

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 REPLY TO PETITIONER'S OPPOSITION TO
MOTION TO AMEND U.S. PATENT NO. 11,358,425**

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PATENT OWNER'S EXHIBIT LIST

<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")
2018	U.S. Patent No. 10,118,138 to Tews ("Tews")
2019	DANIEL L. PFOST ET AL., UNIV. OF MO. EXTENSION, ANAEROBIC LAGOONS FOR STORAGE/TREATMENT OF LIVESTOCK MANURE (Oct. 2000)
2020	Screenshots from 2023 North American Manure Expo Website, retrieved on 10-2-23 from https://www.manureexpo.ca/
2021	Dictionary Definitions of "Dredging" and "Agitation", retrieved on 9-30-23 from https://en.wikipedia.org/wiki/Dredging , https://www.merriam-webster.com/dictionary/dredging#dictionary-

	entry-1, https://www.merriam-webster.com/dictionary/agitation , and https://www.lagoonpumping.com/articles-resources/agriculture-articles/manure-articles/
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 AGRICULTURAL WASTE MANAGEMENT FIELD HANDBOOK 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)
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 Nuhn's Gen 1 Lagoon Crawler
2037	Parts Catalog for Nuhn's Gen 1 Lagoon Crawler

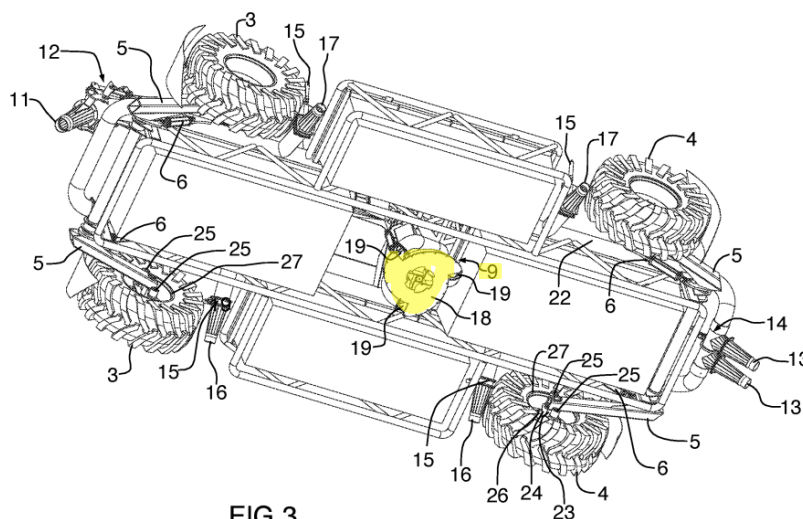
2038	Brochure for Nuhn's Gen 1 Lagoon Crawler
2039	Brochure for MY2018 of Nuhn's Gen 2 Lagoon Crawler
2040	Operator's/Safety Manual for the MY2019 of Nuhn's Gen 2 Lagoon Crawler
2041	Parts Book for the MY2018 of Nuhn's Gen 2 Lagoon Crawler
2042	Brochure for Gen 2 Lagoon Crawler
2043	Brochure for MY2022 of Nuhn's Gen 3 Lagoon Crawler
2044	Operator's/Safety Manual for the MY2020 of Nuhn's Gen 3 Lagoon Crawler
2045	Parts catalog for the MY2021 of Nuhn's Gen 3 Lagoon Crawler
2046	Brochure for Nuhn's Crawler X
2047	Parts Catalog for the MY2022 of Nuhn's 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
2056 (Under Seal)	Lagoon Crawler Sales Report - 2014-2017.5
2057 (Under Seal)	Lagoon Crawler Sales Report - 2018-2019
2058 (Under Seal)	Lagoon Crawler Sales Report - 2020-2023
2059	Lagoon Crawler Sales Report - X Models

