~~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.

IPR2024-00098
Patent 11,541,708 B2

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

DOUGAL, *Administrative Patent Judge*.

JUDGMENT
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

ORDER
Denying Motions to Exclude
37 C.F.R. § 42.64(c)

I. INTRODUCTION

A. Background and Summary

Petitioner, Bazooka-Farmstar, LLC, filed a Petition to institute an *inter partes* review challenging the patentability of claims 1–38 (the "challenged claims") of U.S. Patent 11,541,708 B2 (Ex. 1001, "the '708 patent"). Paper 2 ("Pet."). Patent Owner, Nuhn Industries LTD., filed a Preliminary Response. Paper 7 ("Prelim. Resp.").[1] Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review of all challenged claims. Paper 10 ("Dec.").

Patent Owner filed a Response (Papers 20 (redacted), 21 (sealed) "PO Resp."), Petitioner filed a Reply (Papers 29 (sealed), 30 (redacted) "Reply"), and Patent Owner filed a Sur-reply (Paper 42, "Sur-reply").

Both parties also filed Motions to Exclude Evidence (Papers 35–36), 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 1–38 are unpatentable.

B. Related Matters

The parties identify the following pending district court litigations as involving the '708 patent, or related patents: *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);

[1] Petitioner also filed a Preliminary Reply (Paper 8) and Patent Owner filed a Preliminary Sur-reply (Paper 9).

Nuhn Industries Ltd. v. Bazooka Farmstar, LLC, No. 3:22-cv-00064-SMR-HCA (S.D. IA); and *Nuhn Industries Ltd. v. Bazooka Farmstar, LLC and Tasch's Custom LLC*, No. 21-cv-1322-BHL (E.D. WI). Paper 3, 2–3; Paper 4, 2–4. The parties also identify the following *inter partes* reviews and *ex parte* reexams as involving related patents: IPR2023-01161, IPR2024-00004, 90/019,258 and 90/019,290, and 90/091,224. Paper 3, 3; Paper 4, 4–5.

C. The '708 Patent

The '708 patent is titled, "Amphibious Pumping Vehicle" and "relates to pumps and vehicles equipped for pumping," but more particularly, "to manure pumps and amphibious vehicles equipped for pumping liquid manure, such as animal manure contained in a farm lagoon." Ex. 1001, code (54), 1:27–31. Figure 1, reproduced below, shows an embodiment of one such vehicle.

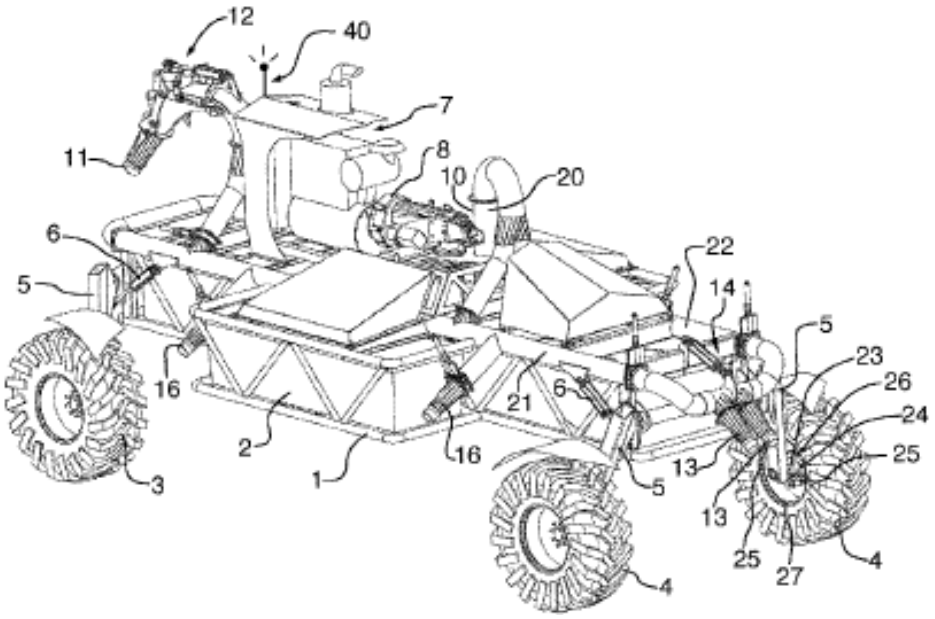


Figure 1 illustrates an amphibious vehicle with the following main components: a buoyant vehicle body (1, 2), a ground engaging propulsion

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). Ex. 1001, 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 '708 patent describes 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." Ex. 1001, 1:32–37, 1:44–48, 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, pumping fluid using the fluid pump to create 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. In this manner, fluid is recirculated and directed to desired locations in the lagoon." *Id.* at 8:14–21. The manure can then be removed from the lagoon. *Id.* at 8:21–27.

D. Illustrative Claims

Of the challenged claims, claims 1, 17, 21, and 23 are independent. Claims 1 is illustrative:

> 1. An amphibious vehicle comprising:
>
> a floatable vehicle body;
>
> a ground engaging propulsion structure;

> a power source configured to provide power to move the vehicle both when the vehicle is ground engaging and when the vehicle is floating in a liquid manure lagoon;
>
> a wireless remote control configured to enable an operator remote from the vehicle to: (1) control the power source; (2) control at least one of the speed and direction of the vehicle when the vehicle is ground engaging; and, (3) control at least one of the speed and direction of the vehicle when the vehicle is floating in the liquid manure lagoon; and,
>
> an impeller in a liquid manure pump, the liquid manure pump comprising a bottom fluid inlet configured to be immersed in the liquid manure when the vehicle is floating, whereby the impeller is configured to draw liquid manure to be pumped through the bottom fluid inlet, the liquid manure pump comprising a housing with the bottom fluid inlet in the housing.

Ex. 1001, 8:39–58.

E. Evidence

Petitioner's grounds of unpatentability rely on the following evidence:

Name	Patent Document	Exhibit
Carrier	US 2012/0185129 A1 (July 19, 2012)	1005
Yoon	KR 10-2013-0016490 (Feb. 18, 2013)	1010/1011[2]
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

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
Manure-Manager	Manure Manager, Jan./Feb. 2011	1019

[2] English language translation.

F. Asserted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 31–34), supported by the declaration of Eric Winkel, Ph.D., P.E. (Ex. 1004):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 8–18, 23–28, 35–38	103	Puck, Bryham
1–38	103	Puck, Bryham, Manure-Manager
1, 8–18, 21–28, 35–38	103	Truxor, Yoon
1, 8–18, 21–28, 35–38	103	Truxor, Carrier
1, 8–18, 21–28, 35–38	103	SenwaTec, Yoon
1, 8–18, 21–28, 35–38	103	SenwaTec, Carrier
1, 8–18, 21–28, 35–38	103	Puck, Bryham, Bennett II
1–38	103	Truxor, Yoon, Manure-Manager
1–38	103	Truxor, Carrier, Manure-Manager
1–38	103	SenwaTec, Yoon, Manure-Manager
1–38	103	SenwaTec, Carrier, Manure-Manager
1–38	103	Puck, Bryham, Bennett II, Manure-Manager
23	102	Bennett II

II. ANALYSIS

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).

