

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BAZOOKA-FARMSTAR, LLC,

Petitioner,

v.

NUHN INDUSTRIES LTD.,

Patent Owner.

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Case No. IPR2024-00098  
U.S. Patent No. 11,541,708

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**PATENT OWNER'S RESPONSE**  
**(under 37 C.F.R. §42.107)**

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**LIST OF PATENT OWNER’S EXHIBITS**

| <i>Exhibit #</i> | <i>Description</i>                                                                                                                                                                                                                                                                                                                     |
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| 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 <a href="https://www.youtube.com/watch?v=fEgvvq9HZkk">https://www.youtube.com/watch?v=fEgvvq9HZkk</a> (“Nuhn Lagoon Crawler YouTube Video Screenshots”)                                                                                 |
| 2007             | Screenshots from Petitioner’s YouTube Channel of Accused Product, retrieved on 10-2-23 from <a href="https://www.youtube.com/watch?v=3y3bSJJUOps">https://www.youtube.com/watch?v=3y3bSJJUOps</a> (“Bazooka Wolverine YouTube Video Screenshots”)                                                                                      |
| 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 <a href="https://www.youtube.com/watch?v=FXRS-9Ip1pE">https://www.youtube.com/watch?v=FXRS-9Ip1pE</a> (“Progressive Dairyman YouTube Video Screenshots”) |
| 2009             | ’708 Patent from Google Patents (with Patent Classification List, retrieved on January 23 2024 from <a href="https://patents.google.com/patent/US11541708B2/en?q=11%2c541%2c708+">https://patents.google.com/patent/US11541708B2/en?q=11%2c541%2c708+</a> (“’708 Patent on Google Patents”)                                            |
| 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) (“MU Guide for Anaerobic Manure Lagoons”)                                                                                                                                                                      |
| 2020             | Screenshots from 2023 North American Manure Expo Website, retrieved on 10-2-23 from <a href="https://www.manureexpo.ca/">https://www.manureexpo.ca/</a>                                                                                                                                                                                |

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| 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 <a href="https://elearning-dnr.iowa.gov/course/index.php?categoryid=2">https://elearning-dnr.iowa.gov/course/index.php?categoryid=2</a> (“Commercial Manure Applicator Certification”)                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 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) (“Excavator Human-Machine Interface Concepts”)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2026 | Screenshots of 2023 Truxor Website, retrieved on 10-1-23 from <a href="https://truxor.com/en/catalog/node/products">https://truxor.com/en/catalog/node/products</a> and <a href="https://truxor.com/en/catalog/node/products-truxor-machines">https://truxor.com/en/catalog/node/products-truxor-machines</a>                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2027 | Screenshots of 2023 Berky (formerly SenwaTec) Website, retrieved on 10-4-23 from <a href="https://www.berky.de/en/berky-nereus-240-amphi/">https://www.berky.de/en/berky-nereus-240-amphi/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| 2029 | Timeline Showing Bazooka’s Post-Grant Challenges                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2030 | January 18, 2023 District Court Order Granting Motion to Lift Stay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2031 | Reexamination History of U.S. Patent No. 11,358,425                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2032 | Screenshots from YouTube of SenwaTec video, retrieved on January 15, 2024 from <a href="https://www.youtube.com/watch?v=ecnlfMf7CH4&amp;t=1s">https://www.youtube.com/watch?v=ecnlfMf7CH4&amp;t=1s</a> (“SenwaTec YouTube Video Screenshots”)                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2033 | Reexamination History of U.S. Patent No. 10,974,557                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2034 | McCaslin, Drive Sprockets and Track Drives, TexasFinalDrive.com, <a href="https://info.texasfinaldrive.com/shop-talk-blog/drive-sprockets-and-track-drives">https://info.texasfinaldrive.com/shop-talk-blog/drive-sprockets-and-track-drives</a> (last accessed Feb. 25, 2024) (“Drive Sprockets and Track Drives”)                                                                                                                                                                                                                                                                                                                                                                                                        |

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| 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                                                                                                                                 |
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| 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 <a href="https://www.youtube.com/watch?v=fEgvvq9HZk">https://www.youtube.com/watch?v=fEgvvq9HZk</a> |
| 2054                 | Lagoon Crawler Prototype Brochure, Aggressive Agitation                                                                                                                                                |
| 2055<br>(Under Seal) | Lagoon Crawler Sales Report - Consolidated Totals                                                                                                                                                      |
| 2056<br>(Under Seal) | Lagoon Crawler Sales Report - 2014-2017.5                                                                                                                                                              |
| 2057<br>(Under Seal) | Lagoon Crawler Sales Report - 2018-2019                                                                                                                                                                |
| 2058<br>(Under Seal) | Lagoon Crawler Sales Report - 2020-2023                                                                                                                                                                |
| 2059                 | Lagoon Crawler Sales Report - X Models                                                                                                                                                                 |

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| 2060                        | Print No. 2 of Nuhn YouTube Video - "Nuhn Lagoon Crawler Unrivaled Lagoon Agitation!", accessed at <a href="https://www.youtube.com/watch?v=fEgvvq9HZk">https://www.youtube.com/watch?v=fEgvvq9HZk</a> |
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| 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 Beacon Herald (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 expansion grand opening, 100th lagoon crawler unveiling, St. Marys Independent (Aug. 7, 2015)                                                       |
| 2070                        | B. Reid, Agitator has reclaimed manure lagoons around the world, Ontario Farmer (Aug. 18, 2015)                                                                                                        |
| 2071                        | L. Cudworth, Nuhn marks major milestone, The London Free Press (Aug. 11, 2015)                                                                                                                         |
| 2072                        | L. Cudworth, Marking a major milestone, The Stratford Beacon Herald (Aug. 7, 2015)                                                                                                                     |
| 2073                        | J. Algie, Made-in-Sebringville lagoon crawler to be featured on Discovery Channel, Betterfarming.com (Sept. 2, 2015)                                                                                   |
| 2074                        | B. Reid, Self-propelled, Western Dairy Farmer (Oct. 2015)                                                                                                                                              |
| 2075<br><b>(Under Seal)</b> | March 21, 2022 Email to Nuhn re: Licensing Lagoon Crawler Technology                                                                                                                                   |
| 2076<br><b>(Under Seal)</b> | Nuhn Invoice to Eldon C. Stutsman, Inc. (Sept. 9, 2015)                                                                                                                                                |
| 2077<br><b>(Under Seal)</b> | Nuhn Invoice to Eldon C. Stutsman, Inc. (June 20, 2020)                                                                                                                                                |
| 2078                        | Nuhn Invoice to Eldon C. Stutsman, Inc. (Sept. 28, 2020)                                                                                                                                               |

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| 2079                | Print of Bazooka's YouTube Video - "Meet the Wolverine Agitation Boat," accessed at <a href="https://www.youtube.com/watch?v=ehAHKL442as">https://www.youtube.com/watch?v=ehAHKL442as</a>                                                                 |
| 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                | Declaration of Ian Nuhn                                                                                                                                                                                                                                   |
| <b>(Under Seal)</b> |                                                                                                                                                                                                                                                           |
| 2084                | US20100144220A1 to Bailey                                                                                                                                                                                                                                 |
| 2085-2086           | Intentionally omitted                                                                                                                                                                                                                                     |
| 2087                | Curriculum Vitae of Douglas S. Prairie and Case List – updated April 2, 2024                                                                                                                                                                              |
| 2088                | Patent Owner's Proposed Protective Order - Redline                                                                                                                                                                                                        |
| 2089                | Patent Owner's Proposed Protective Order - Clean                                                                                                                                                                                                          |
| 2090                | Intentionally omitted                                                                                                                                                                                                                                     |
| 2091                | Dredge Yard Auger Dredger ECO200-A8-brochure                                                                                                                                                                                                              |
| 2092                | Hydraulic Dredgers – Dredge Brokers LLC                                                                                                                                                                                                                   |
| 2093-2096           | Intentionally omitted                                                                                                                                                                                                                                     |
| 2097                | H. Landry et al., <i>Physical and Rheological Properties of Manure Products</i> , Applied Engineering in Agriculture, at 278 (2004)                                                                                                                       |
| 2098                | Intentionally omitted                                                                                                                                                                                                                                     |
| 2099                | Declaration of Douglas S. Prairie in Support of Patent Owner's Response                                                                                                                                                                                   |
| 2100                | US 5,267,830 to Wickoren                                                                                                                                                                                                                                  |
| 2101                | US 8,944,758 to Nuhn                                                                                                                                                                                                                                      |
| 2102                | 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)                                                                                            |
| 2103                | Printout of Bazooka's webpage for its Wolverine Agitation Boat at: <a href="https://www.bazookafarmstar.com/equipment/wolverine-agitation-boat/">https://www.bazookafarmstar.com/equipment/wolverine-agitation-boat/</a>                                  |
| 2104                | Bazooka's brochure for the Bazooka Wolverine Agitation Boat from: <a href="https://www.bazookafarmstar.com/wp-content/uploads/2023/01/Cutsheet-Wolverine-1.pdf">https://www.bazookafarmstar.com/wp-content/uploads/2023/01/Cutsheet-Wolverine-1.pdf</a> . |
| 2105                | Cornell Redi-Prime Pump Brochure                                                                                                                                                                                                                          |

## I. INTRODUCTION

Relying on hindsight, Petitioner asserts that the invention claimed in U.S. Patent No. 11,541,708 (“the ‘708 Patent”) is simplistic and obvious. But overwhelming evidence of secondary considerations weighs against Petitioner’s combinations. Nuhn’s invention created a new class of manure lagoon agitation equipment, which has enjoyed wild commercial success and praise. Furthermore, all of the claims of the ‘708 Patent are application specific, are explicitly tied to manure lagoon agitation, and therefore require more than just a remote-controlled amphibious vehicle with a pump for firefighting or dredging as the Petitioner suggests.<sup>1</sup>

Independent Claim 1 requires an amphibious vehicle having a liquid manure pump with (1) “an impeller,” (2) “a bottom fluid inlet configured to be immersed in the liquid manure when the vehicle is floating,” and (3) “a housing with the bottom fluid inlet in the housing.” The only reference disclosing a floating vehicle with a liquid manure pump is Puck, and the inlet of Puck’s slurry pump 38 faces rearward and sits along the centerline of the impeller/pump housing, well above the surface of the liquid manure when the vehicle is floating. Therefore, the “fluid inlet in the housing” of Puck’s slurry pump 38 is not a “bottom” fluid inlet nor is it “immersed in the liquid manure when the vehicle is floating.” Petitioner improperly points to

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<sup>1</sup> Paper 1, 7.

the bottom of Puck’s J-shaped intake pipe 40 as the “bottom fluid inlet” of the liquid manure pump, but the intake pipe 40 is separate from the housing of Puck’s slurry pump 38 so the bottom of the intake pipe 40 is not a “bottom fluid inlet **in the housing**,” as Claim 1 requires.

Independent Claims 17, 21, and 23 require the amphibious vehicle to have a particular arrangement of powered wheels and buoyant elements that is not disclosed in the applied art, where a first buoyant element is positioned between a first set of front and rear wheels on one side (e.g., the right side) of the floatable vehicle body and a second buoyant element is positioned between a second set of front and rear wheels on the opposite side (e.g., the left side) of the floatable vehicle body. The “buoyant elements” Petitioner points to in the prior art vehicles are not at the sides of vehicle in the space between the front and rear wheels, nor do the references suggest combinations were such an arrangement would result.

## **II. MANURE LAGOONS AND STATE OF THE ART**

Agricultural manure lagoons are holding ponds for liquid manure, which comprises both liquid and solid material.<sup>2</sup> By contrast, solid manure is manure that is not in a liquid, does not flow, and is typically handled by bucket loaders, dump trucks/trailers, etc. as opposed to manure pumps and tank trucks/trailers.<sup>3</sup> Solid

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<sup>2</sup> EX2099, ¶19.

<sup>3</sup> EX2099, ¶95.

manure therefore exists outside of manure lagoons.<sup>4</sup> Solid manure does not refer to the solids in a manure lagoon, which are in a liquid and are therefore part of the liquid manure.<sup>5</sup> It is desirable for liquid manure to be agitated and mixed prior to being pumped out of an agricultural lagoon and spread onto fields.<sup>6</sup>

Prior to the invention of the ‘708 Patent, agitating, mixing, and pumping liquid manure from an agricultural lagoon relied on: (1) side-entry lagoon agitators/pumps, and/or (2) agitation boats/barges.<sup>7</sup> Agitation/pumping technology evolved over the decades into higher-power and high-volume pumps or agitators, which caused large “sand bars” to form in the center of agricultural lagoons.<sup>8</sup> Agitation/pumping boats and barges attempted to address this problem; however, they were still difficult and time consuming to maneuver into, out of and through lagoons, due to thick crust formations, varying viscosity and composition of liquid manure within lagoons and/or becoming stuck or beached in the lagoons.<sup>9</sup> No prior technical innovation is or was capable of *driving/chewing through and breaking up a crust of a lagoon to mix / agitate its contents with the other contents of the lagoon to achieve a homogeneous mixture for pumping and subsequent application as fertilizer.*<sup>10</sup>

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<sup>4</sup> EX2099, ¶95.

<sup>5</sup> EX2099, ¶95.

<sup>6</sup> EX2099, ¶¶19, 22.

<sup>7</sup> EX1014, ¶0002 – 0010.

<sup>8</sup> EX1014, ¶0005.

<sup>9</sup> EX2099, ¶91.

<sup>10</sup> EX2099, ¶705.

Petitioner states on its website that its Wolverine Agitation Boat, the product accused of copying Nuhn's invention, works in the thickest sludge **where most pumps cannot operate**:<sup>11</sup>

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 the thick sludge of manure lagoons, the invention set forth in the '708 Patent solved many of the problems associated with traditional agitators/pumps, which proved ineffective in poorly maintained manure lagoons.<sup>12</sup>

### III. THE '708 PATENT

After first inventing several tractor-mounted manure pumps for agitating manure lagoons from the bank, Ian Nuhn, the named inventor on the '708 Patent, saw a need to better solve problems encountered with thick crust and large lagoons.<sup>13</sup>

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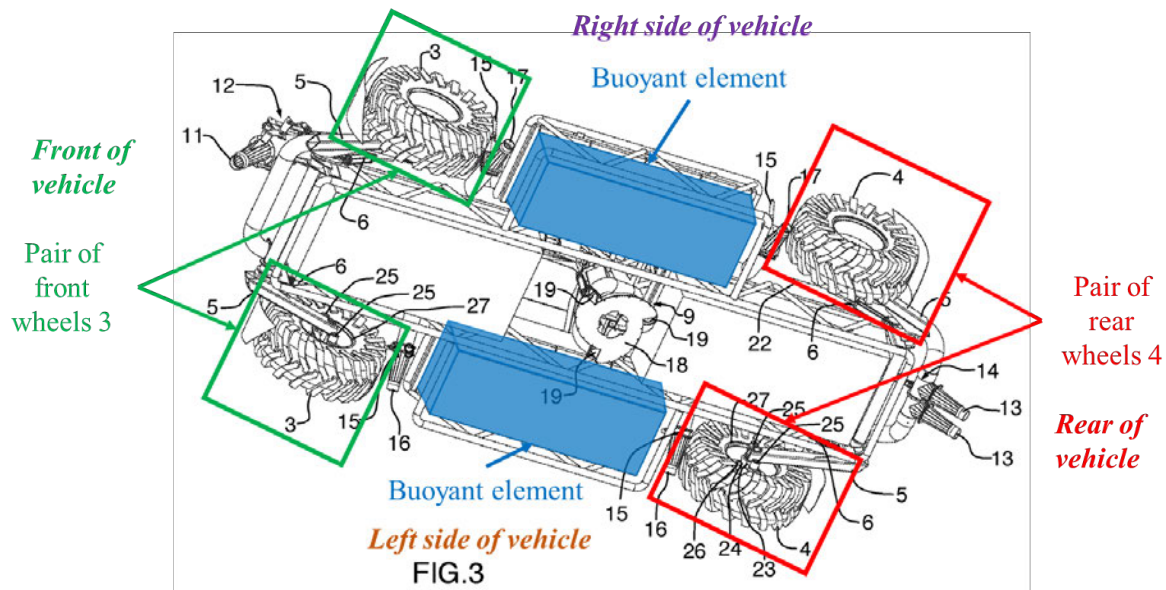
<sup>11</sup> EX2031, 9.

<sup>12</sup> Paper 1, 13; EX1014, ¶ [0005].

<sup>13</sup> EX2083, ¶¶ 8-9.