(Under Seal)	
2060	Print No. 2 of Nuhn YouTube Video - "Nuhn Lagoon Crawler Unrivaled Lagoon Agitation!", accessed at https://www.youtube.com/watch?v=fEgvvq9HZk
2061	New Lagoon Crawler Demos Will Satisfy Curiosity, Canada's Outdoor Farm Show Official Show Guide for September 9-11, 2014 in Woodstock, Ontario
2062	H.Rivers, Farm show opens with a splash, The Beacon Herald(Sept. 10, 2014)
2063	B.Shypula, Transforming farming, The London Free Press (Sept.9, 2013))
2064	B.Shypula, Crawler makes manure almost sexy, The BeaconHerald (Sept. 6, 2013)
2065	30th Annual AMC Engineering Conference Brochure for May 5-7, 2015 in Waterloo, Iowa
2066	Certificate of Services Awarded to Ian Nuhn
2067	M.Beitz, Crawler is turning heads, The Beacon Herald at A2(Jan. 30, 2014)
2068	C.Elmore, Innovative Uses of Horsepower – A real crapshoot,Diesel Progress North American Edition (Dec. 2014)
2069	D.Rankin, Nuhn Industries celebrates employees at expansiongrand opening, 100th lagoon crawler unveiling, St. MarysIndependent (Aug. 7, 2015)
2070	B.Reid, Agitator has reclaimed manure lagoons around theworld, Ontario Farmer (Aug. 18, 2015)
2071	L.Cudworth, Nuhn marks major milestone, The London FreePress (Aug. 11, 2015)
2072	L.Cudworth, Marking a major milestone, The Stratford BeaconHerald (Aug. 7, 2015)
2073	J.Algie, Made-in-Sebringville lagoon crawler to be featured onDiscovery Channel, 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
2084	US20100144220A1 to Bailey
2087	Curriculum Vitae of Douglas S. Prairie and Case List – updated April 2, 2024 (cited here for completeness)
2088	Redline of the Amended Proposed Protective Order
2089	Amended Proposed Protective Order
2090	Intentionally omitted
2091	Dredge Yard Auger Dredger ECO200-A8-brochure
2092	Hydraulic Dredgers – Dredge Brokers LLC
2093-2098	Intentionally omitted
2099	Expert Douglas Prairie Declaration Regarding Motion to Amend (cited here for completeness)
2100	US 5,267,830 to Wickoren
2101	US 8,944,758 to Nuhn

I. INTRODUCTION

The prior art combinations presented by Petitioner in this IPR were plainly assembled using the ‘425 Patent as a blueprint. The new grounds of invalidity Petitioner asserts in its Opposition to Patent Owner’s Motion to Amend (“MTA”) continue this trend. Petitioner’s combinations would not have been obvious to a person of ordinary skill in the art (“POSITA”) absent impermissible hindsight, but even if each of the asserted combinations were made, the result of each combination would be a vehicle with a pump attached to the far end of a pivoting boom arm at either the front or rear of the vehicle. EX2099, ¶¶173-175. Each combination falls short of teaching the specific pump location disclosed in the ‘425 Patent and illustrated below, where the housing and impeller of the liquid manure pump 9 are positioned along the underside of the floatable vehicle body, rearward of the front end of the floatable vehicle body, and forward of the rear end of floatable vehicle body.



EX1001, 5. This particular arrangement results in a vehicle with a floatable vehicle body that forms a protective perimeter around the immersible liquid manure pump, where the vehicle body breaks up and displaces the crust, keeping it away from the pump. EX2099, ¶¶46-48. The four wheels, which are also positioned around this perimeter, allow the vehicle to break-through / sink into the crust and muck of a manure lagoon and the churning action of the wheels helps chew through the crust and muck. *Id.* Together, these features produced a new and unexpected result where the displacement of the floatable vehicle body and the churning action of the wheels creates a “working pocket” or opening in severely crusted over lagoons allowing the liquid manure pump to operate in a comparatively clear area, reducing the chance of clogging. *Id.*

The Substitute Claims proposed in the MTA recite the particular location of the liquid manure pump disclosed in the ‘425 Patent, which led to the unexpected results and benefits described above. Substitute Claim 22, which is an independent claim, provides in pertinent part:

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

This claim language of Substitute Claim 22 is phrased in absolute terms and

therefore requires the liquid manure pump to be mounted in such a way that the housing and an impeller are:

- (1) positioned along the underside of the floatable vehicle body, AND
- (2) positioned between at least two of the ground engaging elements, AND
- (3) positioned rearward of the front of the vehicle body and forward of the rear of the floatable vehicle body, AND
- (4) the impeller must be positioned such that it is immersed in the liquid manure when the vehicle is floating.

