

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BAZOOKA-FARMSTAR, LLC,

Petitioner,

v.

NUHN INDUSTRIES LTD.,

Patent Owner.

Case No. IPR2023-01161
U.S. Patent No. 11,358,425

PATENT OWNER'S RESPONSE
(under 37 C.F.R. §42.120)

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. BACKGROUND ON AGRICULTURAL MANURE LAGOONS AND STATE OF THE PRIOR ART USED TO AGITATE AND PUMP AGRICULTURAL MANURE LAGOONS	5
III. BACKGROUND OF GENERAL-PURPOSE AMPHIBIOUS VEHICLES	8
IV. NUHN’S AMPHIBIOUS PUMPING VEHICLE	9
A. <i>General Background</i>	9
B. <i>Prosecution of U.S. Patent Application, which resulted in the ‘425 Patent</i>	11
C. <i>All Claims of The ‘425 Patent Confirmed In Ex Parte Reexamination</i>	12
V. LEVEL OF ORDINARY SKILL	13
A. Type of Problems Encountered in the Prior Art and Solutions to those Problems	13
B. Petitioner’s POSITA Would Not Be Familiar With The Problems Faced In Agricultural Farming, And Specifically Agitation/Pumping And Care Of Agricultural Manure Lagoons.....	14
VI. CLAIM INTERPRETATION.....	15
A. The Claim Language Reciting “A Fluid Pump For Pumping Liquid Manure” and “A Wireless Control for Controlling a Flow of Liquid Manure from the Pump” Is Limiting Rather Than Intended Use	15
B. “Liquid Manure” Refers To The Contents Of A Manure Lagoon, Which Includes Suspended Solids.....	16
C. “A Fluid Pump For Pumping Liquid Manure” Means “A Fluid Pump That Pumps Liquid Manure”	19
D. The “Fluid Mover” Recited in Dependent Claims 7 and 19 Is A Means- Plus-Function Limitation Under 35 U.S.C. § 112(f)	21
VII. GROUND 1: CLAIMS 1-21 ARE NOT ANTICIPATED BY CARRIER	23
A. Carrier Is An Emergency Or Combat Amphibious Vehicle And Not An Amphibious Vehicle Equipped For Pumping Liquid Manure.....	23
B. Carrier Does Not Expressly Disclose Wireless Remote Control As Claimed	25

C.	Petitioner Does Not Meet Its Burden Of Persuasion Because It Does Not Argue That The Quick-Connect Water Pump In Carrier Is Disclosed As a Pump For Pumping Liquid Manure	26
D.	Claim 1	29
i.	Carrier Fails to Disclose or Suggest a Fluid Pump For Pumping Liquid Manure	29
1.	Carrier Fails to Disclose All of the Wireless Remote Control Limitations of Claim 1	33
2.	Carrier Fails to Disclose The Claimed Combination of Elements, Which When Considered Collectively, Define an Amphibious Manure Lagoon Agitation Vehicle	34
E.	Dependent Claims 2-6.....	34
F.	Dependent Claims 7 and 19	34
G.	Dependent Claims 8-11 and 20-21	36
H.	Dependent Claims 12-21.....	38
VIII.	CLAIMS 1-21 ARE NON-OBVIOUS (GROUNDS 2-5).....	38
A.	SECONDARY CONSIDERATIONS – GROUNDS 2-5.....	38
i.	Nuhn’s Invention Has Achieved Commercial Success	40
ii.	The Invention Satisfied A Long Felt Need	42
iii.	Others Copied The Invention.....	43
iv.	The Invention Achieved Unexpected Results.....	45
v.	Praise By Others	50
vi.	Others Sought Or Obtained Rights To The Patent From The Patent Holder	50
vii.	Persons Of Ordinary Skill In The Field Of The Invention Expressed Skepticism And Surprise At The Making Of The Invention (i.e., Nuhn Proceeded Contrary to Accepted Wisdom).....	51
B.	OVERALL COMBINATION OF ELEMENTS IS NONOBVIOUS – GROUNDS 2-5	53
C.	GROUND 2: CLAIMS 1-7 AND 12-19 ARE NOT OBVIOUS BASED ON TRUXOR IN VIEW OF YOON OR CARRIER.....	54
1.	Truxor, Yoon, And Carrier Fail To Disclose A “Wireless Remote Control Configured To . . .”	54
2.	Truxor, Yoon, And Carrier Fail To Disclose “A Fluid Pump For Pumping Liquid”.....	55
3.	Dependent Claims 2-6.....	56
4.	Dependent Claims 7 and 19	56

5.	Dependent Claims 12-19.....	58
D.	GROUND 3: CLAIMS 1-7 AND 12-19 ARE NOT OBVIOUS BASED ON SENWATEC IN VIEW OF YOON OR CARRIER.....	59
1.	Senwatec, Yoon, And Carrier Fail To Disclose A “Wireless Remote Control Configured To . . .”	59
2.	Senwatec, Yoon, And Carrier Fail To Disclose “A Fluid Pump For Pumping Liquid”	60
3.	Petitioner’s Analysis Extends Impermissibly Beyond Senwatec’s Printed Publication [EX1012] In Violation Of 35 U.S.C. § 311(B) And Must Be Disregarded	61
i.	The Lonnemann Declaration [EX1013] Cannot Add to the Teachings of SenwaTec’s Marketing Brochure.....	61
4.	Exhibit A [EX1026-27] to the Lonnemann Declaration Does Not Support The Statement That SenwaTec’s Pump Was Used To Pump Manure	62
5.	Exhibit B [EX1028] to the Lonnemann Declaration Cannot Serve as a Evidence of What Was Known in the Art At the Time of the Invention.....	64
6.	Lonnemann’s Declaration [EX1013] Cannot Be Used To Add To The Disclosure Provided in Exhibit B [EX1028].....	66
1.	Dependent Claims 2-6.....	67
2.	Dependent Claims 7 and 19	67
3.	Dependent Claims 12-19.....	68
E.	GROUND 4: CLAIMS 1-21 ARE NOT OBVIOUS BASED ON PUCK IN VIEW OF BRYHAM	69
1.	Puck And Bryham Fail To Disclose A “Wireless Remote Control Configured To . . .”	69
2.	The Puck-Bryham Combination Does Not Disclose All Elements Of The Challenged Claims.....	70
i.	The Puck-Bryham Combination Fails to Disclose or Suggest a “Power Source Configured to Provide Power to Both the Ground Engaging Propulsion Structure And the Fluid Pump”	70
3.	The Puck-Bryham Combination Fails to Disclose “Wireless Remote Control Configured to ... (1) Control The Ground Engaging Propulsion Structure”	71
4.	Petitioner Has Failed To Carry Its Burden Of Demonstrating That A Posita Would Have Been Motivated To Combine Puck And Bryham With A Reasonable Expectation Of Success	72

5.	Petitioner Has Not Presented Sufficient Evidence Demonstrating That a POSITA Would Have Had a Reasonable Expectation of Success in Adding Bryham’s Wheels to Puck	73
6.	A POSITA Would Expect The Puck-Bryham Combination to Have Steering and Stability Problems That Would Render it Inoperable as a Manure Agitation Vehicle	76
7.	Dependent Claims 2-21	77
F.	GROUND 5: CLAIMS 1-21 ARE NOT OBVIOUS BASED ON PUCK IN VIEW OF BRYHAM AND FURTHER IN VIEW OF BENNETT-II	78
1.	Puck, Bryham, And Bennett-II Fail To Disclose A “Wireless Remote Control Configured To . . .”	78
2.	The Puck-Bryham-Bennett Combination Does Not Disclose All Elements Of The Challenged Claims.....	80
i.	The Puck-Bryham-Bennett Combination Fails to Disclose or Suggest a “Power Source Configured to Provide Power to Both the Ground Engaging Propulsion Structure And the Fluid Pump”	80
3.	The Puck-Bryham-Bennett Combination Fails to Disclose “Wireless Remote Control Configured to ... (1) Control The Ground Engaging Propulsion Structure”	81
4.	Dependent Claims 2-21	83
IX.	GROUND 6: CLAIMS 1-21 ARE NOT ANTICIPATED BY LYSENG	83
X.	CONCLUSION.....	83

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.</i> , 344 F.3d 1186 (Fed. Cir. 2003)	43
<i>Amgen Inc. v. Sandoz Inc.</i> , 66 F.4th 952 (Fed. Cir. 2023)	40
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<i>In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.</i> , 676 F.3d 1063 (Fed. Cir. 2012)	39
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<i>Wyers v. Master Lock Co.</i> , 616 F.3d 1231 (Fed. Cir. 2010)	43
Statutes	
35 U.S.C. § 112(f).....	21
35 U.S.C. § 305	20
35 U.S.C. § 311(B).....	61, 63
Other Authorities	
37 C.F.R. § 42.6(a)(2)(ii)	85
37 C.F.R. § 42.6(a)(2)(iii)	85
37 C.F.R. § 42.24(b)(1).....	85

LIST OF PATENT OWNER'S EXHIBITS

<i>Exhibit #</i>	<i>Description</i>
2001	Petitioner's <i>Ex Parte</i> Reexamination Requests for U.S. Patent No. 11,358,425 and U.S. Patent No. 10,974,557
2002	Decision Granting Patent Owner's Petition for an Unintentionally Delayed Priority Claim in U.S. Patent. No. 10,124,638
2003	U.S. Patent No. 4,594,006 to Depeault ("Depeault")
2004	Expert Declaration of Douglas S. Prairie
2005	Curriculum Vitae of Douglas S. Prairie and Case List
2006	Screenshots from Patent Owner's YouTube Channel of Patented Product, retrieved on 10-2-23 from https://www.youtube.com/watch?v=fEgvvq9HZkk
2007	Screenshots from Petitioner's YouTube Channel of Accused Product, retrieved on 10-2-23 from https://www.youtube.com/watch?v=3y3bSJJUOps
2008	Screenshots from Progressive Dairyman YouTube Channel of 2014 Manure Lagoon Agitation Boat Demonstration, published on 7-9-14 by Progressive Dairy, retrieved on 10-2-23 from https://www.youtube.com/watch?v=FXRS-9Ip1pE
2009	Patent Classification List for U.S. Patent No. 11,358,425, retrieved on 10-4-23 from https://patents.google.com/patent/US11358425B1/en?q=US11358425
2010	U.S. Patent No. 4,406,413 to Houle ("Houle")
2011	U.S. Patent No. 7,833,071 to Gaither ("Gaither")
2012	U.S. Patent No. 5,176,098 to Royle ("Royle")
2013	U.S. Patent No. 9,462,741 to Puck ("Puck-II")
2014	U.S. Patent No. 9,572,297 to Puck ("Puck-III")
2015	DE2364962 to Kronseder ("Kronseder")
2016	DE3431345 to Lüllmann ("Lüllmann")
2017	CA2002619 to Depeault ("Depeault-II")
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2022	Envtl. Prot. Agency, Primer for Municipal Wastewater Treatment Systems (Sept. 2004)
2023	U.S. Dep’t Agric., <i>Agricultural Waste Management Systems</i> , in <i>Agricultural Waste Management Field Handbook</i> ch. 9 (Dec. 2011)
2024	Screenshot of 2023 Commercial Manure Applicator Certification, retrieved on 10-3-23 from https://elearning-dnr.iowa.gov/course/index.php?categoryid=2
2025	Joseph Akyeampong et al., <i>Evaluation of hydraulic excavator Human-Machine Interface concepts using NASA TLX</i> , 44 Int’l J. of Indus. Ergonomics 374, 374–82 (2014)
2026	Screenshots of 2023 Truxor Website, retrieved on 10-1-23 from https://truxor.com/en/catalog/node/products and https://truxor.com/en/catalog/node/products-truxor-machines
2027	Screenshots of 2023 Berky (formerly SenwaTec) Website, retrieved on 10-4-23 from https://www.berky.de/en/berky-nereus-240-amphi/
2028	Christian Haas et al., <i>Practical Evaluation of a Control Concept for a Remote Controlled 1.8T Excavator Using a 3D Input Device</i> , BATH/ASME 2022 Symposium on Fluid Power and Motion Control, ISBN: 978-0-7918-8633-5, FPMC2022-88959, V001T01A012-1 thru V001T01A012-7 (2022)
2029	Declaration of Douglas Prairie
2030	K. Smith et al., <i>Natural Crusting Of Slurry Storage As An Abatement Measure For Ammonia Emissions On Dairy Farms</i> , 97 Biosystems Engineering 464 (2007)
2031	Printout of Bazooka’s webpage for its Wolverine Agitation Boat at: https://www.bazookafarmstar.com/equipment/wolverine-agitation-boat/

2032	Bazooka's brochure for the Bazooka Wolverine Agitation Boat from: https://www.bazookafarmstar.com/wp-content/uploads/2023/01/Cutsheet-Wolverine-1.pdf .
2033	H. Landry et al., <i>Physical and Rheological Properties of Manure Products</i> , Applied Engineering in Agriculture, at 278 (2004)
2034	<i>Hydrostatic Pto's Run in Reverse</i> , Farm Show, Vol. 1 No. 5, 1977
2035	Brochure for MY2017 of Nuhn's Gen 1 Lagoon Crawler
2036	Operator's/Safety Manual for the MY2017 of the Gen 1 Lagoon Crawler
2037	Parts Catalog for Gen 1 Lagoon Crawler
2038	Brochure for Nuhn's Gen 1 Lagoon Crawler
2039	Brochure for MY2018 of Nuhn's Gen 2 Lagoon Crawler
2040	Operator's/Safety Manual for the MY2019 Gen 2 Lagoon Crawler
2041	Parts Book for the MY2018 Gen 2 Lagoon Crawler
2042	Brochure for Gen 2 Lagoon Crawler
2043	Operator's/Safety Manual for the MY2020 of the Gen 3 Lagoon Crawler
2044	Operator's/Safety Manual for the MY2020 of the Gen 3 Lagoon Crawler
2045	Parts catalog for the MY2021 of the Gen 3 Lagoon Crawler
2046	Brochure for Crawler X
2047	Parts Catalog for MY2022 Lagoon Crawler X
2048	U.S. Provisional Patent Application No. 63/040,562 filed June 18, 2020
2049	U.S. Provisional Patent Application No. 63/104,887 filed October 23, 2020
2050	U.S. Patent Application Publication US 2021/0394571 published December 23, 2021
2051	Notice of Allowance in U.S. Application No. 17,590,125, Mailed April 22, 2022.
2052	Notice of Intent to Issue Ex Parte Reexamination Certificate, Control No. 90/019,107, Mailed November 2, 2022.
2053	Print No. 1 of Nuhn YouTube Video - "Nuhn Lagoon Crawler Unrivaled Lagoon Agitation!", accessed at https://www.youtube.com/watch?v=fEgvvq9HZk
2054	Lagoon Crawler Prototype Brochure, Aggressive Agitation