The result is protected by the '708 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 and mixing the contents of the manure lagoon.

Nuhn's novel machine is depicted in Figure 1 of the '708 Patent:<sup>14</sup>



With the use of a wireless remote control and hydraulically powered wheels, this new class of manure agitation equipment is remotely driven into and through manure lagoons, which provides enhanced moveability and the ability for the vehicle to crawl / chew through thick crust comprising thickened/semi-dried manure, animal bedding material (such as straw), and growing vegetation, which can reach six feet in thickness.<sup>15</sup> A floatable vehicle body, which includes buoyant elements positioned

<sup>14</sup> EX2099, ¶105.

<sup>15</sup> EX2003, 1:13-58.

on each side of the vehicle between the wheels, allows the vehicle to float on the manure lagoon once the weight of the vehicle breaks through the crust and displaces the broken portions of the crust away from the liquid manure pump to reduce the likelihood of clogging.<sup>16</sup> The liquid manure pump generates a flow of liquid manure that mixes/agitates the contents of the manure lagoon and the flow of liquid manure generated by the liquid manure pump in combination with the churning action of the powered wheels breaks up the thick crust formed on the surface of manure lagoons in addition to controlling the movement (i.e., speed and/or direction) of the vehicle.<sup>17</sup>

#### IV. LEVEL OF ORDINARY SKILL

The ‘708 Patent repeatedly mentions farming, manure, and the problems encountered when storing animal manure in farm lagoons or pits. All of the claims of the ‘708 Patent are explicitly directed to a manure lagoon agitation vehicle since all four independent claims (Claims 1, 17, 21, and 23) explicitly require “control [of] at least one of a speed and direction of the vehicle when the vehicle is floating in the liquid manure lagoon” (emphasis added).

Thus, a person of ordinary skill in the art (“POSITA”) is someone with intimate knowledge of manure lagoon agitation equipment and the problems presented by the agitation and care of agricultural manure lagoons, whether it be

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<sup>16</sup> EX2099, ¶704.

<sup>17</sup> EX2099, ¶707.

from direct experience or education.<sup>18</sup> Specifically, 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.”<sup>19</sup> Both the Petition and the Institution Decision fail to address the reality that in the agricultural industry, the end users of manure agitation equipment are highly knowledgeable of its design, operation, and limitations because they use, *maintain, and modify it*.<sup>20</sup> The definition of a POSITA must focus on these individuals and the experience they bring over formulations of engineering degrees and generic marine or off-road vehicle experience as Petitioner proposes.

## V. CLAIM INTERPRETATION

The claim terms should be given their plain and ordinary meaning. To this end, Patent Owner’s expert describes what a POSITA would understand the plain and ordinary meaning to be of the following claim terms: “liquid manure,” “liquid manure pump,” and buoyant elements “situated between” the wheels.<sup>21</sup>

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<sup>18</sup> EX2099, ¶59.

<sup>19</sup> EX2099, ¶64.

<sup>20</sup> EX2099, ¶59.

<sup>21</sup> EX2099, ¶¶66-107.

## VI. GROUND 1: CLAIM 23 IS NOT ANTICIPATED BY BENNETT-II

In Ground 1, Petitioner asserts that Claim 23 of the ‘708 Patent is anticipated under 35 U.S.C. § 102 by Bennett-II. Petitioner’s argument, however, fails because the tracked vehicle disclosed in Bennett-II lacks “wheels” and buoyant elements “situated between” the wheels, as required by Claim 23.

Claim 23 recites “a first buoyant element situated between a first front wheel and a first rear wheel and a second buoyant element between a second front wheel and a second rear wheel”. The ‘708 Patent explains that “the ground engaging propulsion structure may comprise **an endless track or a set of wheels**,”<sup>22</sup> so it would be clear to a POSITA that Claim 23 is directed to the disclosed embodiment where the vehicle has ground engaging wheels as opposed to the alternative embodiment that has ground engaging tracks.<sup>23</sup>

Bennett-II discloses a vehicle with tracks members 12, 14”:<sup>24</sup>

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<sup>22</sup> EX1001, 2:9-11.

<sup>23</sup> EX2099, ¶138.

<sup>24</sup> EX1017, ¶¶0049, 0071 (“Referring to FIG. 10, ***track members 12, 14 are defined by an outer surface 80 which includes a plurality of lugs 84 and an inner surface 82 which includes a plurality of guide members 88 and a plurality of drive members 86. Lugs 84 on outer surface 80 contact the ground and other objects when vehicle 10 is operating.*** Drive members 86 and guide members 88 on inner surface 82 contact carrier rollers 72, 73, drive units 590, 592, and load wheels 75 in order to secure and maintain the alignment of track members 12, 14 on carrier rollers 72, 73, drive units 590, 592, and load wheels 75.”) (emphasis added).

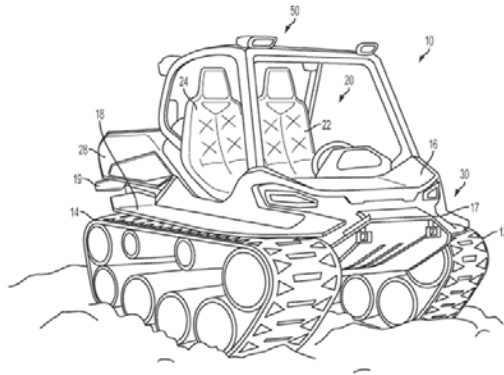


FIG. 1

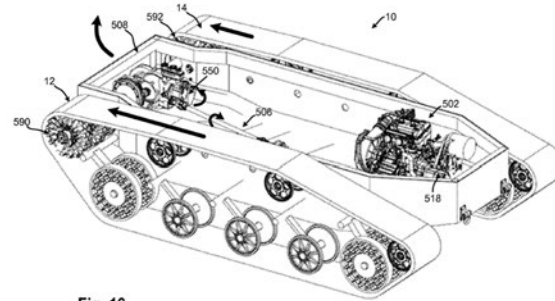


Fig. 16

**Tracks are not wheels.** Petitioner’s attempt to identify Bennett-II’s track-driving load wheels 75, as the claimed wheels,<sup>25</sup> is contrary to how a POSITA would understand Claim 23 of the ‘708 Patent. A POSITA would not equate Bennett-II’s track-driving load wheels 75, which are more commonly known in the art as “track driving sprockets,” to the claimed wheels.<sup>26</sup> If the ‘708 Patent’s reference to “wheels” included track driving sprockets, then the statement in the ‘708 Patent that “the ground engaging propulsion structure may comprise **an endless track or a set of wheels**”<sup>27</sup> would make no sense because the reference to an “endless track” or “wheels” would mean the same exact thing (i.e., this phrase would read that the ground engaging propulsion structure may comprise “A or A” instead of “A or B”).<sup>28</sup>

Petitioner also fails to identify structure in Bennett-II disclosing “*a first buoyant element situated between a first front wheel and a first rear wheel and a*

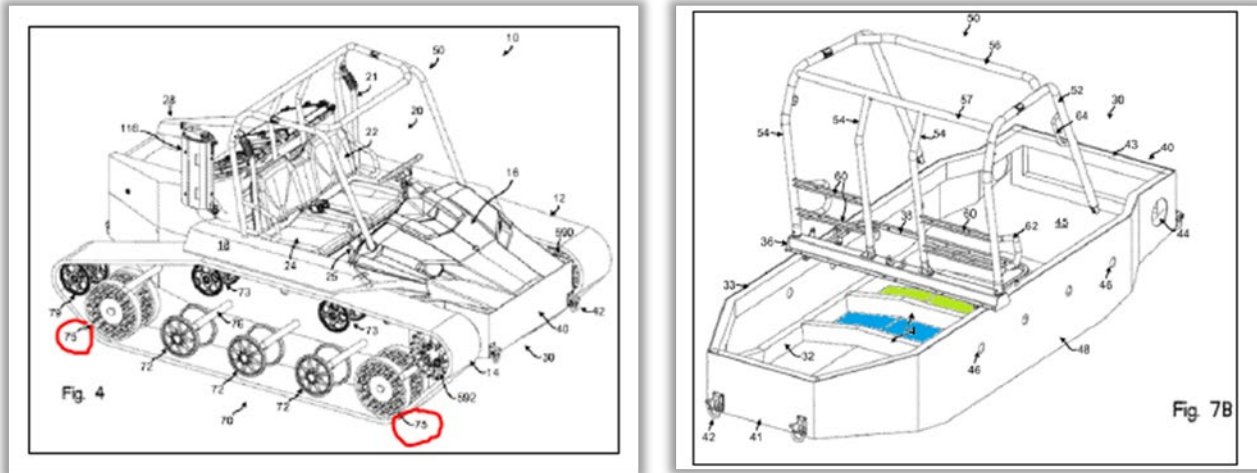
<sup>25</sup> Paper 1, 35-36.

<sup>26</sup> EX2099, ¶¶137-138.

<sup>27</sup> EX1001, 2:9-11.

<sup>28</sup> EX2099, ¶138.

second buoyant element between a second front wheel and a second rear wheel,” as required by Claim 23. Petitioner asserts that Bennett-II meets this claim limitation by annotating Bennett-II’s figures with imaginary foam sections located along portions of the floor *inside* the vehicle body (as shown in blue and green below):<sup>29</sup>



But Bennett-II does not actually teach two separate “buoyant elements having foam filled buoyant chambers” positioned between two different sets of wheels as Claim 23 requires. Petitioner cites Paragraph [0051] of Bennett-II, but that paragraph describes using “foam material ... in order to fill volume voids and resist water ingestion during amphibious operation.”<sup>30</sup> A statement about filling holes in Bennett-II’s tub 40 for watertightness does **not** teach two separate foam filled buoyant chambers inside the tub 40 (shown by Petitioner in blue and green above) that are divided by cross frame members 34. By annotating Fig. 7B of Bennett-II in

<sup>29</sup> Paper 1, 35-36 (red annotations added, blue and green annotations from Paper 1).

<sup>30</sup> Paper 1, 36; EX1017, ¶0051.

this way, Petitioner is making up / adding structure that is simply not present in Bennett-II or reasonably suggested by the written disclosure. Petitioner also provides no explanation as to how the first chamber (*e.g.*, annotated above in blue) ***is situated between*** a first front load wheel 75 and a first rear load wheel 75 ***and*** the second chamber (*e.g.*, annotated above in green) ***is situated between*** the second front load wheel 75 and the second rear load wheel 75. Petitioner's expert only states that "[a] POSA would have understood that the load wheels are located toward the front end and rear end of the vehicle and the buoyant elements are located between them in the longitudinal direction."<sup>31</sup> But this fails to explain how the two chambers (annotated in green and blue above) are located *between* Bennett-II's load wheels 75, when the green and blue chambers are *inside* the vehicle body and therefore are not positioned in the space *between* the load wheels, which are on the *outside* of the vehicle body. The claims do not merely require the buoyant elements to be aft of the front wheels and forward of the rear wheels as Petitioner appears to suggest.

A POSITA would understand the language of Claim 23 to mean that the "first buoyant element situated between a first front wheel and a first rear wheel" is not also situated between the second front wheel and the second rear wheel and that the "second buoyant element between a second front wheel and a second rear wheel" is not also situated between the first front wheel and the first rear wheel because that

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<sup>31</sup> EX1004, ¶189.

is not how they are described.<sup>32</sup> The blue and green spaces Petitioner identifies between Bennett-II's cross frame members 34 are inside the tub 40 and are therefore not "situated between" the track driving load wheels 75. Even ignoring the spatial distinction of being inside vs. outside the tub 40, nothing differentiates the blue space Petitioner identifies as being "situated between" the track driving load wheels 75 on the right side of the tub 40 as opposed to the track driving load wheels 75 on the left side of the tub 40 and the same goes for the green space Petitioner identifies. A POSITA would not read the language of Claim 23 as requiring two buoyant elements stacked one behind the other in the center of the vehicle where both are forward of the rear wheels and aft of the front wheels.<sup>33</sup> Nor would a POSITA interpret the first front wheel and the first rear wheel to be on opposite sides of the vehicle such that the space between them would extend diagonally across the vehicle.<sup>34</sup>

*Patent Owner is not taking the position that the entire buoyant element must fit within the space between the front and rear wheels on each side of the vehicle body, but surely some part of the buoyant element must be positioned in the space shown in the red box below to satisfy the claim language:*<sup>35</sup>

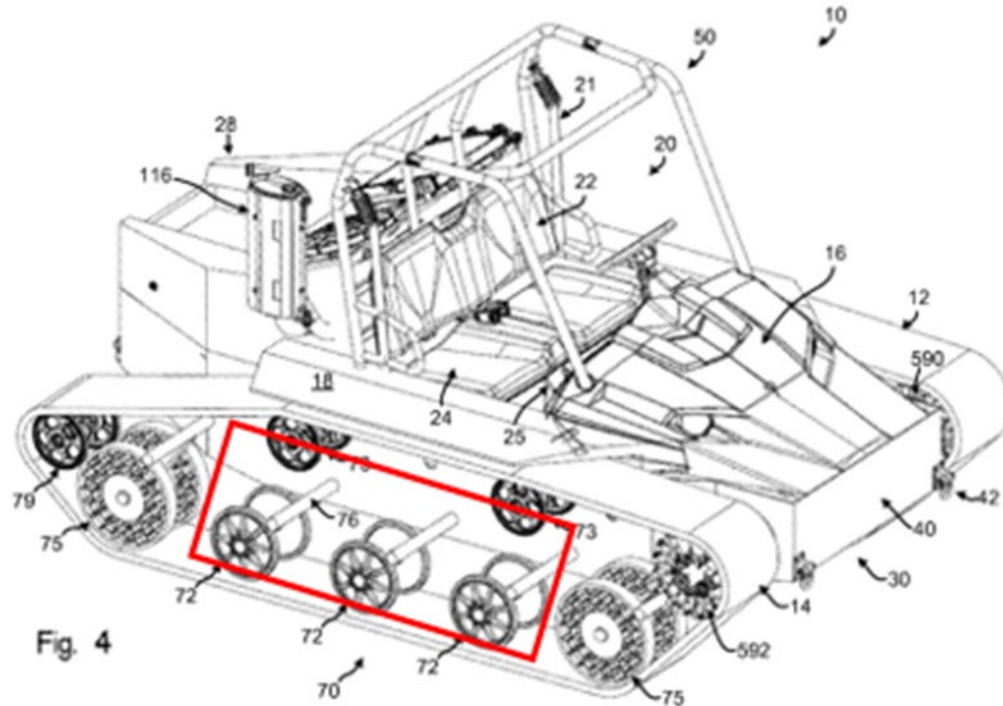
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<sup>32</sup> EX2099, ¶142.

<sup>33</sup> EX2099, ¶¶143-144.

<sup>34</sup> EX2099, ¶105.

<sup>35</sup> EX2099, ¶144.



The record plainly shows that **no part** of the “chambers” Petitioner has identified in Bennett-II occupy the space between the drive wheels/sprockets 75.

For at least this reason, Bennett-II fails to teach each and every element of Claim 23 of the ‘708 Patent and thus fails to anticipate Claim 23.

## **VII. CLAIMS 1-38 ARE NON-OBVIOUS (GROUND 2-8) IN VIEW OF SECONDARY CONSIDERATIONS**

Petitioner improperly uses the ‘708 Patent as a blueprint to piece-meal a reconstruction of 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 that road. *Star Scientific, Inc., v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1375 (Fed. Cir. 2011). The objective considerations of nonobviousness protect against the

prejudice of hindsight bias, which often overlooks that “[t]he 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). 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).

As the Board considers the prior art against the Challenged Claims, it must resist the urge to issue a final written decision based on hindsight when Nuhn’s invention created an entirely new class of manure lagoon agitation equipment, which now leads the market. In *Intri-Plex Technologies, Inc. v. Saint-Gobain Performance Plastics Rencol Ltd.*, IPR2014-00309, (PTAB Mar. 23, 2015) the Board upheld the validity of claims after finding that the 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. *Id.* 35-47. Compelling evidence of non-obviousness requires the same result here.

**i. Nuhn’s Invention Has Achieved Commercial Success**

The Challenged Claims 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.<sup>36</sup> Nuhn has sold over [REDACTED] Lagoon Crawler’s in ten years, generating over [REDACTED] Million in revenue.<sup>37</sup> 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 95% of the market share in North America for manure pumping boats.<sup>38</sup> 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.<sup>39</sup>

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

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<sup>36</sup> EX2083, ¶27.

<sup>37</sup> EX2083, ¶25.

<sup>38</sup> EX2083, ¶27.

