

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WHITEWATER WEST INDUSTRIES, LTD.,
Petitioner,

v.

AMERICAN WAVE MACHINES, INC.,
Patent Owner.

IPR2022-01034
Patent 9,279,263 B2

Before BENJAMIN D. M. WOOD, CARL M. DeFRANCO, and
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

FINAMORE, *Administrative Patent Judge*.

DECISION

Granting Institution of *Inter Partes* Review
35 U.S.C. § 314; 37 C.F.R. § 42.4

I. INTRODUCTION

WhiteWater West Industries, Ltd. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–19 of U.S. Patent No. 9,279,263 B2 (“the ’263 patent”) (Ex. 1001). American Wave Machines, Inc., (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

We have authority, acting under the designation of the Director, to determine whether to institute an *inter partes* review. 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). We may not authorize an *inter partes* review to be instituted “unless . . . the information presented in the petition filed under section 311 and any response filed under section 313 shows that 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).

Upon consideration of the arguments and evidence presented by both parties, we determine Petitioner has demonstrated a reasonable likelihood that it would prevail with respect to at least one of the challenged claims. Accordingly, we institute an *inter partes* review of the challenged claims of the ’263 patent.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner identifies the real parties in interest as: itself, Murphy’s Waves, Ltd., Surf Loch, LLC, and Aquatic Development Group. Pet 1. Patent Owner identifies itself as the real party in interest. Paper 5, 1.

B. Related Matters

Petitioner identifies as related matters the following three Board proceedings between Petitioner and Patent Owner: IPR2022-001032 (challenging U.S. Patent No. 10,662,663 B2), IPR2022-01033 (challenging U.S. Patent No. 8,434,966 B1, which is in the same family as the '263 patent), and IPR2022-01035 (challenging U.S. Patent No. 10,738,492 B1). Pet. 1.

Patent Owner identifies the following district court litigation as a related matter: *Whitewater West Industries, Ltd. v. American Wave Machines, Inc.*, No. 3:22-cv-00729 (S.D. Cal. filed May 20, 2022). Paper 5, 2. Patent Owner also identifies as a related matter U.S. Patent Application No. 16/876,076, which a continuation of the application from which the '263 patent issued. *Id.*

C. The '263 Patent

The '263 patent, titled “Sequenced Chamber Wave Generator Apparatus and Method,” is directed to wave generators for making waves in pools for recreational purposes. Ex. 1001, code (54), 1:17–18. According to the '263 patent, waves that are created from known wave generators can be ridden for only a short period of time and distance because the waves quickly decrease in amplitude. *Id.* at 1:44–47. The invention described in the '263 patent purports to overcome this shortcoming by using “sequenced chambers adapted to create a rideable wave that changes the breaking characteristics of a wave by creating a surging motion in the pool that causes the wave to pitch further out into the pool, creating a more hollow barrel.” *Id.* at 2:36–39.

A wave generator apparatus is shown in Figure 1, reproduced below.