EX2099, ¶118. If the pump is mounted to structure (like a boom arm) where it is spaced away from the underside of the floatable vehicle body and positioned at the front or rear of the vehicle body, it does not satisfy this claim language. *Id.* at ¶119.

Substitute Claim 27 takes this concept a step further, specifying the fore-and-aft position of the pump relative to the front and rear spindles supporting the ground engaging wheels:

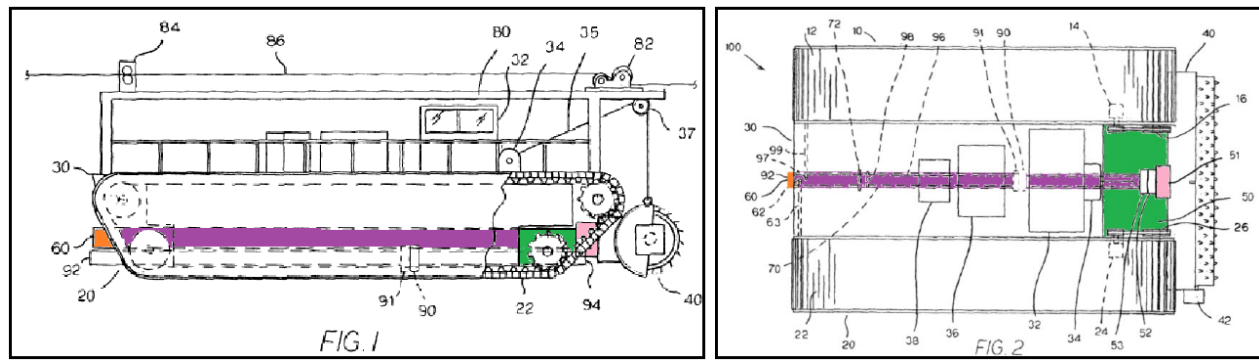
“wherein the ground engaging propulsion structure comprises a front set of ground engaging wheels that are rotatably attached to a front set of spindles and a rear set of ground engaging wheels that are rotatably attached to a rear set of spindles, and wherein ***the liquid manure pump is positioned rearward of the front set of spindles and forward of the rear set of spindles.***”

Finally, Substitute Claims 26, 31, and 41 require ***side*** fluid nozzles on ***opposite sides*** of the floatable vehicle body in addition to front and rear nozzles. None of these features are present in the applied art.