"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).

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. 30 (citing Ex. 1004 ¶ 60).

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. 7 (quoting Ex. 2099 ¶ 64) (emphasis omitted). In support, Patent Owner identifies problems encountered in the art and prior art solutions to those problems. *Id.* at 6–7.

Patent Owner notes that the '708 patent "repeatably mentions farming, manure, and the problems encountered when storing animal manure in farm lagoons or pits." *Id.* at 6; *see also e.g.*, Ex. 1001, 1:35–54. Patent Owner, supported by its declarant, also argues "that in the agricultural industry, the end users of manure agitation equipment are highly knowledgeable of its design, operation, and limitations because they use, ***maintain, and modify it***." PO Resp. 7 (citing Ex. 2099 ¶ 59).

Petitioner does not directly address Patent Owner's evidence. Rather, Petitioner asserts that "farmers may ***service*** traditional farming equipment, farmers are not ordinarily ***equipped to design*** multi-functional amphibious vehicles." Reply 3 (citing Ex. 1079 ¶ 25 (Petitioner's declarant making the same assertion).

We determine that Petitioner's level of skill most closely aligns with the problems and solutions in the '708 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 '708 patent's focus on farming, manure, and the problems encountered when storing animal manure in farm lagoons or pits. *See e.g.*, Ex. 1001, 1:35–54.

Petitioner's definition is also not limited to those with agricultural experience. This is consistent with the '708 patent's claims being directed to "[a]n amphibious vehicle," and the technical field which broadly states that the '708 patent relates to "vehicles equipped for pumping." *Id.* at 1:27–31, 8:39.

At the same time, Petitioner's attempt to limit a POSA's professional experience to solely "marine and off-road vehicles" conflicts with these broader statements and is inconsistent with the teachings of the '708 patent. This can be seen in Petitioner's Motion to Exclude (Paper 36). We preliminarily held that Petitioner's definition "allows for 'those most familiar with manure agitation equipment'" similar to our finding above. Dec. 9–10. However, Petitioner argues that it does not and is limited to those with two years of "professional experience with marine vehicles." Paper 36, 4–5. This is inconsistent with the teachings of the '708 patent[3]. 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, 1:27–54 (discussing the agricultural background of the invention); Ex. 1014 ¶¶ 1–10 (Puck discussing the

[3] According to Ex. 2083, Ian Nuhn, the inventor of the '708 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.

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. 1019–1020 (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 of work experience can be remedied by additional education, and vice versa.

C. Claim Construction

We construe claims "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).

We determine that no terms require express construction for the purposes of this Decision. *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))).

D. 35 U.S.C. 103(a) – Puck, Bryham

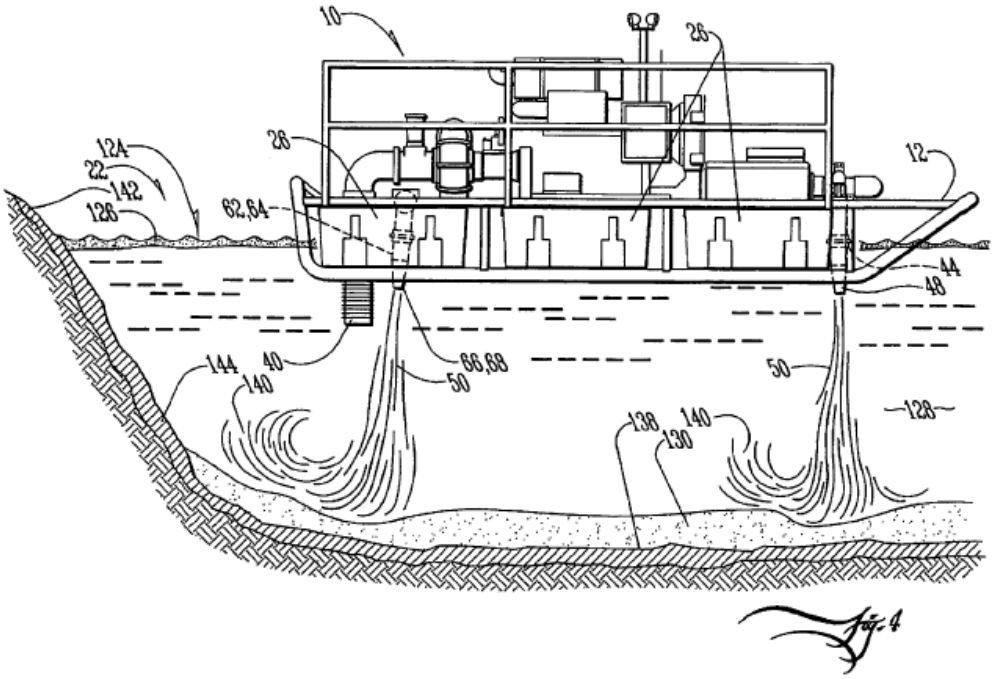
Petitioner argues that the combination of Puck and Bryham renders obvious claims 1, 8–18, 23–28, and 35–38. Pet. 72–89. Patent Owner disagrees. PO Resp. 13–25 (secondary considerations arguments), 54–78 (Puck and Bryham specific arguments). In our analysis below, we determine

that Petitioner has shown by a preponderance of the evidence that claims 17, 18, 23–28, and 35–38 are unpatentable over the combination of Puck and Bryham, but has not shown that claims 1 and 8–16 are unpatentable.

After summarizing the prior art, we address the arguments specific to Puck and Bryham and claims 1, 8–16, and 27–28. We then address independent claim 23 and the evidence and arguments related to secondary considerations. We then address the other claims subject to this ground.

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.

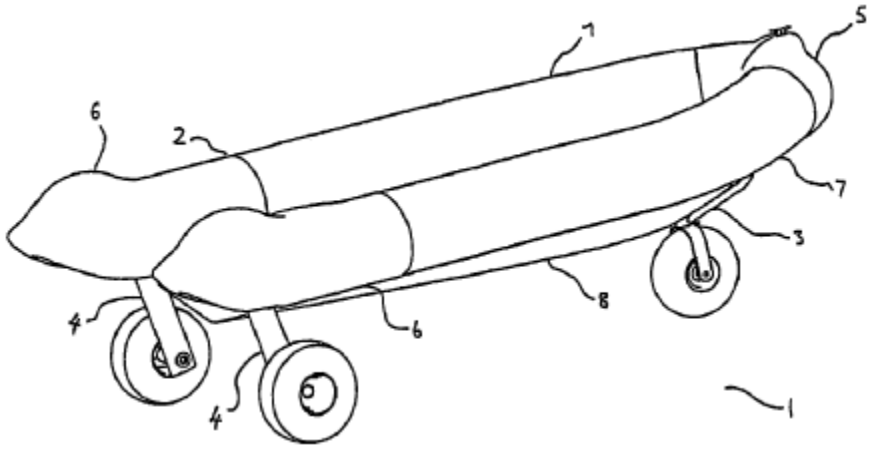


The illustrated floating manure agitator (10) in Figure 4 has an intake pipe (40) connected to the slurry pump, which pump directs the liquid manure through downward facing nozzles (48, 66, 68) into the manure lagoon. *Id.* ¶¶ 26–27, 29. In this way, the floating manure agitator can be used "to agitate 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. 72–80. Petitioner lays out its position generally as it would have been obvious to a POSA "to add the powered, steerable wheels of Bryham to Puck's boat." *Id.* at 73. Patent Owner provides a number of different arguments over the combination. PO Resp. 54–78.

