

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOMBARDIER RECREATIONAL PRODUCTS INC.,
Petitioner,

v.

MHL CUSTOM, INC.,
Patent Owner.

IPR2024-01391
Patent No. 9,586,659 B2

Before BARRY L. GROSSMAN, GEORGE R. HOSKINS, and
KEVIN W. CHERRY, *Administrative Patent Judges*.

GROSSMAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. Background and Summary

Bombardier Recreational Products Inc. (“Petitioner” or “Bombardier”) filed on September 17, 2024, a Petition (Paper 3, “Pet.”) requesting an *inter partes* review of claims 16–23 and 26–28 (the “challenged claims”) of U.S. Patent No. 9,586,659 B2 (Ex. 1001, “the ’659 patent”). These challenged claims are amended or new claims resulting from an *ex parte* reexamination. See Ex. 1001, at unnumbered pages 14–15, *Ex Parte* Reexamination Certificate, issued Aug. 6, 2024; see also, Ex. 1024, Parts 1–4 (the reexamination proceeding).

MHL Custom, Inc. (“Patent Owner”) *did not* file a Preliminary Response. Patent Owner may, but is not required, to file a Preliminary Response. We draw no inferences or assumptions from Patent Owner’s decision not to file a Preliminary Response. Patent Owner’s decision not to file a Preliminary Response also does not diminish or otherwise affect Petitioner’s burden of proof.

We have jurisdiction under 35 U.S.C. § 314. Under § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). The Board determines whether to institute a trial on behalf of the Director. 37 C.F.R. § 42.4(a).

Petitioner has the burden of proof. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (“In an IPR, the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.”). A decision to institute is “a simple yes-or-no institution

choice respecting a petition, embracing all challenges included in the petition.” *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018).

After considering the Petition and the evidence of record, and further based on the analysis in this Decision, we determine that Petitioner has demonstrated that there is a reasonable likelihood that at least one of the challenged claims is unpatentable. Accordingly, we institute an *inter partes* review of all challenged claims and on all grounds asserted in the Petition.

B. Real Parties-in-Interest

Petitioner identifies itself as the sole real party-in-interest. Pet. 4.

Patent Owner identifies itself as the sole real party-in-interest.
Paper 5, 2.

C. Related Matters

There have been numerous *inter partes* reviews and court proceedings related to the patentability of the '659 patent and its parent patent, U.S. Patent No. 9,359,044 (Ex. 1015). *See* Pet. 4–6; Paper 5, 2–3; *see also* Ex. 1001, code (63) (stating that the patent application that matured into the '659 patent is a “Continuation of application No. 14/509,289, filed on Oct. 8, 2014, now Pat. No. 9,359,044”). We identify and summarize these matters below.

1. Related Court Proceedings

The following Court proceedings are related to the IPR before us.

1. *MHL Custom, Inc. v. Foil Boarding Company, Inc., d/b/a Foil, f/k/a Get Foil*, No. 3:22-cv-21258 (N.D. Fla.) (*see* Ex. 3004, settled; voluntarily dismissed without prejudice).¹

2. *MHL Custom, Inc. v. Waydoo USA, Inc.*, No. 1:21-cv-00091 (D. Del.), *appealed as MHL Custom, Inc. v. Waydoo USA, Inc.*, No. 24-2116 (Fed. Cir.) (*see* Ex. 3001, agreed dismissal).

3. *MHL Custom Inc. v. Avante Innovations, LLC*, No. 3-20-cv-01648 (S.D. Cal.) (*see* Ex. 3005, voluntarily dismissed without prejudice).

2. Related IPR Proceedings

The following IPR proceedings are related to the IPR before us.

1. **IPR2024-00085**, filed by Foil Boarding Company, Inc., challenging original claims 1, 2, 4, 5, 7–11, 13, and 15 of the '659 patent. Bombardier, however, who filed a Petition in **IPR2024-01107** on June, 28, 2024, also challenging original claims 1, 2, 4, 5, 7–11, 13, and 15 from the '659 patent, was joined as a Petitioner in IPR2024-00085. *See* IPR2024-01107, Paper 10 (Jan. 15, 2025). In view of the joinder, the Board ordered that no further filings shall be made in IPR2024-01107, and all further filings shall be made only in IPR2024-00085. *Id.*, Paper 10 at 9.

As part of the joinder, Bombardier agreed to take an “understudy” role in IPR2024-00085 to the original Petitioner. IPR2024-01107, Paper 10, 8;

¹ The available docket entry (Ex. 3004) is neither dated nor stamped as entered by the Court. The PACER record for this case includes a docket entry on March 12, 2025, stating “Re: [docket entry] 45 Joint Stipulation of Dismissal without Prejudice (mb) (Entered: 03/12/2025).” The PACER record also shows that this case was “Terminated: 03/25/2025.”

see also, id. at Paper 10, 9–10 (the Order specifically defining Bombardier’s “understudy” role).

The original Petitioner in IPR2024-00085, Foil Boarding Company, has settled its dispute with Patent Owner. IPR2024-00085, Paper 32 (Jan. 23, 2025). The Board granted a Joint Motion to terminate the proceeding as to original Petitioner Foil Boarding Company, but stated specifically that joined Petitioner Bombardier “remains a party in these proceedings.” *Id.* at 4. As a result, Bombardier moves from “understudy” to the leading role as the sole remaining Petitioner in IPR2024-00085.