2055 (Under Seal)	Lagoon Crawler Sales Report - Consolidated Totals
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2060	Print No. 2 of Nuhn YouTube Video - "Nuhn Lagoon Crawler Unrivaled Lagoon Agitation!", accessed at https://www.youtube.com/watch?v=fEgvvq9HZk
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2062	H. Rivers, <i>Farm show opens with a splash</i> , The Beacon Herald (Sept. 10, 2014)
2063	B. Shypula, <i>Transforming farming</i> , The London Free Press (Sept. 9, 2013))
2064	B. Shypula, <i>Crawler makes manure almost sexy</i> , The Beacon Herald (Sept. 6, 2013)
2065	30th Annual AMC Engineering Conference Brochure for May 5-7, 2015 in Waterloo, Iowa
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2068	C. Elmore, <i>Innovative Uses of Horsepower – A real crapshoot</i> , Diesel Progress North American Edition (Dec. 2014)
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2070	B. Reid, <i>Agitator has reclaimed manure lagoons around the world</i> , Ontario Farmer (Aug. 18, 2015)
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2073	J. Algie, <i>Made-in-Sebringville lagoon crawler to be featured on Discovery Channel</i> , Betterfarming.com (Sept. 2, 2015)
2074	B. Reid, Self-propelled, Western Dairy Farmer (Oct. 2015)
2075 (Under Seal)	March 21, 2022 Email to Nuhn re: Licensing Lagoon Crawler Technology
2076 (Under Seal)	Nuhn Invoice to Eldon C. Stutsman, Inc. (Sept. 9, 2015)
2077 (Under Seal)	Nuhn Invoice to Eldon C. Stutsman, Inc. (June 20, 2020)
2078 (Under Seal)	Nuhn Invoice to Eldon C. Stutsman, Inc. (Sept. 28, 2020)
2079	Print of Bazooka's YouTube Video - "Meet the Wolverine Agitation Boat," accessed at https://www.youtube.com/watch?v=ehAHKL442as
2080	Discovery Channel's Lagoon Crawler Feature (Sept. 3, 2015)
2081	U.S. Provisional Application No. 61/867,598 (filed August 19, 2013).
2082	US3384047 to Royle
2083 (Under Seal)	Declaration of Ian Nuhn in Support of Patent Owner Response
2084	US20100144220A1 to Bailey
2085	Proposed Protective Order
2086	Markup Protective Order
2087	Curriculum Vitae of Douglas S. Prairie and Case List – updated April 2, 2024

I. INTRODUCTION

This case is about an invention that redefined the equipment livestock farmers use to agitate manure lagoons. The amphibious manure lagoon agitation vehicle set forth in U.S. Patent No. 11,358,425 (“the ‘425 Patent”) was the first of its kind and quickly surpassed the use of tractor-mounted agitators, cable-drawn floating agitators, and remote-controlled agitation “boats.” While the invention claimed may appear simplistic in hindsight, it is greater than the sum of its parts and solved long felt problems with the agitation of manure lagoons that are large in size, difficult to access from the bank, and/or are covered by a thick crust of solid manure, bedding material (e.g., straw), and vegetation growth. The Board should uphold the validity of Claims 1-21 of the ‘425 Patent for at least the following reasons:

- 1.) Claims 1-21 are not anticipated by Carrier (Ground 1) because Carrier lacks a liquid manure pump – a conclusion that was already made by the Central Reexamination Unit (“CRU”) during Reexamination No. 90/091,107;
- 2.) Claims 1-21 are non-obvious in view of compelling evidence of secondary considerations, which neither the Patent Owner nor the Board addressed for purposes of institution;

- 3.) The vehicles in Grounds 2-3 lack a liquid manure pump and would not be combinable with a reasonable expectation of success;
- 4.) The Puck - Bryham combinations in Grounds 4-5 lack motivation or a reasonable expectation of success; and
- 5.) No individual prior art reference or combination thereof discloses the specifically claimed arrangement of elements, which produced the new and unexpected result of an amphibious, remotely controlled, vehicle configured to crawl through an agricultural manure lagoon, acting like an icebreaker to break up the solid crust at the top of a manure lagoon that can be up to six feet thick, all while agitating, mixing, spraying, and pumping liquid manure.¹

Petitioner improperly uses the challenged patent as a blueprint to reconstruct an invention that was revolutionary at the time it was introduced. Over the last 50 years, the Federal Circuit has repeatedly warned against going down this road. “Importantly, the great challenge of the obviousness judgment is proceeding without any hint of hindsight.” *Star Scientific, Inc., v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1375 (Fed. Cir. 2011). The objective considerations protect against the prejudice of hindsight bias, which often overlooks that “[t]he

¹ Ground 6 fails because the Board already concluded in the institution decision that Lyseng (i.e., an article describing the Patent Owner’s lagoon crawler) is not prior art. Paper 12, 36.

genius of invention is often a combination of known elements which in hindsight seems preordained.” *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001). Simplicity is not inimical to patentability. *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992). The patent system is not foreclosed to those who make simple inventions. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1572, (Fed. Cir. 1987). We are admonished “[t]hat which may be made clear and thus ‘obvious’ to a court, with the invention fully diagrammed and aided . . . may have been a breakthrough of substantial dimension when first unveiled.” *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985). The Board must resist the urge to issue a final written decision based on hindsight.

The invention embodied in Nuhn’s ‘425 Patent created a new product category in the field of manure agitation equipment. Farmers have faced a decades-old challenge of completing the time-consuming job 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.”² Launched on August 19, 2013, Nuhn’s Vehicle was the first and only vehicle capable of being remotely driven into and out of manure lagoons for the job

² EX2003, 1:13-58.

of breaking up crust formed on the surface of the lagoon, agitating and mixing a slurry of liquid manure (which contains liquid and suspended solids), and pumping the liquid manure in and from the lagoon. Nuhn's Vehicle was and continues to be innovation dynamite for the livestock farming industry by solving a decades-old challenge in an efficient and timely manner, saving livestock farmers countless headaches and hours.

The twice validated claims of the '425 Patent cover Nuhn's breakthrough innovation and must be upheld. The Challenged Claims were first allowed during prosecution, and then had their validity confirmed for a second time during *Ex Parte* Reexamination No. 90/091,107.³ In doing so, the USPTO recognized the problems solved by Nuhn's Vehicle, as well as the difference between general purpose amphibious vehicles designed for carrying people and tools across lakes and streams versus a special purpose vehicle invented to tear through and agitate *agriculture manure lagoons that are highly corrosive and covered in a thick crust of dried manure, bedding material (e.g., straw), and growing vegetation.*⁴

³ EX2051, 6; EX2052, 2.

⁴ Paper 1, 10; EX1046; EX2003, 1:13-58; EX2052, 4.

II. BACKGROUND ON AGRICULTURAL MANURE LAGOONS AND STATE OF THE PRIOR ART USED TO AGITATE AND PUMP AGRICULTURAL MANURE LAGOONS

Agricultural manure lagoons host liquid manure comprising forms of a solid crust, other supernatant, and sludge.⁵ It is desirable, for the liquid manure to be agitated and mixed prior to pumping out of the lagoon and spreading onto fields.⁶ The agitation, mixing and pumping from agricultural manure lagoons, with prior known devices and methods presented various challenges.⁷

Prior to Nuhn's Vehicle, agitation, mixing and then pumping of an agricultural manure lagoon relied on: (1) side-entry lagoon agitators/pumps, and/or (2) agitation barges.⁸ Agitation/pumping technology evolved over the decades into higher-power and -volume pumps or agitators, which caused larger sand bars formed in the center of manure lagoons. Agitation/pumping barges attempted to reach otherwise unreachable areas of lagoons to prevent sand bar formation; however, were still difficult and time consuming to maneuver *through* lagoons, due to varying solid and liquid composition of lagoons. No prior technical innovation solved the decades-old, time-

⁵ EX1014, ¶ [0026].

⁶ EX1014, ¶¶ [0002] - [0010]; EX2003, 1:13-34; EX1001, 1:33-52.

⁷ EX2003, 1:13-34; EX1014, ¶¶ [0002] - [0010]; EX2003, 1:13-34; EX1001, 1:33-52.

⁸ EX1014, ¶ [0002] – [0010].

consuming task 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”.⁹

As Bazooka states publicly:¹⁰

The propellers create 4,000 pounds of thrust for agitation and maneuvering functions directly below the boat, establishing a solid center of gravity for stability. **That means this well-balanced machine can move in any direction, even in the thickest sludge where most pumps cannot operate.**

That means this well-balanced machine
can move in any direction,
even in the thickest sludge
where most pumps cannot operate.

Because most pumps cannot operate in lagoons, inventors sought to innovate agitators/pumps, yet various drawbacks and problems presented.¹¹

Attempts to overcome challenges with side/land-entry agitators/pumps including using, “with cables by operators on the shore” of the lagoon, floating

⁹ EX2003; EX2003, 1:30-34; EX2003, 1: 13-58; EX1014, ¶¶ [0002] - [0010]; EX1001, 1:33-52.

¹⁰ EX2031, 9.

¹¹ Paper 1, 12; EX1014, ¶ [0005].

barges.¹² These floating barges, however, proved difficult and time consuming to move through the lagoon with cables.¹³ These floating barges did not overcome the decades old problems of breaking apart a hard crust formed on the lagoon and the time-consuming maneuvering of agitators/pumps over and around the lagoon.¹⁴

A second attempted solution was the development of a remote-controlled agitation barge.¹⁵ This, in-part, solved some of the maneuverability and efficiency issues faced with agitating lagoons using cable-drawn floating barges and/or side/land-entry agitators and pumps.¹⁶ There still existed the potential for the agitation barge to be beached by solid crust formations up to six feet deep and/or sludge buildups.¹⁷ Accordingly, they are commonly employed once a larger solid crust formation is broken into smaller solid chunks by side-entry lagoon agitators/pumps.¹⁸ In sum, the use of side/land-entry pumps/agitators and agitation barges have failed to present a technical innovation solving the problem presented by the time-consuming job of *breaking a crust formed on a lagoon to “both [mix] the solids and [form] a*

¹² EX1014, ¶ [0006].

¹³ EX1014.

¹⁴ EX1014, ¶ [0007].

¹⁵ EX1014, ¶ [0005].

¹⁶ EX1014, ¶ [0024].

¹⁷ EX2029, ¶ 89; EX2003, 1:46-47.

¹⁸ EX1014, ¶ [0034].

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.”¹⁹

III. BACKGROUND OF GENERAL-PURPOSE AMPHIBIOUS VEHICLES

General-purpose amphibious vehicles have been around for decades to carry people and tool attachments over various terrains, but Petitioner has failed to show that they are *specifically designed to crawl through an agricultural manure lagoon*. For example, when fitted with the appropriate attachments, general-purpose amphibious vehicles can be used to cut and remove vegetation, dredge waterways, and to pump water from lakes or streams to fight fires. The Carrier [EX1005], Truxor [EX1006], SenwaTec [EX1012], Bryham [1015], and Bennett-II [1017] references cited by Petitioner all disclose general-purpose amphibious vehicles that fit this description. Petitioner has yet to show, however, that—during the decades of incremental improvements to shore/land-based agitators/pumps, floating barges, and agitation boats—**general-purpose amphibious vehicles with quick-connect attachments were utilized in agricultural manure lagoons.** To this day, Petitioner has failed to show that these amphibious vehicles with *quick-connect* attachments have been modified or otherwise used in

¹⁹ EX2003; EX2003, 1:30-34; EX2003, 1:13-58; EX1014; EX1014, ¶¶ [0002] - [0010]; EX1001, 1:33-52.

agricultural manure lagoons. As acknowledged by Petitioner, the movement of tools for agitating lagoons was left to heavy-duty farming equipment.²⁰ The claimed combination differs from both heavy-duty farming equipment and manned amphibious vehicles, which the USPTO has already recognized on multiple occasions.²¹

Moreover, despite wireless remote-control systems being known at the time of these amphibious vehicles with *quick-connect* attachments, wireless remote-control was not employed due to the need for a direct line of sight to the attachment for operational control.²²

IV. NUHN'S AMPHIBIOUS PUMPING VEHICLE

A. General Background

Ian Nuhn, an avid inventor, after first inventing a side/land-based agitator/pump, saw a need to solve the decades-long problem in the industry.²³ The result is protected by the '425 Patent - a class building amphibious, remotely-controlled, vehicle that crawls through an agricultural manure lagoon, acting like an icebreaker against the solid crust of lagoons, while simultaneously agitating, mixing, and pumping liquid manure.

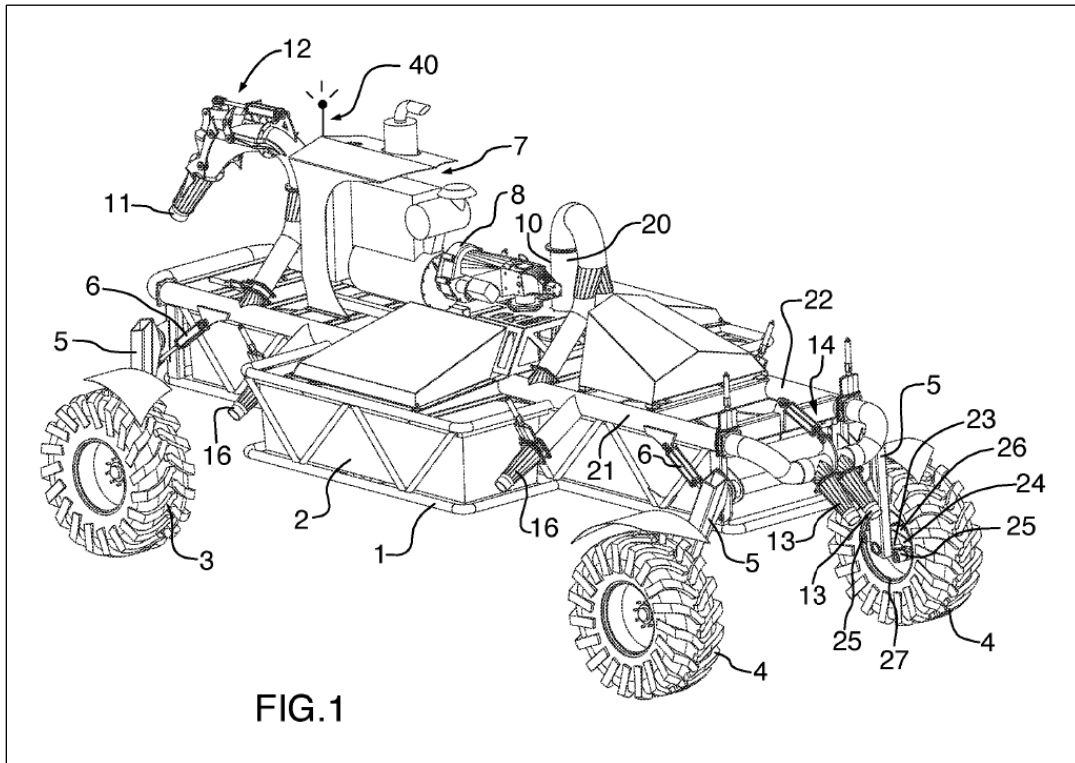
²⁰ EX1012, 2.

²¹ EX2052, 4.

²² EX2029, ¶142.

²³ EX1014.

Nuhn's novel machine is depicted in Figure 1 of the '425 Patent:



With the use of a wireless remote control, this new class of vehicle is remotely driven into and through manure lagoons, which provides enhanced moveability and the ability for the vehicle to crawl / chew through thick crust, up to six feet thick and include animal bedding material (such as straw) and growing vegetation, and is a drastic improvement over prior art agitation vehicles employed.²⁴ A floatable vehicle body allows the vehicle to float on the manure lagoon once the weight of the vehicle breaks through the crust and displacing broken portions of the crust under and adjacent the vehicle.²⁵ The vehicle is

²⁴ EX1001, 8:18-27 and 45-52; EX2003, 1:13-58.

²⁵ EX1001, 8:41.

driven through a manure lagoon by a remote operator to control the vehicle when ground engaging and floating . The pump produces a spray of liquid manure that may be used to control the movement of the vehicle when floating in the lagoon and to break the thick crust formed on the surface of the lagoon.²⁶

B. Prosecution of U.S. Patent Application, which resulted in the '425 Patent

Claims 1-21 of the '425 Patent were originally allowed due to the overall combination and arrangement of components recited in the claims as opposed to one single feature:

Reasons for Allowance

2. The following is an examiner's statement of reasons for allowance: The claims are allowable by including in an amphibious vehicle with a floatable vehicle body, ground engaging propulsion structure with a plurality of ground engaging elements powered by a hydraulic motor, a fluid pump for pumping liquid manure, a power source for connected to a hydraulic pump, the power source configured to provide to both the ground engaging propulsion structure and the fluid pump, and the last paragraph of claim 1 with the specific details of a wireless remote control.