<sup>39</sup> EX2083, ¶27.

for manure agitation “boats” in North America in 2023, whereas Puck Enterprises’ market share in 2023 is estimated at less than 10%.<sup>40</sup> The commercial success, year over year, for Nuhn’s Lagoon Crawlers is strong evidence of non-obviousness.

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. Nuhn has sold four generations of its commercial Lagoon Crawler, each being covered by the claims of the ‘708 Patent. Patent Owner’s Expert, in Paragraphs 517-699 of his Declaration (EX2099), discusses explains how each iteration of Nuhn’s Lagoon Crawlers, described in Exhibits 2036-2047, practice the Challenged Claims.

## **ii. The Invention Satisfied A Long Felt Need**

At the time of Nuhn’s invention, 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 up the crust formed on a manure lagoon and mixing / agitating the contents of the manure lagoon to achieve a homogeneous mixture prior to pump out and subsequent ground application as fertilizer*.<sup>41</sup>

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<sup>40</sup> EX2083, ¶27.

<sup>41</sup> EX2099, ¶22.

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.<sup>42</sup> The invention claimed in the ‘708 Patent solved this decades long problem, 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, all while agitating / mixing the contents of a manure lagoon in an efficient and timely manner – the impact of which has been revolutionary within the livestock farming industry.<sup>43</sup>

### **iii. Others Copied The Invention**

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.<sup>44</sup> During the development of Bazooka’s Wolverine, Stutsman even had one of their service mechanics works with Bazooka to provide advice on the design.<sup>45</sup> This proves access.

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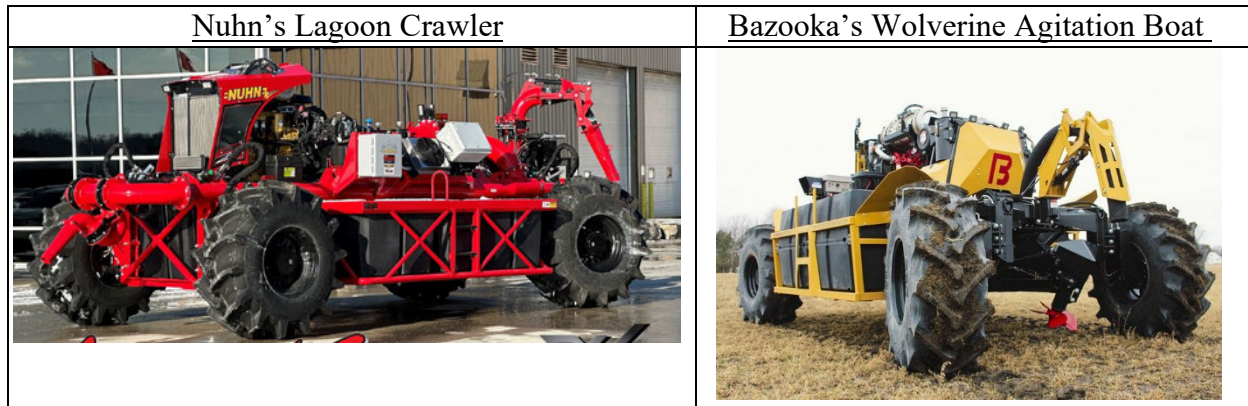
<sup>42</sup> EX2083, ¶19; EX2099, ¶701.

<sup>43</sup> EX2083, ¶17.

<sup>44</sup> EX2083, ¶¶69-70.

<sup>45</sup> EX2083, ¶75.

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.<sup>46</sup>



Bazooka has pursued patent protection for the Wolverine. 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.<sup>47</sup> 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.<sup>48</sup> 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.

<sup>46</sup> EX2099, ¶720.

<sup>47</sup> EX2048, 16-18; EX2099, ¶724.

<sup>48</sup> EX2049, 38; EX2050, 2; EX2099, ¶¶725-726.

**iv. The Invention Achieved Unexpected Results**

The arrangement of elements recited in the Challenged Claims produces new and unexpected results that revolutionized the agricultural farming industry, including:

(1) A ground engaging propulsion structure with wheels that not only carry the vehicle into and out of a manure lagoon, but also allow the vehicle to break-up (i.e., chew) through the thick crust on the top surface of the manure lagoon while the vehicle is floating; and

(2) The claimed arrangement of components results in a piece of manure agitation equipment that can do the work of four (4) PTO-driven tractor mounted manure agitation pumps (i.e., is four times more efficient than prior art agitators) due to the synergy provided by the claimed components.<sup>49</sup>

When the claimed vehicle first enters a manure lagoon, the combination of the churning ground engaging propulsion structure (including the wheels) and the displacement of the floatable vehicle body (including the buoyant elements) disrupts the crust and creates a “pocket” or opening in the crust within which the vehicle can start to operate without clogging the liquid manure pump.<sup>50</sup> This

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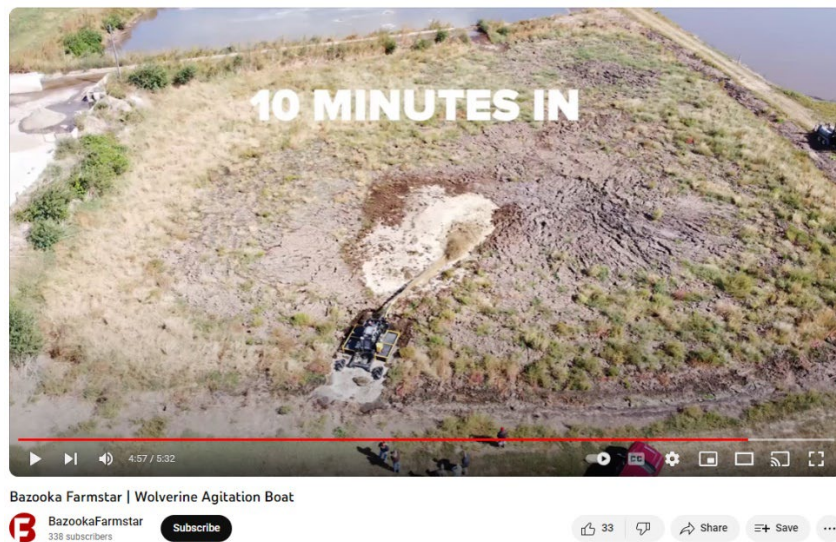
<sup>49</sup> EX2083, ¶¶29-33; EX2099, ¶¶704-707.

<sup>50</sup> EX2083, ¶¶30-31; EX2099, ¶704.

“pocket” is shown in the screen shots below illustrating the vehicles manufactured by the Patent Owner and the Petitioner at work:



EX2006, 2.<sup>51</sup>



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<sup>51</sup> Video at <https://www.youtube.com/watch?v=fEgvvq9HZkk>

EX2007, 3.<sup>52</sup> 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 liquid manure pump to operate in is a new and unexpected result provided by the combination of the churning wheels and displacement of the crust caused by the floating vehicle body, with its buoyant elements.<sup>53</sup> 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.

Relatedly, the ability of the powered wheels to chew through the crust / sludge of a manure lagoon resulted in surprising efficiency gains. Ian Nuhn, the inventor of the ‘708 Patent, anticipated his Lagoon Crawler to have the same agitation performance as one tractor-mounted manure agitation pump of comparable horsepower and flowrate. It turned out that the synergistic effects of the claimed elements working together gave the Lagoon Crawler superior agitation performance to four (4) tractor-mounted manure agitation pumps.<sup>54</sup> In other words, the Lagoon Crawler is four times more efficient than prior art agitators due to the synergy provided by the powered wheels, the displacement of the floatable vehicle

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<sup>52</sup> Video at <https://www.youtube.com/watch?v=3y3bSJJUOps>

<sup>53</sup> EX2099, ¶705.

<sup>54</sup> EX2083, ¶33.

body / buoyant elements, and liquid manure pump. That means farmers and commercial manure applicators can realize considerable fuel savings by running a single Lagoon Crawler compared to running multiple tractor-mounted manure agitation pumps at the same time or running a single tractor-mounted manure agitation pump in a number of different locations around the perimeter of a manure lagoon over a much longer period of time. The inventor did not expect these exponential efficiency gains when he conceived of the invention and first reduced it to practice.

There is a long line of cases upholding the patentability of inventions comprising combinations of known elements to produce a new machine and new results. For example, Nuhn's invention draws strong parallels to the inventions whose validity was upheld in *Blaw-Knox Co. v. I. D. Lain Co.*, 230 F.2d 373 (7th Cir. 1956) (patent declared valid on a concrete highway mechanism even though it consisted of known elements because the patentee had achieved the new result of eradication of the honeycomb defects previously encountered in using heavy concrete) and *Higley v. Brenner*, 128 U.S. App. D.C. 290, 387 F.2d 855, 858 (1967) (patent on a tractor-drawn subsoil tiller was granted over USPTO's rejection even though it consisted of known elements because the oscillating groundworking implement not only penetrated the soil, but provided the new result of

simultaneously shattering both the subsoil and hardpan (a hard subsurface that forms six to eight inches beneath the soil's surface)).

**v. Praise By Others**

Nuhn's patented Lagoon Crawlers have been extensively praised for innovation in printed publications and have received industry awards.<sup>55</sup> 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.<sup>56</sup> 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."<sup>57</sup>

**vi. Others Have Sought To License Nuhn's Patents For The Lagoon Crawler**

The success of Nuhn's patented Lagoon Crawler was so substantial that the previous market share leader in manure pumping boats – Puck Enterprises – reached out to Nuhn and sought a license to Nuhn's Lagoon Crawler patents.<sup>58</sup> This is extremely persuasive evidence of non-obviousness, particularly when the primary reference cited in Grounds 4-5 and 8 (and the only manure lagoon agitation vehicle that has been cited) is Puck – a patent application assigned to Puck Enterprises.

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<sup>55</sup> EX2083, ¶¶34-52.

<sup>56</sup> [EX2061] – [EX2074], [EX2080].

<sup>57</sup> EX2083, ¶¶48-50.

<sup>58</sup> EX2083, ¶¶64-67.

**vii. The Industry 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 propulsion 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 liquid manure pump absent a tether to an anchor at the bottom of the lagoon or tied off on land), and that the liquid manure 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.<sup>59</sup> These concerns,

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<sup>59</sup> EX2083, ¶¶53-60.

which the invention largely overcame, 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 Challenged Claims cover Nuhn’s overall manure lagoon agitation vehicle, embodied in all of the Crawler models, which is a unique combination and arrangement of components that work together in synergy to form the claimed invention as a whole.<sup>60</sup> 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.

**VIII. GROUNDS 2 AND 6: CLAIMS 1–38 ARE NOT OBVIOUS BASED ON TRUXOR IN VIEW OF YOON OR CARRIER OR TRUXOR AND YOON OR CARRIER IN VIEW OF MANURE-MANAGER**

**A. Elements [1.5], [17.4] and [21.5] - The Truxor Combinations Fail to Disclose or Suggest a Liquid Manure Pump<sup>61</sup>**

Claims 1 and 21 explicitly require “a liquid manure pump.” Claim 17 requires a “a rotating shaft configured to move liquid manure in a manure lagoon”, which Petitioner equates to a “liquid manure pump” in its analysis.<sup>62</sup>

In Ground 2, Petitioner argues that the dredge pump described in Truxor meets

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<sup>60</sup> EX2099, ¶¶517-699.

<sup>61</sup> References herein to Claim or Claim Element Nos. (e.g., Element No. 1.5) is in reference to Petitioner’s Claim or Claim Element Nos. identified in its Petition, Paper 1, Appendix A.

<sup>62</sup> Paper 1, 49.

the “liquid manure pump” limitation, but Petitioner is incorrect. There is no evidence that the pump in Truxor was designed to pump or move liquid manure in a manure lagoon, has ever been described or marketed as a liquid manure pump or to move liquid manure in a manure lagoon, or has been tested and validated (i.e., proven) for liquid manure pumping or moving applications.<sup>63</sup>

Truxor’s Doro pump is described as capable of pumping light sediments such as “volatile sand”, which may be suitable for dredging purposes in lakes and streams, but there is no evidence that the light duty dredging pump disclosed in Truxor is capable of pumping or moving liquid manure contained in an agricultural manure lagoon.<sup>64</sup> Pumping or moving light sediments in lakes and ponds is not equivalent to use in animal manure lagoons because the nature of the solid and liquid materials in each is different.<sup>65</sup> Unlike lakes and ponds, animal manure lagoons contain a floating crust of semi-dried manure and animal bedding material (such as straw), which is different in composition from light sediments that accumulate on a lake bottom.<sup>66</sup> In addition, unlike water, manure acts as a non-Newtonian fluid when pumped.<sup>67</sup>

The Institution Decision gives credible weight to Dr. Winkel’s declaration relying on Exhibit 1055 to support Bazooka’s position that dredge pumps were

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<sup>63</sup> EX2099, ¶151.

<sup>64</sup> EX2099, ¶150-153.

<sup>65</sup> EX2099, ¶152.

<sup>66</sup> EX2099, ¶155.

<sup>67</sup> EX2099, ¶¶93, 155; EX2097, 2.

known for in the art for pumping higher solid concentration manure.<sup>68</sup> But Bazooka's arguments rely on the false premise that any pump used for dredging could also pump liquid manure with suspended solids within a manure lagoon. That is not the case.

Petitioner fails to present evidence that the Doro pump described in Truxor is comparable in size, performance, or capability as the pumps used on the dredging equipment described in the manure management handbooks and articles Bazooka cites. Simply because some heavy-duty dredging equipment has been used successfully to dredge manure lagoons (as discussed in EX1055) does not mean that all dredging pumps are capable of pumping liquid manure. The large cutterhead dredges described and shown in the manure management handbooks (EX1055) Bazooka cites are vastly different in scale to the light-duty vehicle (i.e., a small, low ground pressure vehicle) and Doro pump (described as handling light sediments) in Truxor.<sup>69</sup> It simply does not follow that all dredging equipment would be capable of pumping liquid manure with suspended solids.<sup>70</sup> Petitioner does not carry its burden of establishing that the pump described in Truxor would work in manure lagoons,

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<sup>68</sup> Paper 10, 20.

<sup>69</sup> EX2099, ¶155.

<sup>70</sup> EX2099, ¶155.

which is contradicted by Bazooka’s own advertising statements acknowledging that that most pumps cannot operate in the thick sludge of manure lagoons.<sup>71</sup>

In Ground 6, Petitioner argues that Nuhn’s G-Force Vertical Pit Pump (“Nuhn’s Pit Pump”), which is advertised in Manure-Manager, could replace Truxor’s Doro pump, but a POSITA would consider such a combination unfeasible because the Nuhn’s Pit Pump is too large/heavy to mount to Truxor’s boom arm and could not be powered by Truxor’s hydraulic system.<sup>72</sup> Unlike Truxor’s Doro pump, which is hydraulically powered, Nuhn’s Pit Pump must be driven by a mechanical driveshaft that couples to a tractor’s PTO<sup>73</sup>. Truxor does not have a PTO or the power to drive Nuhn’s Pit Pump.<sup>74</sup>

**B. Elements [17.3], [21.1]-[21.2], and [23.1] - The Truxor Combinations Fail to Disclose or Suggest Buoyant Elements Positioned Between the Front Wheel and Rear Wheel on Each Side of the Vehicle**

Claims 17, 21, and 23 require a first buoyant element positioned between a first front wheel and a first rear wheel and a second buoyant element positioned between a second front wheel and a second rear wheel. Claims 17 and 21 also limit the position of the first and second buoyant elements to between front and rear wheels on each side of the vehicle. The Truxor Combinations fail to disclose these

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<sup>71</sup> EX2103, 9.

<sup>72</sup> EX2099, ¶386.

<sup>73</sup> EX2099, ¶385.

<sup>74</sup> EX2099, ¶386.

limitations. It is undisputed that Truxor discloses a vehicle with tracks:<sup>75</sup>



Because Truxor discloses tracks rather than wheels, Truxor does not teach “a first front wheel and a first rear wheel” or “a second front wheel and a second rear wheel” as required by Claims 17, 21, and 23.

Petitioner asserts that a POSITA would substitute the tracks of Truxor for wheels.<sup>76</sup> But even if a POSITA were motivated to swap out Truxor’s tracks for wheels, the end result would not be a vehicle with a first buoyant element positioned between a first set of front and rear wheels and a second buoyant element positioned between a second set of front and rear wheels as required by Claims 17, 21, and 23.

Petitioner’s argues, without support, that when converting Truxor from tracks

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<sup>75</sup> EX1006, 3; Pet., 41 (“Truxor describes tracks for maneuvering . . . .”); EX1004, ¶135 (noting that Truxor has a “tracked drive”).