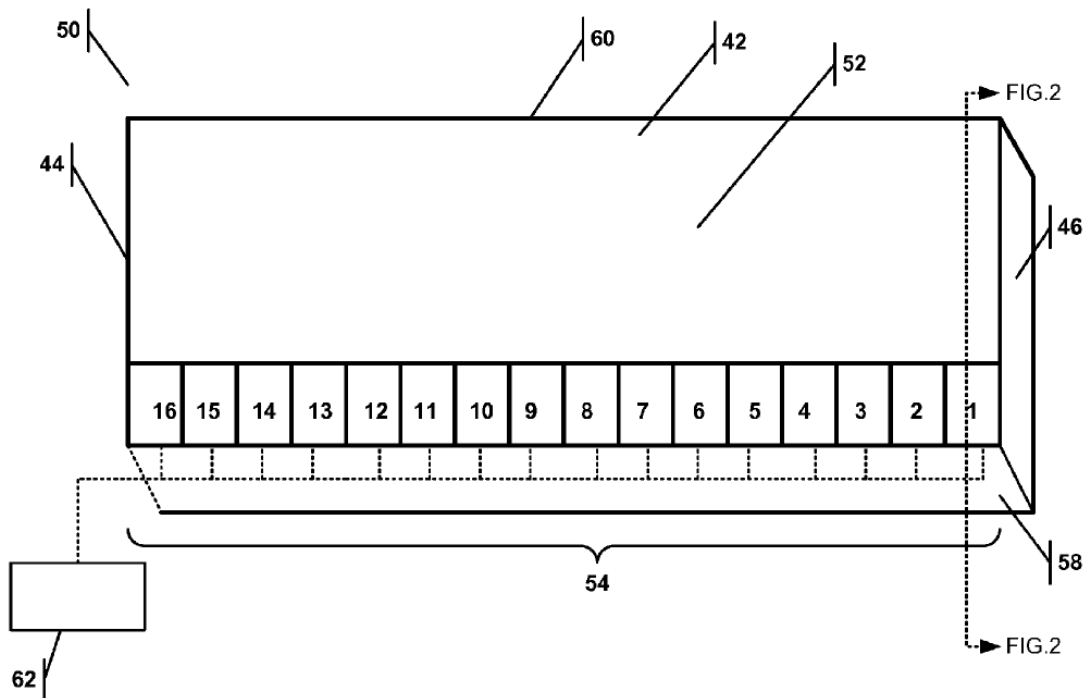


FIGURE 1

Figure 1 is a top view of a wave generator apparatus in a wave pool with sixteen chambers. Ex. 1001, 3:6–7. Pool 50 contains water 52 and includes a plurality of wave generating chambers 54, individually numbered 1–16, and controller 62 to operate chambers 54. *Id.* at 3:53–57.

An exemplary wave generating chamber 54 is depicted in Figure 2, reproduced below.

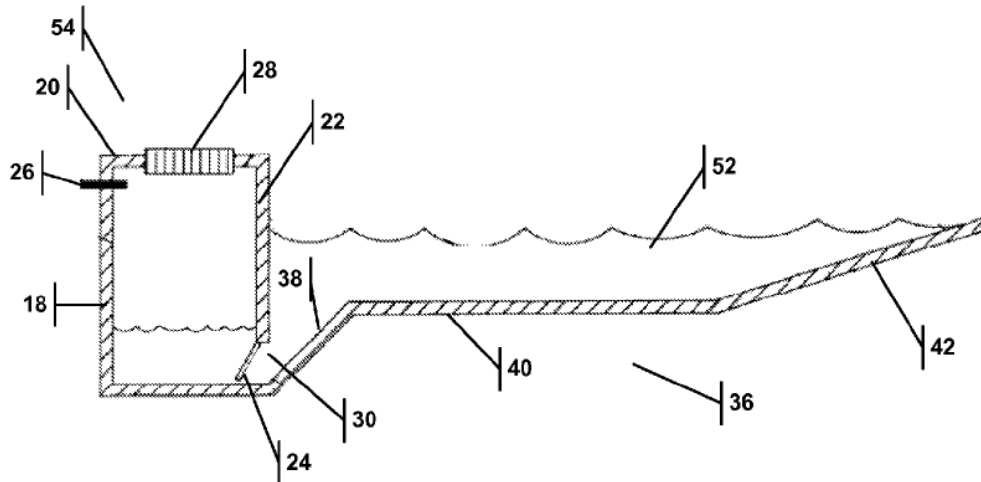


FIGURE 2

Figure 2 is a cross-sectional view of a wave generating chamber in a wave pool. Ex. 1001, 3:8–9. In operation, chamber 54 is first filled with air through inlet valve 26 to displace water into pool 50. *Id.* at 4:36–38. Vent valve 26 is then closed, and the chamber air is vented through vent valve 28, causing water 52 to flow from pool 50 through passageway 30 into the now empty space 56 in chamber 54. *Id.* at 4:38–41. This causes the water level in pool 50 to quickly drop, creating a depression or trough in the water that reflects against wave reflecting wall 22 of pool 50, which creates a circulating motion of the water. *Id.* at 4:41–45. Vent valve 28 is then shut to prevent water resurgence back into the pool. *Id.* at 4:46–47. Mechanical two-way valve 24 can also be used to prevent resurgence and may be closed during the initial air fill phase to create a larger air volume in the chamber which, when released, creates a larger depression in pool 50. *Id.* at 4:48–53.

Electronic controller 62 is connected to valves 24, 26, 28 to control the operation for each chamber and actuates each of the chambers in sequence. *Id.* at 4:61–66. More specifically, controller 62 actuates the first chamber and controls its valves and, after a delay, actuates the second chamber and controls its valves. *Id.* at 5:8–13. Actuating the chambers in sequence creates a surging effect in pool 50, which in turn creates a considerably hollow barreling wave. *Id.* at 5:24–35.