EX2051, 6.

²⁶ EX 10001, 8:18-22.

C. All Claims of The '425 Patent Confirmed In Ex Parte Reexamination

Petitioner, prior to this IPR, filed a request for *ex parte* reexamination of the '425 Patent. Reexamination was granted and the patentability of all claims was confirmed after the CRU found that a pump that pumps manure has different requirements than one that pumps water and that, without impermissible hindsight, a POSITA would not have combined a device like Carrier (i.e., a general-purpose amphibious vehicle) with a device like Puck (i.e., a liquid manure agitation boat):²⁷

Reexamination

STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION

The following is an examiner's statement of reasons for patentability and/or confirmation of the claims found patentable in this reexamination proceeding: claims 1-21 are allowed over the art cited with the request. The examiner has considered and found persuasive the arguments that a pump that pumps manure has different requirements than one that pumps water. These arguments were submitted with the response to the first action in reexamination 90/019,076 that stems from the grandparent application of this patent. Further, without impermissible hindsight, there would not be proper motivation to combine a device like Carrier with a device like Puck. Therefore, the examiner has determined that the prior art does not reasonably show an amphibious vehicle that can be mobile on both land and liquid that pumps manure, in combination with the other claimed elements.

²⁷ EX1038, 6.

V. LEVEL OF ORDINARY SKILL

A. Type of Problems Encountered in the Prior Art and Solutions to those Problems

As discussed *supra* in Sections II through IV, agitation boats and side/land-entry pumps/agitators failed to solve the problem in the time-consuming job 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.”²⁸ Prior solutions, included design changes to pumps and floating barges. For example, Ian Nuhn developed a novel pump for agitating/pumping liquid manure.²⁹ As another example, Puck created a novel boat for agitating/pumping liquid manure.³⁰ Nuhn and Puck are innovators in the agriculture farming industry and are familiar with the problems faced relative to the agitation/pumping and care of agricultural manure lagoons. Moreover, the ‘425 Patent repeatably mentions farming, manure, and the problems encountered when storing animal manure in farm lagoons or pits.³¹

²⁸ EX2003; EX2003, 1:30-34; EX2003, 1:13-58; EX1014, ¶¶ [0002] - [0010]; EX1001, 1:33-52.

²⁹ U.S. Patent No. 8,944,752.

³⁰ EX1014.

³¹ EX1001, 1:24-29, 1:33-52, 3:14-21, 8:5-27.

A person of skill in the art (“POSITA”) is someone with intimate knowledge of the problems faced in agricultural farming, and specifically agitation/pumping and care of agricultural manure lagoons, whether from direct experience in or education *specific to* agitation/pumping and care of agricultural manure lagoons. Based on the totality of the ‘425 Patent disclosure and knowledge of innovators in the agricultural farming industry, a POSITA 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.”³²

B. Petitioner’s POSITA Would Not Be Familiar With The Problems Faced In Agricultural Farming, And Specifically Agitation/Pumping And Care Of Agricultural Manure Lagoons

Petitioner defines a POSITA in generic terms, requiring only:³³

As of August 19, 2013, or February 16, 2016, a POSA 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. EX1004, ¶82.

³² EX2004, ¶63.

³³ Paper 1, 31.

Petitioner’s definition of a POSITA does not include someone with working knowledge of agricultural farming, and specifically agitation/pumping and care of agricultural manure lagoons.

Petitioner’s assertion that a POSITA with “mechanical engineering or similar field, and two years of professional experience in marine and off-road vehicles. . . . [with] working knowledge of fluid pumps and livestock manure” does not even require a POSITA to have knowledge of “storage places for manure . . . for fermenting manure with mixing or agitating devices”. It would have been imperative for a POSITA to have knowledge of “filling devices for liquid manure or slurry tanks” and “storage places for manure. . . for fermenting manure with mixing or agitating devices”, and not just “livestock manure” generally.

VI. CLAIM INTERPRETATION

A. The Claim Language Reciting “A Fluid Pump For Pumping Liquid Manure” and “A Wireless Control for Controlling a Flow of Liquid Manure from the Pump” Is Limiting Rather Than Intended Use

In the institution decision, the Board construed these terms to mean that “pumping liquid manure requires a pump with a structure that is capable of pumping liquid with suspended solids.”³⁴ In doing so, and consistent with the

³⁴ Paper 12, 12.

law, the Board acknowledged that this language limits the scope of the claims beyond an intended use because it is functional claim language, limiting the claim.³⁵

The language “for pumping liquid manure” signals to one of skill in the art that the fluid pump is a fluid pump *for pumping liquid manure*, which a POSITA would have understood to be a pump like or equivalent to the liquid manure pumps disclosed and cited within the four corners of the ‘425 Patent.

B. “Liquid Manure” Refers To The Contents Of A Manure Lagoon, Which Includes Suspended Solids

Petitioner asserts that “manure can take a variety of forms, including liquid, slurry, and semisolid form” and attempts to limit the meaning of “liquid manure” by arguing that it refers to a liquid form of manure, which possesses the lowest solids contents, [and] does not present any special pumping problems.”³⁶ The express disclosures of the ‘425 Patent and that of Puck, which is cited by Petitioner, clearly highlight that in the art, the term “liquid manure” refers to various forms of liquid manure, including “animal manure contained in a farm lagoon, which includes suspended solids.”³⁷

³⁵ MPEP§2173.05(g); *In re Schreiber*, 128 F.3d 1473, 1478 (Fed. Cir. 1997).

³⁶ Paper 1, 33.

³⁷ EX2029, ¶93; Paper 1, 33.

Indeed, the ‘425 Patent equates “liquid manure” to “animal manure contained in a farm lagoon”:³⁸

TECHNICAL FIELD

The invention relates to pumps and vehicles equipped for 25
pumping. In particular, the invention relates to manure
pumps and amphibious vehicles equipped for pumping
liquid manure, such as animal manure contained in a farm
lagoon.

30

The ‘425 Patent also explains that liquid manure includes solid materials that can
clog traditional pumps:

BACKGROUND

Manure produced during animal husbandry, particularly
hog and cattle manure, is transferred by washing to a pit or
lagoon for storage prior to removal for land application or 35
further processing. During storage, a crust can develop on
the surface of the pit or lagoon that must be disrupted prior
to or during removal of the manure. Pumps are employed for
this purpose with jets that return a percentage of the manure
back to the pit or lagoon in the form of a high volume spray 40
to disrupt the crust and recirculate the manure. Pumps for
use in recirculating manure from smaller pits are known;
however, these pumps are typically suitable for accessing
the pit or lagoon from its edge and are connected to a tractor
or similar land vehicle for operational power. They are 45
therefore limited in their ability to recirculate manure to the
middle of large lagoons, which are becoming increasing
common as the size of animal husbandry operations
increases.

Accordingly, there is a need for improved pumps and 50
vehicles equipped for pumping, particularly pumps and
vehicles suitable for use with large manure lagoons.

EX1001, 1:33-53.

³⁸ EX1001, 1:25-29.

telescoping connections to the single fluid conduit. Lower-
ing the fluid pump for immersion into the fluid obviates the
need for priming the fluid pump, which can be problematic
when the fluid is manure comprising solid materials that can
plug the pump or priming structure. Immersion of the pump
also simplifies intermittent operation of the pump, due to
eliminating potential loss of prime, and reduces the need for
pump maintenance.

EX1001, 3:14-21.

5 In operation, an operator uses the remote controls to
maneuver the vehicle to the lagoon entrance, drive the
vehicle into the lagoon, raise the ground engaging propul-
sion structure (wheels), lower the fluid pump, begin pump-
ing fluid with the fluid pump through the fluid conduits and
10 selectively open at least the second fluid nozzles to cause the
vehicle to move out on to the surface of the lagoon. The
valves associated with the side fluid nozzles may also be
opened or closed to provide directional control of the vehicle
on the lagoon. Once the vehicle is in the desired position, the
15 valves associated with the first fluid nozzle are opened and
the first articulation structure is used to position the first fluid
nozzle at a desired angular orientation relative to the vehicle
body. This is generally an upward orientation so that the
fluid is sprayed widely to break crusts of material floating on
20 the surface of the lagoon. In this manner, fluid is recirculated
and directed to desired locations in the lagoon. As fluid is
emptied from the lagoon, the floating vehicle is permitted to
lower with the fluid level. When the lagoon has been
sufficiently emptied, the operator is able to reverse the
25 foregoing process in order to maneuver the vehicle to the
lagoon exit, lower the wheels, and drive the vehicle up the
muddy bank out of the lagoon.

EX1001, 8:5-27. The express disclosure of the ‘425 Patent directly conflict with
Petitioner’s attempt to define “liquid manure” as having the same characteristic
as water.³⁹

³⁹ Paper 1, 35.

The intrinsic evidence makes clear that the claim term “liquid manure” means “animal manure contained in a farm lagoon, which includes suspended solids.”⁴⁰ The prior art, such as Puck et al., also support this definition. Specifically, Puck claims a “liquid manure agitator” and provides:⁴¹

[0034] When it is desired to use the agitator (10) to agitate manure (124), that has separated into crust (126), supernatant (128) and sludge (130), into a slurry (50), the agitator (10) is preferably transported to the manure lagoon (22) using a

“Liquid manure” is a term of art referring to the content, in all forms, of an agricultural manure lagoon, including solids. Moreover, the solids include chunks of a broken crust, which are large solid pieces of manure, bedding material (e.g., straw), and vegetation.⁴²

C. “A Fluid Pump For Pumping Liquid Manure” Means “A Fluid Pump That Pumps Liquid Manure”

The Board should find that the Claim 1 limitation reciting “a fluid pump for pumping liquid manure” should be construed as “a fluid pump that pumps liquid manure”. ***Notably, Petitioner must appreciate the significance of a pump that pumps liquid manure versus a per se semi-solid or water pump, when Petitioner itself admits that most pumps cannot operate in liquid manure.***⁴³

⁴⁰ EX2004, ¶82.

⁴¹ EX1014, ¶ [0034], Claim 14.

⁴² EX2029, ¶100.

⁴³ EX2031, 9 (“That means this well-balanced machine can move in any direction, even in the thickets sludge where most pumps cannot operate.”).

During reexamination of the ‘557 Patent, the Patent Owner attempted to add a claim reciting “a fluid pump configured to pump liquid manure.”⁴⁴

Critically, the CRU 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:⁴⁵

In the above listed claims, the limitation regarding the pump has been broadened to recite “configured to pump” from the original “for pumping”. The limitation is broader as the fluid pump no longer actually needs to pump, but merely be configured to do so.

While other aspects of the claim including the limitations regarding the pump may be narrower, the claim cannot be broadened with respect to any feature in any manner.

The CRU also concluded that “a pump that pumps manure has different requirements than one that pumps water” and that “the prior art does not reasonable show an amphibious vehicle that can be mobile on both land and liquid that pumps manure” (emphasis added):⁴⁶

⁴⁴ EX1037, 38.

⁴⁵ EX1037, 26.

⁴⁶ EX1037, 26.

STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION

The following is an examiner's statement of reasons for patentability and/or confirmation of the claims found patentable in this reexamination proceeding: claims 1-54, 82-105, 112 and 113 are allowed over the art cited with the request. The examiner has considered the arguments that a pump that pumps manure has different requirements than one that pumps water. Further, without impermissible hindsight, there would not be proper motivation to combine a device like Carrier with a device like Puck. Therefore, the examiner concurs that the prior art does not reasonably show an amphibious vehicle that can be mobile on both land and liquid that pumps manure, in combination with the other claimed elements.

The CRU included this same statement when it confirmed the claims of the '425 Patent.⁴⁷ A POSITA would conclude that “a fluid pump for pumping liquid manure” means “a fluid pump that pumps manure” as opposed to a pump merely *capable* of pumping liquid manure in view of this prosecution history.⁴⁸

A. D. The “Fluid Mover” Recited in Dependent Claims 7 and 19 Is A Means-Plus-Function Limitation Under 35 U.S.C. § 112(f)

Under *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) means-plus-function claim interpretation under 35 U.S.C. §112(f) applies when the words of the claim would not be understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure. *Id.* at 1348.

⁴⁷ EX1038, 6.

⁴⁸ EX2004, ¶70.

To a POSITA, the term “fluid mover” refers to any component or system capable of moving fluid, which may be a wide variety of different structures.⁴⁹

As such, the term “fluid mover” by itself does not connote any particular structure.⁵⁰ A POSITA would not appreciate any discernable difference between the claim term “fluid mover” and “means for moving fluid.”⁵¹ Both phrases would mean the same thing to a POSITA.⁵²

The claimed function of a fluid mover to control “at least one of the speed and direction of the vehicle when the vehicle is floating” is described in the ‘425 Patent as resulting from “[c]ooperation between the valves 15 and the plurality of fluid nozzles ... to provide directional control and motive power for the vehicle while floating”:⁵³

Valve structure comprising a valve **15** corresponding to each fluid nozzle **11**, **13**, **16**, **17** is also provided. The valves **15** are powered and operable to open or close. The valves **15** 65 may be opened fully or partially to proportion flow between the plurality of fluid nozzles. Cooperation between the valves **15** and the plurality of fluid nozzles is used to provide directional control and motive power for the vehicle while floating. For example, proportioning fluid flow from the right side fluid nozzles **17** to the left side fluid nozzles **16** 5 causes the vehicle to turn to the right will floating. Similarly, fluid flow may be proportioned between the first fluid nozzle **11** and the second fluid nozzles **13** to cause the vehicle to move forward or backward. By rotating the second fluid

⁴⁹ EX2029, ¶115.

⁵⁰ EX2029, ¶115.

⁵¹ EX2029, ¶115.

⁵² EX2029, ¶115.

⁵³ EX1001, 5:63 – 6:8.

A POSITA would therefore identify the “valve(s) and fluid nozzle(s)” as the structure described in the specification for moving fluid to control at least one of the speed and direction of the vehicle when the vehicle is floating.⁵⁴

VII. GROUND 1: CLAIMS 1-21 ARE NOT ANTICIPATED BY CARRIER

A. Carrier Is An Emergency Or Combat Amphibious Vehicle And Not An Amphibious Vehicle Equipped For Pumping Liquid Manure

Carrier, to a POSITA, is an amphibious emergency or combat amphibious vehicle with *quick-connect* attachments for *fast movement **across land***, and not a vehicle for pumping liquid manure.⁵⁵ One of Carrier’s attachments is a *water pump* designed to pump water from a *lake or stream* onto a fire, ***not liquid manure*** (or animal manure contained in a farm lagoon, which includes suspended solids) ***within an agricultural manure lagoon***.⁵⁶

⁵⁴ EX2029, ¶115.

⁵⁵ EX1005, ¶¶ [0005], [0027], [0068]; EX2029, ¶¶120-121.

⁵⁶ EX1005, ¶ [0060] (with emphasis), ¶ [0061] (with emphasis); EX2029, ¶¶120-121.

[0060] Another important feature of the present invention is that the tank, hoses, and pump may be readily removed from the vehicle through the use of quick-release devices. Assuming the water and foam tanks are empty, four firefighters should easily be able to remove the fire-fighting equipment, which would enable the vehicle to be used during a search and rescue. A remote controlled crane can be mounted on the rear of chassis 102 can also be used to facilitate in the removal of any of the aforementioned package components. The back portion, or rear deck, of the vehicle is capable of carrying two injured persons while two emergency personnel ride in the vehicle's passenger area. Consequently, transforming the

[0061] The use of a pump mounted to the all terrain vehicle which is capable of pumping water from a lake or stream onto a fire is another feature of the present invention. This feature reduces the need to transport water to the site of the fire or, in the alternative, makes it easier to transport water pumping equipment to the body of water to be used in fighting the fire.