<sup>76</sup> Paper 1, 47-48.

to wheels, a POSITA would leave the aluminum pontoons inside Truxor's tracks on the vehicle and place the wheels in front of and behind each pontoon.<sup>77</sup> But the prior art would lead a POSITA to jettison the pontoons along with the tracks when making such a conversion.<sup>78</sup>

Carrier discloses placing rows of wheels along the right and left sides of a floatable vehicle body.<sup>79</sup> Carrier does not disclose or suggest placing wheels in front of and behind pontoons that run the length of the vehicle. Yoon discloses two embodiments – one where the vehicle floats on a pair of pontoons 110 and another where the pontoons 110 are replaced by a pair of wheels 111. Notably, Yoon does not instruct a POSITA to retain the pontoons 110 and add wheels 111 at the front and back corners of the pontoons 110 as Petitioner argues. Instead, Yoon teaches a POSITA to jettison the pontoons (110 in Figure 2 of Yoon) in favor of a central floating vehicle body (110 in Figure 4 of Yoon) with wheels 111 placed to each **side** of the floating vehicle body 110.<sup>80</sup>

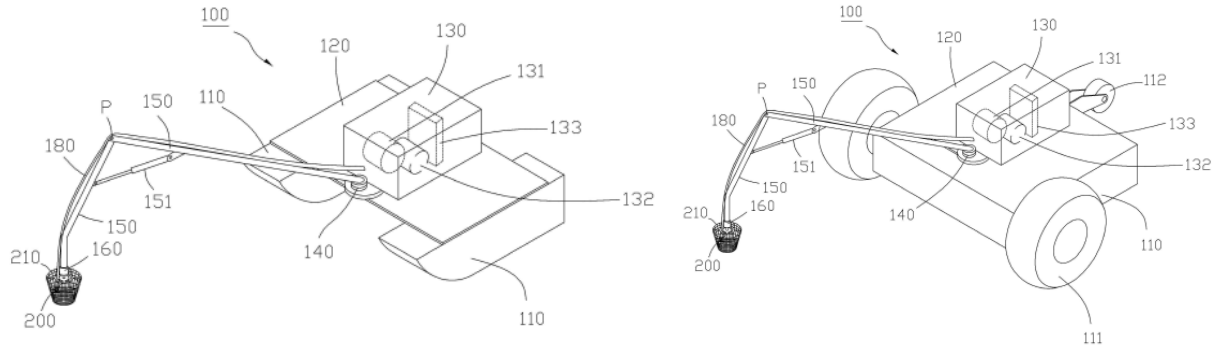
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<sup>77</sup> Paper 1, 48; EX1004, ¶215.

<sup>78</sup> EX2099, ¶165.

<sup>79</sup> EX1005, 3.

<sup>80</sup> EX1010, 10-11; EX2099, ¶167.



Even if wheels were added to Truxor, a POSITA would have placed them *outboard* of a floating vehicle body as taught in Carrier and Yoon.<sup>81</sup>

If a POSITA ignored the teachings of Carrier and Yoon and sought to modify Truxor such that it would have both wheels and pontoons, then contrary to Petitioner’s arguments, the “natural location” for the pontoons would be outboard of the wheels rather than between them.<sup>82</sup> Indeed, SenwaTec, *discloses* both a track-equipped version and a wheeled version. The wheeled version of the SenwaTec vehicle includes pontoons that are installed *outboard* of the wheels:<sup>83</sup>



A compact muscular vehicle with tracks



6-Wheel driven unit with stabilizer pontoons

<sup>81</sup> EX2099, ¶167.

<sup>82</sup> EX2099, ¶168.

<sup>83</sup> EX1012, 1 (red annotations added).

The record thus establishes that positioning pontoons *outboard* of the wheels would be the “natural location” a POSITA would select based on the teachings of SenwaTec.<sup>84</sup> The Truxor Combinations argued by Petitioner impermissibly use the ‘708 Patent as a blueprint to arrive at the claimed subject matter.

**C. Elements [1.4], [17.6]-[17.7], [21.7], [23.4] – The Truxor Combinations Fail to Disclose the Wireless Remote Control Limitations**

The amphibious vehicle disclosed in Truxor and its tool attachments are designed to be operated by an onboard operator. Truxor itself fails to teach the four enumerated wireless remote-control limitations of Claims 1, 17, 21, and 23. Petitioner argues that a POSITA would **add** wireless remote-control functionality to the amphibious vehicle disclosed in Truxor because of a fourth reference, Melnikov [EX1027], “describes adding remote control to Truxor-like amphibious sludge-pumping vehicles.” According to Petitioner, it would have been obvious to a POSITA to add the Yoon or Carrier remote-control function to Truxor in view of Melnikov.<sup>85</sup> But Melnikov does not suggest adding remote control to Truxor. Instead of doing that, Melnikov designed a radically different remote-controlled vehicle with a dual-screw propulsion system that looks nothing like Truxor. The reason for this is clear - controlling the positioning and operation of a vehicle in a

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<sup>84</sup> EX2099, ¶168.

<sup>85</sup> Petition, 40.

manure lagoon and/or a dredge pump on the end of a boom arm by wireless remote control would be problematic given the complexity of the controls and difficulty observing its operation from a remote location.<sup>86</sup>

Truxor itself places a priority on, on-board, visual observation of its attachments, given the elevated operator’s seat and Truxor’s manual controls do not lend themselves to conversion to wireless remote control.<sup>87</sup> Furthermore, Truxor’s operator’s manual warns of a known “tilting risk.”<sup>88</sup> Petitioner’s expert has even acknowledged Truxor’s tilting (i.e., rollover) risk in his other IPR declarations:<sup>89</sup>

|                                                                                                   |                                                                                      |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b>Potential Rollover Risk</b><br/>EX1006, 5; <i>see also</i> EX1020-EX1021, 1; EX1022, 8.</p> | <p><b>Cold Weather/Hypothermia</b><br/>EX1006, 5.</p>                                |
|                |  |

<sup>86</sup> EX2099, ¶¶173-192.

<sup>87</sup> EX2099, ¶¶175-182.

<sup>88</sup> EX1007, 128.

<sup>89</sup> *Bazooka Farmstar, LLC v. Nuhn Industries, Ltd.*, IPR2024-00004, EX1004, ¶249 (PTAB Oct. 13, 2023) (yellow highlighting added); *see also Bazooka Farmstar, LLC v. Nuhn Industries, Ltd.*, IPR2023-01161, EX1004, ¶257 (PTAB June 23, 2023).

This tilting risk would dissuade a POSITA from adding (or teach away from a POSITA adding) remote-control functionality to Truxor because remote-control is less precise and is much more difficult for the operator to perceive tipping and counter-steer.<sup>90</sup> Petitioner has not demonstrated how a POSITA could overcome these difficulties when making this combination, or that the resulting combination would actually work in the manure lagoon environment. Even today, some ten years later, there is no evidence that a remote-control option has actually been added to the Truxor vehicle.<sup>91</sup>

**D. Petitioner Has Not Presented Sufficient Evidence That A POSITA Would Have Had a Motivation to Combine Truxor, Carrier or Yoon, and Manure-Manager**

Petitioner's alleged motivation to combine is that "[a] POSA looking to select an improved pump for use on the Truxor multi-functional machine would have been motivated to use Respondent's Pump design, given the teachings in the literature, often alongside Respondent's own pump advertisements, touting the efficiency and durability benefits of such dual outlet pumps."<sup>92</sup> But critically, Truxor's literature describes a manned amphibious vehicle for "Reed cutting & Gathering – Excavation – Dredging" – not manure lagoon agitation.<sup>93</sup>

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<sup>90</sup> EX2099, ¶185.

<sup>91</sup> EX2099, ¶180.

<sup>92</sup> Paper 1, 96.

<sup>93</sup> EX1006, 1.

A POSITA would not have been motivated to replace Truxor’s dredge pumps with a manure lagoon agitation pump that was unproven in dredging applications because a POSITA would have expected such a substitution to destroy the primary purpose of Truxor’s vehicle – dredging.<sup>94</sup>

Pumps and pumping vehicles that are used for manure lagoon agitation are designed such that the pump intake is positioned below the surface crust on a manure lagoon, but above the bottom of the lagoon, to prevent the pump from clogging and to avoid damaging the manure lagoon liner.<sup>95</sup> By contrast, dredge pumps, like the pumps advertised in Truxor, are designed to be moved about a lake or stream bottom to suck up the bottom sediment.<sup>96</sup> Because Nuhn’s Pit Pump was not designed, validated, or advertised to be used in dredging, a POSITA would *not have* attempted to replace Truxor’s dredge pumps with Nuhn’s Pit Pump.<sup>97</sup>

**E. Petitioner Has Not Presented Sufficient Evidence That A POSITA Would Have Had a Reasonable Expectation of Success in Making the Truxor Combinations**

Petitioner’s assertion that “[a] POSA would have had a reasonable expectation of success in using Respondent’s Pump based on it being vehicle mounted and powered” is entirely insufficient.<sup>98</sup> The dredge pumps disclosed in Truxor are

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<sup>94</sup> EX2099, ¶406.

<sup>95</sup> EX2099, ¶378.

<sup>96</sup> EX2099, ¶380.

<sup>97</sup> EX2099, ¶381.

<sup>98</sup> Paper 1, 96.

mounted at the end of an articulating boom arm at the front of the Truxor vehicle.<sup>99</sup>

As a result of this mounting arrangement, Truxor's dredge pumps are powered by hydraulics and driven by a flow of hydraulic fluid passing through the hydraulic lines.<sup>100</sup> In contrast, Nuhn's Pit Pump is powered by a mechanical transmission and driveshaft that is mechanically coupled to the power-take-off (PTO) of a tractor.<sup>101</sup> The Truxor vehicle lacks a PTO to provide power to its attachments.<sup>102</sup> A POSITA would not have had a reasonable expectation of success that Nuhn's Pit Pump could be connected to and effectively driven by Truxor's hydraulics, without substantial modification.<sup>103</sup> A POSITA would also have been dissuaded from making such a combination on account of the size and weight of Nuhn's Pit Pump, which is too big and heavy to mount to Truxor's boom-arm.<sup>104</sup>

Petitioner also fails to adequately explain why a POSITA would have had a reasonable expectation of success in making this combination in view of the difficulties presented by converting Truxor's complex hydraulic controls to wireless remote control and the difficulty of controlling the positioning and operation of Truxor's boom-mounted pump from a remote location.<sup>105</sup>

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<sup>99</sup> EX1006, 10.

<sup>100</sup> EX2099, ¶384.

<sup>101</sup> EX2099, ¶385.

<sup>102</sup> EX2099, ¶386.

<sup>103</sup> EX2099, ¶386.

<sup>104</sup> EX2099, ¶386.

<sup>105</sup> EX2099, ¶¶389-397.

**F. Petitioner's Truxor Combinations Are Based on Impermissible Hindsight**

Combining Truxor with Carrier or Yoon in Ground 2 (with the addition of Manure-Manager in Ground 6) to arrive at the limitations of the Challenged Claims would require a POSITA to find multiple motivations to make a completely nonsensical series of modifications to Truxor – when the failure to do so for any specific one would destroy the combination:<sup>106</sup>

- First, a POSITA would need to find motivation to re-design or replace Truxor's Doro *dredge* pump that could be effectively used as a liquid *manure* pump, including but not limited to the *liquid manure* pump Nuhn advertised in Manure-Manager – even though (a) there is no teaching or suggestion of manure pumping applications in Truxor's literature, (b) Nuhn's pump was unproven in dredging and likely to destroy Truxor's dredging functionality, which is its primary purpose, and (c) Truxor lacks the PTO necessary to drive Nuhn's Pit Pump and there is no evidence that Nuhn's pump could be easily converted to hydraulic drive.
- Second, Petitioner's own prior art, including Carrier, Yoon, and SenwaTec, teach adding wheels on opposite sides of a centrally

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<sup>106</sup> EX2099, ¶406.

located floating vehicle body, which does not result in buoyant elements positioned on the sides of the vehicle in the space between the wheels.

- Third, a POSITA would need to find motivation to add wireless remote control to Truxor, even though it would be extremely difficult to convert Truxor's complex joysticks and hydraulic controls to wireless remote control – only to end up with a pumping vehicle that is difficult if not impossible to control / operate from a remote location due to the inability to observe the positioning of Truxor's boom arm and therefore the pump.

A POSITA would only arrive at Petitioner's Truxor Combinations by using the Challenged Claims as blueprint.<sup>107</sup>

#### **G. Dependent Claims 2-16, 18-20, 22, and 24-38**

Claims 2-16 depend from Claim 1, Claims 18-20 depend from Claim 17, Claim 22 depends from Claim 21, and Claims 24-38 depend from Claim 23. The Truxor Combinations do not render any of these dependent claims obvious for at least the same reasons described above with respect to Claims 1, 17, 21 and 23.

Claims 2, 19, and 29 further require a liquid manure pump with a housing that comprises “at least two tangential outlets.” Truxor's Doro pump has a single outlet

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<sup>107</sup> EX2099, ¶407.

and therefore does not meet this limitation. Claims 3, 19, and 30 further specify that the tangential outlets are equipped with “a flexible connection to a combiner configured to combine the tangential fluid outlets into a single fluid conduit.” Even when Manure-Manager is added, Nuhn’s Pit Pump does not have a flexible connection between the tangential outlets and the combiner.<sup>108</sup> As a result, Claims 3, 19, and 30 are patentable over the Truxor Combinations for this additional reason.

Claims 9 and 35 require the wheels to be positioned along opposite sides of the vehicle like Claims 17 and 21 and Claim 15 requires buoyant elements situated between the wheels like Claims 17 and 21. As a result, in addition to depending from Claims 1 and 23, Claims 9, 15, and 35 are patentable over the Truxor Combinations for the additional reasons that make Claims 17 and 21 patentable.

Claims 7, 20, and 34 require “four bar linkage” for changing the angular orientation of the fluid outlet. Petitioner cites Nuhn’s Pit Pump for this limitation, but the hydraulic articulation cylinder on Nuhn’s Pit Pump is not connected to a four bar linkage.<sup>109</sup> As a result, Claims 7, 20, and 34 are patentable over the Truxor Combinations for this additional reason.

Finally, Claim 16 requires the vehicle to have “a center of gravity located along a longitudinal centerline of the vehicle, substantially in a middle of the

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<sup>108</sup> EX2099, ¶411.

<sup>109</sup> EX2099, ¶412.

vehicle.” Petitioner argues that Truxor’s components are “generally symmetrically arranged on either side of the vehicle,”<sup>110</sup> but this only teaches that the center of gravity is along the longitudinal centerline and not also “substantially in a middle of the vehicle” in the fore-and-aft direction.<sup>111</sup> As a result, Claim 16 is patentable over the Truxor Combinations for this additional reason.

**IX. GROUNDS 3 AND 7: CLAIMS 1–38 ARE NOT OBVIOUS BASED ON SENWATEC IN VIEW OF YOON OR CARRIER OR SENWATEC IN VIEW OF YOON OR CARRIER AND MANURE-MANAGER**

**A. The Evidence Does Not Show The SenwaTec Vehicle Being Used In An Animal Manure Lagoon**

Petitioner unsuccessfully attempts to add to the teachings of the SenwaTec’s reference [EX1012] through the Lonnemann Declaration [EX1013] and its constituent Exhibits [EX1030] and [1031]. The Board cannot consider these materials due to evidentiary problems.

Lonnemann claims that one of SenwaTec’s customers in Germany, UD Umweltdienste, used the SenwaTec vehicle “for pumping manure and agitating manure lagoons”.<sup>112</sup> But this is factually incorrect. At most, the record suggests that the SenwaTec vehicle was used in decommissioned *municipal wastewater ponds*.

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<sup>110</sup> Paper 1, 48.

<sup>111</sup> EX2099, ¶410.

<sup>112</sup> EX1013, ¶5.

The news article attached as Exhibit A to Lonnemann’s Declaration states that the “sewage pond” the SenwaTec vehicle was being used to *dredge* was a decommissioned municipal wastewater treatment pond for “toilet waste”.<sup>113</sup> So Exhibit A [EX1029-30] does not actually teach the SenwaTec vehicle being operated in “manure” as Lonnemann incorrectly claims. Exhibit B [EX1031] to the Lonnemann Declaration, which is a collection of screen shots from a video, does not fare any better. The YouTube page for this video (*see link in footnote<sup>114</sup>*) lists an upload date of **November 29, 2016** – that’s more than ***three years after the Patent Owner’s priority date:***<sup>115</sup>



<sup>113</sup> EX1030, 3

<sup>114</sup> <https://www.youtube.com/watch?v=ecnlfMf7CH4&t=1s> [EX2032].