We emphasize here that IPR2024-00085 challenges claims from the *original* ’659 patent, whereas the proceeding now before us, IPR2024-01391, challenges amended and new claims in the ’659 patent based on the results of an *ex parte reexamination proceeding*. *See* Ex. 1024, Parts 1–4 (the *ex parte* reexamination proceeding); *see also* Ex. 1001, “Ex Parte Reexamination Certificate,” issued Aug. 6, 2024 (included at pages 14–15 of the document that is Ex. 1001).

2. **IPR2024-00086**, filed by Foil Boarding Company, challenging claims in the related ’044 patent. Foil Boarding Company was terminated as Petitioner (see IPR2024-00086, Paper 32 (PTAB Jan. 23, 2025)). Bombardier, however, who filed a petition in **IPR2024-01108** challenging the same claims from the ’044 patent, is joined as Petitioner in the 00086 IPR. *See* IPR2024-01108, Paper 10 (the institution and joinder determination).

3. **IPR2024-00998**, filed by Shenzhen Waydoo Intelligence Technology Co., Ltd., challenging the ’044 patent. Institution and joinder with **IPR2024-00086** were denied. IPR2024-00998, Paper 13.

4. **IPR2024-00999**, filed by Shenzhen Waydoo Intelligence Technology Co., Ltd., challenging the original claims from the '659 patent. Institution and joinder with **IPR2024-00085** were denied. IPR2024-00999, Paper 13.

As described above, the only remaining related matters to the case now before us are IPR2024-00085 challenging original claims from the '659 patent, and IPR2024-00086 challenging claims from the '044 parent patent. Bombardier remains as the sole Petitioner in the '085 and '086 IPR proceedings.²

D. The '659 patent

The '659 patent is titled “Powered Hydrofoil Board” (Ex. 1001, code (54)) and discloses a “passively stable personal hydrofoil watercraft that has a flotation device, wherein a user can ride in a prone, kneeling, or standing position” (*id.* at code (57)). Figure 1 from the '659 patent is reproduced below:

² We note that neither Petitioner nor Patent Owner informed the Board of the various updated status of the identified related matters as required by our rules. *See* 37 C.F.R. § 42.8(a)(3) (requiring updated notice of the status of related matters and other information “within 21 days of a change of the information”). We expect the parties to know our rules and follow them.

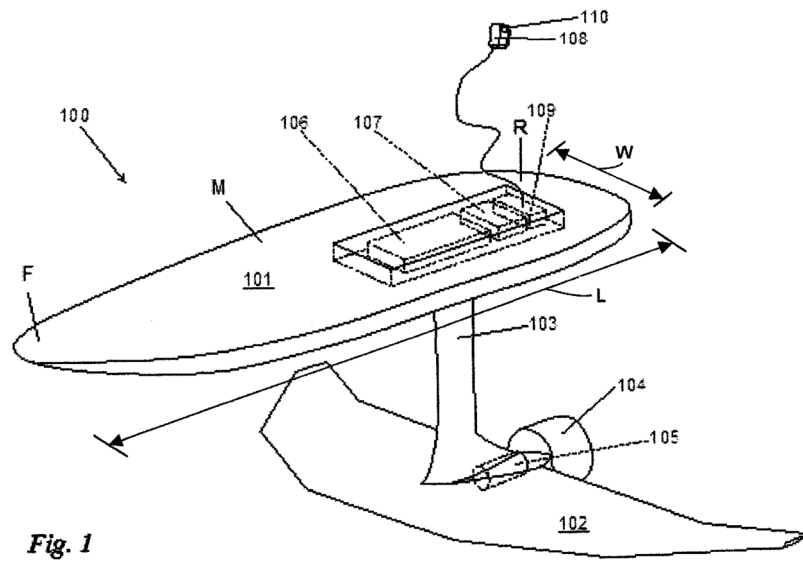


Fig. 1

Figure 1 “is a perspective view of a personal hydrofoil watercraft in accordance with” the invention of the ’659 patent. Ex. 1001, 2:44–45. In particular, Figure 1 depicts hydrofoil watercraft 100 including flotation board 101, hydrofoil 102 spaced below the flotation board, strut 103 connecting flotation board 101 to hydrofoil 102, propulsion system 104 with electric motor 105, battery 106, motor speed controller 107, throttle system 108, throttle interface 109, and spring-loaded trigger 110. *Id.* at 3:7–14. Flotation board 101 is similar to those used in surfing or sailboarding. *Id.* at 3:15–16. The flotation board has fore-aft length L that is greater than lateral width W. *Id.* at 3:16–18.

E. The Reexamination Proceeding

As a result of an *ex parte* reexamination proceeding (Ex. 1024, parts 1–4), the patentability of original independent claim 1 and dependent claims 2–15 was confirmed; independent claim 16 was determined to be patentable as amended; claims 17–20, dependent on amended claim 16, were

determined to be patentable; and new claims 21–28³, dependent, directly or indirectly, from independent claim 1, were added and determined to be patentable. Ex. 1001, “Ex Parte Reexamination Certificate.”