Carrier fails to disclose or suggest a water pump for pumping a fluid with suspended solids.

A POSITA would understand Carrier's water pump as being prone to clogging if used to pump liquid manure, in any form, sludge, slurry, or with suspended solids.⁵⁷ On the other hand, Carrier discloses a "screen to filter debris that would otherwise clog hoses, pump 18 to refill the tank from lakes, ponds, or streams".⁵⁸ A POSITA would understand a pump, requiring a screen to prevent clogging, is not a fluid pump for pumping a fluid with suspended solids, such as

⁵⁷ EX2029, ¶¶120-121.

⁵⁸ EX1005, ¶ [0063].

liquid manure and would likely be clogged if employed to pump liquid manure.⁵⁹

Indeed, Petitioner would agree such a pump would not pump liquid manure when itself admits that most pumps cannot operate in liquid manure.⁶⁰

B. Carrier Does Not Expressly Disclose Wireless Remote Control As Claimed

Carrier states that “[m]annual controls provide for operation of the vehicle. . . .”⁶¹ Carrier, however, cursorily contemplates remote control of its vehicle.⁶² Yet, for Carrier to anticipate the Challenged Claims it must disclose the specific elements as arranged in the Challenged Claims.⁶³ 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 1:⁶⁴

⁵⁹ EX2029, ¶¶120-121.

⁶⁰ EX2031, 9.

⁶¹ EX1005 at ¶ [0064].

⁶² EX1005 at ¶ [0064].

⁶³ *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008).

⁶⁴ EX1001, 8: 45-52; EX2029, ¶149.

1. An amphibious vehicle comprising:
a floatable vehicle body;
ground engaging propulsion structure comprising a plu-
rality of ground engaging elements powered by a
40 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,
45 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
50 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.

(hereafter, the “remote control limitation”). A general statement contemplating use of remote control does not anticipate the remote control limitation, as recited in Claim 1 as a whole. A POSITA would not understand Carrier as disclosing each element of Claim 1, let alone the specifically claimed arrangement of elements.⁶⁵

C. Petitioner Does Not Meet Its Burden Of Persuasion Because It Does Not Argue That The Quick-Connect Water Pump In Carrier Is Disclosed As a Pump For Pumping Liquid Manure

Petitioner has the burden of persuasion and must prove by a preponderance of the evidence that Carrier discloses a “fluid pump for pumping liquid manure.” Petitioner, however, does not and cannot meet its burden with a conclusory

⁶⁵ EX2029, ¶149.

statement that the “Carrier pump is necessarily capable of pumping liquid manure.”⁶⁶ First, Petitioner’s “necessarily capable” language concedes that Carrier does not expressly disclose a fluid pump for pumping liquid manure. Second, Petitioner’s assertion is conclusory and is unsupported by its own expert, and its own public statements that most pumps cannot operate in liquid manure.⁶⁷

Petitioner attempts to rely on its expert’s declaration stating that “Carrier necessarily would have been able to pump liquid manure.”⁶⁸ But Petitioner’s expert fails to articulate *why* a POSITA would have understood that the disclosed water pump, at the time of invention, necessarily pumped liquid manure. Instead, Petitioner’s expert opines that a POSITA would have inherently understood that “for pumping liquid manure” reads as “for pumping water”.⁶⁹ Petitioner’s expert makes this conclusion by arguing that a POSITA would understand that lake or stream water inherently includes sediments and other debris and is equivalent to the claimed liquid manure.⁷⁰ Yet, Petitioner’s expert fails to detail why “sediments and other debris” are the same “solids content (slurries. . .)” found in liquid manure and goes to great length to define the

⁶⁶ *Supra* at Section VI(A) and VI(B)

⁶⁷ EX2031, 9.

⁶⁸ EX1004, ¶223.

⁶⁹ EX1004, ¶223.

⁷⁰ EX1004, ¶223.

various types of pumps known in the art for agitation/pumping of agricultural manure lagoons.⁷¹ Publicly, however, Petitioner admits **that most pumps cannot operate in liquid manure**

Petitioner's expert does not state that a POSITA would have inherently understood the water pump of Carrier is a water pump for pumping liquid manure. At best, Petitioner's expert opines that the water pump disclosed in Carrier, **would have plausibly been capable of** pumping liquid manure, qualified by a nonsensical assertion of the solid content of Petitioner's definition of "liquid manure." This assertion, however, as a matter of law fails to establish inherency for the reason best described in "[i]nherency, however, may not be established by probabilities or possibilities. **The mere fact that a certain thing may result from a given set of circumstances is not sufficient.**" *MEHL/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (quoting *Hansgirg v. Kemmer*, 26 C.C.P.A. 937, 940, 102 F.2d 212 (C.C.P.A. 1939); *In re Chudik*, 851 F.3d 1365, 1374 (Fed. Cir. 2017) ("Prior art that 'must be distorted from its obvious design' does not anticipate a new invention"). Petition has not met its burden of persuasion and its assertion that Carrier anticipates the Challenged Claims of the '425 Patent is nonsensical and must be dismissed.

⁷¹ EX1004, ¶100.

D. Claim 1

i. Carrier Fails to Disclose or Suggest a Fluid Pump For Pumping Liquid Manure

Carrier does not disclose a fluid pump for pumping liquid manure for the reasons set forth *supra* herein at VIII.C.

Carrier discloses an *optional water pump for pumping water form a lake or a stream* for firefighting:⁷²

[0060] Another important feature of the present invention is that the tank, hoses, and pump may be readily removed from the vehicle through the use of quick-release devices. Assuming the water and foam tanks are empty, four firefighters should easily be able to remove the fire-fighting equipment, which would enable the vehicle to be used during a search and rescue. A remote controlled crane can be mounted on the rear of chassis 102 can also be used to facilitate in the removal of any of the aforementioned package components. The back portion, or rear deck, of the vehicle is capable of carrying two injured persons while two emergency personnel ride in the vehicle's passenger area. Consequently, transforming the vehicle and enabling it to be used for a different purpose reduces the number of vehicles required and provides greater flexibility to the firefighters, military personnel or other emergency personnel who use the device.

[0061] The use of a pump mounted to the all terrain vehicle which is capable of pumping water from a lake or stream onto a fire is another feature of the present invention. This feature reduces the need to transport water to the site of the fire or, in the alternative, makes it easier to transport water pumping equipment to the body of water to be used in fighting the fire.

⁷² EX1005, ¶¶60-61.

Carrier's optional pump is described as "capable of pumping water from a lake or stream onto a fire."⁷³ Petitioner does not cite any statement in Carrier about the solid content of a lake or stream, that Carrier's pump can/could pump solids, or the size of solid particles allowed through the disclosed screen. In fact, Carrier suggest that its water pump is prone to clogging due to "debris."⁷⁴

The Board found that the parties agree, at a minimum, that liquid manure contains suspended solids (i.e., debris).⁷⁵ It is illogical to conclude that the solids contained in liquid manure would not clog Carrier's water pump and screen when the crust of an agricultural manure lagoon can be up to six feet thick.⁷⁶

The Carrier vehicle is drastically different from the vehicle claimed in the '425 Patent, which is particularly adapted for the specific purpose of pumping manure in an agricultural manure lagoon to break up the surface crust and recirculate the liquid manure. Petitioner tries to draw comparison between water and "liquid manure" with the strained argument that "liquid manure" has the same consistency as water such that Carrier's water pump is capable of pumping liquid manure. This argument is irreconcilable with the record:

⁷³ EX1005, ¶61.

⁷⁴ EX1005, ¶ [0063].

⁷⁵ Paper 12, 12 ("both parties agree that liquid manure includes suspended solids. . . .").

⁷⁶ EX2003, 1:46-47 ("The upper or floating crust can become relatively hard and can reach six feet in thickness.").

- The ‘425 Patent equates “liquid manure” to “animal manure contained in a farm lagoon” and further explains that liquid manure includes solids and a surface crust.⁷⁷ A POSITA would understand that the “liquid manure” described in the ‘425 Patent has these characteristics.⁷⁸
- U.S. Pat. No. 4,406,413 to Houle [EX2010], cited on the face of the ‘425 Patent, explains that farm animal manure consists of a liquid with solid particles in suspension that tend to clog traditional pumps.⁷⁹

Farm animal manure consists of solid particles in a liquid, and the solid particles either settle on the bottom 25 of the container (as in the case of pig manure) or form a crust over the liquid (as in the case of cow manure) depending on the density of the solid matter and, in some cases, both conditions obtain. Thus, the mass of manure in the container must be thoroughly mixed prior 30 to pumping in order to maintain the solid particles in suspension, otherwise only the liquid matter will be pumped out while the solid matter accumulates in the container. Moreover, such solid matter tends to clog the pump. 35

⁷⁷ EX1001, 1:25-53, 3:14-21.

⁷⁸ EX2004, ¶¶82-84.

⁷⁹ EX2010, 1:24-63.

Hitherto, manure handling pumps consisted of a powerful centrifugal pump disposed near the bottom of the container, the impeller turning about a vertical axis, and a conduit system coupled to the outlet of the pump for either circulating manure within the container or away 40 therefrom into a manure spreader or a different container. The conduit system therefore has a first branch leading out of the container toward another container or toward a tank spreader, and a second branch leading to a suitable nozzle pipe for returning into the container 45 the slurry being mixed. A gate controls the selection of conduit branch in order to either agitate the slurry or pump same out of the reservoir. Examples of such centrifugal systems of which many different designs are currently available from farm equipment manufacturers, are described in U.S. Pat. Nos. 3,905,725 dated Sept. 16, 1975 (R. L. Johnson), 3,446,151, May 27, 1969 (H. G. V. Anderson), 3,456,592, July 22, 1969 (L. L. Nelsen) and 3,966,361, June 29, 1976 (B. L. House). Such devices however provide limited efficiency when 55 the reservoir contains a thick floating crust or heavy bottom sediments. Indeed, the mixing capabilities of centrifugal pump systems are at best limited and time consuming, and no agitation takes place during transfer of the slurry to a different container into a tank 60 spreader. Furthermore, clogging of the pump's impeller and consequential loss of pump efficiency remains a serious shortcoming.

The statements in the patent specification and prior art accurately reflect the understanding of a POSITA because they are by actual inventors of manure agitation equipment and are unbiased since they were not made in connection with the subject proceedings or with hindsight bias.⁸⁰

⁸⁰ EX2029, ¶187; EX2004, ¶105.

- Carrier describes “a screen” that makes its pumping system unsuitable for pumping manure.⁸¹

[0063] The tank **201** can preferably have a recessed top for storage of hoses, multiple 100-foot hoses, and a large fill orifice, a screen to filter debris that would otherwise clog hoses, pump **202** to refill the tank **201** from lakes, ponds, or streams. Additionally, the tank **201** includes a master drain for flushing and cleaning the tank. In addition, a water cannon may be provided with vehicle **100** and located adjacent the operator to enable use thereof.

This screen would quickly become clogged by the suspended solids found within liquid manure, rendering Carrier’s pump inoperable if used to pump liquid manure.⁸²

1. Carrier Fails to Disclose All of the Wireless Remote-Control Limitations of Claim 1

For the reasons set forth *supra* herein at VIII.C., Carrier does not disclose the wireless remote control limitation of Claim 1.⁸³ Carrier does not disclose a fluid pump that pumps liquid manure so it follows that Carrier also fails to teach wireless remote control of “a flow of liquid manure from the fluid pump.”

⁸¹ EX1005, ¶63.

⁸² EX2029, ¶149.

⁸³ EX1001, 8:45-52; EX2029, ¶150.

2. Carrier Fails to Disclose The Claimed Combination of Elements, Which When Considered Collectively, Define an Amphibious Manure Lagoon Agitation Vehicle

When the claim elements are considered individually, like in the Petitioner’s analysis, the overall picture is lost. The Patent Owner has not claimed a general-purpose amphibious vehicle for carrying an onboard operator and various tool attachments like in the cited art. Instead, 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. Carrier discloses nothing of the sort.

E. Dependent Claims 2-6

Claims 2-6 depend from Claim 1. Carrier does not anticipate dependent Claims 2-6 for at least the same reasons described above with respect to Claim 1.

F. Dependent Claims 7 and 19

Claims 7 and 19 depend from Claim 1. Carrier does not anticipate dependent Claims 7 and 19 for at least the same reasons as described above with respect to Claim 1 and the additional reasons set forth below.

Claims 7 and 19 further recite that “at least one of speed and direction of the vehicle when the vehicle is floating is controlled by a fluid mover.” Carrier does

not anticipate this limitation because Carrier does not expressly or inherently disclose the function or structure of this means-plus-function claim limitation.⁸⁴

Petitioner alleges that Carrier discloses this limitation expressly in a conclusory manner:⁸⁵

Carrier describes a lightweight vehicle, noting that the hull is formed to eliminate drag on the vehicle when floating. *Id.*, ¶¶[0058], [0079]. “High Pressure/High Volume” pumps, hoses, and nozzles produce large reaction forces when spraying fluid. EX1004, ¶¶231-232. Carrier could thus be propelled in any given direction (thus controlling the speed and direction of the vehicle) using the “High Pressure/High Volume” pump to spray jets of fluid from the water cannon in the opposite direction. *Id.*; EX1005, ¶[0051]. This is the same methodology long been used to control the speed and direction of jet boats. EX1004, ¶232. The pump of Carrier moves fluid and is therefore “a fluid mover.” *Id.* Carrier’s skid-steering wheel system also would move fluid, propel the vehicle, and control its speed and direction when floating. *Id.*, ¶233.

Carrier’s vehicle, however, would be incapable firefighting while floating if Petitioner’s assertion were accepted because the firefighting equipment would propel the vehicle in an opposite direction.⁸⁶

⁸⁴ EX2029, ¶¶ 146-157.

⁸⁵ Paper 1, 45.

⁸⁶ EX2029, ¶¶ 146-157.

Carrier also discloses that tools carried by its vehicle are “quick exchange.”⁸⁷

In other words, the Carrier vehicle is not always equipped with firefighting equipment. Accordingly, the vehicle would be immobile when floating without firefighting equipment.⁸⁸

Finally, as described above in Section VI.D, 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.⁸⁹ No equivalent structure is disclosed in Carrier.

G. Dependent Claims 8-11 and 20-21

Claims 8-11 and 20-21 depend from Claim 1. Carrier does not anticipate dependent Claims 8-11 and 20-21 for at least the same reasons as described above with respect to Claim 1 and the additional reasons set forth below.

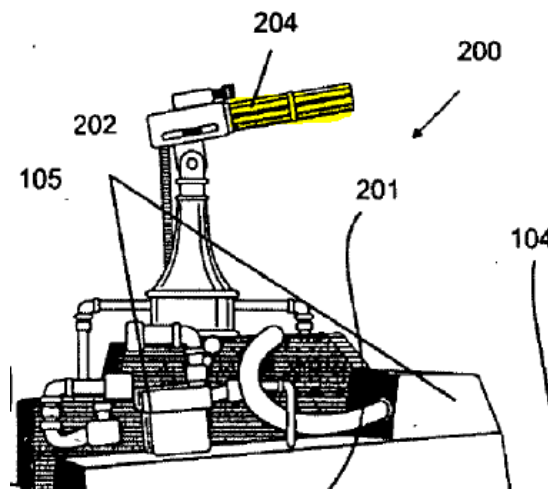
Claims 8, 10, and 20 all require “a plurality of fluid nozzles fluidly connected to the fluid pump” and Claims 9, 11, and 21 all state that “the wireless remote control is configured to control the plurality of fluid nozzles to control the at least one of speed and direction of the vehicle when the vehicle is floating.” The ‘425 Patent’s specification explains that fluid flow is individually directed or controlled through these multiple nozzles to provide directional control and

⁸⁷ EX1005, ¶¶ [0047], [0051], [0060], and [0064].

⁸⁸ EX2029, ¶¶ 146-157.