As discussed below, we determine that Petitioner has not shown that Puck teaches or suggests an immersed bottom fluid inlet of a liquid manure pump. At the same time, we address claim 1 in its entirety because the other limitations are relevant to our analysis of independent claims 17, 21, and 23. Further, the Puck, Bryham, and Manure Manager ground over claim 1 also relies on many of the teachings discussed below.

a) Ground Engaging Propulsion Structure

Claim 1 includes:

> 1. An amphibious vehicle comprising: a floatable vehicle body; a ground engaging propulsion structure

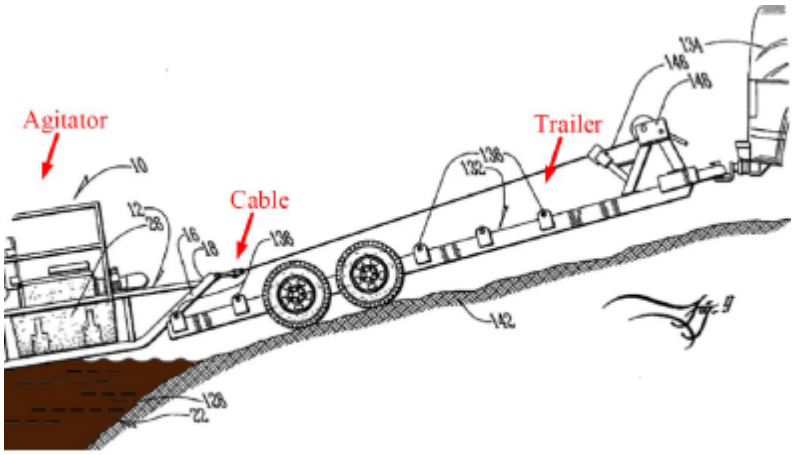
Ex. 1001, 8:39–41.

Petitioner argues that Puck teaches a "floating vehicle body." Pet. 76 (citing Ex. 1014 ¶ 11). Petitioner argues that "Bryham teaches creating an amphibious vehicle by adding steerable, hydraulically powered wheels to jet boats." *Id.* at 76 (citing Ex. 1015, 2:19–45); *see also id.* (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 73 (citing Ex. 1004 ¶ 276); *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 there is insufficient evidence that a POSA would combine Puck and Bryham. PO Resp. 69. We preliminary found this argument unconvincing in our Institution Decision. Dec. 35–36. Patent Owner repeats the identical argument here. *Compare* PO Resp. 69–71 *with* Prelim. Resp. 73–74.

Patent Owner argues that Puck Figure 9 (annotated version reproduced below) does not show any issues with loading the Puck boat onto a trailer. PO Resp. 69–70.



Id., FIG. 9 (annotated).)

Puck Figure 9 has been annotated by Patent Owner to label the agitator boat, cable, and trailer. Figure 9 further shows the agitator boat in the manure lagoon being loaded onto the trailer by a cable connecting the two. Ex. 1014 ¶ 21, Fig. 9. Patent Owner argues that this figure doesn't support Petitioner's argument because it does not show the trailer in the manure lagoon, or a person having to step into the lagoon to connect the cable to load the agitator boat. PO Resp. 70–71.

Though Patent Owner correctly describes what is shown in Puck Figure 9, this does not overcome Petitioner's evidence that there are known

issues with using trailers to launch and load vessels that would be overcome by adding wheels to the vehicle of Puck. Patent Owner's argument completely ignores the express teachings of Bryham, including the benefits of adding wheels to a boat such that no one has to get into the lagoon, (Ex. 1015, 1:18–23) and that it allows for "launching vessels in areas lacking launching infrastructure" (Pet. 75 (citing Ex. 1015, 1:25–27)). These express teachings support a finding that adding wheels to the boat of Puck would have been obvious to one of skill in the art. *See also* Pet. 74–76; Ex. 1004 ¶¶ 279–282.

Patent Owner also argues that Bryham teaches a vee-hull boat with three wheels and thus there is not "a reasonable expectation of success in adding Bryham's wheels to the manure agitation boat disclosed in Puck." PO Resp. 73. This argument is also unconvincing.

First, the proposed ground does not suggest adding Bryham's hull shape to Puck. Second, rather that establishing that there would not be an expectation of success, Patent Owner merely identifies potential drawbacks of a three-wheel design. PO Resp. 73–74 (unstable, poor traction/sliding) (citing Ex. 2099 ¶¶ 504–506). Claim 1 does not define the ground engaging propulsion structure and would include three-wheeled vehicles, independent of whether these designs have drawbacks as compared to other designs. Further claim 1 also covers other designs, such as four-wheels vehicles that are not addressed by Patent Owner. *See e.g.*, Pet. 80–82 (discussing claims 8–9 which require 4 wheels).

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.[4]

b) Power Source

Claim 1 also requires "a power source configured to provide power to move the vehicle both when the vehicle is ground engaging and when the vehicle is floating in a liquid manure lagoon." 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 "[t]he 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 ¶ 286).

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. 65. However, Petitioner explains that it "would [be] cheaper, lighter, and more efficient than providing separate engines for each component." Pet. 77 (citing Ex. 1004 ¶ 286); *see also* Reply 27.

[4] 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.

Patent Owner further argues that the Petition should have addressed separate electric motors to power the wheels, as this alternative is mentioned by Bryham. PO Resp. 65; 75. Though we consider each prior art reference in its entirety, there is no requirement that a petitioner discuss every alternative embodiment in the prior art. Further, Patent Owner does not address why the existence of this alternative embodiment would impact the obviousness analysis as proposed by Petitioner.

Patent Owner also argues over Puck individually that "a hydraulic pump that is powered by a 12-volt battery, like the hydraulic pump 54 disclosed in Puck, would be insufficient to drive the hydraulically powered wheels of a vehicle." PO Resp. 65–66; Sur-reply 20. This argument does not address what one of skill in the art would understand based on the combined teachings of Bryham and Puck. Thus, it does not address the ground as proposed by Petitioner.

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.

c) Remote Control

Claim 1 includes the following:

> a wireless remote control configured to enable an operator remote from the vehicle to: (1) control the power source; (2) control at least one of the speed and direction of the vehicle when the vehicle is ground engaging; and, (3) control at least one of the speed and direction of the vehicle when the vehicle is floating in the liquid manure lagoon.