The flow of water in pool 50 created by the sequenced actuation of chambers 54 resembles a diamond pattern, which is shown in Figure 7, reproduced below.

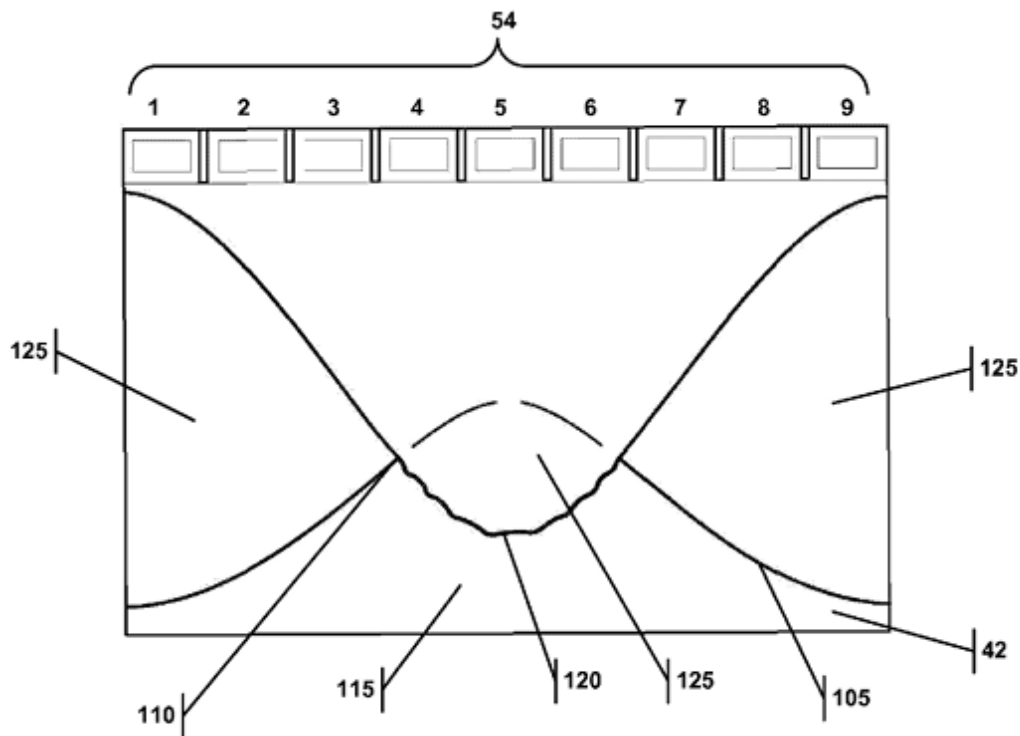


FIGURE 7

Figure 7 is a top view of the wave generator apparatus showing the diamond pattern created during sequenced actuation of the wave generating chambers. Ex. 1001, 3:19–22. The sequence for creating the diamond pattern, which

includes diamonds linked at the vertices, begins with chambers 54 on the edges of the pool, i.e., chambers 1–2 and 8–9, initiating first wave segment 105. *Id.* at 5:35–38, 42–45. After a delay, second wave segment 110 is initiated from chambers 54 in the center of the pool, i.e., chambers 3–7. *Id.* at 5:45–48. Resulting diamond pattern 125 creates surging motion 115 in the pool, which changes the breaking characteristic of the wave’s natural flow. *Id.* at 6:20–23. Specifically, diamond pattern 125 reduces the depth of water between first wave segment 105 and second wave segment 110 because first wave segment 105 will push the water away from chambers 54. *Id.* at 6:23–27. The reduced depth causes the wave to pitch away from chambers 54 and creates a considerably hollow barrel 120. *Id.* at 6:27–28. Additionally, surge 115 interacts with second wave segment 110 near the end of its break, which increases wave height, similar to how backwash interacts with waves in the ocean. *Id.* at 6:29–32.

D. Challenged Claims

Petitioner challenges claims 1–19 of the ’263 patent. Pet. 1. Claims 1 and 13 are independent. Ex. 1001, 7:38–54, 8:63–9:13. Independent claim 1 is illustrative and reproduced below with Petitioner’s labels for the claim limitations.