⁸⁹ EX1001, 5:63 – 6:18.

motive power.⁹⁰ Petitioner makes the strained argument that the singular water cannon disclosed in Carrier satisfies these claim limitations because it has multiple outlets at the end of its barrel(s), but this arrangement still only produces a singular jet of water that is discharged at single direction and flowrate.⁹¹



A POSITA would not equate the single water cannon disclosed in Carrier with “a plurality of nozzles” configured to “control the at least one of speed and direction of the vehicle when the vehicle is floating” as claimed in the ‘425 Patent. Indeed, Carrier cannot fight fires and simultaneously navigate waterways, or navigate at all when operating without the firefighting attachment.

⁹⁰ EX1001, 3:22 – 4:14, 5:63 – 6:18.

⁹¹ EX1005, 2.

H. Dependent Claims 12-21

Claims 12-21 depend from Claim 1. Carrier does not anticipate dependent Claims 12-21 for at least the same reasons as described above with respect to Claim 1 and the additional reasons set forth below.

Claim 12 further specifies that “the power source is connected to the hydraulic pump by a mechanical drive and [is] connected to the fluid pump by the mechanical drive.” Petitioner argues that Carrier’s disclosure of a “hydrostatic PTO (Power Take Off)” meets this claim limitation,⁹² but it does not because a “hydrostatic” drive system is a hydraulic drive that is driven by a hydraulic pump and is therefore distinguishable from the “mechanical drive” recited in the claims, which is in addition to a separate from the claimed “hydraulic pump.”⁹³ Claims 13-21 depend from Claim 12. Carrier fails to anticipate Claims 12-21 for this additional reason.

VIII. CLAIMS 1-21 ARE NON-OBVIOUS (GROUNDS 2-5)

A. SECONDARY CONSIDERATIONS – GROUNDS 2-5

In *Intri-Plex Technologies, Inc. v. Saint-Gobain Performance Plastics Rencol Ltd.*, IPR2014-00309, the Board upheld the validity of claims directed to a tolerance ring for a computer hard drive with a fluted end after finding that the

⁹² Paper 1, 46.

⁹³ EX1029, ¶171-173.

patent owner's evidence of secondary considerations outweighed the other three *Deere* factors supporting the petitioner's combinations. Notwithstanding the simplistic nature of the invention and the fact that the prior art disclosed every claim element, the Board was persuaded by objective evidence of non-obviousness in the form of commercial success and copying. *Id.* 35-47. Compelling evidence of non-obviousness requires the same result here.

Evidence of secondary considerations of non-obviousness, when present, must always be considered en route to a determination of obviousness. *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1075–76 (Fed. Cir. 2012); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538–39 (Fed. Cir. 1983). Whether before the Board or a court, consideration of objective indicia is part of the whole obviousness analysis, not just an afterthought. *See Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1358 (Fed. Cir. 2013).

Evidence of secondary considerations “may often be the most probative and cogent evidence of nonobviousness in the record.” *Ortho–McNeil Pharm. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008). Such evidence can establish that “an invention appearing to have been obvious in light of the prior art was not.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012) (quoting *Stratoflex*, at 1538).

“A court's evaluation of the objective indicia of nonobviousness ‘is not just a cumulative or confirmatory part of the obviousness calculus but [rather] constitutes independent evidence of nonobviousness.’ The obviousness inquiry is one that is ‘expansive and flexible.’ Thus, there are a variety of objective indicia of nonobviousness that may inform the circumstances surrounding the origin of the subject matter sought to be patented including, but not limited to, ‘commercial success, long-felt but unresolved need, failure of others, copying, and unexpected results.’” *Amgen Inc. v. Sandoz Inc.*, 66 F.4th 952, 963 (Fed. Cir. 2023) (internal citations omitted). Indeed, evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. It is to be considered as part of all the evidence, not just when the decision-maker remains in doubt after reviewing the art.” *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983).

i. Nuhn’s Invention Has Achieved Commercial Success

A patentee demonstrates commercial success by showing significant sales of the patented product in a relevant market. *J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563 (Fed. Cir. 1997).

The Claims of the ‘425 Patent cover Nuhn’s commercialized “Lagoon Crawler(s),” which have achieved great commercial success. Shortly after their

introduction, Nuhn's Lagoon Crawlers overtook the market for manure lagoon agitation "boats." Nuhn's Lagoon Crawler(s) were such a commercial success that they have essentially made traditional manure agitation boats obsolete.⁹⁴ Nuhn has sold over [REDACTED] Lagoon Crawler's in ten years, generating over \$ [REDACTED] in revenue.⁹⁵ This is a huge number of sales considering the niche nature of this market.

At the time Nuhn launched its Lagoon Crawler in 2014, Puck Custom Enterprises, Inc. ("Puck Enterprises"), the assignee of the Puck reference, had roughly 9% of the market share in North America for manure pumping boats.⁹⁶ With its Lagoon Crawler, Nuhn quickly eclipsed Puck Enterprises as the market leader in manure pumping "boats" and has maintained its position at the top of the market ever since.

Nuhn's Lagoon Crawler sales have single-handedly eclipsed annual sales of all traditional (i.e., non-amphibious) manure lagoon boats. Setting aside Bazooka's infringing sales, Nuhn's Lagoon Crawler held more than 90% of the market share for manure agitation "boats" in North America in 2023, whereas Puck Enterprises' market share in 2023 is estimated at less than 10%.⁹⁷ The commercial

⁹⁴ EX2083, ¶27.

⁹⁶ EX2083, ¶27.

⁹⁷ EX2083, ¶27.

success, year over year, for Nuhn's Lagoon Crawlers is strong evidence of non-obviousness. It also exemplifies that Nuhn's grab of the market share of agitation vehicles is a niche market.

There is also a direct nexus or link between this commercial success and the subject matter of the Challenged Claims, which cover the overall vehicle as opposed to a discrete feature or minute detail. In total, Nuhn has sold four generations of its commercial Lagoon Crawler, each being covered by the claims of the '425 Patent.⁹⁸ Bazooka cannot challenge that the claims of the '425 Patent cover Nuhn's Lagoon Crawlers given Bazooka cited a brochure (Lyseng) describing Nuhn's first Lagoon Crawler as an anticipatory reference in Ground 6 of its Petition.⁹⁹

ii. The Invention Satisfied A Long Felt Need

As discussed in detail in Sections II through IV, a decades-old problem in agriculture farming was going unresolved and was, over time, getting worse as commercial livestock farms and manure lagoons grew larger and larger. The problem presented to agricultural farmers was the time-consuming job 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*

⁹⁸ EX2004, ¶¶404-506; EX2083, ¶22.

⁹⁹ Paper 1, 91-95.

for pumping the so-formed slurring into the tank for spreading apparatuses”.¹⁰⁰

Although advancements were made to agitators/pumps, floating barges and manure agitations boats, breaking up thick crust and maneuverability through an agricultural manure lagoon still proved difficult in view of thick crust and/or sandbar formation.¹⁰¹ The invention claimed in the ‘425 Patent solved this decades long problem that went unsolved, producing an amphibious, remotely operated and controlled, vehicle configured to crawl through an agricultural manure lagoon, acting like an icebreaker that could chew through the solid crust of the lagoon, all while agitating, mixing, jetting, and pumping liquid manure in an efficient and timely manner – the impact of which has been revolutionary within the agricultural farming industry.

iii. Others Copied The Invention

A party may prove copying by showing that an accused copier had access to the patented product combined with substantial similarity to the patented product. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010); *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1196 (Fed. Cir. 2003) (finding that evidence of a competitor responding to the

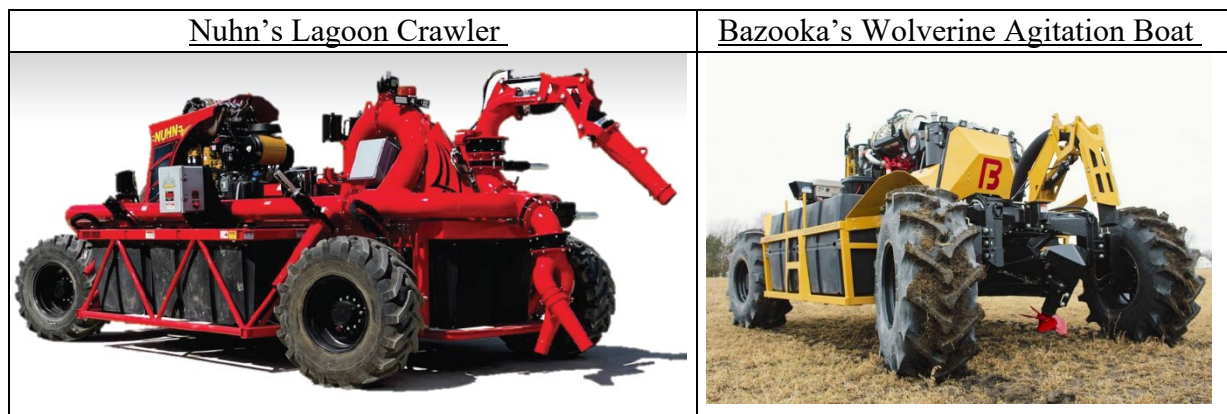
¹⁰⁰ EX2003; EX2003, 1:30-34; EX2003, 1:13-58; EX1014, ¶¶ [0002] - [0010]; EX1001, 1:33-52.

¹⁰¹ EX2029, ¶89.

introduction of the patent owner’s product with an infringing product indicated copying, which supported nonobviousness). Both elements of copying are present here.

Bazooka’s parent company Eldon C. Stutsman, Inc. (“Stutsman”) is a distributor and service center for Nuhn’s Lagoon Crawlers. Stutsman began buying Lagoon Crawlers from Nuhn in 2015 and has continued to purchase them ever since. During the development of Bazooka’s Wolverine, Stutsman even had one of their service mechanics works with Bazooka to provide advice on the design. This proves access.

The sheer similarity between Nuhn’s Lagoon Crawler and Bazooka’s Wolverine leaves little doubt that Bazooka copied Nuhn’s Lagoon Crawler as does Bazooka’s development history.



Bazooka has sought and obtained patent protection for the Wolverine.¹⁰²

Bazooka's first provisional patent application disclosed a design that relied solely on propellers to agitate manure and did not include a pump and articulating nozzle/gun.¹⁰³ However, by the time Bazooka filed its non-provisional application, Bazooka's design had evolved to one closely resembling Nuhn's Lagoon Crawler and included both a pump and articulating nozzle/gun.¹⁰⁴ There is no doubt that the end result of this development process produced a manure lagoon agitation vehicle in the Wolverine that shares substantial similarity to Nuhn's patented product.

iv. The Invention Achieved Unexpected Results

The claimed arrangement of elements produced a new and unexpected result that revolutionized the agricultural farming industry. The invention produced the new and unexpected result of 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. At a minimum, this unexpected result saved

¹⁰² The allowed claims of Bazooka's patent focus on the addition of one or more propeller-style agitators to the vehicle.

¹⁰³ EX2029, ¶408.

¹⁰⁴ EX2029, ¶408.

agriculture farmers countless hours of laboring to maneuver side/land-entry pumps, floating docks, and launching and retrieving beached agitation boats. The specific arrangement or combination of the elements recited in Claim 1 of the '425 Patent produces this new and unexpected result.

Change or arrange an element, however, lose the new and unexpected result. Remove the fluid pump for pumping liquid manure and the vehicle fails to agitate or pump liquid manure within and from a lagoon and the vehicle is left with no means to change direction or speed while floating, thereby stranding the vehicle while floating. Replace the fluid pump with a water pump and the pump becomes clogged by suspended solids within the lagoon—leaving the vehicle with no means to change direction or speed while floating, thereby stranding the vehicle while floating. Remove the remote operation – a person risk serious harm or death manually driving the vehicle into the lagoon. Remove the ground engaging propulsion structure and the vehicle is beached in highly viscous liquid manure and/or sand bar. Remove the combined remote control of the various elements and the vehicle doesn't act like an icebreaker against a solid-formed crust up to six feet thick, all meanwhile agitating, mixing, jetting, and pumping liquid manure. The result is unexpected because the claimed elements on their own cannot produce and would not reasonably be foreseen by a POSITA at the time of invention to

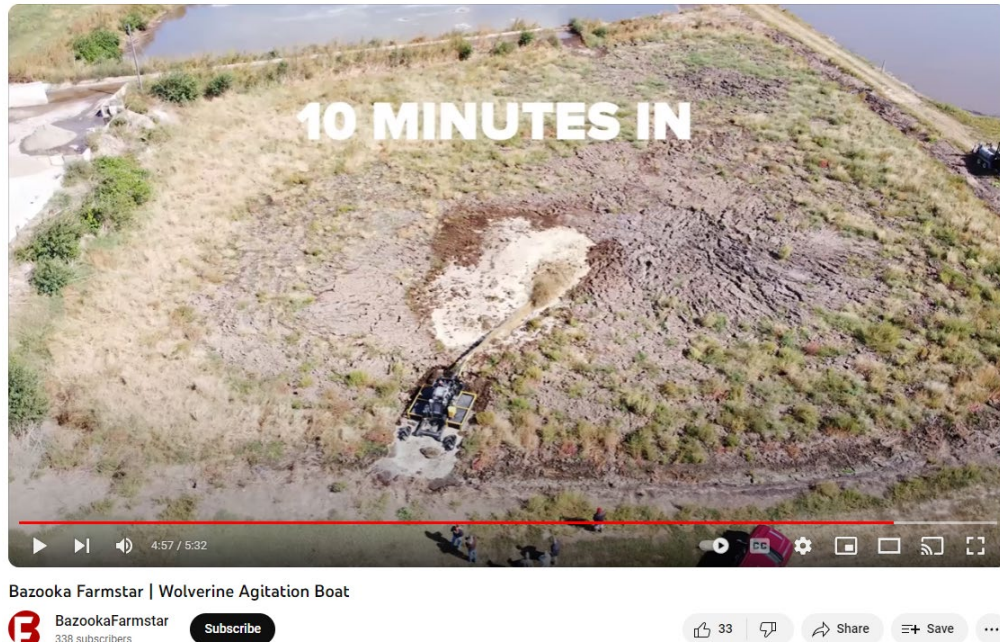
produce the new and unexpected result achieved by the specifically claimed arrangement of the elements.

When the claimed vehicle first enters a manure lagoon, the combination of the churning ground engaging elements (e.g., wheels) and the displacement of the floatable vehicle body disrupts the crust and creates a “pocket” or opening in the crust within which the vehicle can start to operate without clogging the pump. This “pocket” is shown in the screen shots below illustrating the vehicles manufactured by the Patent Owner and the Petitioner at work:



EX2006, 2.¹⁰⁵

¹⁰⁵ Video at <https://www.youtube.com/watch?v=fEgvvq9HZkk>



EX2007, 3.¹⁰⁶ While a POSITA might expect the addition of powered wheels would carry a manure agitation vehicle to and from a manure lagoon, the ability of the vehicle to “chew” a hole through the crust of poorly maintained manure lagoons and start a “working zone” for the pump to operate in a new and unexpected results provided by the combination of the churning wheels and displacement of the floating vehicle body. This new capability allows the claimed invention to agitate manure lagoons that remained inaccessible/unserviceable to traditional manure agitation boats like the one disclosed in Puck.

¹⁰⁶ Video at <https://www.youtube.com/watch?v=3y3bSJJUOps>

Combing and arranging the elements as claimed, the new and unexpected result is produced: The vehicle floats when in areas of the lagoon primarily comprising a low-viscosity liquid. The ground engagement elements allow the vehicle to travel over solid **and through semi-solid** ground (e.g., areas of the manure lagoon with thick muck, mud, sludge, slurry, sandbars, etc.). The wireless remote control of the flow of fluid from the fluid pump allows for control of the direction and speed of the vehicle when floating in areas of the lagoon that have low viscosity. In addition, control of a fluid from the fluid pump assists in dissolving a crust formed on the surface of and in agitating the lagoon. The wireless remote control of the ground engaging propulsion structure allows for control of the direction and speed of the vehicle when engaging solid and semi-solid ground.