The Examiner’s statement of reasons for patentability and/or confirmation of the claims found patentable in the reexamination proceeding is that the “hydrofoil taught by Rorabaugh has ‘adjustable surfaces’ that are steered by a movable steering gear. The teaching of adjustable surfaces directly contradicts the claim limitation of claims 1 and 16 requiring ‘the hydrofoil having no movable surface.’” Ex. 1024, 6 (Part 1). The Examiner also was “persuaded by the reasoning of Applicant’s representative that the proposed combination [of Braden and Woolley (disclosing a propulsion force for a watercraft provided by a tow rope)] would not increase stability and is therefore not obvious.” *Id.* at 7. “At least for these reasons, the Examiner confirms claims 1-20 as patentable over Braden in view of Woolley et al.”⁴ *Id.* The Examiner also stated without further elaboration that [c]laims 1–28 are allowed.” *Id.*

The Evolo reference was not considered by the Examiner in the reexamination.

F. Illustrative Claim

Petitioner challenges new and amended claims 16–23 and 26–28 that were added or modified in the reexamination proceeding. Pet. 1.

³ New claims 24 and 25 are *not* challenged in this IPR proceeding.

⁴ The Woolley reference relied on by the Examiner in the reexamination is US 2005/0255764 A1. Ex. 1024, 6 (Part 1). This published patent application was published on November 17, 2005. Ex. 3006, code (43). It is similar, but not directly related, to the Woolley reference (Ex. 1011) cited in the IPR proceeding before us.

Independent claim 16 is illustrative and is reproduced below with bracketed labels and paragraphing employed by Petitioner, and with italicized text indicating changes resulting from the reexamination proceeding. *See* Pet. 34–66; Ex. 1001, “Ex Parte Reexamination Certificate.”

16. [16Preamble] A *passively stable, weight-shift controlled* personal hydrofoil watercraft, comprising:

[16A1] a surfboard-shaped flotation device that has a fore-aft length greater than a lateral width, the flotation device having a top surface and a bottom surface,

[16A2] wherein the top surface has a substantially horizontal supporting surface configured to support a user in a prone, kneeling, or standing position,

[16A3] the flotation device having a forward section, a middle section, and a rear section;

[16B] a hydrofoil interconnected with the surfboard-shaped flotation device, the hydrofoil having a strut and a first hydrofoil wing, an upper end of the strut being fixedly interconnected with the surfboard-shaped flotation device, *the hydrofoil having no movable surface*;

[16C1] a propulsion system attached to the surfboard-shaped flotation device for propelling the watercraft in a body of water,

[16C2] the propulsion system comprising a battery, an electric motor, a motor speed controller, and a propulsor, wherein the propulsor is selected from a propeller, a ducted propeller, or a pump-jet,

[16C3] and the battery and motor speed controller are contained in a watertight compartment integrated into the flotation device;

[16D] the watercraft having no movable steering system;

[16E] a handheld controller having a throttle; and

[16F] a throttle interface, wherein the throttle is adapted to send electronic signals to the throttle interface that cause an output of the propulsion system to change.

Ex. 1001, Ex Parte Reexamination Certificate, 1:22–2:9.

G. Prior Art and Asserted Grounds

Petitioner asserts that one or more of the challenged claims would have been obvious on the following two grounds:

Claim(s) Challenged	35 U.S.C. §⁵	Reference(s)/Basis
16–23, 26–28	103	Evolu, ⁶ Woolley ⁷
26	103	Evolu, Woolley, Frank ⁸

⁵ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 296–07 (2011), took effect on September 16, 2011. The changes to 35 U.S.C. §§ 102 and 103 in the AIA apply to any patent having an effective filing date after March 16, 2013. The earliest possible effective filing date for the ’659 patent is October 10, 2013, so we refer to the AIA version of the statute.

⁶ “Final Report Evolu” (Ex. 1003 (English translation)), published Apr. 23, 2009. Pet. 8. “EvoluReport was originally written and published in Swedish under the title ‘Slutrapport Evolu.’” *Id.*, fn 2. The Petition cites to “EvoluReport” are to a certified translation of “EvoluReport” into English. *Id.* The original Swedish language version is Ex. 1005. For simplicity and consistency, we will refer to this reference as “Evolu” or the “Evolu reference.”

⁷ U.S. Pat. No. 6,443,786 B2, issued Sept. 3, 2002 (Ex. 1011, “Woolley”). The Petition refers on page 8 to Woolley as U.S. Patent “6,234,856.” This is a clear error, which we ignore. The Table of Exhibits on page 103 of the Petition correctly identifies Woolley as U.S. Patent 6,443,786, Ex. 1011. Exhibit 1011 is, in fact, the Woolley ’786 patent.

⁸ U.S. Patent No. 8,659,661 B2, issued Feb. 25, 2014 (Ex. 1027, “Frank”). Again, page 8 of the Petition has a clear error in identifying the Frank reference, which we ignore. Frank is correctly identified in the Table of Exhibits on page 103 of the Petition.