[1.Preamble] 1. An aquatic sports amusement apparatus, comprising:

[1.A] a pool which holds a body of water;

[1.B] a plurality of wave generating chambers that communicate with the body of water so as to release water into the pool, the chambers located adjacent to each other on an edge of the pool; and

[1.C] a controller connected to the chamber, wherein the connection is constructed to actuate the release of water from

each chamber to create waves independently of the release of water from the other chambers;

[1.D] the controller operation of the chambers comprises the following steps:

[1.D.1] a. actuating a first chamber or first set of chambers in the plurality to release water into the pool; and

b. after a delay, actuating a second chamber or second set of chambers in the plurality to release water into the pool.

Id. at 7:38–54; *see also* Pet. 10–11, 60 (Claim Listing Appendix).¹

As to the remaining challenged claims, independent claim 13 recites a method of generating waves in a pool of water and includes limitations that are similar to the limitations of independent claim 1. *Compare* Ex. 1001, 8:63–9:13, *with id.* at 7:38–54. Petitioner annotates independent claim 13 to include labels for the limitations similar to those for independent claim 1. Pet. 63–64 (Claim Listing Appendix).

Claims 2–12 depend from independent claim 1. Ex. 1001, 7:55–8:62. Claims 14–19 depend from independent claim 13. *Id.* at 9:13–10:21.

¹ In identifying independent claim 1 as illustrative, Petitioner labels the recited steps of actuating the first and second chambers as claim limitations [1.D.1] and [1.D.2], respectively. Pet. 10–11. However, in its application of independent claim 1 to the cited references, as well as the in the Claims Listing Appendix, Petitioner refers to both steps as limitation [1.D.1]. Pet. 24–25, 44–45, 56, 60. We adopt the labeling Petitioner uses when applying independent claim 1 to the cited references, and, thus, label the recited steps together as limitation [1.D.1].

E. Asserted Grounds of Unpatentability and Evidence

Petitioner asserts the following six grounds of unpatentability for claims 1–19 of the '263 patent:

Claim(s) Challenged	35 U.S.C. §²	Basis
1–6, 8–19	102(b)	Raike ³
1–6, 8–19	103(a)	Raike
7	103(a)	Raike, Schuster ⁴
1–4, 6, 7, 10, 13–15	102(b)	Bastenhof ⁵
1–4, 6, 7, 10, 13–15	103(a)	Bastenhof
1, 5, 8, 9, 11–13, 16–19	103(a)	Bastenhof, Raike

Pet. 3–4. In support of these asserted grounds, Petitioner submits the Declaration of Glen Stevick, Ph.D. (Ex. 1009). In rebuttal, Patent Owner submits the Declaration of Charles Alexander Garris, Jr., Ph.D. (Ex. 2003). At this stage of the proceeding, neither party has presented evidence or argument directed to objective indicia of nonobviousness.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended certain sections of this statute, including §§ 102 and 103, and the effective date of the relevant amendment is March 16, 2013. The filing date of the '263 patent, September 4, 2012, is before the effective date of the amendment. Ex. 1001, code (22). We, therefore, apply the pre-AIA version of the statute.

³ Raike, US 4,812,077, issued Mar. 14, 1989 (“Raike”) (Ex. 1004).

⁴ Schuster et al., US 3,629,877, issued Dec. 28, 1971 (“Schuster”) (Ex. 1005).

⁵ Bastenhof, US 4,558,474, issued Dec. 17, 1985 (“Bastenhof”) (Ex. 1006).

III. ANALYSIS OF ASSERTED GROUNDS OF UNPATENTABILITY

A. *Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art (“POSITA”) would have “knowledge and familiarity with: (i) design of mechanical structures and (ii) fluid characteristics and the interaction of fluid forces upon mechanical structures” and that this knowledge and familiarity “could be obtained by: (i) successfully completing a Master’s degree in Mechanical Engineering or (ii) at least 5 years of experience in a job working with control systems, including designing or implementing such wave generation machines.” Pet. 13 (citing Ex. 1009 ¶¶ 32–33). Patent Owner does not contest that assertion. *See* Prelim. Resp. 18 (Without conceding to its correctness, Patent Owner assumes Petitioner’s level of ordinary skill in the art for purposes of its Preliminary Response.).