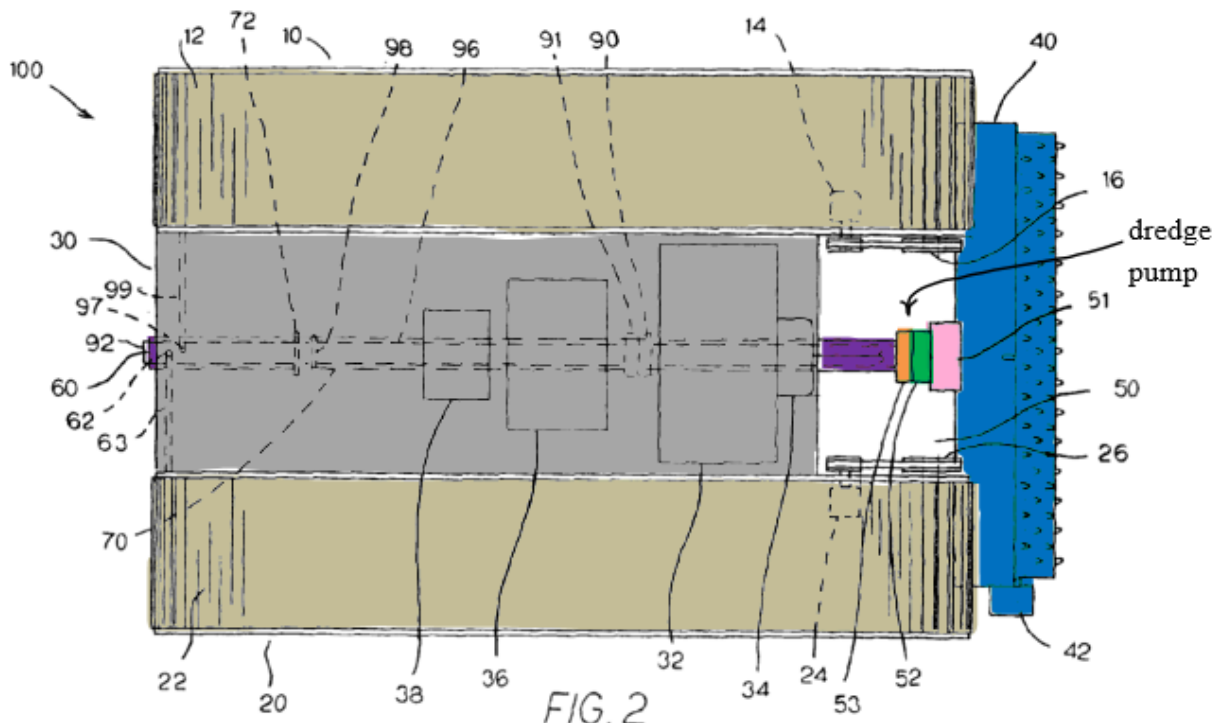
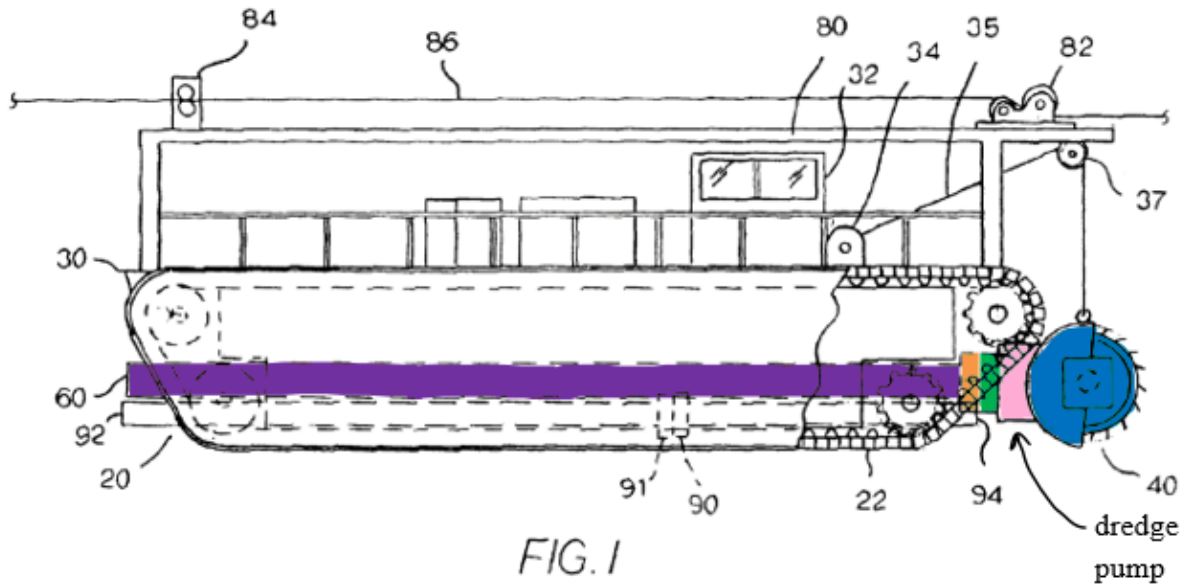
II. THE PRIOR ART FAILS TO DISCLOSE ALL ELEMENTS OF THE SUBSTITUTE CLAIMS

A. The Ground 1 Combination of Cheramie with Yoon or Carrier Fails to Render Claims 22-25, 27-28, and 33-40 Obvious

In Ground 1, Petitioner relies on an incorrect embellishment of Cheramie's teachings, where its expert adds an imaginary box-like pump, shown as a green box below, to Figs. 1 and 2 of Cheramie.