Ex. 1001, 8:45–51.

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

Petitioner further argues that "[r]emote-control technology was well known and readily adaptable to power wheeled vehicles" and that one of 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 (citing Ex. 1004 ¶¶ 276–282, 289).

Patent Owner argues that the combination is complicated and would require substantial modification. PO Resp. 68, 75. Patent Owner further argues that "[a] POSITA would not make the alleged combination without guidance," and that "[i]t's not enough for the art to teach remote controlled vehicles generally for this combination to have been obvious." *Id.* at 68 (citing Ex. 2099 ¶ 270). Patent Owner's declarant argues that "just because *some* vehicles can be remote controlled does not mean that *all* vehicles can be remote controlled." Ex. 2099 ¶ 270.

Neither Patent Owner, nor its declarant, 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; *see also* Ex. 1004 ¶ 282 (Petitioner's declarant arguing that the "combination provides a reasonable expectation of success"). Further, Puck already teaches steering and driving by remote control when floating in a manner that is more complicated than steering and driving a set of wheels. *See e.g.*, Ex. 1014

¶¶ 9, 11, 27, 35, 37. This further supports Petitioner's position that the combination is well within the level of skill in the art.

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.

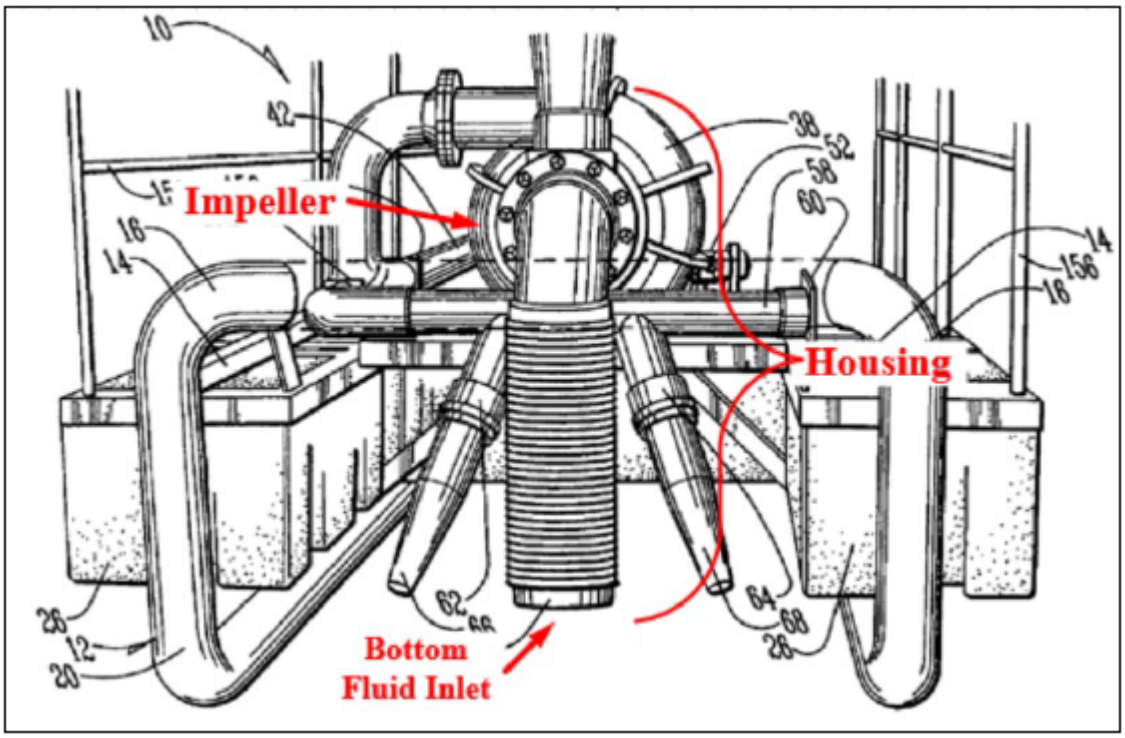
d) Impeller

Claim 1 ends with the following:

> an impeller in a liquid manure pump,
>
> the liquid manure pump comprising a bottom fluid inlet configured to be immersed in the liquid manure when the vehicle is floating,
>
> whereby the impeller is configured to draw liquid manure to be pumped through the bottom fluid inlet,
>
> the liquid manure pump comprising a housing with the bottom fluid inlet in the housing.

Ex. 1001, 8:52–58 (paragraphing added).

Petitioner argues that Puck teaches "an impeller in a liquid manure pump" with a "bottom fluid inlet . . . immersed while the vehicle is floating" Pet. 79–80 (citing e.g., Ex. 1014 ¶ 25, Figs. 4, 6). Petitioner provides the below marked-up version of Puck Figure 6 to show the asserted components of the liquid manure pump. *Id.* at 79.



Puck Figure 6 shows an end view of the vehicle of Puck which Petitioner has annotated in red to indicate the alleged impeller, bottom fluid inlet, and housing.

Patent Owner argues, and Petitioner does not contest, that "[t]he intake pipe 40 in Puck is disclosed as a separate component that is not part of the slurry pump 38." PO Resp. 54. Patent Owner convincingly explains that these two components are separated by an intermediate component (the positive sealing float box) and thus the intake pipe would not be considered part of the pump housing "immersed in the liquid manure when the vehicle is floating" as required by the claims. *Id.* at 54–57 (citing Ex. 2004 ¶ 196; Ex. 1014 ¶¶ 25–26, Figs. 1, 5; Ex. 2105, 3; 2099 ¶¶ 245–247).

As noted, Petitioner does not contest Patent Owner's argument or evidence on this point.

After our review of the arguments and evidence, we determine that Petitioner has not shown by a preponderance of the evidence that the

combination of Puck and Bryham teaches or suggests these claim limitations.

e) Conclusion as to Claim 1

For the reasons discussed above, we determine that Petitioner has not shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests claim 1.

4. Claims 8–16, 27–28

Claims 8–16 all depend from claim 1. These claims include all of the limitations of claim 1, therefore Petitioner has not shown the unpatentability of these claims over Puck and Bryham for the same reasons discussed above.

Similar to claim 1, claim 27 requires a "liquid manure pump [that] comprises a bottom fluid inlet configured to be immersed in the liquid manure when the vehicle is floating." Ex. 1001, 11:25–27. Claim 28 depends from claim 27. Petitioner has not shown the unpatentability of claims 27–28 over Puck and Bryham for the same reasons discussed above.

5. Claim 23

Independent claim 23 includes the same limitations as claim 1 with two exceptions. First, claim 23 does not have the "impeller" limitations (*see supra* §II.D.3.d)). Second, claim 23 includes the following additional limitations:

> a floatable vehicle body comprising buoyant elements having foam filled buoyant chambers,
>
> the buoyant elements comprising
>
> > a first buoyant element situated between a first front wheel and a first rear wheel and
> >
> > a second buoyant element between a second front wheel and a second rear wheel.

Ex. 1001, 10:64–11:2, Certificate of Correction (paragraphing added).