Wireless remote control of **both** the ground engaging propulsion structure **and** the flow of fluid from the fluid pump enables the vehicle to “crawl” **through** agricultural manure lagoons. More specifically, the combined control at the will of a remote user, allows the vehicle to maneuver **through** all parts of the lagoon, allowing the vehicle to act like an icebreaker against a solid-formed crust up to six feet thick, all meanwhile agitating, mixing, jetting, and pumping liquid manure. The maneuverability of the vehicle **through** the various solids and viscosities of an agricultural manure

lagoon, while simultaneously agitating/pumping, is a new and unexpected result.

v. Praise By Others

Nuhn's patented Lagoon Crawlers have been extensively praised for innovation in printed publications and have received industry awards.¹⁰⁷ By way of example and without limitation, Nuhn has collected and attached 18 different articles lauding Nuhn's Lagoon Crawlers as a breakthrough product in the industry.¹⁰⁸ Nuhn's patented Lagoon Crawler was even featured in a broadcast television segment that aired on the Discovery Channel on September 3, 2015 during "Extreme Machine Week."¹⁰⁹

vi. Others Sought Or Obtained Rights To The Patent From The Patent Holder

The success of Nuhn's patented Lagoon Crawler was so substantial that the

[REDACTED]

reached out to Nuhn and sought a license to Nuhn's Lagoon Crawler patents.

This is extremely persuasive evidence of non-obviousness, particularly [REDACTED]

[REDACTED]

¹⁰⁷ EX2082, ¶¶33-50.

¹⁰⁸ [EX2060] – [EX2074], [EX2080].

¹⁰⁹ EX2082, ¶48.

[REDACTED]

vii. Persons Of Ordinary Skill In The Field Of The Invention Expressed Skepticism And Surprise At The Making Of The Invention (i.e., Nuhn Proceeded Contrary to Accepted Wisdom)

Although Nuhn's Lagoon Crawler has been well received and is proven to work extremely well in corrosive manure lagoon environments, it went against conventional wisdom at the time it was introduced. When the Lagoon Crawler was first introduced in 2013-2014, a number of industry experts expressed skepticism that the Lagoon Crawler would successfully and reliability function as a manure lagoon agitation vehicle over concerns that: the Lagoon Crawler's ground engaging structure (the hydraulically driven wheels) would get stuck and impede retrieval of the Crawler from a lagoon, the hydraulic system would leak hydraulic fluid into and contaminate a manure lagoon, the hydraulic system would fill with liquid manure rendering it inoperable, the hydraulic system fittings and/or electrical connections would corrode when continuously submersed in the corrosive manure, that the Lagoon Crawler would operate uncontrollably in the manure lagoon due to the agitation power / thrust generated by the pump absent a tether to an anchor at the bottom of the lagoon or tied off on land), and that the pump would clog or be ineffective when located on the bottom of the Lagoon Crawler as opposed to being closer to the bottom of the lagoon to

suck out settled solids.¹¹⁰ It turns out that none of these concerns proved problematic, but they were huge question marks when the invention was first conceived and reduced to practice.

viii. Nexus Between Objective Evidence of Non-Obviousness and the Subject Matter of the Claims

The claims of the ‘425 Patent cover Nuhn’s overall manure lagoon agitation vehicle, which is a unique combination and arrangement of components that work together in synergy to form the claimed invention as a whole.¹¹¹ As a result, there is a causal nexus between the claims as a whole and secondary considerations evidence regarding of Nuhn’s overall manure lagoon agitation vehicle. In other words, because the claims recite a unique combination and arrangement of components that work in together in synergy to form the claimed invention as a whole, the causal nexus is to Nuhn’s overall vehicle as opposed to a novel component part or feature. This rule of law is clearly laid out by the Federal Circuit:

¹¹⁰ EX2083, ¶¶52-59.

¹¹¹ EX2029, ¶¶404-506.

The Board acknowledged Medtronic showed every element of the Side Opening Claims was *individually* known in the prior art but correctly concluded this did not preclude nexus where the evidence was "tied to the combination of features as a whole" and the combination was not previously known. *Id.* (citing [WBIP, 829 F.3d at 1331-32](#)). Citing testimony from three of Teleflex's experts, the Board found "it was the GuideLiner devices as a whole that resulted in the evidence of secondary considerations, not any individual feature in isolation." *Id.* (emphasis added); see ['380 Decision, at *20, 2021 Pat. App. LEXIS 4941](#); ['776 Decision, at *15, 2021 Pat. App. LEXIS 4939](#). The Board credited this testimony as showing that "[w]hen the various features of the prior art were combined to form the GuideLiner device . . . the result was a new, market-making, commercially successful product that provided significant benefits over prior art devices, received praise in the art, and was copied by competitors." [*1338] ['032 Decision, 2021 Pat. App. LEXIS 4945 at *47](#) (emphasis added). The Board thus explicitly grounded its nexus [**12] finding on a combination of GuideLiner features it found were not disclosed, at least as a combination, in the prior art. We detect no legal error in this analysis.

Medtronic, Inc. v. Teleflex Innovations S.A.R.L., 70 F.4th 1331, 1338 (Fed. Cir. 2023).

B. OVERALL COMBINATION OF ELEMENTS IS NONOBVIOUS – GROUNDS 2-5

The Challenged Claims recites a new and non-obvious combination of elements that is greater than the sum of its parts and produced an entirely new product/product category in manure lagoon agitation equipment. When the claim elements are considered individually, the overall picture **of the claim as a whole**

is lost. The Patent Owner has not claimed a general-purpose amphibious vehicle for carrying attachments **or** for traveling over various terrains. Instead, when **the claim elements are** considered together, what **is claimed as a whole** is an amphibious vehicle, controlled wirelessly by a remote user, to maneuver in and through an agricultural manure lagoon while simultaneously disrupting the crust and recirculating liquid manure.

**C. GROUND 2: CLAIMS 1-7 AND 12-19 ARE NOT OBVIOUS
BASED ON TRUXOR IN VIEW OF YOON OR CARRIER**

**1. Truxor, Yoon, And Carrier Fail To Disclose A “Wireless
Remote Control Configured To . . .”**

Petitioner carries the burden of persuasion to establish that Yoon and/or Carrier disclose to a POSITA the specifically claimed arrangement of elements of Claim 1, and specifically the wireless remote-control limitations.¹¹² It is undisputed that Truxor does not disclose the use of remote control.

As discussed *surpa* in VII.B, VII.D.ii., and V.D.iii., a POSITA would understand Carrier for its *quick-connect* remote controlled vehicle.¹¹³ Similarly, a POSITA would understand Yoon for generally disclosing a remote control vehicle with a water pump.¹¹⁴ A POSITA, however, would not understand Yoon or Carrier for disclosing each element of the remote-control limitation of Claim 1

¹¹² EX1001, 8: 45-52; EX2029, ¶¶ 183-240.

¹¹³ EX2029, ¶¶ 183-240.

¹¹⁴ EX2029, ¶¶ 183-240.

of the ‘425 Patent.¹¹⁵ Notably, at the time of invention, Patent owner cited a remotely operable pump for pumping liquid manure and a remotely operable boat, *see* Puck and/or U.S. Patent Application No. 13/038,189 – generally remote control was known. Even if combined, Truxor, Yoon and/or Carrier fail to disclose the specific arrangement of remote-control elements as claimed in Claim 1 of the ‘425 Patent, let alone the remote-control limitation.

2. Truxor, Yoon, And Carrier Fail To Disclose “A Fluid Pump For Pumping Liquid”

For the reasons discussed *surpa* at VIII.A., C., and D., Carrier fails to disclose a fluid pump for pumping liquid manure.

Truxor discloses a Doro Pump, advertised as a “pump . . . for pumping light sediments and volatile sand”.¹¹⁶ The Doro Pump is “equipped with a suction nozzle when pumping sand or light floating sediments”.¹¹⁷ Contrary to Petitioner’s assertions, the “Doro pump is supplied with a screw feed”.¹¹⁸ The Doror Pump requires either a “wheel feeding or screw feeding” when dredging harder sediments.¹¹⁹ The Doro Pump is like a water pump, as defined by Petitioner.¹²⁰ That is the Doror Pump is a water pump requiring a “wheel or

¹¹⁵ EX2029, ¶¶ 145-182.

¹¹⁶ EX1007 at 123.

¹¹⁷ EX1007 at 123.

¹¹⁸ EX1007 at 123.

¹¹⁹ EX1007 at 26.

¹²⁰ EX2029, ¶¶ 183-240.

screw feed” to chop and/or crush solids into “sand or light floating sediments” to avoid clogging.¹²¹ In sum, the Doror Pumo is water pump, not a fluid pump for pumping liquid manure.¹²²

Yoon discloses a water pump protected by a “sludge filtering device” for use in water treatment.¹²³ A POSITA understand from Yoon that its water pump would clog if used to pump liquid manure.¹²⁴ A POSITA would also understand from Yoon that a pump requiring a “sludge filtering device” is not a pump that pumps liquid manure because the “sludge filtering device” would filter out suspended solids contained in liquid manure.¹²⁵

3. Dependent Claims 2-6

Claims 2-6 depend from Claim 1 and are not rendered obvious by Truxor in view of Yoon and/or Carrier for at least the same reasons described above.

4. Dependent Claims 7 and 19

Claims 7 and 19 depend from Claim 1 and are not rendered obvious by Truxor in view of Yoon and/or Carrier for at least the reasons described above and the additional reasons set forth below.

¹²¹ Paper 1, 41.

¹²² EX2029, ¶¶ 183-240.

¹²³ EX1011 at ¶ [0029].

¹²⁴ EX2029, ¶¶ 183-240.

¹²⁵ EX2029, ¶¶ 183-240.

Claims 7 and 19 further recite that “at least one of speed and direction of the vehicle when the vehicle is floating is controlled by a fluid mover.” Petitioner argues that this limitation is met by Truxor because “[t]he paddle tracks move fluid and therefore are fluid movers.”¹²⁶ But Petitioner equates Truxor’s paddle tracks to the claimed “ground engaging propulsion structure.” Truxor’s paddle tracks cannot be both the “ground engaging propulsion structure” of Claim 1 and the “fluid mover” recited in Claims 7 and 19 because they are introduced as separate claim elements. Moreover, as described above in Section VI.D, 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 through the nozzles to maneuver the vehicle.¹²⁷ No equivalent structure is disclosed in Truxor, Yoon, or Carrier.

Truxor discloses, expressly and repeatedly, that all tools carried by the Truxor vehicle are interchangeable.¹²⁸ In other words, the Truxor vehicle is not always going to be equipped with the Duro Pump and is expressly contemplated as NOT having the Duro Pump. Accordingly, even if Petitioner’s legally flawed proposition that a tool is plausibly capable of controlling “at least one of speed and direction of the vehicle when the vehicle is floating” in the instances when the tool

¹²⁶ Paper 1, 57.

¹²⁷ EX1001, 5:63 – 6:18.

¹²⁸ EX1005 at ¶¶ [0047], [0051], [0060], and [0064].

equipment is quick-connected to the vehicle, the vehicle would be immobile when floating without the tool quick-connected. If Petitioner's argument were true, Truxor would be unable to hold station or independently maneuver with the dredge pump in use. Carrier does not remedy this deficiency of Truxor. *See* Section VIII. Yoon also fails to remedy this deficiency of Truxor. Yoon does not describe any valve(s) or fluid nozzle(s) that perform the function of "moving fluid to control at least one of the speed and direction of the vehicle when the vehicle is floating."

5. Dependent Claims 12-19

Claims 12-21 depend from Claim 1 and are not rendered obvious by Truxor in view of Yoon and/or Carrier for at least the reasons described above and the additional reasons set forth below.

Claim 12 further specifies that "the power source is connected to the hydraulic pump by a mechanical drive and [is] connected to the fluid pump by the mechanical drive." Petitioner argues that Truxor discloses this limitation, but in the same breath admits that Truxor's "Doro Pump [(the fluid pump)] is operated by a hydraulic motor."¹²⁹ This claim limitation requires both the hydraulic pump and the fluid pump to be connected to the power source by the mechanical drive. In Truxor, the fluid pump is hydraulically connected to and driven by the hydraulic pump and therefore is not connected to the power source

¹²⁹ Paper 1, 59.

by a “mechanical drive,” which is claimed as an additional and separate component relative to the claimed “hydraulic pump.” Claims 13-21 depend from Claim 12. As a result, Truxor in view of Yoon and/or Carrier fail to render Claims 12-21 obvious for this additional reason.

**D. GROUND 3: CLAIMS 1-7 AND 12-19 ARE NOT OBVIOUS
BASED ON SENWATEC IN VIEW OF YOON OR CARRIER**

**1. Senwatec, Yoon, And Carrier Fail To Disclose A “Wireless
Remote Control Configured To . . .”**

Petitioner carries the burden of persuasion to establish that SenwaTec, Yoon and/or Carrier disclose to a POSITA the Claimed arrangement of elements of Claim 1, and specifically, the remote-control limitation.¹³⁰

For the reasons discussed *surpa* at VIII.C. and VIII.C.1., Yoon and Carrier fail to disclose the remote-control limitation.

SenwaTec does not disclose remote control.¹³¹ As discussed *surpa* in VII.B, and VIII.C.1., a POSITA would understand Yoon and Carrier for generally disclosing remote control of a vehicle with a water pump.¹³² A POSITA would not understand Yoon or Carrier as disclosing each element of the remote-control limitation of Claim 1 of the ‘425 Patent.¹³³ Even if combined, Truxor,

¹³⁰ EX1001, 8: 45-52; EX2029, ¶¶242 – 291.

¹³¹ EX2029, ¶125.

¹³² EX2029, ¶¶242 – 291.

¹³³ EX2029, ¶¶242 – 291.

Yoon and/or Carrier fail to disclose the specifically claimed remote control elements of Claim 1.

2. Senwatec, Yoon, And Carrier Fail To Disclose “A Fluid Pump For Pumping Liquid”

For the reasons discussed *surpa* at VIII.C. and VIII.C.2., Yoon and Carrier fail to disclose a fluid pump for pumping liquid manure.

SenwaTec discloses a centrifugal pump, which is not suitable for pumping liquid manure.¹³⁴ As detailed in Houle, “the mixing capabilities of a centrifugal pump system are at best limited and time consuming, and no agitation takes place during transfer of the slurry to a different contained into a tank spreader. Furthermore, clogging of the pump’s impeller and consequential loss of pump efficiency remains a serious shortcoming”.¹³⁵ Accordingly, a POSITA would not have considered the centrifugal pump of SenwaTec to be a fluid pump for pumping liquid manure.¹³⁶ The combination of SenwaTec, Yoon and Carrier therefore fails to disclose the claimed fluid pump for pumping liquid manure.

¹³⁴ EX2010, U.S. Pat. No. 4,406,413, 1:24-63; EX2029, ¶240-245.

¹³⁵ EX2010, U.S. Pat. No. 4,406,413, 1:24-63; EX2029, ¶240-245.

¹³⁶ EX2029, ¶¶242 – 291.

