat such that the pump extends from the rear of the boat. Though not explained, the pump appears to be from Figure 3a of Exhibit 2101, which Patent Owner's declarant states is a patent that depicts the Pit Pump. Ex. 2099 ¶ 139.

Patent Owner argues that the benefit of this arrangement is that it allows the pump to be raised and lowered, up and down in accordance with how it was designed to be used with a tractor. PO MTA Reply 12; *see also id*. at 9–11. Patent Owner also identifies another company that did attach a manure pump "off the end of a floating barge such that it could be tilted up and down." *Id.* at 9–10 (citing Ex. 2008, 8–9; Ex. 2099 ¶ 366).

Though the ability to tilt the pump may be a benefit, Petitioner argues that placing the Pit Pump in the location of Puck's previous pump provides the benefit of better stability by not moving the center of gravity to the end of the boat. Pet. MTA Sur-reply 3–4 (citing Ex. 1109 ¶¶ 102–104). Petitioner illustrates this by showing a screenshot from a video of the other

company that attached a manure pump off the end of a barge, which "cause[d] it to be weighed down so that manure flows over the vehicle deck." *Id.* at 4 (citing Ex. 2008, 10:45; Ex. 2099 ¶ 176).

As shown by Petitioner, Patent Owner's "benefit" also has potential drawbacks. Though not being able to tilt the pump may be a disadvantage, there are almost always tradeoffs to different designs. On the record before us, this does not discredit Petitioner's reasoning. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) ("[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.").

Further, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR Int'l Co.*, 550 at 421. Thus, we see no reason why a POSA is not capable of adapting the teachings of the Pit Pump for use in Puck's manure boat. A POSA would not be limited to the wholesale adoption of the Pit Pump, i.e., merely attaching the Pit Pump as is, to Puck's manure boat.

In view of the evidence of record, we determine that Petitioner has shown by a preponderance of the evidence that a POSA would be motivated to replace Puck's pump according to the teachings of Manure Manager in the location of Puck's original pump. Such a pump in this location would meet the proposed claim limitations.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck, Bryham, and Manure Manager teaches or suggests proposed substitute claim 22.

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3. Claims 23–25, 28, 30, and 33–40

With respect to proposed substitute claims 23–25, 28, 30, and 33–40, Petitioner argues that it would have been obvious "to connect the [Pit] Pump on the Puck vehicle in the same manner in which the Puck pump was connected to the transport pipe 42 on the Puck vehicle." Opp. 22 (citing Ex. 1109 ¶ 145).

Patent Owner does not provide specific argument with regard to these claims. *See* PO MTA Reply 9–12.

We note that of these proposed substitute claims, claims 23–25, 28, 30, 33–35, and 37–40 only propose minor changes, such as to their dependency, changing "fluid pump" to "liquid manure pump," or other changes that have limited or no impact on their claim scope. *See* Mot. Claims App'x.

Proposed claim 36 moves from claim 15's two powered wheels to requiring four wheels (similar to claim 37), where two are at the front and two are at the rear of the vehicle. *Id.* Though this changes the scope of the particular claim, original claim 16 requires four wheels, and the Petition addressed that claim in a manner that covers four powered wheels as in claim 36. Pet. 87–88. Further, Petitioner's Opposition to the MTA addresses four wheels at "each corner of the steel frame," when addressing proposed claim 22. Opp. 21–22.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck, Bryham, and Manure Manager teaches or suggests proposed substitute claims 23–25, 28, 30, and 33–40.

4. Claim 27

With respect to proposed substitute claim 27, Petitioner asserts that a person of ordinary skill in the art would have "understood that the most logical location for attaching the wheels of Bryham would have been to place one wheel at each corner of the steel frame . . . of the Puck vehicle. Opp. 23 (citing Ex. 1014 ¶ 22; Ex. 1109 ¶150). Petitioner further asserts that "[t]o the extent that the Nuhn Pump would not already be arranged forward of the rear spindles and rearward of the front spindles when arranged within the vehicle of Puck, as explained above, [a person of ordinary skill in the art] would have considered it obvious to have located the pump in such a way so as to centrally locate the center of gravity and mitigate the effect of any negative forces generated by the operation of the fluid pump." *Id.* (citing Ex. 1109 ¶¶ 151–154.)

Patent Owner argues that claim 27 is patentable for the same reasons that we have discussed and rejected above, with respect to claim 22. *See* PO MTA Reply 12.

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck, Bryham, and Manure Manager teaches or suggests proposed substitute claim 27.