<sup>115</sup> EX2099, ¶229 (providing annotated excerpt of EX2032, 1).

The English translation of this video and declarations submitted by translators and other individuals associated SenwaTec and/or UD Umweltdienste<sup>116</sup> confirm that what is pictured is also a decommissions municipal wastewater pond. Petitioner appears to nonsensically equate human waste with animal manure “because humans are animals too” – but that argument lacks credibility. Municipal wastewater ponds and animal manure lagoons are very different.<sup>117</sup> A large amount of the solids and debris found in animal manure lagoons is bedding material, such as straw and sand, that sticks to the manure and gets washed into the animal manure lagoon.<sup>118</sup> Human waste does not contain bedding material and is also treated at a sewage treatment plant (to remove toilet paper, etc., before going into a storage pond. Municipal wastewater ponds therefore have much less debris than animal manure lagoons.<sup>119</sup> Municipal wastewater treatment ponds are also typically much smaller than manure lagoons. A POSITA would appreciate that the problems associated with maintaining a manure lagoon are different than those that arise in municipal wastewater treatment facilities.<sup>120</sup>

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<sup>116</sup> See EX1067-69 and EX1072-75 in *Bazooka Farmstar, LLC v. Nuhn Industries, Ltd.*, IPR2023-01161, (PTAB June 23, 2023).

<sup>117</sup> EX2099, ¶35.

<sup>118</sup> EX2099, ¶35.

<sup>119</sup> EX2099, ¶35.

<sup>120</sup> EX2099, ¶35.

**B. Elements [1.5] [21.5] - The SenwaTec Combinations Fail to Disclose or Suggest a Liquid Manure Pump**

Claims 1 and 21 explicitly require “a liquid manure pump.” Petitioner relies on SenwaTec and Manure-Manager to disclose this claim element.<sup>121</sup> But the SenwaTec vehicle is not advertised as a manure agitation vehicle. SenwaTec’s marketing brochure prominently advertises at the top of the first page its expertise in the following areas “Ditch Cleaner And Slope Mowers,” “Moving and Clearing Boats,” “Weed Harvesters,” “Amphibious Vehicles,” and “Cutter Suction And Excavating Dredges”:<sup>122</sup>

The image is a marketing brochure for SenwaTec. At the top left is the SenwaTec logo, which consists of a blue oval with a stylized 'S' and the word 'SENWATEC' in green. To the right of the logo is a red-bordered box containing the text '40 YEARS OF EXPERIENCE IN THE DEVELOPMENT OF:' followed by a list of services: 'DITCH CLEANER AND SLOPE MOWERS', 'MOWING AND CLEARING BOATS', 'WEED HARVESTERS', 'AMPHIBIOUS VEHICLES', and 'CUTTER SUCTION AND EXCAVATING DREDGES'. Below this box is the heading 'SCHRÖER ENVIRONMENT AND WATER TECHNOLOGY' in blue, followed by 'Light Amphibious Boat/Vehicle' and '“Amphi-King”® SWT-AB380' in blue. A list of features follows, each preceded by a diamond symbol: 'Light and strong aluminum construction, approximately 2480 kg (5,500 lbs.), without attachments', '6-wheel drive or track drive system (track drives are patented system)', 'Forward crane ready for many attachments with available power for up to 50 KW (67 HP)', 'Heavy duty Diesel engine certified to the latest standards of Tier IV emission and fuel consumption', 'Optimal configuration of power requirements and hydraulic unit (less operating costs)', 'Low ground pressure and good clearance on terrain, marches and swamps during on-land drives', 'Shallow vessel draft with, low center of gravity for safe on-water maneuvering', 'High working range and wide swing radius of the hydraulic crane arm, ready for many attachments', 'Operating controls conveniently placed and adjustable to suite operator's seat position', and 'Vehicle construction & safety configuration according to European & International standards'. At the bottom are two photographs. The left photo shows a compact muscular vehicle with tracks on a grassy bank. The right photo shows a 6-wheel driven unit with stabilizer pontoons on water. Below the left photo is the caption 'A compact muscular vehicle with tracks' and below the right photo is the caption '6-Wheel driven unit with stabilizer pontoons'. At the very bottom, a line of text reads: 'With a powerful centrifugal pump and 8" suction- and 6" discharge ports, hydraulically driven, delivering 40 kW of pumping power'.

**SENWATEC**

**40 YEARS OF EXPERIENCE IN THE DEVELOPMENT OF:**

- DITCH CLEANER AND SLOPE MOWERS
- MOWING AND CLEARING BOATS
- WEED HARVESTERS
- AMPHIBIOUS VEHICLES
- CUTTER SUCTION AND EXCAVATING DREDGES

**SCHRÖER ENVIRONMENT AND WATER TECHNOLOGY**

**Light Amphibious Boat/Vehicle**

**“Amphi-King”® SWT-AB380**

- ❖ Light and strong aluminum construction, approximately 2480 kg (5,500 lbs.), without attachments
- ❖ 6-wheel drive or track drive system (track drives are patented system)
- ❖ Forward crane ready for many attachments with available power for up to 50 KW (67 HP)
- ❖ Heavy duty Diesel engine certified to the latest standards of Tier IV emission and fuel consumption
- ❖ Optimal configuration of power requirements and hydraulic unit (less operating costs)
- ❖ Low ground pressure and good clearance on terrain, marches and swamps during on-land drives
- ❖ Shallow vessel draft with, low center of gravity for safe on-water maneuvering
- ❖ High working range and wide swing radius of the hydraulic crane arm, ready for many attachments
- ❖ Operating controls conveniently placed and adjustable to suite operator's seat position
- ❖ Vehicle construction & safety configuration according to European & International standards

**A compact muscular vehicle with tracks**

**6-Wheel driven unit with stabilizer pontoons**

With a powerful centrifugal pump and 8" suction- and 6" discharge ports, hydraulically driven, delivering 40 kW of pumping power

<sup>121</sup> Paper 1, 59-62; EX1004, ¶¶246, 267.

<sup>122</sup> EX1012, 1 (annotations added).

There is absolutely no reference to manure, farm lagoons, or livestock farming in SenwaTec's marketing brochure. Nor does SenwaTec's marketing brochure disclose that its dredge pump attachments may be used to pump manure.

Petitioner improperly attempts to use Exhibit A [EX1029-30 – the Berky news article] and Exhibit B [EX1031 – screenshots from the UD Umweltdienste video] to **add** to the teachings of SenwaTec's marketing brochure [EX1012].<sup>123</sup> But as explained above, neither the video [EX1031] nor the Berky newspaper article [EX1030] show or describe the SenwaTec vehicle pumping *liquid manure*.

Dr. Winkel's Declaration [EX1004, ¶237] rely on this same flawed evidence and is at odds with the claim language itself, which expressly requires a liquid manure pump as opposed to a generic or general-purpose dredging pump. Bazooka's arguments again rely on the false premise that any pump used for dredging could also pump liquid manure with suspended solids within a manure lagoon, but that is not the case.

Petitioner fails to present evidence that the dredge pumps described in SenwaTec are comparable in size, performance, or capability as the pumps used on the dredging equipment described in the manure management handbooks and articles Bazooka cites. Simply because some heavy-duty dredging equipment has been used successfully to dredge manure lagoons (as discussed in EX1055) does not

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<sup>123</sup> Paper 1, 55.

mean that all dredging pumps are capable of pumping liquid manure. The large cutterhead dredges described and shown in the manure management handbooks (EX1055) Bazooka cites are vastly different in scale to the light-duty vehicle (i.e., a small, low ground pressure vehicle) and dredge pumps (described as having 40 kW of pumping power) in SenwaTec.<sup>124</sup> It simply does not follow that all dredging equipment would be capable of pumping liquid manure with suspended solids.<sup>125</sup> Petitioner does not carry its burden of establishing that the pump described in SenwaTec would work in manure lagoons, which is contradicted by Bazooka's own advertising statements acknowledging that that most pumps cannot operate in the thick sludge of manure lagoons.<sup>126</sup>

In Ground 7, Petitioner urges that SenwaTec's dredge pump could be replaced by Nuhn's Pit Pump, which is advertised in Manure-Manager. But a POSITA would consider such a combination unfeasible because the Nuhn's Pit Pump is too large/heavy to mount to SenwaTec's boom arm and could not be powered by SenwaTec's hydraulic system.<sup>127</sup> Unlike SenwaTec's dredge pump, which is hydraulically powered, Nuhn's Pit Pump must be driven by a mechanical

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<sup>124</sup> EX2099, ¶432.

<sup>125</sup> EX2099, ¶432.

<sup>126</sup> EX2103, 9.

<sup>127</sup> EX2099, ¶432.

driveshaft that couples to a tractor's PTO.<sup>128</sup> SenwaTec does not have a PTO or the power to drive Nuhn's Pit Pump.<sup>129</sup>

**C. Elements [17.3], [21.1]-[21.2], and [23.1] - The SenwaTec Combinations Fail to Disclose or Suggest Buoyant Elements Positioned Between the Front Wheel and Rear Wheel on Each Side of the Vehicle**

Claims 17, 21, and 23 require a first buoyant element positioned between a first front wheel and a first rear wheel and a second buoyant element positioned between a second front wheel and a second rear wheel. Claims 17 and 21 also limit the position of the first and second buoyant elements to between front and rear wheels on each side of the vehicle.

Petitioner attempts to rely on SenwaTec's "stabilizer pontoons" as the first and second buoyant elements.<sup>130</sup> But Petitioner is *incorrect* in its interpretation that "SenwaTec discloses that the metal stabilizer pontoons are situated between the front and rear wheels on each side of the vehicle."<sup>131</sup> The SenwaTec reference clearly depicts pontoons that are installed *outboard of the wheels*:<sup>132</sup>

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<sup>128</sup> EX2099, ¶431.

<sup>129</sup> EX2099, ¶432.

<sup>130</sup> Paper 1, 64-65. 67, 69, 71.

<sup>131</sup> Paper 1, 64-65. 67, 69, 71.

<sup>132</sup> EX1012, 1 (annotations added).



There is simply **no** disclosure in SenwaTec of the stabilizer pontoons being **situated between** the front and rear wheels on each side of the vehicle.<sup>133</sup> Yoon and Carrier add nothing further because they both teach placing wheels on right and left sides of a floating vehicle body, which is the same arrangement disclosed in SenwaTec. As a result, the applied art fails to disclose a first buoyant element positioned between a first front wheel and a first rear wheel and a second buoyant element positioned between a second front wheel and a second rear wheel as required by Claims 17, 21, and 23.

**D. Elements [1.4], [17.6]-[17.7], [21.7], [23.4] – The SenwaTec Combinations Fail to Disclose the Wireless Remote Control Limitations**

Petitioner does not argue that SenwaTec discloses remote control functionality and makes the same arguments relative to adding remote control to

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<sup>133</sup> EX2099, ¶¶211.

Truxor as it does for SenwaTec. Accordingly, the SenwaTec Combinations fail to disclose the wireless remote control limitations for the same reasons as discussed above in Section VIII.C.

**E. Petitioner Has Not Presented Sufficient Evidence That A POSITA Would Have Had a Motivation to Combine SenwaTec, Carrier or Yoon, and Manure-Manager**

Petitioner's alleged motivation to combine for Ground 7 is that: "a POSA would have been ... motivated to use Respondent's Pump on the SenwaTec vehicle because of the pump's advertised manure pumping capabilities, which would allow the SenwaTec vehicle to more efficiently pump manure, saving fuel costs, time, and providing better agitation."<sup>134</sup>

But SenwaTec's literature only describes a manned amphibious weed clearing and dredging vehicle.<sup>135</sup> The evidence outside of the SenwaTec reference itself should not be considered for the reasons explained above, but even if it is, it shows, at best, that one environmental services company in Germany (UD Umweltdienste) used the SenwaTec vehicle to *dredge* a decommissioned municipal wastewater treatment pond. A POSITA would not be motivated to replace SenwaTec's dredging pump with Nuhn's manure lagoon pump because there is zero evidence that Nuhn's manure lagoon pump would work in dredging applications.<sup>136</sup> A POSITA would be

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<sup>134</sup> Paper 1, 105; EX1004, ¶343.

<sup>135</sup> EX1012, 1-2.

<sup>136</sup> EX2099, ¶422.

discouraged from making the proposed combination because it would likely destroy the primary purpose of SenwaTec's vehicle – dredging.<sup>137</sup>

**F. Petitioner Has Not Presented Sufficient Evidence That A POSITA Would Have Had a Reasonable Expectation of Success in Making the SenwaTec, Carrier or Yoon, and Manure-Manager Combinations**

Petitioner contends that a POSA would have had a reasonable expectation of success in using Nuhn's liquid manure pump based on it "being vehicle mounted and powered".<sup>138</sup> This is entirely insufficient.

The dredging pumps disclosed in SenwaTec are mounted at the end of an articulating excavator arm at the front of the SenwaTec vehicle.<sup>139</sup> As a result of this mounting arrangement, SenwaTec's dredging pumps are powered by hydraulics and driven by a flow of hydraulic fluid passing through the hydraulic lines.<sup>140</sup> A POSITA would not have had a reasonable expectation of success that Nuhn's Pit Pump, which includes a mechanical coupling, driveshaft, and mechanical gearbox, could be connected to and effectively driven by SenwaTec's hydraulics.<sup>141</sup> A POSITA would have also recognized that Nuhn's Pit Pump is too big and heavy to

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<sup>137</sup> EX2099, ¶449.

<sup>138</sup> Paper 1, 96, 104-105.

<sup>139</sup> EX1012, 1.

<sup>140</sup> EX2099, ¶430.

<sup>141</sup> EX2099, ¶432.

be added on SenwaTec's boom arm and that SenwaTec lacks the PTO and power required to drive Nuhn's Pit Pump.<sup>142</sup>

Ground 7 is also based on the same flawed assumption that a POSITA would somehow add wireless remote-control functionality to the amphibious vehicle disclosed in SenwaTec in view of the remote-control teachings of Yoon or Carrier. Petitioner fails to adequately explain why a POSITA would have had a reasonable expectation of success in making this combination and achieving the claimed invention, including the difficulties with converting SenwaTec's numerous joysticks and foot pedals to wireless remote control and the difficulty of controlling Truxor's vehicle and pump from a remote location where control over the placement and operation of a pump on the end of Truxor's articulating excavator arm would be difficult, if not impossible.<sup>143</sup>

**G. Petitioner's SenwaTec Combinations Are Based on Impermissible Hindsight**

Combining SenwaTec with Carrier or Yoon in Ground 3 (with the addition of Manure-Manager in Ground 7) to arrive at the limitations of the Challenged Claims would require a POSITA to find multiple motivations to make a completely

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<sup>142</sup> EX2099, ¶432.

<sup>143</sup> EX2099, ¶¶435-448.

nonsensical series of modifications to SenwaTec – when the failure to do so for any specific one would destroy the combination.<sup>144</sup>

- First, a POSITA would need to find motivation to re-design or replace SenwaTec’s *dredge* pump so that it could be effectively used as a liquid *manure* pump, including but not limited to the *liquid manure* pump Nuhn advertised in Manure-Manager – even though (a) there is no teaching or suggestion of manure pumping applications in SenwaTec’s literature, (b) Nuhn’s pump was unproven in dredging and likely to destroy SenwaTec’s dredging functionality, which is its primary purpose, and (c) SenwaTec lacks the PTO necessary to drive Nuhn’s Pit Pump and there is no evidence that Nuhn’s pump could be easily converted to hydraulic drive.
- Second, SenwaTec clearly teaches adding pontoons outboard of the wheels, not between the wheels like in the arrangement claimed.
- Third, a POSITA would need to find motivation to add wireless remote control to SenwaTec, even though it would be extremely difficult to convert SenwaTec’s myriad of joysticks and foot controls to wireless remote control – only to end up with a pumping vehicle that is difficult if not impossible to control / operate from a remote location due to the

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<sup>144</sup> EX2099, ¶449.

inability to observe the positioning of Truxor's boom arm and therefore the pump.

A POSITA would only arrive at Petitioner's SenwaTec Combinations by using the Challenged Claims as blueprint.<sup>145</sup>

#### **H. Dependent Claims 2-16, 18-20, 22, and 24-38**

Claims 2-16 depend from Claim 1, Claims 18-20 depend from Claim 17, Claim 22 depends from Claim 21, and Claims 24-38 depend from Claim 23. The SenwaTec Combinations do not render any of these dependent claims obvious for at least the same reasons described above with respect to Claims 1, 17, 21 and 23.