Petitioner also relies on the Declaration testimony of Dr. Stefano Brizzolara. *See* Ex. 1002.⁹

II. ANALYSIS

A. Legal Standards

Section 103 forbids issuance of a patent when the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. 35 U.S.C. § 103 (2011); *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, evidence such as commercial success, long felt but unsolved needs, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *see KSR*, 550 U.S. at 407 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”). The Court in *Graham* explained that these factual inquiries promote “uniformity and definiteness,”

⁹ Dr. Brizzolara is a “Full Professor with tenure” at Virginia Polytechnic Institute and State University (“Virginia Tech”). Ex. 1002 ¶ 1. He is in the Department of Aerospace and Ocean Engineering, where he has served as the Assistant Department Head and graduate program director from 2020 to 2023. His education and experience in academia and research is summarized in his testimony. *See id.* ¶¶ 5–7; *see also id.*, App. A (Dr. Brizzolara’s CV).

for “[w]hat is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context.” 383 U.S. at 18.

The Supreme Court made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To support this conclusion, however, it is not enough to show merely that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness additionally requires that a person of ordinary skill at the time of the invention “would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Id.*

In determining whether there would have been a motivation to combine prior art references to arrive at the claimed invention, it is insufficient to simply conclude the combination would have been obvious without identifying any reason *why* a person of skill in the art would have made the combination. *Metalcraft of Mayville, Inc. v. Toro Co.*, 848 F.3d 1358, 1366 (Fed. Cir. 2017).

Moreover, in determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 164 (Fed. Cir. 1985) (“It is elementary that the claimed invention must be considered as a whole in deciding the question of

obviousness.”); *see also Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1537 (Fed. Cir. 1983) (“[T]he question under 35 U.S.C. § 103 is not whether the differences *themselves* would have been obvious. Consideration of differences, like each of the findings set forth in *Graham*, is but an aid in reaching the ultimate determination of whether the claimed invention *as a whole* would have been obvious.”).

As a factfinder, we also must be aware “of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR*, 550 U.S. at 421.

Applying these general principles, we consider the evidence and arguments of the parties.

B. Level of Ordinary Skill in the Art

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). “This reference point prevents . . . factfinders from using their own insight or, worse yet, hindsight, to gauge obviousness.” *Id.*

“The *Graham* analysis includes a factual determination of the level of ordinary skill in the art. Without that information, a . . . court cannot properly assess obviousness because the critical question is whether a claimed invention would have been obvious at the time it was made to one with ordinary skill in the art.” *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *see also Ruiz v. A.B. Chance*, 234 F.3d 654, 666 (Fed. Cir. 2000) (“The determination of the level of skill in the art is an integral part of the *Graham* analysis.”).

Factors pertinent to a determination of the level of ordinary skill in the art include: (1) educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field. *Env't Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, these factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). In determining a level of ordinary skill, we also may look to the prior art, which may reflect an appropriate skill level. *Okajima*, 261 F.3d at 1355.

Petitioner asserts that a person of ordinary skill in the art “at the time of the alleged invention would have had a master’s degree in Aerospace or Naval Engineering, or equivalent experience, and one to two years of experience in the field of watercraft design and construction.” Pet. 24–25 (citing Ex. 1002 ¶ 20). Dr. Brizzolara’s cited testimony is somewhat different than what is asserted by Petitioner. Dr. Brizzolara’s testimony adds that the “one or two years of experience in watercraft design and construction” would have been “particularly as that design and construction is related to personal watercraft design and construction and/or hydrofoil design and construction.” Ex. 1002 ¶ 20. Dr. Brizzolara also testifies:

This level of skill in the art is appropriate because concepts of hydrofoil design and construction along with appropriate fluid dynamics to teach the skills necessary to design and construct

hydrofoil-based watercraft are taught in master's level courses. These concepts that would be understood would include academic teaching of flight dynamics utilizing well known texts (such as Etkin, B., & Reid, L. D. (1995) Dynamics of Flight: Stability and Control. John Wiley & Sons). Moreover, an additional one to two years of experience in the industry would give one o[f] ordinary skill in the art experience with how such systems are implemented in the real world.

Ex. 1002 ¶ 20

Patent Owner did not submit a Preliminary Response, so we do not have any evidence or argument from Patent Owner on this or other issues in this proceeding.

For purposes of this Decision, based primarily on the prior art, the sophistication of the disclosed technology in the '659 patent, and Dr. Brizzolara's unchallenged testimony, we adopt Petitioner's definition of the level of ordinary skill.¹⁰ We also note, however, that our determination on institution would have been the same if the level of skill was based on a Bachelor's degree rather than a Master's degree. We also note that more experience may offset academic achievement, and more academic achievement may offset the level of experience.

C. Claim Construction

We construe each claim "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b)." 37 C.F.R. § 42.100(b) (2021). Under this standard, claim terms are generally given their ordinary and customary meaning as would have

¹⁰ Any determination, no matter how designated in this decision (except our decision to institute), is preliminary and non-binding. We have not heard from Patent Owner on any issue, and we wish to have the record developed before rendering any binding determination, finding, or conclusion.

been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc) (“We have frequently stated that the words of a claim ‘are generally given their ordinary and customary meaning.’” (citations omitted)).

Petitioner states “that no terms need to be construed to resolve the issues raised in this Petition because the prior art discloses all limitations under any plausible construction. Pet. 16.

At this initial stage of the proceeding, we do not perceive the need to construe any claim limitation. Claims must be construed “only to the extent necessary to resolve the controversy.” *AstraZeneca AB v. Mylan Pharms. Inc.*, 19 F.4th 1325, 1345 (Fed. Cir. 2021) (quoting *Vivid Techs., Inc. v. American Science & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)); see also *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“Because we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy,’ we need not construe the claim preambles here where the construction is not ‘material to the [obviousness] dispute.’” (citations omitted)).