3. Petitioner’s Analysis Extends Impermissibly Beyond Senwatec’s Printed Publication [EX1012] In Violation Of 35 U.S.C. § 311(B) And Must Be Disregarded

i. The Lonnemann Declaration [EX1013] Cannot Add to the Teachings of SenwaTec’s Marketing Brochure

The Lonnemann Declaration alleges that one of SenwaTec’s customers, UD Umweltdienste, **used** the SenwaTec vehicle “for pumping manure and agitating manure lagoons”:

5. **One of SenwaTec’s customers** of the Amphi-King was a company called UD Umweltdienste GmbH (“UD Umweltdienste”). **UD Umweltdienste used the Amphi-King for pumping manure and agitating manure lagoons.**

EX1013, ¶5. But Lonnemann’s statement is wholly unsupported and unsubstantiated. Lonnemann states that he was employed by SenwaTec and then by SenwaTec’s current owner, Berky. EX1013, ¶¶1-2, 9. The Lonnemann Declaration does not provide any foundation for why Lonnemann has personal knowledge to testify about how UD Umweltdienste, a different company altogether, used the SenwaTec vehicle. Lonnemann does not state that he personally observed UD Umweltdienste using the SenwaTec vehicle for pumping manure and agitating manure lagoons or when. If this statement is based on what someone from UD Umweltdienste told him, it is inadmissible hearsay. And Lonnemann does not state that his basis for making this statement is what is shown in Exhibits A and B to his Declaration, nor can he because those Exhibits

do not, on their face, demonstrate that UD Umweltdienste used the SenwaTec vehicle for pumping manure for the reasons explained below.

4. Exhibit A [EX1026-27] to the Lonnemann Declaration Does Not Support The Statement That SenwaTec's Pump Was Used To Pump Manure

Lonnemann claims that a news article published prior to the Patent Owner's filing date described the manure pumping capabilities of SenwaTec's vehicle:

6. SenwaTec's amphibious vehicle products and their associated manure pumping capabilities were the subject of news publications prior to August 19, 2013. See e.g., Exhibit A (accessible at <https://www.hna.de/lokales/rotenburg-bebra/frosch-vorbild-1376974.html>). SenwaTec appreciated its products being published in news publications because they helped to raise awareness for SenwaTec's products.

EX1013, ¶6. But the news article attached as Exhibit A to Lonnemann's Declaration does not, on its face, support this statement. The article [English translation at EX1027] contains no references to manure or livestock and instead states that SenwaTec vehicle was being used in a "sewage pond." The article itself does not suggest that this sewage pond contained animal manure, explaining that there was **no fecal matter** left in this sewage pond:

This idea is not that far off: "After all, **it's not fecal matter that's in the sewage sludge,**" explains the vehicle operator of the frog-like machine, **"it's just dead bacteria that previously ate the fecal matter."** Thus, **what floats in the pond is anything but toilet waste.**

EX1027, 3. Furthermore, the article suggests that the “fecal matter” that used to be in the “sewage pond” was human waste through its reference to “toilet waste.” So Exhibit A [EX1026-27] does not actually teach the SenwaTec vehicle being operated in “manure” as Lonnemann incorrectly claims.

Sewage ponds and manure lagoons are very different. EX2004, ¶34. A large amount of the solids and debris found in manure lagoons is bedding material, such as straw and sand, that sticks to the manure and gets washed into the manure lagoon. *Id.* Human waste is transported to sewage treatment plants by sewer and therefore does not have straw or sand mixed in with the waste. *Id.* Human waste is also treated at a sewage treatment plant before going into a storage pond and therefore has much less debris than a manure lagoon. *Id.* A POSITA would understand that the requirements for pumping human waste in a sewage pond are different than the requirements for pumping manure in a manure lagoon. *Id.* So Exhibit A [EX1026-27] does not actually demonstrate that SenwaTec’s vehicle had “manure pumping capabilities” as Lonnemann claims.

**5. Exhibit B [EX1028] to the Lonnemann Declaration
Cannot Serve as Evidence of What Was Known in the Art At the
Time of the Invention**

Lonnemann states that Exhibit B is a compilation of screenshots of a video that its customer UD Umweltdienste made of the SenwaTec vehicle:

15. Exhibit B is a compilation of screenshots of a marketing video created by UD Umweltdienste that shows the Amphi-King pumping manure and agitating a manure lagoon.

EX1013, ¶15. But Exhibit B itself [EX1028] is just 9 screenshots of a video that someone compiled. This video and therefore the screenshots shown in Exhibit B [EX1028] cannot be relied upon as evidence of what was general public knowledge in art because the Petitioner has not shown that this video was publicly accessible or publicly distributed.

Petitioner unsuccessfully attempts to demonstrate that the video its customer UD Umweltdienste made of the SenwaTec vehicle was “publicly available” and therefore a “printed publication” through the following sworn statements:

18. The video of Exhibit B was publicly accessible on the internet in 2012.
19. The video of Exhibit B was distributed by UD Umweltdienste to the public prior to August 19, 2013, including in 2012. For example, the video of Exhibit B was distributed by UD Umweltdienste to SenwaTec at least as early as May 3, 2012.

EX1013, ¶¶18-19. But the Lonnemann Declaration does not lay sufficient foundation to establish that Lonnemann has personal knowledge that the video was publicly accessible on the internet in 2012. Lonnemann and his company SenwaTec admittedly did not create the video – UD Umweltdienste did.

EX1013, ¶15. No URL, screenshot, or other corroborating evidence has been provided showing that this video was actually published on the internet before Nuhn’s priority. In fact, the evidence shows the opposite. This video was apparently published on the internet on November 29, 2016 – more than three years after Nuhn’s priority date August 19, 2013, priority date.¹³⁷

The statement in Paragraph 19 of the Lonnemann Declaration, that UD Umweltdienste distributed the video to SenwaTec is also insufficient to demonstrate public accessibility. The mere fact that a customer (UD Umweltdienste) made a video using a manufacturer’s product and sent that video

¹³⁷ <https://www.youtube.com/watch?v=ecnlfMf7CH4&t=1s>

to the manufacturer (SenwaTec) does **not** demonstrate that persons interested and ordinarily skilled in the subject matter or art could access the video at all, let alone after exercising reasonable diligence. Lonnemann has not testified to any disclosure of the video by UD Umweltdienste to anyone other than SenwaTec (i.e., anyone outside the customer-manufacturer relationship). Nor has Lonnemann testified to how many people the video was distributed to at SenwaTec or when. There is simply no evidence here demonstrating that UD Umweltdienste's act of providing the video to SenwaTec was made outside of a private exchange, such as through a private web share.

6. Lonnemann's Declaration [EX1013] Cannot Be Used To Add To The Disclosure Provided in Exhibit B [EX1028]

Lonnemann claims that the UD Umweltdienste video shows the “manure pumping and agitation capabilities” of the SenwaTec vehicle:

7. The Amphi-King was also featured in its customers' advertisements, which showcased the amphibious and manure pumping and agitation capabilities of the Amphi-King. See e.g., Exhibit B.

15. Exhibit B is a compilation of screenshots of a marketing video created by UD Umweltdienste that shows the Amphi-King pumping manure and agitating a manure lagoon.

EX1013, ¶¶7, 15. But the evidence appears to show that the SenwaTec vehicle in this video was used in a human sewage treatment plant basin – not for “pumping

manure and agitating a manure lagoon” as Lonnemann incorrectly claims.¹³⁸

Lonnemann’s statements referencing “manure” and “manure lagoons” cannot be considered because they are incorrect.

1. Dependent Claims 2-6

Claims 2-6 depend from Claim 1 and are not rendered obvious by SenwaTec in view of Yoon and/or Carrier for at least the same reasons described above.

2. Dependent Claims 7 and 19

Claims 7 and 19 depend from Claim 1 and are not rendered obvious by SenwaTec in view of Yoon and/or Carrier for at least the reasons described above and the additional reasons set forth below.

Claims 7 and 19 further recite that “at least one of speed and direction of the vehicle when the vehicle is floating is controlled by a fluid mover.” Petitioner argues that this limitation is met by the optional hydraulic auger attachment disclosed in SenwaTec.¹³⁹ But as described above in Section VI.D, 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 through the nozzles to maneuver the vehicle.¹⁴⁰ The hydraulic auger

¹³⁸ Paper 15, 26.

¹³⁹ Paper 1, 69.

¹⁴⁰ EX1001, 5:63 – 6:18.

attachment of SenwaTec is not equivalent to the nozzle and valve structure disclosed in '425 Patent specification for this means-plus-function claim element, nor has Petitioner or its expert submitted any evidence of equivalence.

3. Dependent Claims 12-19

Claims 12-21 depend from Claim 1 and are not rendered obvious by SenwaTec in view of Yoon and/or Carrier for at least the reasons described above and the additional reasons set forth below.

Claim 12 further specifies that “the power source is connected to the hydraulic pump by a mechanical drive and [is] connected to the fluid pump by the mechanical drive.” Petitioner argues that SenwaTec discloses this limitation, but in the same breath admits that SenwaTec’s “centrifugal (fluid) pump is hydraulically powered.”¹⁴¹ This claim limitation requires both the hydraulic pump and the fluid pump to be connected to the power source by the mechanical drive. In SenwaTec, the fluid pump is hydraulically connected to and driven by the hydraulic pump and therefore is not connected to the power source by a “mechanical drive,” which is claimed as an additional and separate component relative to the claimed “hydraulic pump.” Claims 13-21 depend from Claim 12. As a result, SenwaTec in view of Yoon and/or Carrier fail to render Claims 12-21 obvious for this additional reason.

¹⁴¹ Paper 1, 71.

**E. GROUND 4: CLAIMS 1-21 ARE NOT OBVIOUS BASED ON
PUCK IN VIEW OF BRYHAM**

**1. Puck And Bryham Fail To Disclose A “Wireless Remote
Control Configured To . . .”**

A POSITA would understand Puck to disclose remote control operation of a boat and a pump, not of ground engaging propulsion structures.¹⁴² Bryham does not disclose remote control operation.¹⁴³ Based on Petitioner’s reliance on Bryahm manually controlled wheels, the combination does not disclose remote control for (1) controlling a ground engaging propulsion structure, or for (2) controlling a speed and/or direction of the vehicle when ground engaging. A POSITA would not understand Puck, with or without Byrahm’s *retractable wheels*, as disclosing or teaching each element of the remote-control limitation of Claim 1 of the ‘425 Patent.¹⁴⁴

As discussed in detail *surpa* at XI.A., the mere existence of remote-control operations does not render the *specifically claimed arrangement of elements* obvious. It would be a legal error to shift Petitioner’s burden to Patent Owner or for the Board to conclude that a POSITA would have created the claimed invention based on the hindsight bias of adding wheels to Puck’s boat. Had the

¹⁴² EX2029, ¶¶296-344.

¹⁴³ EX2029, ¶¶296-344.

¹⁴⁴ EX2029, ¶¶296-344.

disclosures actually rendered the Challenged Claims obvious over Puck in view of Bryham, Petitioner would not have also asserted Ground 5 in an attempt to overcome inherent deficiencies in its assertions with Ground 4.

2. The Puck-Bryham Combination Does Not Disclose All Elements Of The Challenged Claims

i. The Puck-Bryham Combination Fails to Disclose or Suggest a “Power Source Configured to Provide Power to Both the Ground Engaging Propulsion Structure And the Fluid Pump”

Neither Puck nor Bryham disclose “a power source that provides power to **both** a manure pump and a ground engaging propulsion structure” as required by the language of Claim 1. Petitioner’s sole basis for alleging that this element is met is its expert’s conclusory statement that a POSITA would be motivated to use Puck’s power source to also power the wheels being added from Bryham:¹⁴⁵

348. A POSA would have been motivated to use the same internal combustion engine of Puck to power the land-based propulsion system of Bryham because it would be less expensive, more efficient, take up less space, and weigh less than providing two separate engines, one for the fluid pump and one for the hydraulic pump for land-propulsion. Further, the diesel engine of Puck would be more than sufficient to power the land-based propulsion, which Puck teaches could be as high as 2000 HP. EX1014, ¶[0024].

But Petitioner’s expert does not actually show or explain why the claimed

¹⁴⁵ EX1004, ¶348.

arrangement “would be less expensive, more efficient, take up less space, and weigh less” than using separate electric motors to power Bryham’s wheels, which is one of the preferred embodiments expressly disclosed in Bryham.¹⁴⁶

Petitioner has not met its burden with respect to this limitation because its expert’s statement is conclusory, relies on impermissible hindsight, and cites no evidence.

3. The Puck-Bryham Combination Fails to Disclose “Wireless Remote Control Configured to ... (1) Control The Ground Engaging Propulsion Structure”

In a similarly conclusory fashion, Petitioner argues that a “POSITA would have been motivated to configure the remote-control steering system of Puck to control the speed and direction of the ground engagement means of Bryham while the vehicle is ground engaging” and cites paragraphs 349-350 of the Winkel Declaration. But Puck’s remote-control system is limited to turning the engine on and off, controlling engine speed, turning the nozzles on and off, and controlling nozzle direction.¹⁴⁷ So the Petitioner is **not** arguing **simple plug-and-play substitution** here, but instead argues that a POSITA would modify the remote-control system in Puck to control Bryham’s steering and drive system. The problem with Petitioner’s theory is that substantial modifications to Puck’s

¹⁴⁶ EX1015, 16:13-27.

¹⁴⁷ EX1014, ¶¶32-33.

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. The Petition repeats Dr. Winkel's general proposition that vehicles with wireless remote-control systems are generally known in the art, but just because the art teaches that *some* vehicles can be remote controlled does not mean that *all* vehicles can be remote controlled or that a POSITA would have had a reasonable expectation that Puck's remote-control could be easily modified to control Bryham's steering and drive system.¹⁴⁸

4. Petitioner Has Failed To Carry Its Burden Of Demonstrating That A POSITA Would Have Been Motivated To Combine Puck And Bryham With A Reasonable Expectation Of Success

The manure agitation boat disclosed in Puck is designed to be launched and retrieved using a trailer.¹⁴⁹ Thus, Puck fails to teach the limitation of Claim 1 reciting "ground engaging propulsion structure comprising a plurality of ground engaging elements powered by a hydraulic motor." In Ground 4, Petitioner asserts that a POSITA would add Bryham's wheels to the manure agitation boat disclosed in Puck.¹⁵⁰ But the Petition fails to demonstrate that a POSITA would

¹⁴⁸ EX2004, ¶182.

¹⁴⁹ EX1014, 9-10.

¹⁵⁰ Paper 1, 76.

have been motivated to make the Puck-Bryham Combination and would have had a reasonable expectation of success in achieving the claimed invention.

5. Petitioner Has Not Presented Sufficient Evidence Demonstrating That a POSITA Would Have Had a Reasonable Expectation of Success in Adding Bryham's Wheels to Puck

Petitioner cites **ZERO evidence** in Ground 4 explaining why a POSITA would have had a reasonable expectation of success in adding Bryham's wheels to the manure agitation boat disclosed in Puck to achieve the claimed invention.

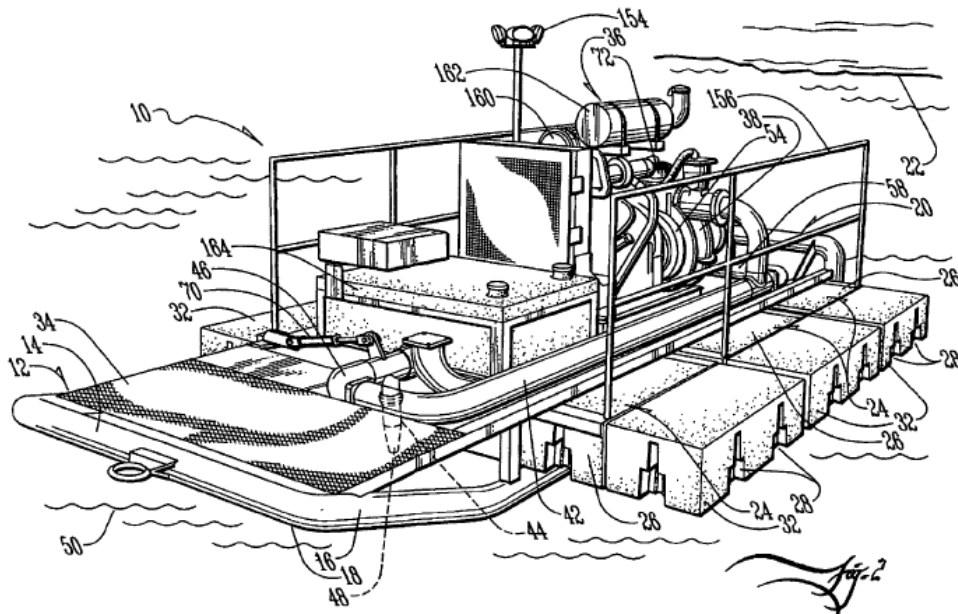
Like Royle, Bryham discloses a vee-hull boat with three wheels (one at the bow and two at the stern) that can retract and extend into and out of the boat hull. Unlike Royle and Bryham, Puck is more barge-like and is constructed from modular floating dock sections 26 that are placed in a plurality of receiver slots 24 in a ladder-like frame 14:¹⁵¹

¹⁵¹ EX1014, ¶¶22-23.