Claims 2, 19, and 29 further require a liquid manure pump with a housing that comprises "at least two tangential outlets." SenwaTec's dredge pump has a single outlet and therefore does not meet this limitation. Claims 3, 19, and 30 further specify that the tangential outlets are equipped with "a flexible connection to a combiner configured to combine the tangential fluid outlets into a single fluid conduit." Even when Manure-Manager is added, Nuhn's Pit Pump does not have a flexible connection between the tangential outlets and the combiner.<sup>146</sup> As a result, Claims 3, 19, and 30 are patentable over the SenwaTec Combinations for this additional reason.

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<sup>145</sup> EX2099, ¶450.

<sup>146</sup> EX2099, ¶456.

Claims 9 and 35 require the wheels to be positioned along opposite sides of the vehicle like Claims 17 and 21 and Claim 15 requires buoyant elements situated between the wheels like Claims 17 and 21. As a result, in addition to depending from Claims 1 and 23, Claims 9, 15, and 35 are patentable over the SenwaTec Combinations for the additional reasons that make Claims 17 and 21 patentable.

Claims 7, 20, and 34 require a “four bar linkage” for changing the angular orientation of the fluid outlet. Petitioner cites Nuhn’s Pit Pump for this limitation, but the hydraulic articulation cylinder on Nuhn’s Pit Pump is not connected to a four bar linkage.<sup>147</sup> As a result, Claims 7, 20, and 34 are patentable over the SenwaTec Combinations for this additional reason.

Finally, Claim 16 requires the vehicle to have “a center of gravity located along a longitudinal centerline of the vehicle, substantially in a middle of the vehicle.” Petitioner argues that SenwaTec’s components are “generally symmetrically arranged on either side of the vehicle,” but this only teaches that the center of gravity is along the longitudinal centerline and not also “substantially in a middle of the vehicle” in the fore-and-aft direction.<sup>148</sup> As a result, Claim 16 is patentable over the SenwaTec Combinations for this additional reason.

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<sup>147</sup> EX2099, ¶457.

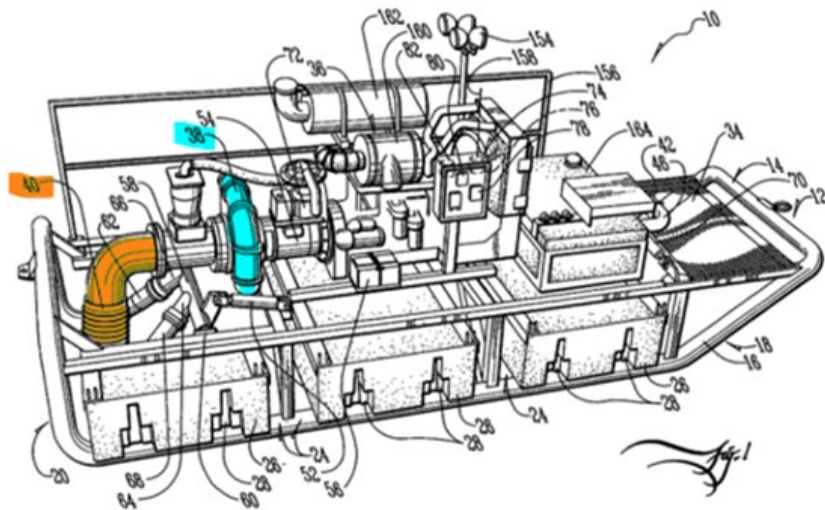
<sup>148</sup> EX2099, ¶455.

**X. GROUNDS 4, 5 AND 8: CLAIMS 1-38 ARE NOT OBVIOUS BASED ON PUCK IN VIEW OF BRYHAM OR PUCK IN VIEW OF BRYHAM AND BENNETT-II OR PUCK IN VIEW OF BRYHAM (ALONE OR IN VIEW OF BENNETT-II) AND FURTHER IN VIEW OF MANURE-MANAGER**

**A. Element [1.5] - The Puck-Bryham and Puck-Bryham-Bennett-II Combinations Do Not Disclose or Suggest An Immersible Bottom Fluid Inlet In the Housing of the Liquid Manure Pump As Required By Claim 1**

Claim 1 recites a “liquid manure pump comprising *a bottom fluid inlet configured to be immersed in the liquid manure when the vehicle is floating ... the liquid manure pump comprising a housing with the bottom fluid inlet in the housing*” (emphasis added).

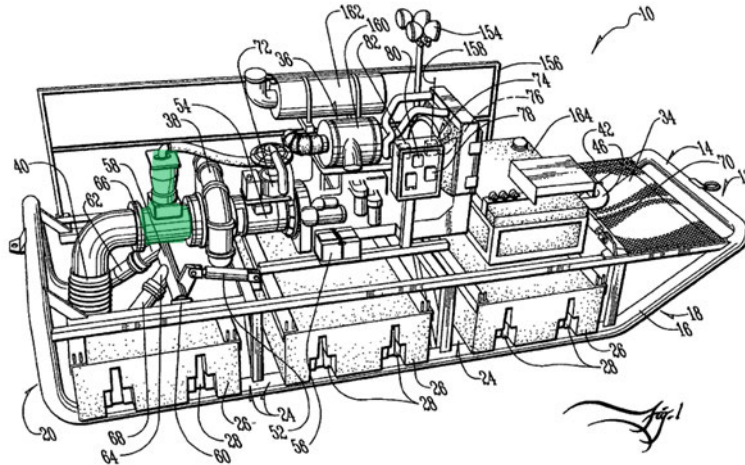
Petitioner incorrectly argues that the “housing” of the liquid manure pump 38 disclosed in Puck includes the “intake pipe 40.”<sup>149</sup> The intake pipe 40 in Puck is disclosed as a separate component that is not part of the slurry pump 38.<sup>150</sup>



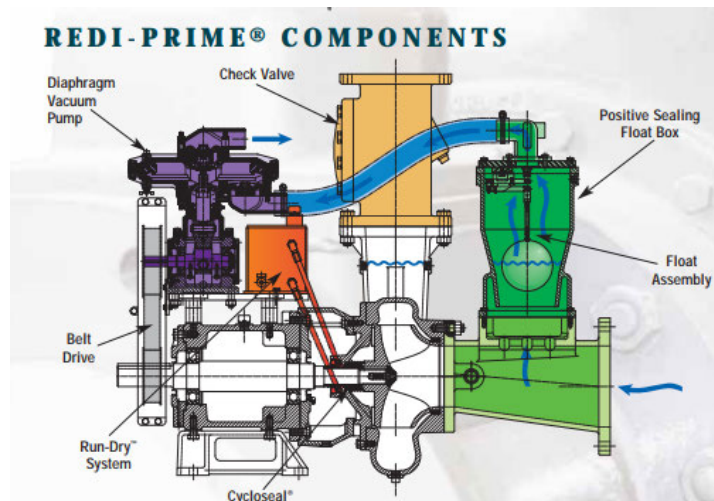
<sup>149</sup> Paper 1, 79-80.

<sup>150</sup> EX2004, ¶196 (providing annotated FIG. 1 from Puck [EX1014]).

In fact, there is an intermediate component (shown in green below) between the housing of the slurry pump 38 and the intake pipe 40.



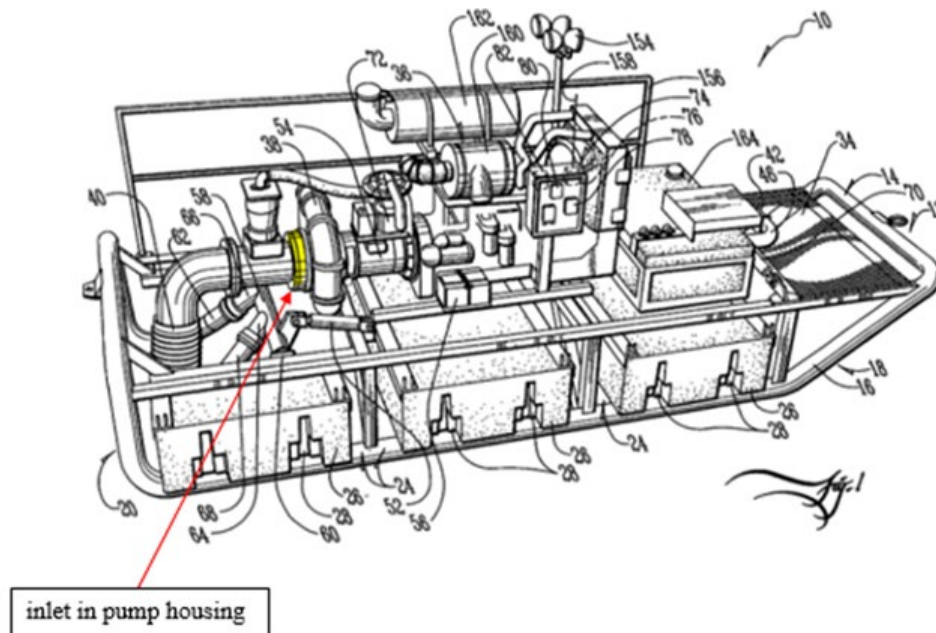
Puck discloses that the slurry pump 38 is a Cornell Redi-Prime centrifugal pump<sup>151</sup> and Cornell's brochure for its Redi-Prime pumps (EX2105) demonstrates that this intermediate component shown in Puck's figures (highlighted in green above) is the positive sealing float box, which is part of the priming system for the pump.<sup>152</sup>



<sup>151</sup> EX1014, ¶0025.

<sup>152</sup> EX2105, 3.

The written description in Puck also demonstrates that the Petitioner's position is untenable. For example, Paragraph [0026] of Puck describes the slurry pump 38 as being "coupled to" the downwardly directed intake pipe 40 and that intake pipe 40 may be extensible.<sup>153</sup> In view of this disclosure, the intake pipe 40 of Puck cannot be considered part of the "housing" of the liquid manure pump 38.<sup>154</sup> Because the intake pipe 40 in Puck is a separate conduit it cannot define a "*bottom fluid inlet in the housing*" of the slurry pump 38 as required by the language of claim 1.<sup>155</sup> Instead, Puck discloses a slurry pump 38 with an inlet that is positioned in the rear side of the pump housing:<sup>156</sup>

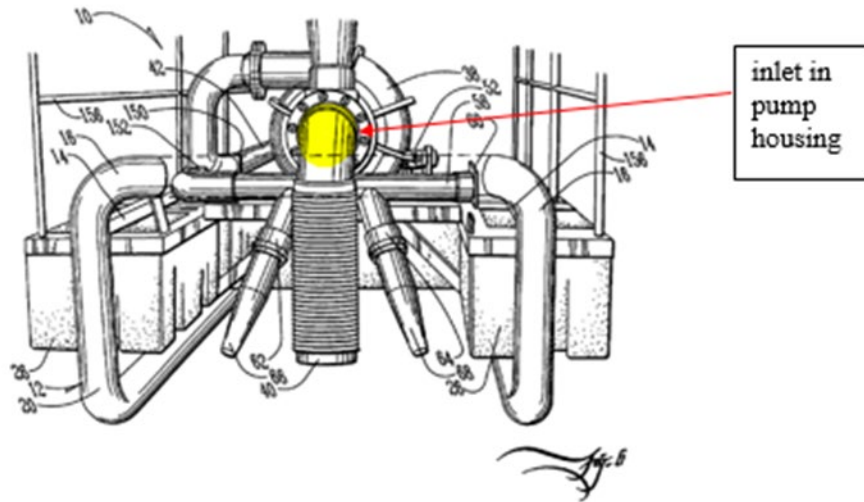


<sup>153</sup> EX1014, ¶0026.

<sup>154</sup> EX2099, ¶246.

<sup>155</sup> EX2099, ¶245.

<sup>156</sup> EX2099, ¶247 (providing annotated FIGS. 1 and 6 of Puck [EX1014]).



A POSITA would not consider this rear inlet in Puck’s pump housing 38 to be “a bottom fluid inlet” as required by the language of claim 1 because it is not positioned at the bottom of the slurry pump 38 and it is not “configured to be immersed in the liquid manure when the vehicle is floating.”<sup>157</sup>

**B. Elements [17.3], [21.1]-[21.2] and [23.1] – None of the Puck Combinations Disclose or Suggest Buoyant Elements Positioned Between the Front Wheel and Rear Wheel on Each Side of the Vehicle**

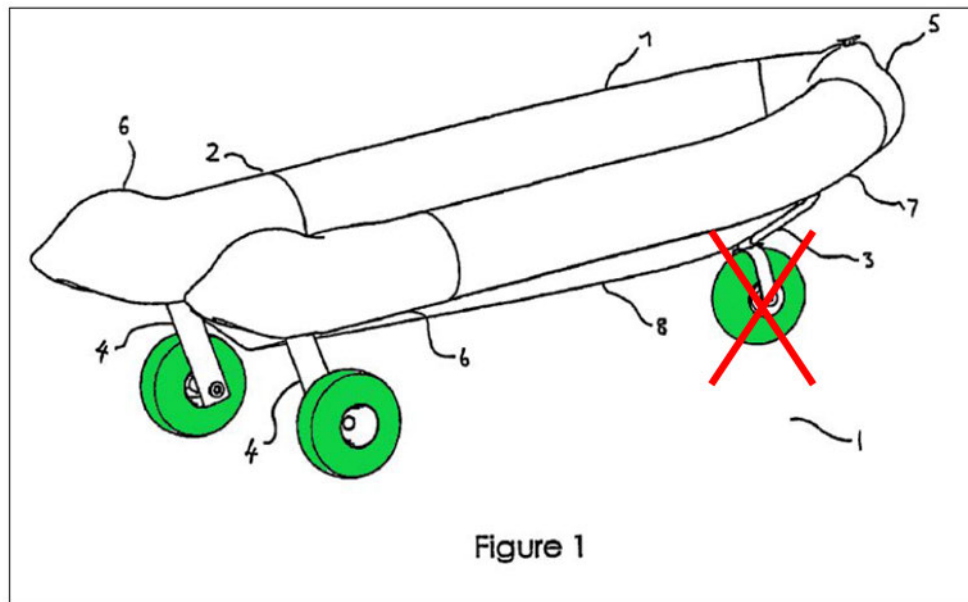
Claims 17, 21, and 23 require a first buoyant element positioned between a first front wheel and a first rear wheel and a second buoyant element positioned between a second front wheel and a second rear wheel. Claims 17 and 21 also limit the position of the first and second buoyant elements to between front and rear wheels on each side of the vehicle. Puck, Bryham, Bennett-II, and Manure-Manager fail to expressly disclose or suggest either a vehicle or a boat with four wheels (i.e.,

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<sup>157</sup> EX2099, ¶246.

respective pairs of front and rear wheels on the right side of the vehicle and on the left side of the vehicle) with buoyant elements situated between the front and rear wheels on each side of the vehicle.<sup>158</sup>