Petitioner refers the reader to the discussion of limitations from other claims in the Petition for all of the limitations of claim 23. Pet. 88. For all of the limitations overlapping with claim 1, we have determined above that Petitioner has shown by a preponderance of the evidence that the combination of Puck and Bryham teaches or suggests these claim limitations.[5]

We now address the additional limitations of claim 23.[6]

a) a floatable vehicle body comprising buoyant elements having foam filled buoyant chambers

Petitioner argues that Puck teaches modular dock sections made from any type of buoyant material. *Id.* at 84 (citing Ex. 1014 ¶¶ 22–23, Fig. 1). Supported by its declarant, Petitioner further argues "that foam filled buoyant chambers were known for constructing floating modular dock sections." *Id.* at 85 (citing Ex. 1004 ¶ 300).

This is uncontested by Patent Owner and after our review of the arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that Puck teaches or suggests these claim limitations.

b) a first buoyant element situated between a first front wheel and a first rear wheel and a second buoyant element between a second front wheel and a second rear wheel

We first note that we previously determined herein that Petitioner has shown by a preponderance of the evidence that a POSA would have been

[5] As previously noted, 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.

[6] For these limitations, Petitioner refers the reader to the discussion of claims 13–15, which also rely on the discussion of claims 8–9. *See* Pet. 88; 84–86, 80–82.

motivated to add Bryham's ground engaging propulsion structure (i.e. four wheels) to Puck's boat. *See supra* § II.D.3.a). Thus, the question outstanding is whether the combination of Puck and Bryham teaches or suggests a first buoyant element situated between front and rear wheels and a second buoyant element situated between a different set of front and rear wheels.[7]

Petitioner argues that: "[a] POSA would have found it obvious to use four wheels, with one wheel at each corner, to best support the rectangular vehicle body of Puck." Pet. 85; *see also id.* at 80–82. Petitioner further argues that "[l]ocating the wheels at each corner would result in at least one separate dock section being located between the front and rear wheel on each side of the vehicle." *Id.* at 86 (citing Ex. 1004 ¶ 302 (making an identical statement)).

We initially determined that Petitioner's position was unclear. Dec. 39. In particular, we identified that

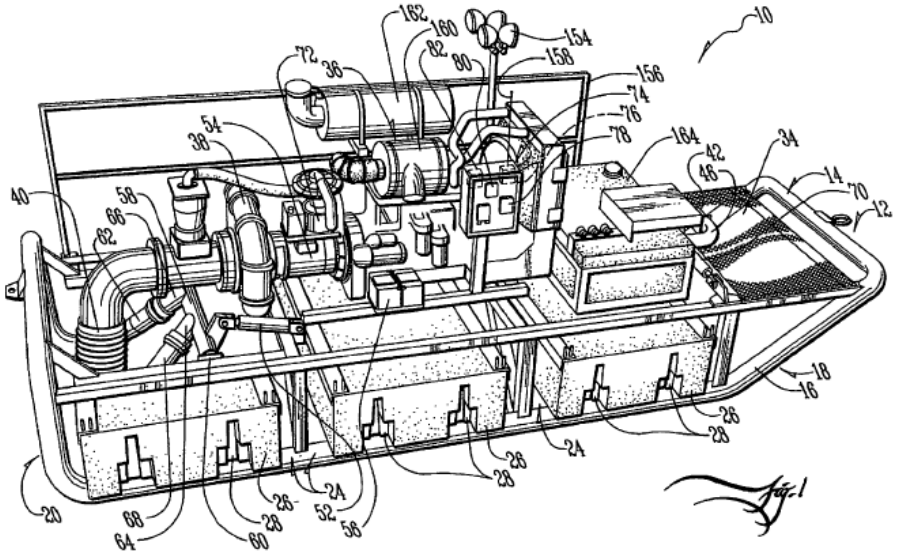
> Bryham itself shows three wheels positioned below the boat's hull (Ex. 1015, Fig. 1; *see also* Pet. 81, 87 (reproducing Bryham Fig. 1)),[8] and Petitioner does not argue that the combination would result in a different configuration than that taught by Bryham. Though Petitioner states that the wheels would be located at the corners, the actual positioning and relationship with the buoyant elements is not specified. Petitioner's position is further unclear as Petitioner has previously construed "between" to mean "adjacent to." *See e.g.*, Pet. 65–66; Prelim. Reply 2–4.

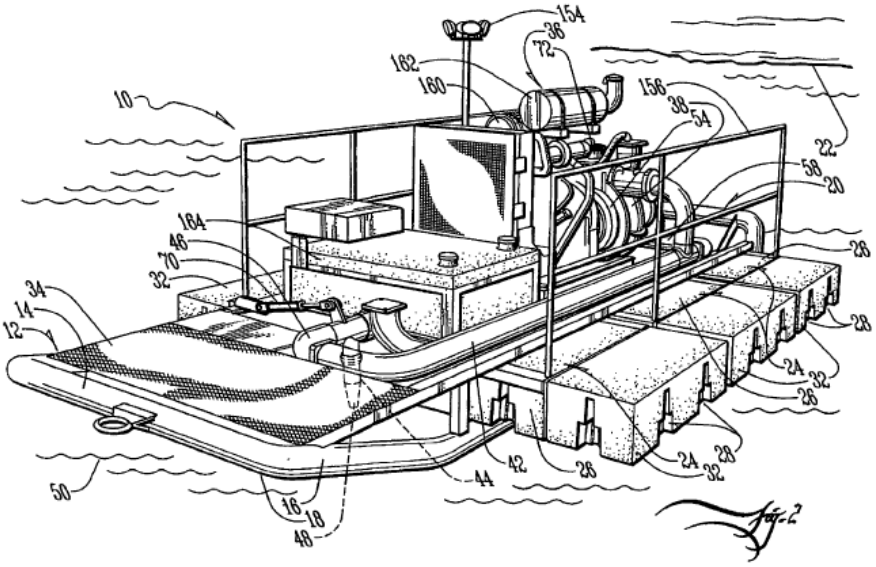
[7] Other claims, such as claims 17 and 21, further require the buoyant element with its respective front and rear wheels to be on the same side.
[8] Though Bryham also teaches that the wheels can be retractable (Ex. 1015, code (57), Figs. 1–2), so that they would not be below the hull, the Petition does not discuss this feature of Bryham (*see* Pet. 72–89).

Dec. 39. As implied in the above quote, our Institution Decision also preliminarily rejected Petitioner's claim construction of the term "between." *Id.* at 13–15.

On Reply, Petitioner clarifies that when they stated "one wheel at each corner," they meant that each wheel would be located literally at the corner. Reply 24 (citing Ex. 1079 ¶¶ 166–168). Petitioner's declarant further explains that "[a] POSA would have understood that the natural location to attach the wheels of Bryham to Puck would be to the steel frame 14 of Puck, which is the conventional location to attach wheels to a vehicle." Ex. 1079 ¶ 166.