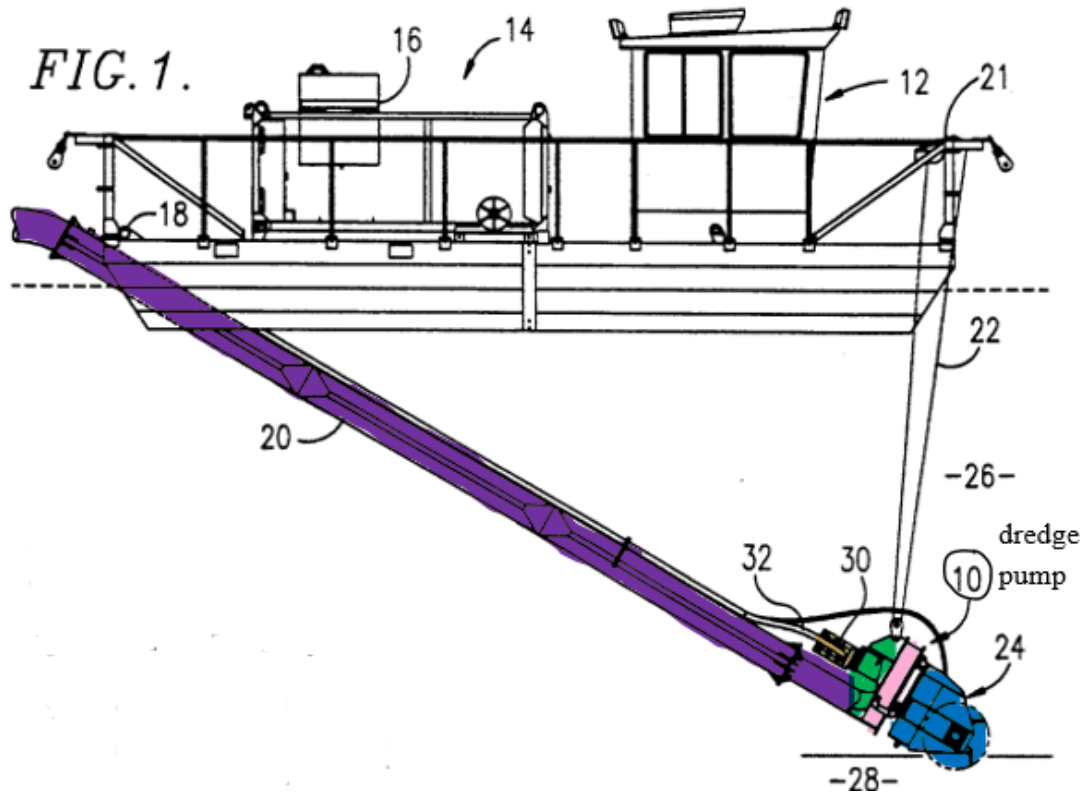
Paper 38, 6. But this green box is actually an empty space at the front end of the vehicle, between the pontoons and forward of the control house 32 – as confirmed by closer examination of the drawings, where solid line segments outline the components in this space rather than dashed lines (which would indicate a box-like structure obscuring the components below). EX2099, ¶¶194-96. What Cheramie actually discloses is a dredge pump with a housing and impeller 51 that are located at the front end of a discharge pipe 60, immediately behind the cutterhead 40, which is lowered to the lake bottom using the over-head crane and pulley 37, winch 34, and cable 35.



EX1087, 2, 3; EX2099, ¶¶193, 196-198. Cutterhead dredges, like the one disclosed in Cheramie, were well known in the art and are designed with a cutterhead and dredge pump positioned on the front end of a long boom arm that pivots down at an angle relative to the floatable vehicle body until the cutterhead reaches the lake

bottom. EX2099, ¶91. Fig. 1 of U.S. Patent No. 5,267,830 (“Wickoren”)

(EX2100), reproduced below, shows what a similar cutterhead dredge looks like with the cutterhead and pump lowered to an operating position.



EX2100, 2; EX2099, ¶192. A POSITA would understand Cheramie to disclose a dredge pump mounted just behind the cutterhead on the front end of a pivoting boom arm, which would be lowered during dredging in the manner shown in Wickoren. EX2099, ¶137. Thus, a POSITA would understand Cheramie to disclose a dredge pump with a housing and impeller that are positioned along the far end of a pivoting boom arm as opposed to “along the underside of the floatable vehicle body” as required by Substitute Claim 22. EX2099, ¶¶197-98. The Cheramie combination also fails to teach or suggest the claimed position of the

liquid manure pump because the impeller and housing of Cheramie's dredge pump are never "positioned along the underside of the floatable vehicle body" and "rearward of the front of the vehicle body." There is no point along the range of motion of the cutterhead 40 and impeller housing 51 in Cheramie where both of these requirements are met. When the cutterhead 40 is lowered, the impeller and impeller housing 51 (in pink) are not positioned "along the underside of the floatable vehicle body." *Id.* In the fully raised position, shown below, the impeller and impeller housing 51 (in pink) are positioned at or forward of the floatable vehicle body (the floatable pontoons 10, 20 in yellow and the deck 30 in grey) – they are not "rearward of the front of the vehicle body" as required by Claim 22. *Id.*