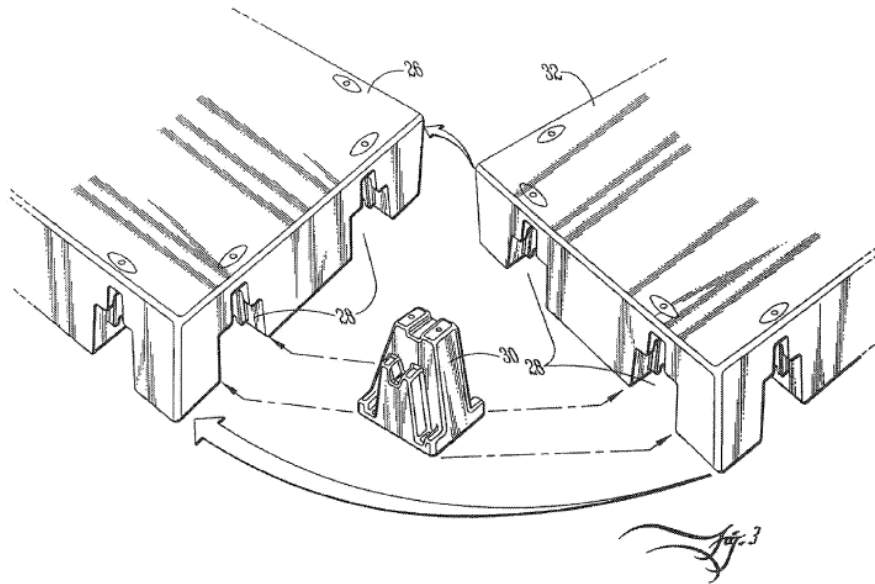
(10) from a manure lagoon (22). (FIGS. 1-2). The frame (14) defines a plurality of receiver slots (24) into which are provided modular dock sections (26), such as those known in the art. In the preferred embodiment, the dock sections (26) are 1000 series dock components manufactured by Connect-A-Dock, Inc. of Atlantic, Iowa.

[0023] The modular dock sections (26) are provided with connector slots (28) to fit into interlocking mating engagement with connector pins (30). The connector pins (30) allow the modular dock sections (26) to connect to additional dock sections (32) in a manner such as that known in the art. (FIGS. 1 and 3). The use of interlocking additional dock sections (32) allows for the buoyancy of the vessel (12) to be increased and allows the additional dock sections (32) to be removed to reduce the overall width of the agitator (10) for transport and storage. If desired, pontoons, inflatable components or any

The modular dock sections 26 are held together with connector pins 30:¹⁵²



¹⁵² EX1014, 3-4.



Petitioner has failed to carry its burden of explaining why a POSITA would reasonably expect that Bryham's wheels could be successfully added to Puck's vessel, when Puck does not have a conventional boat hull structure like that disclosed in Bryham and Puck. Adding Bryham's wheels would seemingly interfere with the modular dock sections required in Puck for floatation and the two cannot occupy the same space.¹⁵³ Moreover, Puck's vessel is designed so that its weight is evenly distributed when it is on shore and on the trailer.¹⁵⁴ Puck's vessel is not designed so that its entire weight can be carried at 3 discrete points (one in the front and two in the rear) as it would be if Bryham's wheels were added.¹⁵⁵ In addition, the connector pins 30 slide into the modular dock

¹⁵³ EX2004, ¶201.

¹⁵⁴ EX2004, ¶203.

¹⁵⁵ EX2004, ¶202.

sections 26 from the bottom and are wider at the bottom than they are at the top.

The gives the connection between the modular dock sections good weight carrying ability when they are floating, but it is not designed to hold the modular dock sections together when they are suspended above the ground, as they would be if Bryham's wheels were added.¹⁵⁶

6. A POSITA Would Expect The Puck-Bryham Combination to Have Steering and Stability Problems That Would Render it Inoperable as a Manure Agitation Vehicle

Petitioner also fails to carry its burden of explaining why a POSITA would reasonably expect that Puck's vessel could successfully drive into and out of manure lagoons if Bryham's wheels even could be added. Petitioner's own expert readily acknowledges that manure lagoons – the environment in which Puck's vessel operates – often have steep and slippery embankments:¹⁵⁷

a vehicle and trailer designed for paved roads. EX1015, 1:55-60. A POSA would have understood that manure lagoons often do not have a designated paved ramp for launching and retrieving vehicles and that the embankments surrounding lagoons are often steep and may be muddy or covered in vegetation. EX1040, 55. The Northeast Regional Agricultural Engineering Service notes that outside bank slopes may be as steep as 3:1. *Id.* An illustration of a manure lagoon with a steep inside slope and a

¹⁵⁶ EX2004, ¶203

¹⁵⁷ EX1004, ¶334.

But Petitioner does not explain why a POSITA would have expected the 3-wheel design disclosed in Bryham to provide Puck's vessel with the capability of traversing these steep and slippery embankments, when a POSITA would expect:

- Bryham's 3-wheel design to be inherently unstable, i.e., prone to tipping if used on steep lagoon embankments. EX2004, ¶205.
- Bryham's 3-wheel design, with only two powered wheels at the stern, to have poor traction if used in a manure lagoon and would likely get stuck. *Id.*
- The one small steerable front wheel in Bryham to be prone to sliding in a manure lagoon and would be ineffective in turning the vehicle. *Id.*

Thus, Petitioner has failed to demonstrate that a POSITA would reasonably expect that Puck's vessel could successfully traverse the steep and slippery embankments when entering and exiting manure lagoons if Bryham's wheels were added to Puck. *Id.*

7. Dependent Claims 2-21

Claims 2-21 depend from Claim 1 and are not rendered obvious over Puck in view of Bryham for at least the same reasons described above.

F. GROUND 5: CLAIMS 1-21 ARE NOT OBVIOUS BASED ON PUCK IN VIEW OF BRYHAM AND FURTHER IN VIEW OF BENNETT-II

1. Puck, Bryham, And Bennett-II Fail To Disclose A “Wireless Remote Control Configured To . . .”

As discussed *supra* in VIII.1., Puck with Bryham fails to disclose the remote control limitation of Claim 1.

Petitioner further relies on Bennett-II for the sole purpose of disclosing additional teachings of remote-control:¹⁵⁸

Puck in combination with Bryham renders obvious claims 1-21. Should the Board find that the remote-control steering system of Puck would not have been obviously modified to control the Bryham wheels (*supra* Section XIV.B, [1.5]), Bennett-II teaches remote control of the ground engaging propulsion structure.

But **this solves nothing**. Bennett-II teaches an amphibious vehicle 10 with a pair of tracks 12, 14 that are driven by two drive wheels 590, 592 through a transmission 550 that is powered by a single engine 502:¹⁵⁹

¹⁵⁸ Paper 1, 89.

¹⁵⁹ EX1017, 22.

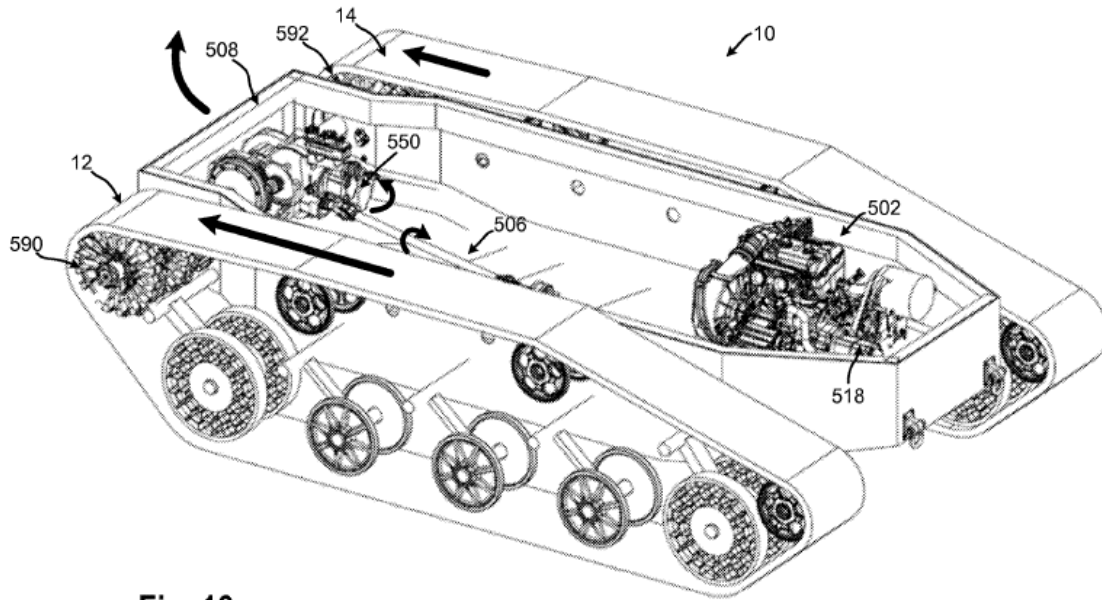


Fig. 16

The fact that Para. [0043] of Bennett-II provides the generalized statement that “vehicle 10 may be operated by remote control” tells a POSITA nothing about how one could modify Puck’s remote-control system to control Bryham’s 3-wheeled ground engagement system, which is quite different from Bennett’s drivetrain.¹⁶⁰

Notably, it is Petitioner’s, NOT Patent Owner’s, burden to establish why a POSITA would have inherently understood from the disclosures of Puck, Bryham and Bennett-II that a teaching or suggestion is made to render obvious a remote control of a ground engaging propulsion system is taught and understood.¹⁶¹ It would be legal error to shift Petitioner’s burden to Patent Owner

¹⁶⁰ EX2004, ¶214.

¹⁶¹ Paper 12, 34; *supra* at VIII.E.3.

or for the Board to conclude that a POSITA would have created the claimed invention based on the hindsight bias.

2. The Puck-Bryham-Bennett Combination Does Not Disclose All Elements Of The Challenged Claims

i. The Puck-Bryham-Bennett Combination Fails to Disclose or Suggest a “Power Source Configured to Provide Power to Both the Ground Engaging Propulsion Structure And the Fluid Pump”

Puck, Bryham and Bennett-II, individually and in combination, fail to disclose “a power source that provides power to **both** a manure pump and a ground engaging propulsion structure” as required by the language of Claim 1. Petitioner’s sole basis for alleging that this element is met is its expert’s conclusory statement that a POSITA would be motivated to use Puck’s power source to also power the wheels being added from Bryham:¹⁶²

348. A POSA would have been motivated to use the same internal combustion engine of Puck to power the land-based propulsion system of Bryham because it would be less expensive, more efficient, take up less space, and weigh less than providing two separate engines, one for the fluid pump and one for the hydraulic pump for land-propulsion. Further, the diesel engine of Puck would be more than sufficient to power the land-based propulsion, which Puck teaches could be as high as 2000 HP. EX1014, ¶[0024].

But Petitioner’s expert does not actually show or explain why the claimed

¹⁶² EX1004, ¶348.

arrangement “would be less expensive, more efficient, take up less space, and weigh less” than using separate electric motors to power Bryham’s wheels, which is one of the preferred embodiments expressly disclosed in Bryham.¹⁶³

Petitioner has not met its burden with respect to this limitation because its expert’s statement is conclusory, relies on impermissible hindsight, and cites no evidence.

3. The Puck-Bryham-Bennett Combination Fails to Disclose “Wireless Remote Control Configured to ... (1) Control The Ground Engaging Propulsion Structure”

Petitioner argues that a “POSITA would have been motivated to configure the remote-control steering system of Puck to control the speed and direction of the ground engagement means of Bryham while the vehicle is ground engaging” and cites paragraphs 349-350 of the Winkel Declaration. But Puck’s remote-control system is limited to turning the engine on and off, controlling engine speed, turning the nozzles on and off, and controlling nozzle direction.¹⁶⁴ So the Petitioner is **not** arguing **simple plug-and-play substitution** here, but instead argues that a POSITA would modify the remote-control system in Puck and/or Bennett-II to control Bryham’s steering and drive system. The problem with Petitioner’s theory is that substantial modifications to Puck and/or Bennett-II’s

¹⁶³ EX1015, 16:13-27.

¹⁶⁴ EX1014, ¶¶32-33.

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. The Petition repeats Dr. Winkel's general proposition that vehicles with wireless remote-control systems are generally known in the art, but just because the art teaches that *some* vehicles can be remote controlled does not mean that *all* vehicles can be remote controlled.

The entirety of Bennett-II's description of remote control is limited to the following statements:¹⁶⁵

4). Vehicle 10 may be configured for military applications and is configured to travel through various terrains or surfaces. More particularly, vehicle 10 is configured for both land and amphibious operation. Additionally, vehicle 10 may be operated by remote control. In one embodiment, vehicle 10 may be configured to travel at speeds of approximately 50 mph during land operation.

[0121] In one embodiment, vehicle 10 is adapted to be remotely controlled. For example, a remote control electronic device may be used to control vehicle 10 wirelessly without an operator being positioned in the vehicle 10. In one embodiment, vehicle 10 is operative to drive autonomously without human input.

These general statements in Bennett-II do not tell a POSITA how Puck's remote control system could be modified to control ground engaging propulsion

¹⁶⁵ EX1017, ¶¶ [0043], [0121].

structure. A POSITA would not have had a reasonable expectation that Puck remote-control could be easily modified to control ground engaging wheels in view of Bennett-II's limited and unhelpful disclosure.¹⁶⁶

4. Dependent Claims 2-21

Claims 2-21 depend from Claim 1 and are not rendered obvious over Puck in view of Bryham and Bennett-II for at least the same reasons described above.

IX. GROUND 6: CLAIMS 1-21 ARE NOT ANTICIPATED BY LYSENG

As the Board found in the Institution Decision, Lyseng is not prior art to the '425 Patent in view of the Patent Owner's correction of prior typographical errors in the ADS for U.S. Pat. No. 10,124,638. Accordingly, the Challenged Claims cannot be anticipated by Lyseng.

X. CONCLUSION

For the foregoing reasons, Petitioner has not established any of the Challenged Claims are unpatentable.

¹⁶⁶ EX2004, ¶182.

Dated: April 2, 2024

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CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that this brief complies with the type volume limitations of 37 C.F.R. § 42.24(b)(1). This brief contains 13,320 words as calculated by the “Word Count” feature of Microsoft Word for Microsoft 365 MSO, the word processing program used to create this brief.

The undersigned further certifies this brief complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and typestyle requirements of 37 C.F.R. § 42.6(a)(2)(iii). This brief has been prepared in a proportionally spaced typeface using Microsoft Word for Microsoft 365 MSO in Times New Roman 14-point font.

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. 42.6(e), I certify that on this 2nd day of April, 2024, a true and correct copy of the foregoing **Patent Owner's Response** was served by electronic mail on Petitioner's lead and backup counsel at the following addresses:

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