With wheels at the corners of Puck's vehicle, the buoyant elements are positioned as required by claim 23 between the wheels. Figures 1 and 2 of Puck are reproduced below for reference.





Puck states that "FIG. **1** [top] illustrates a side perspective view of the floating manure agitator of the present invention; FIG. **2** [bottom] illustrates a front perspective view of the floating manure agitator of FIG. **1,** being retrieved from a manure lagoon;" Ex. 1014 ¶¶ 13–14. As can be seen in Figure 2, Puck teaches that additional dock sections (32) (i.e. buoyant elements) have been attached to the boat. *Id.* ¶ 34. Thus, wheels connected to the frame at the corners would place these additional buoyant elements between the first and rear wheels on each side. Further, even without the additional buoyant elements, the buoyant elements within the frame are between the front and rear wheels on the diagonal.[9]

Though Patent generally states that Petitioner does not show how the prior art meets the claim limitations, Patent Owner does not directly address Petitioner's argument. *See* Sur-reply 18–20.

[9] Pre-institution, Patent Owner argued that claim 23 should be construed to add a limitation present in other claims that the first front and first rear wheels are on the same side. Prelim. Resp. 23–25. We preliminary rejected that claim construction argument. Dec. 11–13. Patent Owner does not renew that claim construction argument here. *See* PO Resp. 7.

Petitioner also argues that one of skill in the art could have also utilized Bryham's retractable legs to attach the wheels to the frame. Pet. 24–25. However, it is unnecessary for us to address this additional possibility in view of the argument discussed above.

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.

c) 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 the claims have 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 $90,000,000 in revenue generated over about 9 years. PO Resp. 15 (citing Ex. 2083 ¶ 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 for manure agitation "boats" in North America, but now has less than 10%, while Patent Owner has more than 90%. *Id.* at 15–16 (citing Ex. 2083 ¶ 27).

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.* at 17–18. 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 reliably 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

[10] Patent Owner identifies four generations of manure lagoon agitation vehicles, not including the prototype. *See* Ex. 2083 ¶ 22 (Gen 1, Gen 2, Gen 3, & Crawler X).

invention."); *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (noting that "evidence 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 $90,000,000 in revenue generated are both significant amounts. *See generally* Reply 33–34; Sur-reply 23–24.

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 up the crust formed on a manure lagoon and mixing / agitating the contents of the manure lagoon to achieve a homogeneous mixture prior to pump out and subsequent ground application as fertilizer."[11] PO Resp. 16 (emphasis omitted) (citing Ex. 2099 ¶ 22). 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.* at 17.

[11] In the Sur-reply, Patent Owner attempts to advance new theories concerning problems to be solved "with floating agitation boats." Sur-reply 24–25. We decline to consider these late arguments.

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 "breaking up the crust formed on a manure lagoon and mixing / agitating the contents of the manure lagoon to achieve a homogeneous mixture prior to pump out and subsequent ground application as fertilizer" has been previously solved. *See e.g.*, Ex. 1014, Abstr.; *see also* Reply 34. 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.

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. PO Resp. 17–18. As evidence, Patent Owner provides a picture of each vehicle and Patent Owner asserts that the vehicles "share[] substantial similarity." *Id.* at 18. Patent Owner also argues that Petitioner had access to the Lagoon Crawler. *Id.* at 17 (citing Ex. 2083 ¶¶ 69–70). 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 '708 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 25 (citing Ex. 2099 ¶¶ 708–728). 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 "produce[d] a new and unexpected result that revolutionized the agricultural farming industry." PO Resp. 19. Specifically, Patent Owner argues that the unexpected result includes

> (1) A ground engaging propulsion structure with wheels that not only carry the vehicle into and out of a manure lagoon, but also allow the vehicle to break-up (i.e., chew) through the thick crust on the top surface of the manure lagoon while the vehicle is floating; and
>
> (2) The claimed arrangement of components results in a piece of manure agitation equipment that can do the work of four (4) PTO-driven tractor mounted manure agitation pumps (i.e., is four times more efficient than prior art agitators) due to the synergy provided by the claimed components.

Id. (citing Ex. 2083 ¶¶ 29–33; Ex. 2099 ¶¶ 704–707).

Petitioner replies arguing that Patent Owner's unexpected results were already known in the prior art. Pet. Reply 35. In response, to Patent Owner's contention that its product unexpectedly replaces four shore-mounted manure agitation pumps, Petitioner argues that Puck already disclosed similar efficiency gains back in 2011. *Id.* (citing Ex. 1104, 01:04–01:28). Petitioner also contends that Truxor and SenwaTec already disclosed wheels that "break crust and create a 'pocket'" (*id.* (citing Ex. 1079 ¶¶ 347–350)) and "[t]he only difference from Truxor/SenwaTec in the claims is remote control [functionality], and that feature was in fact added to both Truxor and SenwaTec" (*id.* (citing Ex. 1110, 184:7–185:7; Ex. 1109, 27:20–28:09)). Petitioner adds that "providing remote control is not an unexpected result of adding a remote control." *Id.* (citing Ex. 1079 ¶¶ 347–350).

Based on the fully developed trial record, we are not persuaded that Patent Owner establishes a difference between its alleged "unexpected results" and the closest prior art. "To be particularly probative, evidence of unexpected results must establish that there is a difference between the results obtained and those of the closest prior art, and that the difference would not have been expected by one of ordinary skill in the art at the time of the invention." *Bristol-Meyers Squibb Co. v. Teva Pharms. USA, Inc.*, 752 F.3d 967, 977 (Fed. Cir. 2014). Also, "[w]hen assessing unexpected properties, . . . we must evaluate the significance and 'kind' of expected results along with the unexpected results." *Id.*

Here, we find the record establishes that the results alleged by Patent Owner as unexpected, were in fact, expected and known results in the art. We credit Dr. Winkel's declaration testimony that one of ordinary skill in the art "would have understood that an amphibious vehicle would be heavy enough to break through a crust on a lagoon and could assist in agitating the

material contained in the lagoon. Once again, this is the same result that was realized by the use of the SenwaTec product in manure reservoirs." Ex. 1079 ¶ 349.

Patent Owner does not dispute Dr. Winkel's declaration testimony, but instead argues that there is "no evidence that Truxor or SenwaTec [had] ever been used in an animal manure lagoon." PO Sur-reply 26. Patent Owner's argument, however, is not based on a limitation appearing in the claims. Thus, we find Patent Owner's evidence of alleged unexpected results does not weigh in favor of nonobviousness because it does not establish a difference between the results and the closest prior art and does not establish that such a difference would have been unexpected by a person of ordinary skill in the art.