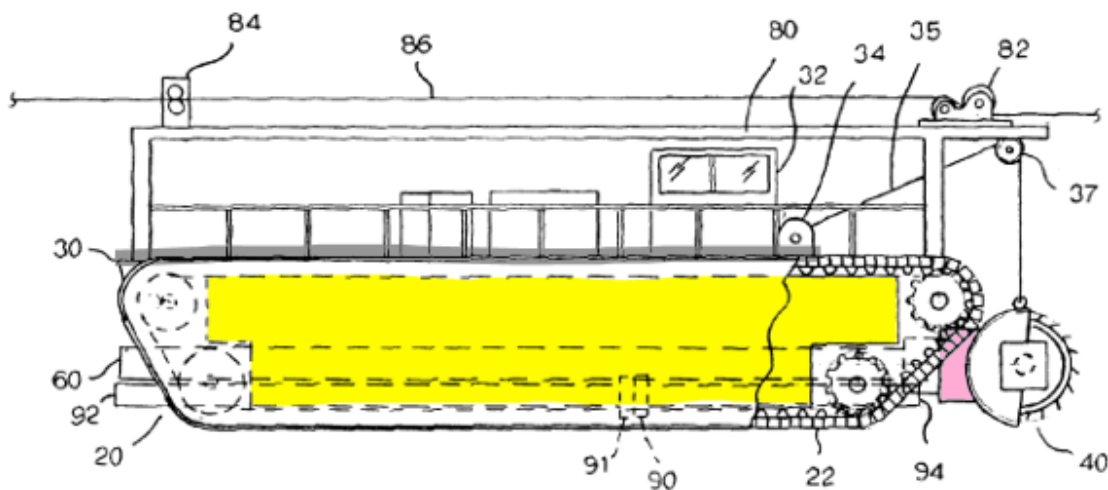


FIG. 1

EX1087, 2; EX2099, ¶198. For these same reasons, Cheramie does not disclose a liquid manure pump that is both "positioned along the underside of the floatable

vehicle body” and positioned “rearward of the front set of spindles” as required by Substitute Claim 27. Petitioner makes an alternative argument that Cheramie’s water pump 90 satisfies Claim 27, but the water pump 90 is also positioned along boom arm 60 instead of along the underside of the floatable vehicle body and there is zero evidence that the water pump 90 (designed for water propulsion vs. dredging) qualifies as a “liquid manure pump” or that it even has “an impeller.” EX2099, ¶¶199-200, 213-215.

B. The Ground 2 and 3 Combinations of SenwaTec with Yoon or Carrier / Truxor with Yoon or Carrier Fail to Render Claims 22-25, 27-28, and 33-40 Obvious

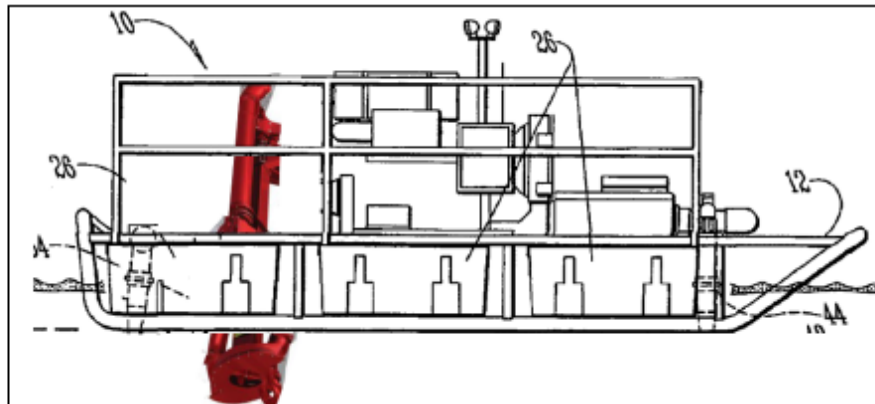
The Board correctly found in its Preliminary Guidance that Grounds 2 and 3 fail to render the Substitute Claims unpatentable as obvious because there is absolutely no teaching in SenwaTec, Truxor, Yoon, or Carrier that discloses or suggests a pump positioned as required by Substitute Claims 22 and 27. As shown below, both SenwaTec and Truxor disclose dredge pumps located forward of the front end of the vehicle at the far end of a boom arm:



EX1006, at 11; EX1012, at 1. A POSITA would not understand these references to teach a liquid manure pump with a housing and an impeller position along the underside of the floatable vehicle body and rearward of the front end / front spindles, as required by Substitute Claims 22 and 27. EX2099, ¶¶241-44, 302-04.

C. The Ground 4 Combination of Puck with Bryham and Manure Manager Fails to Render Claims 22-42 Obvious

In Ground 4, Petitioner contends that a POSITA would have been motivated to replace Puck's slurry pump 38 with Nuhn's G-Force Vertical Pit Pump ("Nuhn's Pit Pump"). But instead of mounting Nuhn's Pit Pump to the rear of Puck's boat, in a similar manner to the way it attaches to the rear of a tractor, Petitioner makes the illogical leap of discarding the articulation structure and driveshaft of Nuhn's Pit Pump, leaving it floating over the middle of Puck's boat without a way of attaching it or providing power EX2099, ¶¶360-64.



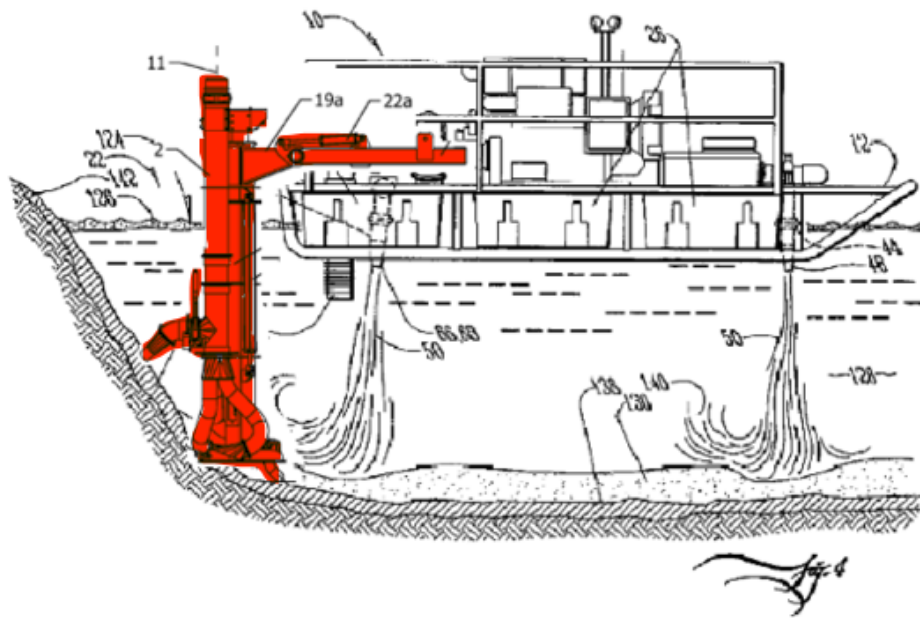
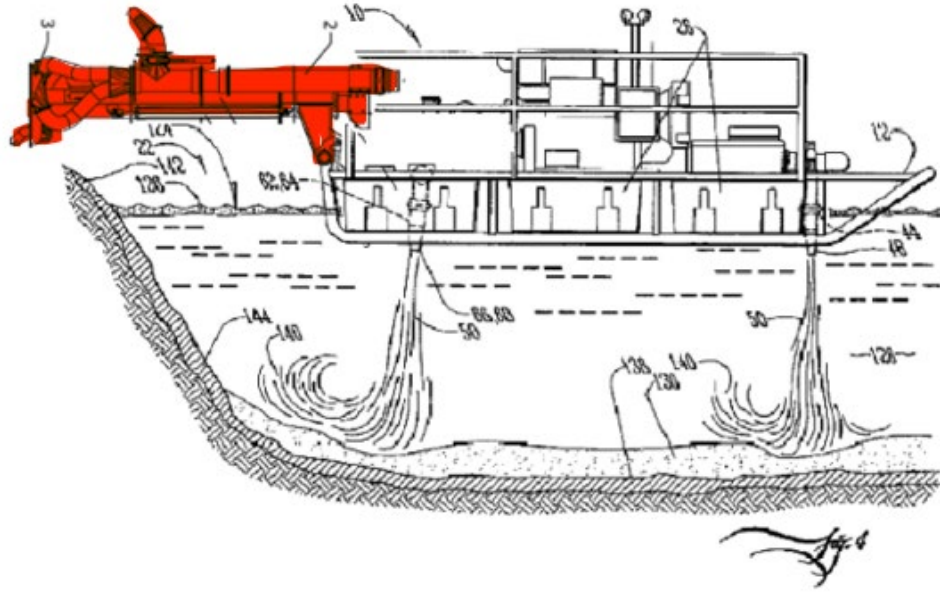
Paper 36, 21. This is a blatant exercise in hindsight bias and is contrary to record evidence, which shows that in 2014, less than a year after the '425 Patent's priority date, Sundstrom Bros. Custom Fabrication LLC hung a manure pump that was