*D. Ground 1 – Claims 16–23, 26–28
Based on Evolo and Woolley*

Petitioner asserts claims 16–23 and 26–28 would have been obvious based on Evolo and Woolley. Pet. 25–86. In this approximately 60-page analysis, Petitioner addresses each clause of each challenged claim with specific citations to Evolo and Woolley, including annotated figures from both. Petitioner also cites throughout its analysis to the Declaration testimony of Dr. Brizzolara (Ex. 1002) for evidentiary support. Petitioner

also provides argument and evidence explaining why, in Petitioner’s view the claimed invention would have been obvious.

The present record contains no evidence or arguments disputing the merits of the patentability challenges. Based on the record before us, our analysis of the patentability challenges is limited to considering the undisputed contentions in the Petition. Moreover, whether opposed or not, Petitioner maintains the burden to establish a reasonable likelihood that the challenged claims are not patentable.

First, we summarize the disclosure of the references in Ground 1.

1. Evolo (Ex. 1003)

Jakob Kutenkeuler is “a professor in the Department of Technical Mechanics at the Kungliga Tekniska högskolan (KTH) in Stockholm, Sweden.” Ex. 1018 ¶ 1. “Kungliga Tekniska högskolan” translates to “Royal Institute of Technology” in English. *Id.* As explained in Professor Kutenkeuler’s Declaration testimony, he teaches “a variety of courses in naval architecture and maritime engineering at KTH’s Centre for Naval Architecture.” Ex. 1018 ¶ 2. Professor Kutenkeuler testifies that “Evolò is the name we gave to a personal hydrofoil watercraft that we designed and built.” *Id.* ¶ 4. Evolo is powered by an electric motor and steered through a combination of shifting the user’s weight and controlling the motor’s thrust. *Id.* Professor Kutenkeuler also testifies that “[t]he Evolo project was undertaken by a team of 15 KTH students through a course titled Marine Design or Lightweight Design as part of their studies in naval architecture and lightweight structures.” *Id.* ¶ 5. “Marine Design and Lightweight Design are jointly run masters-degree courses.” *Id.*

Professor Kutenkeuler further testifies,

At the end of the semester (in or around June 2009), the Evolo team finalized a written report and submitted a copy to me. The final Evolo report was written in Swedish.

In 2009, shortly after receiving the final report, I published a PDF of it on the website for the Marine Design and Lightweight Design courses. The final report is available at this web address: http://flygmac7.flyg.kth.se/cdio/old_projects/evolo/Evolo_slutrappport.pdf.

Id. ¶¶ 17–18. Professor Kутtenkeuler also testifies, “To the best of my knowledge, the final Evolo report has been available for download by people in the United States since I added it to the Marine Design and Lightweight Design course website in 2009, just as it has been available to people in Sweden (and elsewhere in the world) since 2009.” *Id.* ¶ 19.

Additionally, Professor Kутtenkeuler testifies that “[w]hile testing the final Evolo prototype in June 2009, a reporter from the Swedish language magazine *Båtnytt* was present. ‘*Båtnytt*’ translates to ‘Boat News’ in English. At the time, *Båtnytt* was a popular boating magazine available by subscription and on newsstands.” *Id.* ¶ 29. At the June 2009 prototype testing, Professor Kутtenkeuler testifies that “the *Båtnytt* reporter interviewed me and several of my students, and took several photographs of the team and the prototype.” *Id.* ¶ 30. “*Båtnytt* published an article dedicated to the Evolo in its August 2009 issue.” *Id.* A copy of the article is at Exhibit 1019 in this proceeding.

The English translation of the Evolo reference, on which we rely, is a 555-page report. Ex. 1003. It was submitted in four separate parts, labelled as parts 1–4. The pages are sequentially numbered from 1–555 through all four parts. We will cite to both the page number and part for convenient identification and retrieval of the cited disclosure.

As summarized in Evolo,

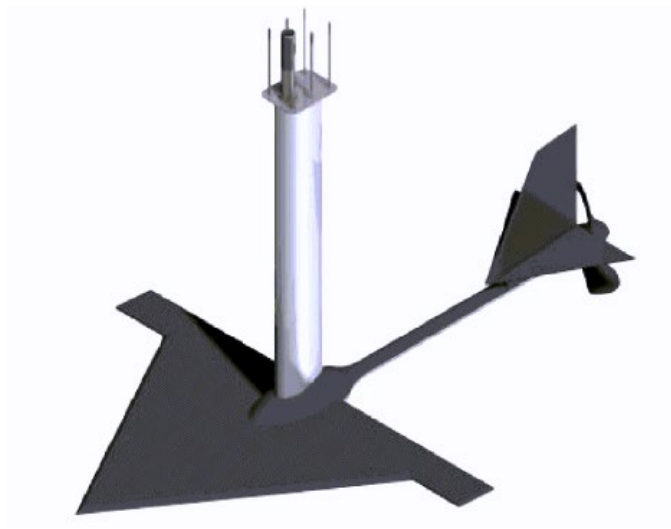
Evolo is a new type of watercraft that travels on a hydrofoil and is intended for one person. It is powered by an electric motor and is controlled only by means of center of gravity movement. This report presents a brief summary of the results from the project with detailed analysis in appendices.