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. 23 (citing Ex. 2083 ¶¶ 34–52). Patent Owner includes multiple articles for support. *See* Exs. 2061–2074, 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 participation in various trade shows (Ex. 2062, 2; Ex. 2063, 1; Ex. 2064[12], 1; Ex. 2067, 2), or their unveiling of the 100th Crawler off the production line

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

and expansion of their facility (Ex. 2069, 8; Ex. 2070, 52; Ex. 2071, 1; Ex. 2072[13], 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 ¶ 36; *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 ¶ 37. 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 36. Petitioner argues that it is the "the bright red paint job, knobby tires, and jacked-up-Ferrari look" rather than the claimed features that have resulted in its success. *Id.*

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

The Lagoon Crawler's appearance may have influenced the amount of publicity it received. But, we agree with Patent Owner that most farm tractors sport bright paint and large knobby tires, but don't get the same media attention. Sur-reply 26–27. 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.

(6) Licensing

Patent Owner states that "Puck Enterprises – reached out to Nuhn and sought a license to Nuhn's Lagoon Crawler patents." PO Resp. 23 (citing Ex. 2083 ¶¶ 64–67). Mr. Nuhn states that Exhibit 2075 is an email he received from Puck Enterprises in this regard. Ex. 2083 ¶¶ 64–67.

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 '708 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. 24. 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.* (citing Ex. 2083 ¶¶ 53–60).

Mr. Nuhn identifies a number of different groups of individuals who expressed skepticism. Ex. 2083 ¶¶ 53–60. For example, he states that there were individuals at various trade shows who expressed concerns with various aspects of the Lagoon Crawler. *Id.* ¶¶ 54, 56–57. 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.* ¶ 59.

Mr. Nuhn testifies that his father said he should be "focus[ed] . . . on more important matters" when working on the prototype. *Id.* ¶ 55. 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.* ¶ 60 (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, is 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 between Patent Owner's manure lagoon agitation vehicles and the independent claims.[14] 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

[14] Patent Owner's declarant, Dr. Prairie, only provides details for how the various lagoon agitation vehicles are covered by the independent claims. Ex. 2099 ¶¶ 519–699. Thus, we need not address the secondary considerations with respect to the dependent claims.

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.

d) Conclusion for Claim 23

After our review of Petitioner's assertions with respect to claim 23 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 23.

6. Claim 17

Independent claim 17 includes many limitations similar to claims 1 and 23. For the overlapping sections we refer to our prior discussions above. *See supra* §§ II.D.3.a)–c) and II.D.5. Claim 17 also includes:

> four variable speed hydraulic motors, one variable speed hydraulic motor per wheel, for independently driving the wheels at variable speeds;
>
> …
>
> a rotating shaft configured to move liquid manure in a liquid manure lagoon.

Ex. 1001, 9:47–55.

There is no dispute that Puck teaches a rotating shaft in the form of an impeller "configured to move liquid manure in a liquid manure lagoon." *See* Pet. 88 (citing Ex. 1004, 307), 79 (citing Ex. 1004 ¶ 291, Ex. 1014 ¶ 25).

Concerning the four variable speed hydraulic motors to power the wheels, Petitioner argues that

> It would have been 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.

> 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."

Pet. 81 (citing Ex. 1004 ¶ 294). Petitioner further argues that

> Bryham discloses a plurality of ground engaging elements that are powered by separate hydraulic motor**s**. A POSA would have understood that each of the wheels could be independently powered for better traction using the separate, hydraulic motors taught by Bryham.

Id. at 82 (citing Ex. 1015, 6:47–53, Fig. 23; Ex. 1004 ¶ 296).

Patent Owner argues that Bryham teaches using three wheels and that the front wheel is not powered. PO Resp. 66. Thus, Patent Owner argues that not using this configuration is impermissible hindsight. *Id.* at 67. We disagree.

Notably, Patent Owner does not address any of Petitioner's reasoning or explanation reproduced above as to why one of skill in the art would be motivated to use four wheels and to power them all. We determine that Petitioner's arguments, supported by declarant testimony are sufficient to meet the preponderance of the evidence standard.

Patent Owner also argues that if the vehicle would run out of gas, the hydraulic powered wheels would lock, preventing the vehicle from being able to be retrieved from the manure lagoon. PO Resp. 72 (citing e.g., Ex. 2099 ¶ 280).

Petitioner responds that there are known solutions to this problem, that that this is just a trade-off, not a reason why a POSA would not combine the teachings. Reply 31 (citing Ex. 1079 ¶¶ 207–210). We agree, "a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine." *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006).

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 claim 17.

7. Claim 18, 24–26, 35–38

Petitioner argues that the combination of Puck and Bryham renders obvious claims 18, 24–26, and 35–38. Pet. 79, 81–84, 88–89 (citing e.g., Ex. 1004 ¶¶ 291, 295–297, 307, 311; Ex. 1014 ¶¶ 25, 37; Ex. 1015, 6:47–53, 16:4–6, Fig. 23). Patent Owner does not separately address these claims. *See generally* PO Resp. 76–78.

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 these claims.

E. 35 U.S.C. 103(a) –Puck, Bryham, Manure-Manager

Petitioner argues that Manure-Manager with Puck and Bryham, renders obvious claims 1–38. Pet. 108–115. Patent Owner disagrees, but only specifically addresses Manure-Manager with respect to dependent claims 3, 19, and 30. PO Resp. 54, 76–77. Patent Owner also provides argument over certain other dependent claims relevant to this ground. *Id.* at 76–77.

In our analysis below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–38 are unpatentable over the combination of Puck, Bryham, and Manure-Manager.

After summarizing Manure-Manager, we address claim 1. This is followed by the other independent claims, and then the dependent claims.

1. Manure-Manager

Manure-Manager is an advertisement (Ex. 1019, 27) in a publication called Manure-Manager; the relevant portion of which is reproduced below.

The above advertisement shows a G-Force Vertical Pit Pump. The pump is also shown pumping and spraying a mud like material in a pond or pit when attached to a tractor. The advertisement 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 cooler, a fully enclosed drive line, a hardened and balanced drive shaft, and a modular design. Experience the fastest load times in the industry.

Id.

2. Claim 1

Petitioner relies on the same disclosures of Puck and Bryham, discussed previously, and then on Manure-Manager for features of the pump in both the independent and dependent claims. Pet. 108–115. Petitioner also argues that a POSA would combine the pump in Manure-Manager with Puck and Bryham, "to take advantage of the pump's improved efficiency and manure pumping capabilities," among other reasons. *Id.* at 109. Petitioner further argues that the Puck pump requires priming, and that the Manure-Manager pump does not, which is another reason why one of skill in the art would replace Puck's pump with the Manure-Manager pump. *Id.* (citing Ex. 1014 ¶ 31; Ex. 1021, 2; Ex. 1004 ¶¶ 355–357).

Petitioner relies on the pump in Manure-Manager to overcome the deficiencies identified above with respect Puck. *Id.* at 97. It is uncontested that the Manure-Manager pump is a liquid manure pump with an impeller, which pump has a housing having a bottom fluid inlet "configured to be immersed in the liquid manure." *Id.* (citing Ex. 1004 ¶ 327); *see also* Ex. 1019, 27. It further is uncontested that when combined with Puck and Bryham, the bottom fluid inlet would be immersed in the liquid manure when the vehicle is floating.

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, Bryham, and Manure-Manager teaches or suggests claim 1.