At this stage of the proceeding, we see no reason to question Petitioner’s asserted level of ordinary skill in the art. Thus, for purposes of institution, we apply Petitioner’s level of ordinary skill in the art.

B. *Claim Construction*

We interpret a 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) (2019). Under this standard, we construe the claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.* Furthermore, at this stage in the proceeding, we expressly construe the claims to the extent necessary to determine whether to institute *inter partes* review. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017)

(“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

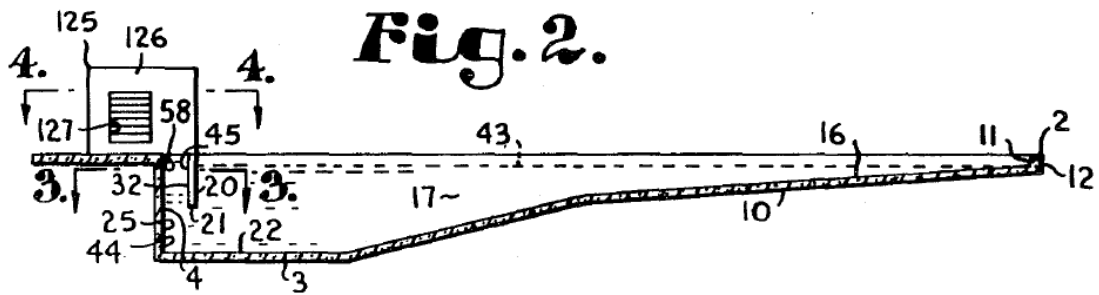
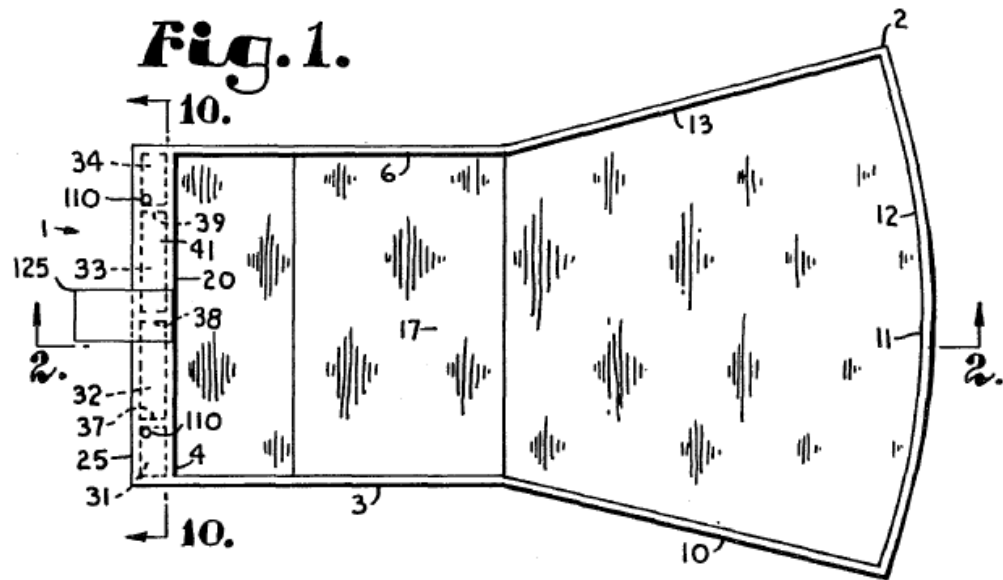
Neither Petitioner nor Patent Owner proffers an express construction for any claim term. Rather, both Petitioner and Patent Owner assert that the claims terms should be given their ordinary meanings. Pet. 14; Prelim. Resp. 20. For the reasons set forth below in our discussion of the asserted grounds of unpatentability, we determine that no claim term requires an express construction for the purpose of determining whether to institute *inter partes* review.