5. Claims 26, 29, 31, 32, 41, 42

With respect to proposed substitute claims 26, 29, 31, 32, 41, and 42, Petitioner asserts that Puck "describes a plurality of fluid nozzles arranged about the body of the vehicle to steer, propel, and agitate," and that Puck further "describes how directing fluid from the nozzle (48) to the starboard side of the vehicle steers the vehicle to the port direction." Opp. 22 (Citing Ex. 1014 ¶ 32). According to Petitioner, it would have been obvious "to

have added additional fluid nozzles to each of the left side of the vehicle and the right side of the vehicle to better facilitate steering and maneuverability of the vehicle, not to mention better agitation." *Id.* (citing Ex. 1109 ¶¶ 146–148). Petitioner further states that Puck "teaches a remote-control system for opening and closing the valves that direct fluid to each of the nozzles to propel and steer the vehicle." *Id.* at 22–23 (citing Ex. 1014 ¶ 33).

Patent Owner argues that "Puck fails to disclose ***side*** fluid nozzles on ***opposite sides*** of the floatable vehicle body in addition to the front and rear nozzles 48, 66, 68 and therefore fails to satisfy Claims 26, 31, and 41." PO MTA Reply 12. This argument does not address Petitioner's position of the obviousness of the claim limitations. *See* Opp. 22–23. In fact, Petitioner implicitly agrees that Patent Owner that these limitations are not expressly taught by Puck, when they argue that such an arrangement would have been obvious. *Id.*

After our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Puck, Bryham, and Manure Manager teaches or suggests proposed substitute claims 26, 29, 31, 32, 41, and 42.

IV. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude Exhibits 1008 and 1013. Paper 55. As noted herein, we do not reach the grounds involving Truxor or SenwaTec. Patent Owner's Motion to Exclude is only related to these grounds (Paper 55, 1–2) and is therefore moot.

V. PETITIONER'S MOTION TO EXCLUDE

Petitioner filed a Motion to Exclude[20] in whole or in part the declarations of Mr. Prairie (Exs. 2004, 2029, 2099) and Mr. Nuhn (Ex. 2083). Paper 53, 1. Patent Owner filed an Opposition (Paper 58) and Petitioner filed a Reply to the Opposition (Paper 61). Petitioner, as the moving party, has the burden to establish that it is entitled to the requested relief. 37 C.F.R. §§ 42.20(c), 42.62(a).

We first address the declarations of Mr. Prairie, and then that of Mr. Nuhn. For the reasons discussed below, we deny Petitioner's Motion to Exclude.

A. Declarations of Mr. Prairie

Petitioner moves to exclude the testimony of Mr. Prairie based on his asserted lack of professional experience with marine vehicles, and based on certain responses in his deposition. Paper 53, 1–8. We address each in turn.

1. Professional Experience with Marine Vehicles

Petitioner argues that a person of ordinary skill in the art is limited to someone with professional experience in marine vehicles. Paper 53, 3–4. As previously discussed, we rejected this argument as being too limiting and as excluding those "most familiar with manure agitation equipment – livestock farmers and commercial manure applicators." *See supra* § II.B. Rather, we determined that Petitioner's position "conflicts with the teachings of the '425 patent" and that a POSA includes "two years of professional experience in marine and off-road vehicles or agricultural vehicles and machinery." *Id.*

[20] Petitioner filed sealed (Paper 53) and redacted (Paper 54) versions.

Thus, Petitioner's argument[21], that Mr. Prairie does not meet Petitioner's strict and limited view of the level of skill in the art, is not based on the level of skill adopted herein, and is therefore moot.

2. Mr. Prairie's Deposition Testimony

Petitioner argues that "Mr. Prairie's declaration should also be excluded because, as shown through his deposition testimony, he lacks the requisite knowledge of or familiarity with fluid pumps and liquid manure." Paper 53, 5. Petitioner argues that such knowledge is required under either party's level of skill of a POSA. *Id.*

Petitioner's argument is based entirely on its characterization of Mr. Prairie's responses to attorney questioning in his deposition. *Id.* at 6–8. Petitioner characterizes his responses as inadequate, and therefore asserts that he is not qualified to discuss fluid pumps and liquid manure from the perspective of a POSA. *Id.*

Petitioner acknowledges that their argument does not address or consider his actual experience in fluid pumps and liquid manure. Paper 61, 3 ("Regardless of his resume, . . ."). We note that Mr. Prairie has extensive experience with both. Not only is Mr. Prairie an agricultural engineer, but Mr. Prairie testifies that he grew up on a livestock farm and has personally worked many times at the dairy farm of his in-laws over the last 25 years, including "working with their manure systems." Ex. 2004 ¶¶ 3–4. He