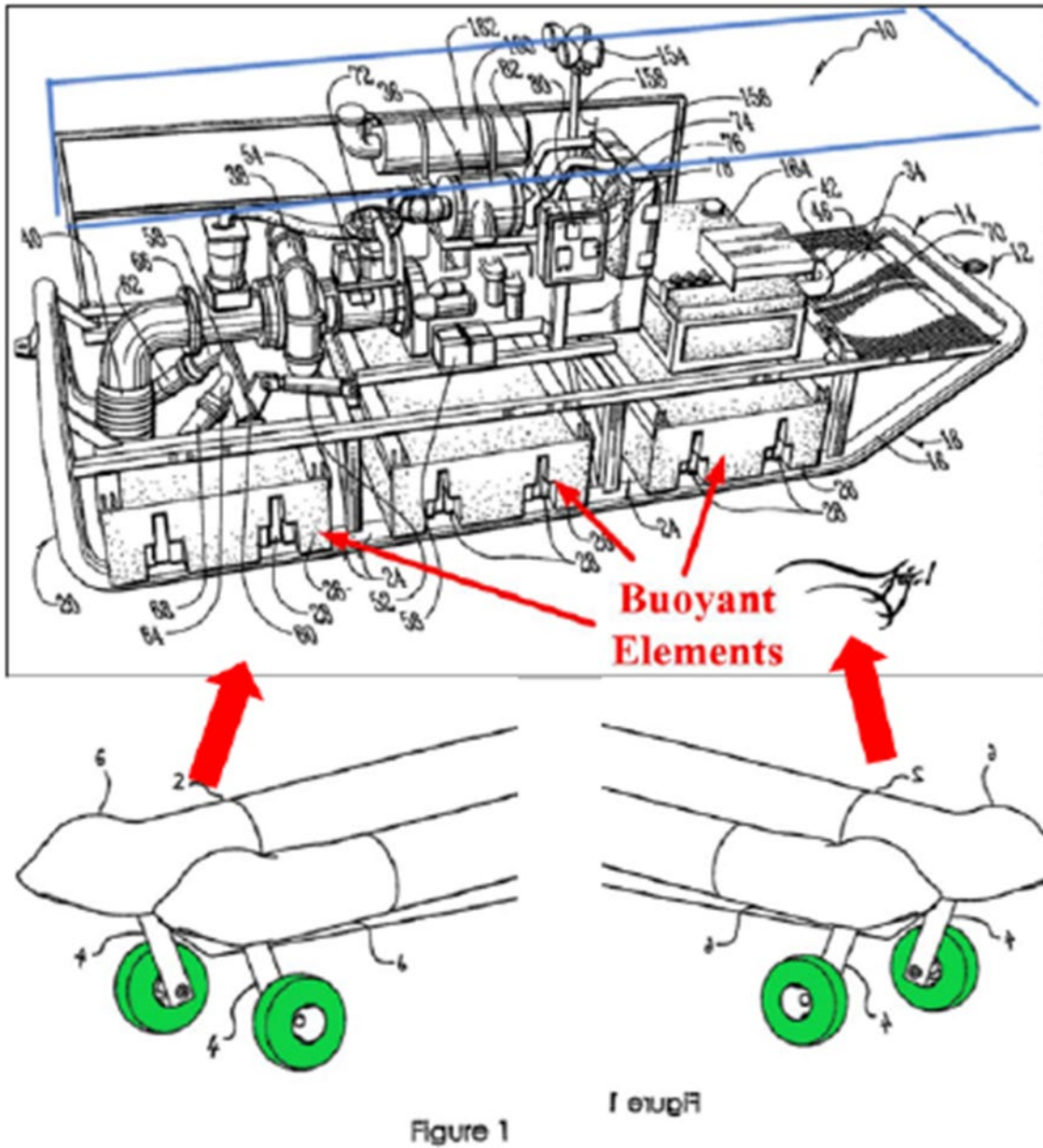
Petitioner argues that a POSITA would discard the single, steerable wheel in Bryham, replace it by duplicating the two rear wheels disclosed in Bryham, and then place both sets of Bryham's rear wheels at the front and rear corners of Puck's hull.<sup>159</sup> In short, Petitioner argues that a POSITA would modify Puck and Bryham as follows:<sup>160</sup>



<sup>158</sup> EX2099, ¶¶249-251.

<sup>159</sup> Paper 1, 73-76, 80-81, 87-88.

<sup>160</sup> Paper 1, 81 (red annotations added); EX1004, ¶¶293, 301; EX2099, ¶252 (providing annotated Fig. 1 of Puck [EX1014] and annotated Fig. 1 of Bryham [EX1015]).



Petitioner makes a further unsupported leap that in addition to converting Bryham's 3-wheel configuration to a 4-wheel configuration, a POSTA would then

position the wheels on Puck's vehicle such that at least one floating dock section 26 would be situated between the front and rear wheels on each side of the vehicle.<sup>161</sup>

But this placement of Bryham's wheels is hindsight based, flowing from the teachings of Nuhn's '708 Patent, as opposed to the prior art. The prior art is ubiquitous in its teaching of amphibious vehicles with two rows of **three (3) or more wheels positioned on opposing sides** of the floatable vehicle body. For example, Carrier I (EX1005) discloses an eight (8) wheeled amphibious vehicle with two rows of four (4) wheels on opposing sides of the floatable vehicle body:<sup>162</sup>

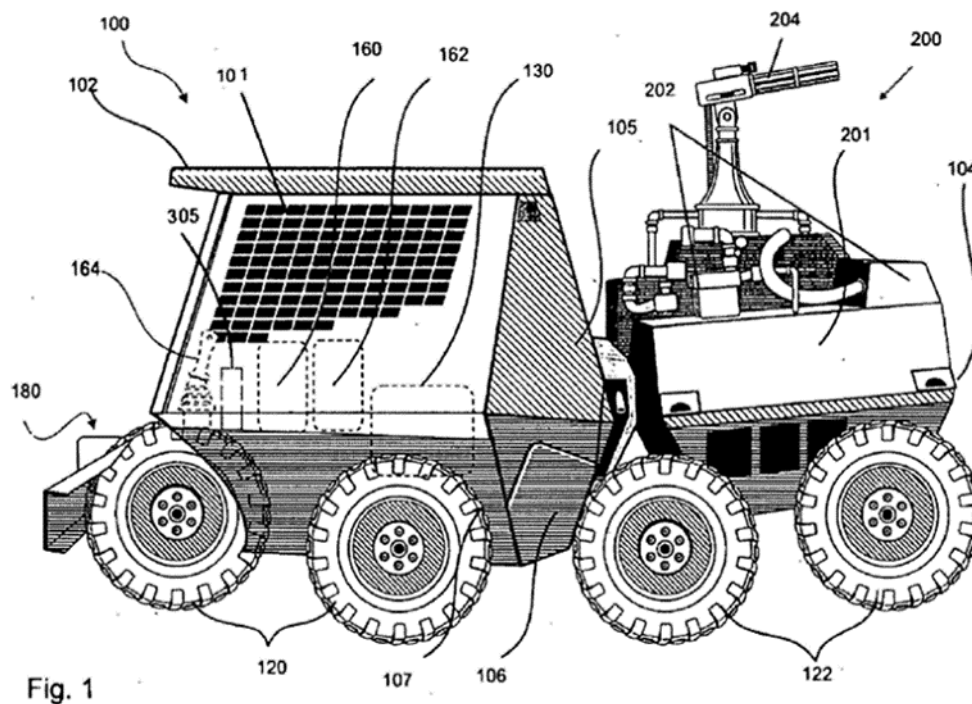


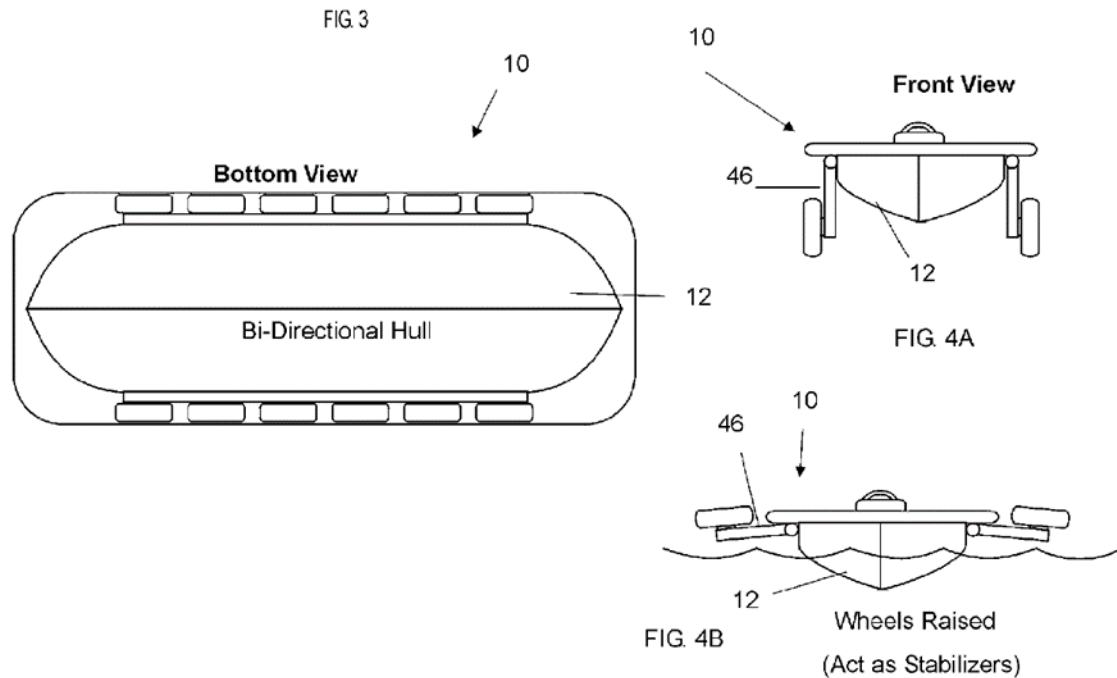
Fig. 1

Carrier II (EX1020) discloses a twelve (12) wheeled amphibious vehicle with two

<sup>161</sup> Paper 1, 85-86; EX1004, ¶302.

<sup>162</sup> EX1005, 2.

rows of six (6) **retractable** wheels on opposing sides of the floatable vehicle body:<sup>163</sup>



None of the references suggest positioning the two front wheels in front of the front end of the floatable vehicle body and positioning the two rear wheels behind the rear end of the floatable vehicle body such that the floatable vehicle body occupies the space between the right front wheel and the right rear wheel and the space between left front wheel and the left rear wheel as Petitioner suggests. Nor do the references teach placing a buoyant element in the space between the right front wheel and the right rear wheel and the space between left front wheel and the left rear wheel. To the contrary, the prior art discloses placing buoyant elements outboard of the wheels

<sup>163</sup> EX102, 4.

in the form of outriggers as opposed to in the space between the wheels on each side of the vehicle. For example, SenwaTec (EX1012) discloses an amphibious vehicle with two rows of three (3) wheels on each side of the floatable vehicle body and then a pair of optional “stabilizer pontoons” positioned outboard and to each side of the two rows of wheels:<sup>164</sup>



6-Wheel driven unit with stabilizer pontoons



A POSITA would not have added Bryham’s wheels to Puck in the first place, and even if they did, they would not have found it obvious to deviate from the number and arrangement of wheels disclosed in Bryham.<sup>165</sup> Indeed, the references themselves do not teach or suggest the alternative arrangement Petitioner proposes, where Bryham’s single, front wheel is discarded and replaced by a duplicate set of Bryham’s rear wheels at the front of the vehicle.

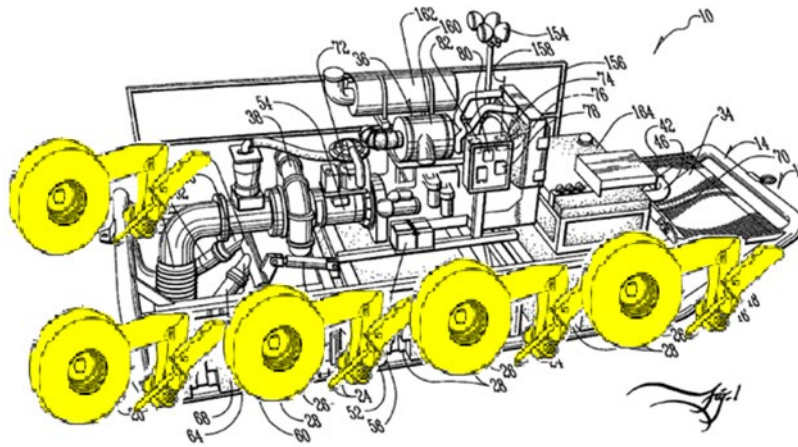
For argument’s sake, if a POSITA were to deviate from the three-wheeled (tricycle) arrangement disclosed in Bryham, the prior art would lead them to place a

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<sup>164</sup> EX1012, 1; EX1013, 15.

<sup>165</sup> EX2099, ¶258.

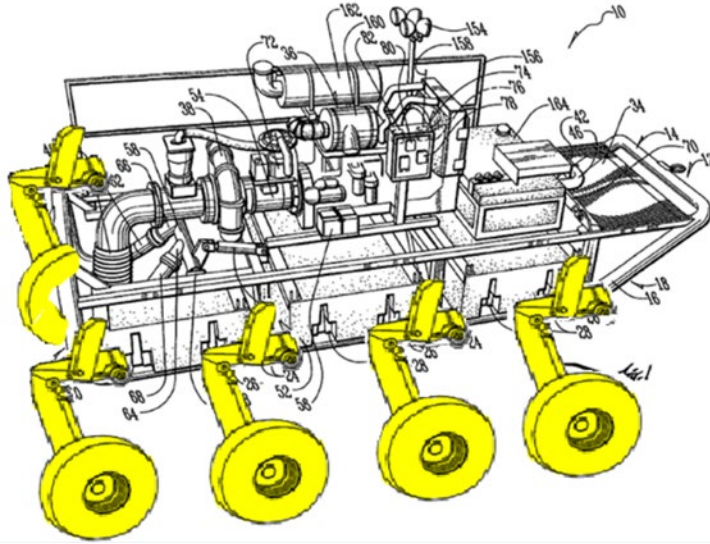
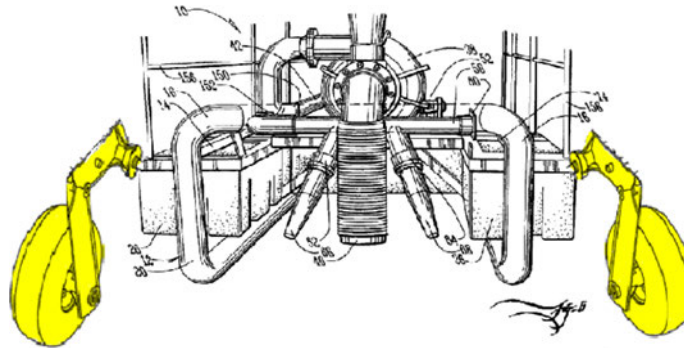
row of three or more wheels along **each side** of Puck's frame, which is what Carrier, Carrier II (EX1020, 4), and SenwaTec disclose.<sup>166</sup> Thus, if a POSITA were somehow motivated to add multiple sets of Bryham's rear wheels to Puck's boat, and followed the teachings of other wheeled amphibious vehicles (like Carrier I, Carrier II, and SenwaTec), then Bryham's wheels would be placed in rows along the opposing sides of Puck's frame as illustrated below (instead of in front of and behind the frame as Petitioner suggests):<sup>167</sup>



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<sup>166</sup> EX2099, ¶259.

<sup>167</sup> EX2099, ¶260.



Thus, the resulting combination, if made, would not include buoyant elements positioned in the fore-and-aft space between the wheels on each side of the vehicle as required by Claims 17, 21, and 23.<sup>168</sup>

Bennett-II's disclosure also does nothing to resolve these deficiencies because it discloses placing tracks along the sides of the vehicle at locations to the right and left sides of a floating tub, which is consistent with the combination illustrate above.<sup>169</sup>

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<sup>168</sup> EX2099, ¶261.

<sup>169</sup> EX2099, ¶265; *see also* Section VI.

**C. Elements [1.3], [17.5] and [23.3] – None of the Puck Combinations Disclose or Suggest a “Power Source Configured to Provide Power to Move the Vehicle Both When the Vehicle is Ground Engaging and Floating in a Liquid Manure Lagoon”**

Claims 1, 17, and 23 all require “a power source configured to provide power to move the vehicle both when the vehicle is ground engaging and when the vehicle is floating in [a/the] liquid manure lagoon.” Petitioner’s sole basis for alleging that this element is met is its expert’s statement that a POSITA would be motivated to use Puck’s power source to also power the wheels being added from Bryham because “doing so would be cheaper, lighter, and more efficient.”<sup>170</sup> But this conclusory statement does not show or explain how or why POSITA would believe doing so would be cheaper, lighter, or more efficient, or even feasible than using separate electric motors to power the wheels, which is one of the preferred embodiments disclosed in Bryham.<sup>171</sup> Puck’s hydraulic pump 54 is designed to operate hydraulic (linear) actuators 52.<sup>172</sup> A POSITA would recognize that Puck’s hydraulic pump 54 would not have the capability to drive ground engaging wheels, which would require high-volume continuous flow with throttling.<sup>173</sup> In particular, Puck discloses that “[t] hydraulic cylinder (52) is coupled to a hydraulic pump (54) that, in turn, is

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<sup>170</sup> Paper 1, 77; EX1004, ¶286.

<sup>171</sup> EX2099, ¶268.

<sup>172</sup> EX2099, ¶268.