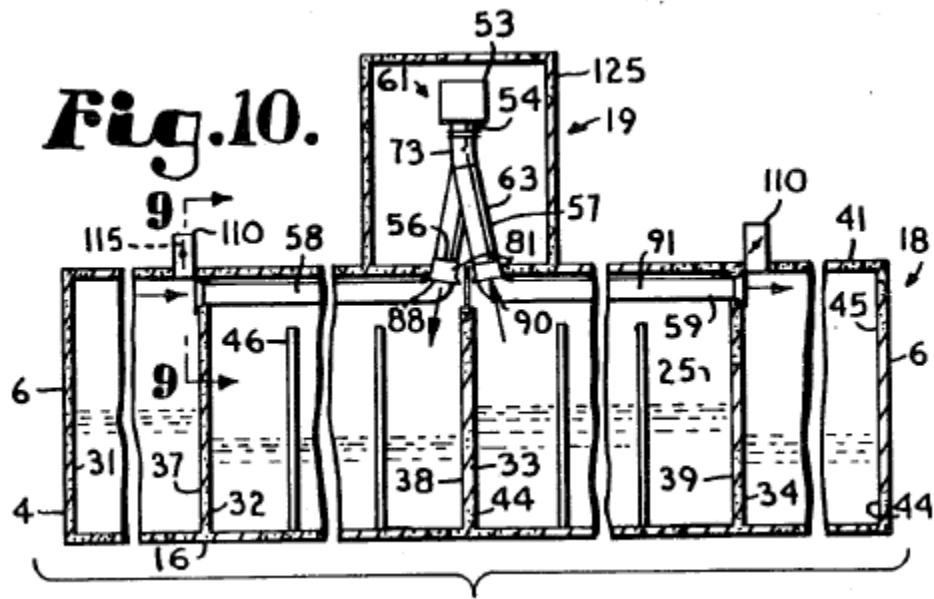
C. Anticipation and Obviousness Based on Raike

Petitioner challenges claims 1–6 and 8–19 under 35 U.S.C. § 102(b) and § 103, contending that Raike anticipates and renders obvious the subject matter of these claims. Pet. 21–38. Patent Owner asserts that Raike neither anticipates nor renders obvious the claimed subject matter. Prelim. Resp. 20–28. We begin our analysis of this asserted ground of unpatentability with an overview of Raike and then turn to the parties’ contentions for each of the claims.

1. Raike

Raike relates to “a system for pneumatically generating waves in a pool of liquid.” Ex. 1004, 1:7–8. Raike’s system is shown in Figures 1, 2, and 10, reproduced below.





Figures 1, 2, and 10 are a top plan view, a longitudinal cross-sectional view, and a vertical cross-sectional view, respectively, of a pneumatic/hydraulic wave generator associated with a swimming pool. *Id.* at 3:3–7, 32–34. Pneumatic/hydraulic wave generator 1 is associated with deep end 4 of pool 2 and comprises hydraulic system 18 and pneumatic system 19. *Id.* at 3:50–57, Fig. 1.

Hydraulic system 18 includes caissons 31–34 that communicate with pool 2 through submerged passage 22. Ex. 1004, 4:5–14. Caissons 31, 34 are outer caissons, and caissons 32, 33 are inner caissons. *Id.* at 4:14–15.

Pneumatic system 19 includes fan 51 operably connected to manifold 53 having front and back outlet ports 54, 55. Ex. 1004, 4:35–38. Front and back outlet ports 54, 55 are respectively connected to front and back air directional valve assemblies 61, 62, and each of the air directional valve assemblies 61, 62 includes pendulum duct section 63 suspended from hinge assembly 69 having a longitudinally extending pivotal axis that is centered with respect to pneumatic/hydraulic wave generator 1. *Id.*

at 4:38–49. Front air directional valve assembly 61 selectively communicates with inner caissons 32, 33 via front duct lines 56, 57, and back air directional valve assembly 62 selectively communicates with outer caissons 31, 34 via back duct lines 58, 59. *Id.* at 4:54–59. Fan house 125 is provided over fan 51 and air directional valve assemblies 61, 62. *Id.* at 5:37–39.

To create a diamond wave pattern, as shown in Figure 1, caissons 31, 33 are alternatively actuated relative to caissons 32, 34 such that adjacent caissons are not actuated together. Ex. 1004, 5:47–52. Caissons 31, 33 are actuated by blowing large volumes of air thereinto through duct lines 57, 58 so that the water levels in the respective submerged portions 44 are lowered. *Id.* at 5:53–57. The displaced volume of water emerges in front of caisson front wall 20 as a wave above quiescent water level 43. *Id.* at 5:57–59. Air directional valve assemblies 61, 62 are then switched to actuate caissons 32, 34 via duct lines 56, 59, thereby opening duct lines 57, 58 from caissons 31, 33 to the interior of fan house 125. *Id.* at 5:60–65. With the air pressure source removed, the water displaced from submerged portions 44 of caissons 31, 33 will be replaced by water rushing through submerged passage 22, causing air displaced from upper portions 45 to vent to the interior of fan house 125. *Id.* at 5:65–6:7. The momentum of the resurging water will carry the water level in caissons 31, 33 slightly above quiescent water level 43 while water is being expelled from actuated caissons 32, 34. *Id.* at 6:7–11. Air directional valve assemblies 61, 62 are then switched again, and the cycle repeats itself. *Id.* at 6:11–13.