designed to be mounted to and powered by a tractor off the end of a floating barge such that it could be tilted up and down. EX2008, 8-9; EX2099, ¶366.

Nuhn's Pit Pump is designed to mount to the rear hitch of a tractor and receives power from the power-take-off ("PTO") of the tractor. EX2099, ¶¶362-64. The impeller and housing of Nuhn's Pit Pump is located at the far end of a boom arm that swings down into a vertical manure pit.



EX1088, p. 27. If a POSITA were to add Nuhn's Pit Pump to Puck, the result would look like the vehicle shown below.



EX2099, ¶¶364-65. A POSITA would therefore understand that the Puck-Bryham-Manure Manager combination would result in a vehicle where the pump housing and impeller are positioned along the far end of a pivoting boom arm as opposed to “along the underside of the floatable vehicle body” as required by Substitute Claim 22. EX2099, ¶367. The Puck-Bryham-Manure Manager combination also fails to

teach or suggest the claimed position of the liquid manure pump because the impeller and housing of Nuhn's Pit Pump would never be "positioned along the underside of the floatable vehicle body" and "rearward of the front of the vehicle body." There is no point along the range of motion of the Nuhn's Pit Pump where both of these requirements are met. When Nuhn's Pit Pump is lowered, the pump housing and impeller would not be positioned "along the underside of the floatable vehicle body." EX2099, ¶368. When Nuhn's Pit Pump is raised, the impeller and housing are positioned at or rearward of the rear of the floatable vehicle body. *Id.* In the raised position, the impeller and housing of Nuhn's Pit Pump are not "forward of the rear of the floatable vehicle body" as required by Substitute Claim 22. *Id.* For these same reasons, the Puck-Bryham-Manure Manager combination would not result in a vehicle where the liquid manure pump is both "positioned along the underside of the floatable vehicle body" and "forward of the rear set of spindles" as required by Claim 27. *Id.* at ¶401. Finally, contrary to Petitioner's assertions, Puck fails to disclose *side* fluid nozzles on *opposite sides* of the floatable vehicle body in addition to the front and rear nozzles 48, 66, 68 and therefore fails to satisfy Claims 26, 31, and 41. *Id.* at ¶¶397-98, 406-07, 426-27.

III. CONCLUSION

For the foregoing reasons, Petitioner has not established that Substitute Claims 22-42 are unpatentable.

Dated: August 6, 2024

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CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that this brief complies with the page limitations set forth in 37 C.F.R. § 42.24(c)(3).

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.

Dated: August 6, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. 42.6(e), I certify that on this 6th day of August, 2024, a true and correct copy of the foregoing **Patent Owner's Reply to Petitioner's Opposition to Motion to Amend U.S. Patent No. 11,358,425** was served by electronic mail on Petitioner's lead and backup counsel at the following addresses:

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