<sup>173</sup> EX2099, ¶268.

coupled to a 12-volt battery (56).”<sup>174</sup> A POSITA would immediately recognize that a hydraulic pump that is powered by a 12-volt battery, like the hydraulic pump 54 disclosed in Puck, would be insufficient to drive the hydraulically powered wheels of a vehicle.<sup>175</sup>

**D. Element [17.2] – None of the Puck Combinations Disclose “Four Variable Speed Hydraulic Motors, One Variable Speed Hydraulic Motor Per Wheel, For Independently Driving the Wheels at Variable Speeds”**

Claim 17 requires an amphibious vehicle having four wheels with “four variable speed hydraulic motors, one variable speed hydraulic motor per wheel, for independently driving the wheels at variable speeds.” The manure agitation boat disclosed in Puck does not have its own set of wheels, much less four variable speed hydraulic motors for powering four wheels.<sup>176</sup> Petitioner attempts to rely on Bryham as teaching this limitation, but each wheel of the amphibious vehicle described in Bryham is not powered by its own variable speed hydraulic motor. Indeed, as shown below, the front wheel in Bryham (i.e., the one at the bow that swivels) is not powered at all and therefore is not powered by its own variable speed hydraulic motor.<sup>177</sup>

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<sup>174</sup> EX1014, ¶0027.

<sup>175</sup> EX2099, ¶268.

<sup>176</sup> EX2099, ¶271.

<sup>177</sup> EX1015, 3; EX2099, ¶271.

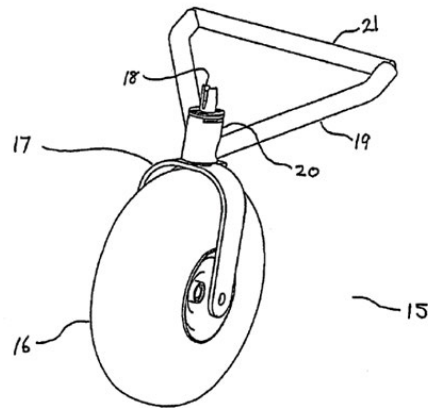


Figure 3A

As discussed herein, Petitioner’s theory that a POSITA would delete Bryham’s single front wheel and replace it with a duplicate set of Bryham’s rear wheels relies on impermissible hindsight and neither Bennett-II nor Manure-Manager address this deficiency because neither reference discloses a vehicle with hydraulically powered wheels.<sup>178</sup>

**E. Elements [1.4], [17.6], [21.7], [23.4] – None of the Puck Combinations Disclose “Wireless Remote Control Configured to ... Control At Least One of the Speed and Direction of the Vehicle When the Vehicle is Ground Engaging”**

Claims 1, 17, 21, and 23 requires a “wireless remote control configured to ... control at least one of the speed and direction of the vehicle when the vehicle is ground engaging.” Petitioner argues that a “POSA 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

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<sup>178</sup> EX2099, ¶258.

engaging.”<sup>179</sup> 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.<sup>180</sup> Indeed, Puck lacks any sort of ground engaging propulsion structure.

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. But doing so would require substantial modification and neither the references themselves or even the Winkel Declaration explain how a POSITA could make those modifications to arrive at a successful combination.<sup>181</sup> A POSITA would not make the alleged combination without guidance.<sup>182</sup> It’s not enough for the art to teach remote controlled vehicles generally for this combination to have been obvious.

To the extent Petitioner asserts that Bennett-II adds to deficiencies in the Puck-Bryham Combination, Petitioner is mistaken because adding Bennett-II **solves nothing**.<sup>183</sup> Bennett-II teaches an amphibious vehicle 10 with a pair of tracks 12, 14

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<sup>179</sup> Paper 1, 78; EX1004, ¶289.

<sup>180</sup> EX1014, ¶¶32-33.

<sup>181</sup> EX2099, ¶270.

<sup>182</sup> EX2099, ¶270.

<sup>183</sup> EX2099, ¶330.

that are driven by two track driving sprockets 590, 592 through a transmission 550.<sup>184</sup>

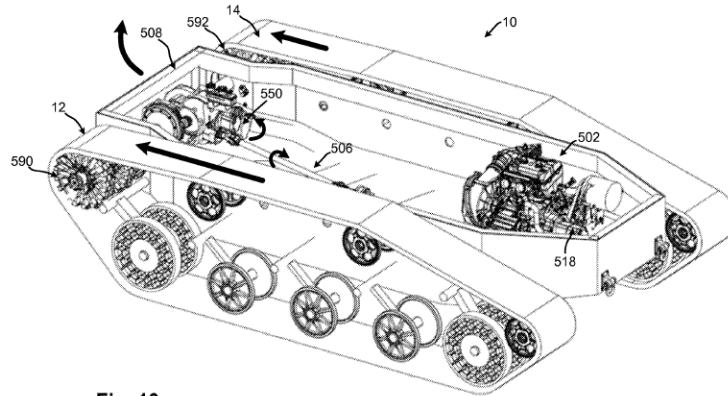


Fig. 16

Petitioner cites Paragraph [0043] of Bennett-II, but that paragraph only provides the generalized statement that “vehicle 10 may be operated by remote control” and tells a POSITA nothing about how one could modify Puck’s remote-control system to control Bryham’s retractable wheels, which are quite different from Bennett’s drivetrain.<sup>185</sup>

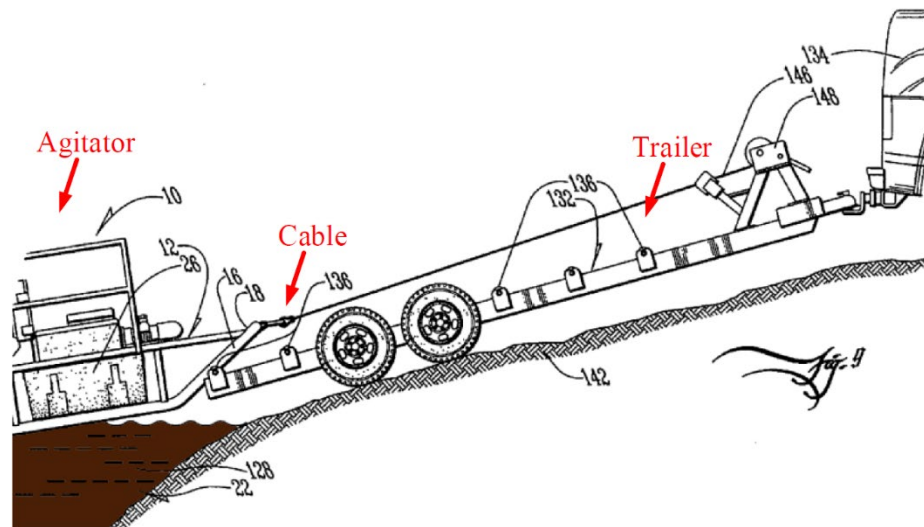
**F. Petitioner Has Failed to Carry Its Burden of Demonstrating That a POSITA Would Have Been Motivated to Combine Puck and Bryham**

Petitioner incorrectly asserts that a POSITA would have been motivated to combine the teachings of Puck with the teachings of Bryham “to make transporting, launching, and retrieving the Puck boat easier, safer and without having to put the

<sup>184</sup> EX1017, 22; EX2099, ¶331.

<sup>185</sup> EX2099, ¶332.

trailer (let alone one's feet) in the corrosive manure lagoon.”<sup>186</sup> Neither of these reasons/flaws in Puck's design are supported by Puck's disclosure.<sup>187</sup> As shown in the annotated image below from the Petition, Puck actually discloses a system where the manure agitation boat can be launched and retrieved **without backing the trailer** into the manure lagoon:<sup>188</sup>



(*Id.*, FIG. 9 (annotated).)

A POSITA would therefore recognize that the process of launching and retrieving Puck's boat does not “require a user stepping in a lagoon” or “exposing a trailer (or vehicle) to highly corrosive environments” in a manure lagoon as Petitioner incorrectly argues.<sup>189</sup> Indeed, neither the trailer nor the operator is shown entering the lagoon when Puck's boat is launched in the manure boat demonstration video

<sup>186</sup> Paper 1, 73; EX1004, ¶276.

<sup>187</sup> EX2099, ¶273.

<sup>188</sup> Paper 1, 74; EX1004, ¶¶276-277.

<sup>189</sup> Paper 1, 75; EX1004, ¶276; EX2099, ¶275.

published by Progressive Dairyman.<sup>190</sup> In view of the foregoing, POSITA would not have seen any problem with Puck's design that needed fixing.<sup>191</sup>

Furthermore, if a POSITA were concerned about "exposing a trailer (or vehicle) to highly corrosive environments,"<sup>192</sup> they certainly would not have looked to substitute Puck's trailer, which did not need to be submersed in a manure lagoon, for a ground engaging propulsion structure that would be submersed in a manure lagoon the entire time the manure agitation vehicle was operating in the lagoon.<sup>193</sup> If a POSITA were concerned that the "corrosive" environment of a manure lagoon might damage Puck's trailer and trailer wheels/bearings, that concern would lead them away from adding Bryham's wheels to Puck's manure lagoon agitation boat because the wheels, bearings, etc. of Bryham's ground engaging propulsion structure would be immersed and remain in the corrosive manure lagoon for hours on end during agitation sessions.<sup>194</sup> Contrary to Petitioner's arguments, the purported Puck-Bryham Combination would not actually solve the alleged problem of equipment exposure to corrosive manure lagoon environments.<sup>195</sup>

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<sup>190</sup> EX2008, 7; EX2099, ¶276.

<sup>191</sup> EX2099, ¶¶277.

<sup>192</sup> Paper 1, 75.

<sup>193</sup> EX2099, ¶279.

<sup>194</sup> EX2099, ¶279.

<sup>195</sup> EX2099, ¶280.

A POSITA would also have recognized that adding hydraulically powered wheels to Puck's boat would not have solved the problem of retrieving the Puck boat easier and safer as Petitioner argues.<sup>196</sup> A POSITA would have understood that hydraulic systems for powering wheels are configured such that the wheels are locked and will not rotate when there is no hydraulic flow (i.e., when the hydraulic pump is not running).<sup>197</sup> This prevents the vehicle from rolling when it is powered off and therefore acts as a parking brake. However, this also means that if the vehicle breaks down or runs out of gas, the hydraulically powered wheels will not turn and impede retrieval from the manure lagoon.<sup>198</sup> In such a scenario, Nuhn's invention is more difficult to retrieve from a lagoon than Puck's boat.<sup>199</sup> This problem is one that POSITAs actually recognized and shared with the inventor when Nuhn's Lagoon Crawler was first introduced and it is a known drawback to the invention.<sup>200</sup> When one of Nuhn's Lagoon Crawlers breaks down or runs out of fuel in a manure lagoon, the extraction method is to have a person ride out to the stranded machine on another Lagoon Crawler and strap them together so that the working machine can pull the stranded machine out of the lagoon.<sup>201</sup> This demonstrates that if a POSITA

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<sup>196</sup> EX2099, ¶280.

<sup>197</sup> EX2099, ¶280.

<sup>198</sup> EX2099, ¶280.

<sup>199</sup> EX2099, ¶280.

<sup>200</sup> EX2083, ¶61

<sup>201</sup> EX2083, ¶62.

were trying to solve safety problems associated with retrieving Puck's boat, they would not have looked to add hydraulically powered wheels given that they lock when hydraulic fluid is not flowing and would impede the retrieval of non-running equipment.<sup>202</sup>

**G. Petitioner Has Failed to Carry Its Burden of Demonstrating That a POSITA Would Have Had a Reasonable Expectation of Success in Adding Bryham's Wheels to Puck**

Petitioner has not carried its burden of demonstrating that 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.

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.<sup>203</sup> Manure lagoons – the environment in which Puck's vessel operates – often have steep and slippery embankments.<sup>204</sup> Given the characteristics of manure lagoons, a POSITA would not 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.

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<sup>202</sup> EX2083, ¶63; EX2099, ¶280.

<sup>203</sup> EX1015, 2.

<sup>204</sup> EX2099, ¶186.

- 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.
- 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.<sup>205</sup>

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.

#### **H. Petitioner's Combinations of Puck with Bryham Are Based on Impermissible Hindsight**

Combining Puck with Bryham to arrive at the limitations of the Challenged Claims would require a POSITA to find multiple motivations to make a completely non-sensical series of modifications to Puck – when the failure to do so for any specific one would destroy the combination.<sup>206</sup>

- First, a POSITA would need to find motivation to reorient Puck's slurry pump on its side so that it would have a bottom fluid inlet and then relocate the slurry pump from its location high on the vehicle to a location where a bottom fluid inlet would be immersed in the liquid manure when the vehicle is floating.

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<sup>205</sup> EX2099, ¶¶504-506.

<sup>206</sup> EX2099, ¶509.

- Second, a POSITA would need to find motivation to discard Bryham's single front wheel, and add two sets of Bryham's rear wheels to the front and rear corners of Puck's boat – even though there is no teaching or suggestion of this.
- Third, a POSITA would need to find motivation to locate Bryham's wheels in front of and behind Puck's floating dock sections 26 in order to have a buoyant element situated between the new front and rear wheels on each side of the boat.
- Fourth, a POSITA would need to find motivation to discard the electric wheel motors disclosed in Bryham and replace them with four variable speed hydraulic motors, one for each wheel, and then modify Puck's hydraulic system, which was only designed to move linear actuators, so that it could also be used to power hydraulic motors to drive the new wheels from Bryham.
- Fifth, a POSTIA would need to find motivation to modify Puck's wireless remote control, which was only designed to control the engine and nozzles, so that it could also independently control the speed and/or direction of the new Bryham wheels – even though there is no teaching or suggestion of how Puck's remote control system could be modified to control Bryham's wheels.

The above modifications Petitioner advocates to arrive at the claim limitations requires much more than the routine substitution of elements and would not have been combined by a POSITA in this manner without using the ‘708 Patent as a blueprint.<sup>207</sup> The addition of Bennett-II and Manure-Manager only further supports Patent Owner’s assertion herein.

**I. Dependent Claims 2-16, 18-20, 22, and 24-38**

Claims 2-16 depend from Claim 1, Claims 18-20 depend from Claim 17, Claim 22 depends from Claim 21, and Claims 24-38 depend from Claim 23. The Puck Combinations do not render any of these dependent claims obvious for at least the same reasons described above with respect to Claims 1, 17, 21 and 23.

Claims 2, 19, and 29 further require a liquid manure pump with a housing that comprises “at least two tangential outlets.” Puck’s slurry pump 38 has a single outlet and therefore does not meet this limitation. Claims 3, 19, and 30 further specify that the tangential outlets are equipped with “a flexible connection to a combiner configured to combine the tangential fluid outlets into a single fluid conduit.” Even when Manure-Manager is added, Nuhn’s Pit Pump does not have a flexible connection between the tangential outlets and the combiner, nor is it obvious.<sup>208</sup> As

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<sup>207</sup> EX2099, ¶510.

<sup>208</sup> EX2099, ¶513.

a result, Claims 3, 19, and 30 are patentable over all of the Puck Combinations for this additional reason.

Claims 19 and 28 also require the liquid manure pump to have a bottom fluid inlet in the housing that is configured to be immersed in the liquid manure when the vehicle is floating and therefore have similar requirements to Claim 1. As a result, in addition to depending from Claims 17 and 23, Claims 19 and 28 are patentable over the Puck-Bryham and Puck-Bryham-Bennett-II Combinations for the additional reasons that make Claim 1 patentable over those combinations.

Claims 9 and 35 require the wheels to be positioned along opposite sides of the vehicle like Claims 17 and 21 and Claim 15 requires buoyant elements situated between the wheels like Claims 17 and 21. As a result, in addition to depending from Claims 1 and 23, Claims 9, 15, and 35 are patentable over the Puck Combinations for the additional reasons that make Claims 17 and 21 patentable.

Claims 7, 20, and 34 require a “four bar linkage” for changing the angular orientation of the fluid outlet. The hydraulic articulation cylinders installed on Puck’s boat and Nuhn’s Pit Pump are not connected to four bar linkages.<sup>209</sup> As a result, Claims 7, 20, and 34 are patentable over the Puck Combinations for this additional reason.

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<sup>209</sup> EX2099, ¶514.

Finally, Claim 16 requires the vehicle to have “a center of gravity located along a longitudinal centerline of the vehicle, substantially in a middle of the vehicle.” Petitioner argues that Puck’s components are “generally symmetrically arranged on either side of the vehicle,” but this only teaches that the center of gravity is along the longitudinal centerline and not also “substantially in a middle of the vehicle” in the fore-and-aft direction.<sup>210</sup> As a result, Claim 16 is patentable over the Puck Combinations for this additional reason.

## **XI. CONCLUSION**

Petitioner has not established a reasonable likelihood that any of the Challenged Claims will be found unpatentable.

Dated: August 14, 2024

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<sup>210</sup> EX2099, ¶512.

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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 13,978 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.

Dated: August 14, 2024

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**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. 42.6(e), I certify that on August 14, 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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