3. Claims 17, 21, 23

Petitioner argues that independent claims 17, 21, and 23 are obvious over the combination of Puck, Bryham, and Manure-Manager. Pet. 113–115.

Patent Owner does not advance any additional arguments with respect to these claims that we have not already addressed above.

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, Bryham, and Manure-Manager teaches or suggests claims 17, 21, and 23.

4. Claims 3, 19, 30

Claim 3 requires "at least two tangential fluid outlets [in the liquid manure pump housing] are equipped with a flexible connection to a single fluid conduit." Ex. 8:61–63. Claims 19 and 30 include similar limitations. *Id.* at 10:4–14, 12:3–5.

Patent Owner does not address Petitioner's argument except to point out that the Manure-Manager "pump does not have a flexible connection between the tangential outlets and the combiner." PO Resp. 76. Patent Owner then asserts that such a connection would not be obvious, but does not address why. We decline to address this blanket assertion without any explanation.

We find convincing, Petitioner's argument that "Manure-Manager shows and describes that the pump includes two tangential fluid outlets." Pet. 98 (citing Ex. 1004 ¶ 328) *see also* Ex. 1019, 27; Pet. 110. Petitioner further convincingly argues that "us[ing] a flexible connection to connect the tangential fluid outlets to a single fluid conduit" would be obvious and "obtain predictable results," as "[d]oing so would help reduce material fatigue and failure due to the vibrations in the pump." Pet. 98 (citing Ex. 1004 ¶ 329).

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, Bryham, and Manure-Manager teaches or suggests these claims.

5. Claims 7, 20, 34

Claim 7 requires a "hydraulic articulation cylinder [] coupled to a four bar linkage." Ex. 1001, 9:8–9. Claims 20 and 34 include similar limitations. *Id.* at 10:19–22, 12:17–18.

Patent does not address Petitioner's argument, other to identify that the references do not expressly teach a four-bar linkage. PO Resp. 77.

We find convincing, Petitioner's argument that "Manure-Manager discloses that the articulation cylinder is coupled to a linkage," and that "[a] POSA would have understood it to be obvious to couple the cylinder to a four-bar linkage, as such linkages were well known in the art for extending cylinder stroke lengths." Pet. 101 (citing Ex. 1004 ¶ 333; Ex. 1019, 27).

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, Bryham, and Manure-Manager teaches or suggests these claims.

6. Claim 16

Claim 16 requires "a center of gravity located along a longitudinal centerline of the vehicle, substantially in a middle of the vehicle." Ex. 1001, 9:37–39.

Petitioner correctly identifies that "Puck describes maintaining an optimal 'center of gravity to increase the stability of the agitator.'" Pet. 86 (quoting Ex. 1014 ¶ 41). Petitioner argues that "[a] POSA would have understood that [Puck's] symmetrical arrangement of components would result in the vehicle having a center of gravity located along the centerline of the vehicle." *Id.*

Patent Owner argues that "this only teaches that the center of gravity is along the longitudinal centerline and not also 'substantially in a middle of the vehicle' in the fore-and-aft direction." PO Resp. 78. Patent Owner does not address why the claim requires the middle to be in the "fore-and-aft direction."

Petitioner responds that "[e]ven if 'substantially in a middle of the vehicle' refers to the fore-and-aft direction, Puck discloses that its components are arranged substantially in the middle of the vehicle in the fore-and-aft direction." Reply 32 (citing Ex. 1079 ¶ 283 (Petitioner's declarant further explaining the teaching of Puck)).

We agree that the limitations added by claim 16 are obvious in view of Puck's teaching of "maintaining an optimal 'center of gravity to increase the stability of the agitator.'" Pet. 86 (quoting Ex. 1014 ¶ 41).

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 claim 16.

F. Other Proposed Grounds under 35 U.S.C. 102/103

As noted previously, Petitioner presents a number of other grounds of unpatentability of the challenged claims. *See e.g.*, Pet. 34–72, 89–108.

As we have determined that claims 1–38 are unpatentable as obvious over Puck, Bryham, and Manure Manager 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. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude Exhibits 1008 and 1013. Paper 35. 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 35, 1–5) and is therefore moot.

IV. PETITIONER'S MOTION TO EXCLUDE

Petitioner filed a Motion to Exclude in whole or in part the declarations of Mr. Prairie (Exs. 2004, 2099) and Mr. Nuhn (Ex. 2083). Paper 36, 1. Patent Owner filed an Opposition (Paper 38) and Petitioner filed a Reply to the Opposition (Paper 40). 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 36, 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 36, 3–5. 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

'708 patent" and that a POSA includes "two years of professional experience in marine and off-road vehicles or agricultural vehicles and machinery." *Id.*

Thus, Petitioner's argument[15], 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 36, 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 40, 2 ("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

[15] 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. 6–7). *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.").

worked many times at the dairy farm of his in-laws over the last 25 years, including "working with their manure systems." Ex. 2004 ¶ 5. He testifies that the dairy farm has a manure lagoon, and has employed manure agitation equipment and floating manure agitators. *Id.* Thus, Mr. Prairie has first-hand experience with manure lagoons, liquid manure, and the considerations surrounding manure handling. *See also* Paper 38, 4–6.

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 ¶ 6. 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 ¶ 7.

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. 30 (citing Ex. 1004 ¶ 60), 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 36, 1. In particular, Petitioner argues that Mr. Nuhn's declaration with regard to secondary considerations of non-obviousness "introduces inadmissible hearsay." *Id.* at 2, 8–14.

As noted above, in our analysis of the secondary considerations with respect to Puck and Bryham, and Puck, Bryham, and Manure Manager 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.

V. CONCLUSION[16]

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 below.

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 8–18, 23–28, 35–38	103	Puck, Bryham	17, 18, 23–26, 35–38	1, 8–16, 27–28
1–38	103	Puck, Bryham, Manure-Manager	1–38	
1, 8–18, 21–28, 35–38	103[17]	Truxor, Yoon		
1, 8–18, 21–28, 35–38	103	Truxor, Carrier		
1, 8–18, 21–28, 35–38	103	SenwaTec, Yoon		
1, 8–18, 21–28, 35–38	103	SenwaTec, Carrier		

[16] 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).

[17] As explained above, because we determine that the challenged claims are unpatentable over Puck, Bryham, and Manure-Manager, we decline to address the remaining grounds.

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 8–18, 21–28, 35–38	103	Puck, Bryham, Bennett II		
1–38	103	Truxor, Yoon, Manure-Manager		
1–38	103	Truxor, Carrier, Manure-Manager		
1–38	103	SenwaTec, Yoon, Manure-Manager		
1–38	103	SenwaTec, Carrier, Manure-Manager		
1–38	103	Puck, Bryham, Bennett II, Manure-Manager		
23	102	Bennett II		
Overall Outcome			1–38	

VI. ORDER

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

Claims 1–38 of U.S. Patent 11,541,708 B2 have been shown to be unpatentable;

Parties seeking judicial review of this Final Written 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 35–36) 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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