Ex. 1003, 3 (Part 1). Evolo's final design is presented in Figure 1, reproduced below.



Figure 1 is a perspective view of the Evolo, which includes a floating surfboard-like body (Ex. 1003, 6 (Part 1)); a strut that connects the floating body with a hydrofoil and underwater body (*id.* at 7 (Part 1)); and handles designed for a kneeling driver's position (*id.* at 8 (Part 1)). A throttle handle is located on the handle rail. *Id.* at 10 (Part 1).

Figure 6, reproduced below, is a perspective view of the “underwater body” and “hydrofoil” connected to the strut.



Evolo’s underwater body and hydrofoil placement were “chosen to integrate the motor in the front hydrofoil, with the propeller placed behind the aft hydrofoil.” *Id.* at 9 (Part 1). The propeller shaft runs from the motor to the propeller inside a carbon fiber stay. *Id.*

*a) Whether the Evolo Reference
is a Prior Art Printed Publication*

As the Board has held in a precedential decision, “at the institution stage, the petition must identify, with particularity, evidence sufficient to establish a reasonable likelihood that the reference was publicly accessible before the critical date of the challenged patent and therefore that there is a reasonable likelihood that it qualifies as a printed publication.” *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 13 (PTAB Dec. 20, 2019) (precedential). Thus, we address this issue presented by Petitioner.

The determination of whether a document is a “printed publication” under 35 U.S.C. § 102 “involves a case-by-case inquiry into the facts and circumstances surrounding the reference’s disclosure to members of the public.” *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004).

“Because there are many ways in which a reference may be disseminated to the interested public, ‘public accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication.’” *Jazz Pharm., Inc. v. Amneal Pharm., LLC*, 895 F.3d 1347, 1355 (Fed. Cir. 2018) (quoting *In re Hall*, 781 F.2d 897, 898–99 (Fed. Cir. 1986)). The Federal Circuit has “interpreted § 102 broadly, finding that even relatively obscure documents qualify as prior art so long as the relevant public has a means of accessing them.” *GoPro, Inc. v. Contour IP Holding LLC*, 908 F.3d 690, 693 (Fed. Cir. 2018). Moreover, “[i]f accessibility is proved, there is no requirement to show that particular members of the public actually received the information.” *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1569 (Fed. Cir. 1988); *see also In re Lister*, 583 F.3d 1307, 1313–14 (Fed. Cir. 2009) (“[O]nce accessibility is shown, it is unnecessary to show that anyone actually inspected the reference.”).

Petitioner submits that the Evolo reference “is a design document describing the work conducted by a Master’s Level course on Marine Design/Lightweight Design taught at Kungliga Tekniska högskolan (‘KTH’) in Stockholm, Sweden.” Pet. 18. Petitioner notes that Evolo “was authored by the instructors and students in the class.” *Id.* Petitioner submits that Evolo “was uploaded to http://flygmac7.flyg.kth.se/cdio/old_projects/evolo as of 2009.” *Id.*

Petitioner also contends that Evolo “was further published when a popular Swedish boating magazine, *Båtnytt*, published an article in its August 2009 issue, which described the watercraft disclosed” in Evolo, “including several photographs of the watercraft.” *Id.* at 19 (citing Ex. 1018 ¶¶ 29–30). In addition to describing the Evolo watercraft and providing

pictures, the article included a link to the project’s webpage that included the Evolo reference. *Id.* at 20–21. Petitioner notes that Båtnytt had a readership of approximately 125,000 readers per issue and was available at public newsstands in Sweden. *Id.* at 21. Petitioner argues that “[t]he article in Båtnytt would have served as a publicly available []research aid that would have led a POSITA to the Evolo website, which contained the Evolo Report.” *Id.* at 21–22 (citing *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1350 (Fed Cir. 2016)).

Based on the evidence presented by Petitioner, and the lack of any persuasive contrary argument or evidence, we determine on the record before us that the Petition identifies, with particularity, evidence sufficient to establish a reasonable likelihood that the Evolo reference was publicly accessible before the critical date of the challenged patent and therefore that there is a reasonable likelihood that it qualifies as a printed publication.

2. *Woolley (Ex. 1011)*

Woolley is a U.S. patent titled, “Flying Ski.” Ex. 1011, code (54). Woolley discloses an “improved flying ski . . . designed to be towed behind a conventional powered watercraft utilizing a standard ski tow rope or similar device having a handle that can be held by a human rider.” *Id.* at code (57). We reproduce Figure 1 of Woolley, below:

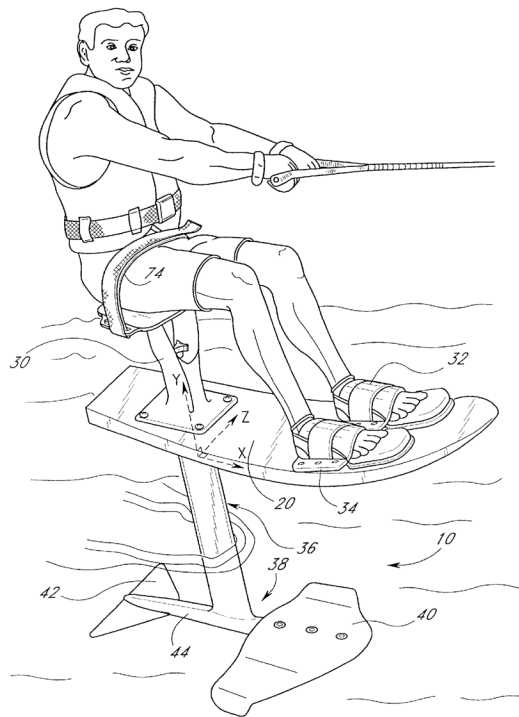


FIG. 1

Woolley's Figure 1 is a perspective view of "an improved flying ski in accordance with a preferred embodiment of" Woolley's invention. Ex. 1011, 4:41–43. Flying ski 10 is desirably towed behind a conventional powered watercraft utilizing a standard ski tow rope that can be held by a human rider. *See id.* at 6:44–47. Figure 1 further depicts flying ski 10 with elongate board 20. *Id.* at 6:10–11. Seat 30 extends perpendicularly from the upper face of board 20 to support a rider. *Id.* at 6:13–15. Elongate strut 36 extends perpendicularly from the lower face of board 20 to planing blade 38. *Id.* at 6:17–19. Planing blade 38 has front blade 40 and rear blade 42 interconnected by fuselage 44.

3. Analysis of Independent Claim 16

We need not reproduce in this Decision all of Petitioner's detailed, comprehensive, and substantive analysis. *See Pet.* 34–66. We have reviewed Petitioner's evidence and arguments, and for purposes of this

Decision, based on the evidence and arguments before us, we determine for the reasons stated in the Petition (*See* Pet. 34–66) that the evidence establishes a reasonable likelihood that Petitioner will prevail in establishing that independent claim 16 is unpatentable. We discuss below some of the significant issues.

a) [16Preamble] A passively stable, weight-shift controlled personal hydrofoil watercraft, comprising:

Petitioner asserts that the Evolo Report discloses a weight-shifting controlled personal hydrofoil watercraft, to the extent that the preamble is limiting. Pet. 25. As stated in the Evolo reference, “Evolos is a new type of watercraft that travels on a hydrofoil and is intended for one person. It is powered by an electric motor and is controlled only by means of center of gravity movement.” Pet. 25 (citing Ex. 1003, 546 (Part 4); Ex. 1002 ¶ 45).

Petitioner also asserts that the

EvolosReport discloses that both pitch stability and rolling stability are factors in the design of the disclosed EvolosReport hydrofoil. The term “stable” as used by the EvolosReport was being used to mean passive static stability as contemplated by the ‘659 patent (“By stable is meant that if Evolos is exposed to a disturbance, it will return to its initial position.”).

Id. at 25–26 (citing Ex. 1003, 62 (Part 1) (“The purpose of this analysis is to establish a configuration of the hydrofoil so that it is stable in pitch.”)).

To address the requirement that the watercraft be “passively stable,” Petitioner cites to Woolley’s teachings. *See* Pet. 26.

Petitioner asserts that Woolley discloses a “hydrofoil fixedly interconnected with the lower end of a strut, the hydrofoil having no moveable surface and designed to provide passive static stability controlled solely by weight shift of the user.” Pet. 26 (citing Ex. 1002 ¶ 48).

According to Petitioner, “the primary embodiment disclosed in Woolley discloses a hydrofoil – or planing blade – comprising a front blade and rear blade interconnected by a fuselage. Pet. 26 (citing Ex. 1011, 6:19–21). Petitioner also asserts that the purpose of Woolley’s planing blade “is to provide a combination of ‘stability, lift and responsiveness.’” *Id.* at 26–27 (citing Ex. 1011, 10:32–38; Ex. 1002 ¶ 48). Petitioner also asserts that the “ability to interchange different size front and rear planing blades in Woolley allows for providing ‘different stability, lift and responsiveness characteristics.’” *Id.* at 27 (citing Ex. 1011, 10:40–42; Ex. 1002 ¶ 48). In addition, Woolley discloses the ability to adjust the planform and angle of attack of the rear planing blade, based upon the level stability desired between a beginner through professional rider. *Id.* (citing Ex. 1011, 16:64–20:22).

Petitioner submits that “Woolley’s disclosure of both pitch stability along with roll and yaw stability through the use of the hydrofoil discloses a hydrofoil designed to provide passive static stability.” Pet. 28–29 (citing Ex. 1011, 13:47–53).

Based on Woolley’s teachings, Petitioner reasons that a “POSITA would have been motivated to combine [the] EvoloReport with Woolley to provide for a passively stable hydrofoil.” *Id.* at 21.

Alternatively, Petitioner also reasons, “To the extent that the disclosed hydrofoil in Woolley could be found to not be designed to provide passive static stability, a POSITA would have sufficient knowledge to modify the disclosed hydrofoil in Woolley such that it was designed to provide passive static stability.” Pet. 29 (citing Ex. 1002 ¶ 55).

- b) *[16B] a hydrofoil interconnected with the surfboard shaped flotation device, the hydrofoil having a strut and a first hydrofoil wing, an upper end of the strut being fixedly interconnected with the surfboard-shaped flotation device, the hydrofoil having no movable surface*

Petitioner provides the following annotated Figure 1 from Evolo (Pet. 54).