[21] To the extent Petitioner's arguments can be read as additional argument as to the level of skill in the art, these arguments were waived when not presented in the Reply in response to the related arguments in the Patent Owner Response (PO Resp. 12–13). *See* 37 CFR §§ 42.23 ("A reply may only respond to arguments raised in the corresponding . . . patent owner response."), 42.64(c) (a Motion to Exclude is to "explain [a previously made] objection.").

testifies that the dairy farm has a manure lagoon, and has employed manure agitation equipment and floating manure agitators. *Id.* ¶ 4. Thus, Mr. Prairie has first-hand experience with manure lagoons, liquid manure, and the considerations surrounding manure handling. *See also* Paper 58, 5–6.

Further, Mr. Prairie is "a lecturer at South Dakota State University" and is responsible for courses that "involve every aspect of the design, operation, service, and ownership of agriculture machinery systems, including livestock manure management technologies." Ex. 2004 ¶ 5. His resume notes that this includes, (presumably teaching courses in) "Ag Power and Machinery, Fluid Power Systems, Instrumentation and Controls." Ex. 2005, 1. Mr. Prairie also states that he has experience in the "design of high horsepower trash pumps." Ex. 2004 ¶ 6.

It is unclear why these experiences alone are not sufficient to establish "a working knowledge of fluid pumps and livestock manure," as required by Petitioner's proposed level of skill in the art Pet. 31 (citing Ex. 1004 ¶ 82), which we have adopted herein (*see supra* § II.B).

For these reasons, we deny Petitioner's Motion to Exclude the declarations of Mr. Prairie (Exs. 2004, 2029, 2099).

B. Declaration of Mr. Nuhn

Petitioner also moves to exclude the testimony of Mr. Nuhn (Ex. 2083). Paper 53, 1. In particular, Petitioner argues that Mr. Nuhn's declaration with regard to secondary considerations of non-obviousness "introduces inadmissible hearsay." *Id.* at 2, 8–15.

As noted above, Patent Owner only provides evidence of secondary considerations with respect to claim 1. Though we do address secondary considerations, we also find that Carrier teaches claim 1. Thus, it is unnecessary to address the secondary considerations with respect to at least

one ground. Further, in our analysis of the secondary considerations with respect to Puck and Bryham, we determine that they are insufficient to overcome the strong case of obviousness. Thus, even if we were to exclude Mr. Nuhn's testimony it would have no impact on our decision. Thus, Petitioner's Motion to Exclude Mr. Nuhn's testimony is moot.

VI. CONCLUSION[22]

For the foregoing reasons, we determine that Petitioner has proven under the preponderance of the evidence that the challenged claims are unpatentable, as summarized in the below table. We also deny Patent Owner's Motion to Amend, as also summarized below.

In summary, regarding the challenged claims:

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–21	102	Carrier	1–21	
1–21	103	Puck, Bryham	1–21	
1–21	103[23]	Puck, Bryham, Bennett II		
1–7, 12–19	103	Truxor, Yoon		
1–7, 12–19	103	Truxor, Carrier		
1–7, 12–19	103	SenwaTec, Yoon		

[22] Should Patent Owner wish to pursue amendment of the claims in a reissue or reexamination, we note the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If a reissue or reexamination is pursued, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

[23] As explained above, because we determine that the challenged claims are unpatentable under two grounds, we decline to address the remaining grounds.

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–7, 12–19	103	SenwaTec, Carrier		
1–21	103	Lyseng		
Overall Outcome			1–21	

In summary, regarding the proposed substitute claims:

Motion to Amend Outcome	Claims
Original Claims Proposed to be Replaced	1–21
Substitute Claims Proposed in the Amendment	22–42
Substitute Claims: Motion to Amend Granted	None
Substitute Claims: Motion to Amend Denied	22–42
Substitute Claims: Not Reached	None

VII. ORDER

In consideration of the foregoing, it is hereby ORDERED that:

Claims 1–21 of U.S. Patent 11,358,425 C1 have been shown to be unpatentable;

Patent Owner's Conditional Motion to Amend is denied with respect to substitute claims 22–42;

Because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2;

To the extent they are not moot, the Motions to Exclude (Papers 53–55) are denied;

This Decision is filed under seal, designated as "For Board and Parties Only" as it discusses and cites to the documents under seal; and

Within five (5) business days from the entry of this Decision, Patent Owner and Petitioner jointly file a proposed redacted version of this Decision for public entry into the record.

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