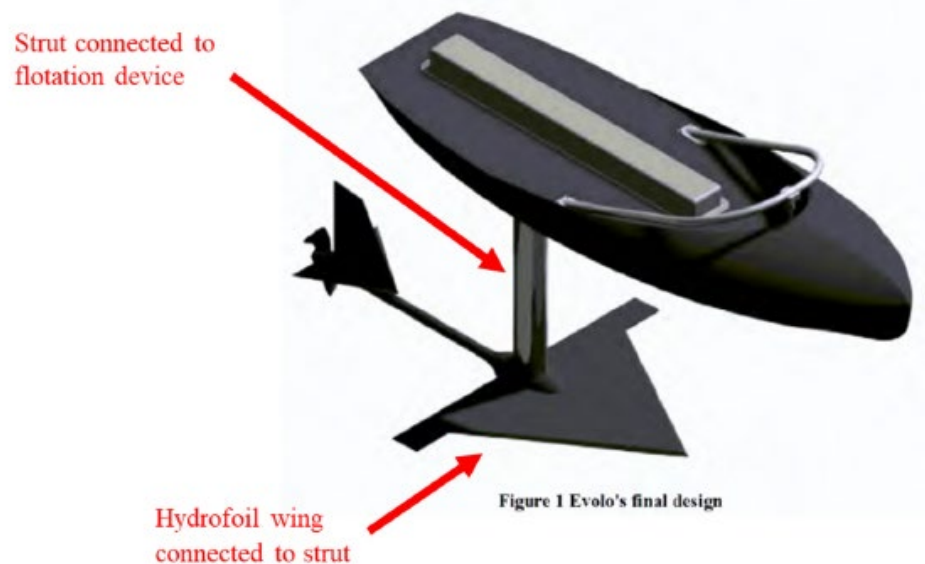


Figure 1 from Evolo (Ex. 1003, 3 (Part 1)), annotated by Petitioner (Pet. 54), shows a strut connecting the surfboard shaped flotation device and the hydrofoil. As shown, the hydrofoil wing has no movable surface.

- c) *[16C1] a propulsion system attached to the surfboard shaped flotation device for propelling the watercraft in a body of water*

Petitioner asserts that Evolo discloses a propulsion system connected to the hydrofoil for propelling the watercraft in a body of water. Pet. 33–34 (citing Ex. 1003, 551–552 (discussing the motor, batteries to drive the motor, and the propeller to deliver propulsive power)). The structure of the propulsion system is shown in Figure 9 from Evolo, reproduced below.



Figure 9 from Evolo (Ex. 1003, 549 (Part 4)) is a perspective view of the hydrofoil, shaft, and underwater body, with the accompanying text describing that “[t]he electric motor must be integrated into the front hydrofoil, then a shaft must be mounted behind the aft hydrofoil where the propeller is located. The shaft must run in a watertight shell.” *Id.* This same analysis applies also to claim clause “16C2.” *See* Pet. 57–59.

4. Conclusion for Claim 16

We have highlighted what we regard as key issues in this proceeding for independent claim 16, which was amended in the reexamination proceeding. The Petition, however, provides a comprehensive analysis of all the challenged claims. Based on the arguments and evidence in the record before us, we determine, for purposes of this Decision, Petitioner has established a reasonable likelihood that independent 16 would have been obvious.

5. Dependent Claims 17–23 and 26–28

Dependent claims 17–23 and 26–28 depend directly from one of independent claims 1 or 16.

As stated above, Patent Owner chose not to address the merits of any of the challenged claims. Thus, there is no evidence or argument refuting Petitioner's assertions.

We have reviewed Petitioner's evidence and arguments, and for purposes of this Decision, based on the evidence and arguments before us, we determine for the reasons stated in the Petition that the evidence establishes a reasonable likelihood that Petitioner will prevail in establishing that dependent claims 17–23 and 26–28 are not patentable.

III. CONCLUSION

We have determined that there is a reasonable likelihood that Petitioner will prevail on at least one challenged claim. Accordingly, we institute an *inter partes* review on all challenged claims on each asserted ground. A decision to institute is “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition.” *PGS Geophysical*, 891 F.3d at 1360.

Our review of the Petition under 35 U.S.C. § 314 is not to determine whether an individual asserted fact is indisputable or whether a preponderance of the evidence supports Petitioner. Our review is to determine whether the totality of the information presented in the Petition shows that there is a reasonable likelihood that Petitioner would prevail with respect to at least one of the claims challenged in the Petition. “The ‘reasonable likelihood’ standard is a somewhat flexible standard that allows the Board room to exercise judgment.” Patent Trial and Appeal Board Consolidated Trial Practice Guide at 53 (Nov. 2019), *available at* <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

This is a decision to institute an *inter partes* review under 35 U.S.C. § 314. Our determinations at this stage of the proceeding are preliminary, and based on the evidentiary record developed thus far. This is not a final decision as to the patentability of claims for which *inter partes* review is instituted. Any final decision will be based on the record as fully developed during trial, including all arguments and evidence in the Patent Owner's Response, or submitted otherwise during trial, as permitted by our rules.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review is instituted as to claims 16–23 and 26–28 of the '659 patent on each ground set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '659 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of a trial.

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Patent 9,586,659 B2

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