Air directional valve assemblies 61, 62 are actuated by an electrical control system, which is not shown in the drawings. Ex. 1004, 6:28–31.

The control system can sequence the shifting of air directional valve assemblies 61, 62 to create various wave patterns. *Id.* at 6:52–54. All of caissons 31–34 “can be actuated at different times in a predetermined or random sequence.” *Id.* at 6:62–64.

2. *Independent Claim 1*

Petitioner maps the limitations of independent claim 1 to Raike’s disclosure and argues that Raike discloses and renders obvious every limitation of the claim. Pet. 21–25. Patent Owner alleges Raike does not disclose or render obvious the controller recited in limitation [1.C]. Prelim. Resp. 21–28. At this stage of the proceeding, Patent Owner does not dispute Petitioner’s arguments for the other limitations of independent claim 1.

For the controller recited in limitation [1.C], Petitioner relies on Raike’s control system. Pet. 23–24. According to Petitioner, Raike’s control system can sequence the shifting of air directional valve assemblies 61, 62 to create wave patterns and actuate caissons 31–34 at different times in a predetermined or random sequence. *Id.* (citing Ex. 1004, 6:28–36, 53–64, Figs. 5–7).

Patent Owner argues that Petitioner does not map this claim limitation to Raike’s disclosure with the requisite specificity pursuant to 37 C.F.R. § 42.104(b)(4). Prelim. Resp. 21–23. Per Patent Owner, “Petitioner merely makes a conclusory assertion that Raike discloses this element, then cites to large portions of the disclosure of Raike, but without any form of analysis or explanation.” *Id.* at 23.

Patent Owner further argues the portion of Raike that Petitioner cites does not disclose claim limitation [1.C] because any connection between the control system and a structure capable of actuating the release of water from

the chambers is not a connection between the control system and the chambers, as this claim limitation requires. Prelim. Resp. 23–27. According to Patent Owner, Raike’s control system is connected to air directional valve assemblies 61, 62 such that Raike discloses a connection between the control system and fan house 125, not a connection between the control system and caissons 31–34. *Id.* at 25 (citing Ex. 2003 ¶ 42). Patent Owner maintains that Raike’s control system actuates the chambers by operating valve assemblies remote from the chambers, whereas the ’263 patent describes controller 62 for operating a valve structure disposed at each chamber. *Id.* at 26 (citing Ex. 1001, Figs. 1–2; Ex. 2003 ¶ 43).

We agree with Patent Owner that the ’263 patent describes controller 62 operating a valve structure disposed at each chamber. Ex. 1001, 4:61–64, Figs. 1–2. Claim limitation [1.C], however, does not recite a controller operating valves disposed at each chamber or a controller connected directly to the chambers.

Although the portion of Raike that Petitioner quotes with respect to claim limitation [1.C] does not portray the connection between the control system in fan house 125 and caissons 31–34, Petitioner nonetheless cites to Raike’s Figures 5–7, which show the pneumatic system that supplies air from the fan to the caissons. Pet. 24. As Petitioner explains in its discussion of Raike, pneumatic system 19 includes fan 51 which communicates selectively with duct lines 56–59 to caissons 31–34 via air directional valve assemblies 61, 62 to deliver pressurized air to caissons 31–34 to drive down the water levels in the caissons and create waves in the swimming pool. *Id.* at 15–16 (citing Ex. 1004, Abstract, 3:49–5:59, Figs. 1–3). We are persuaded that Raike’s control system is connected to caissons 31–34 via air

directional assemblies 61, 62 and duct lines 56–59 to selectively supply air to caissons 31–34 and consequently selectively displace the water therein. Ex. 1004, 5:47–6:13, 6:28–31, 53–64, Figs. 1–3, 5–7, 10.

Having reviewed the record at this stage of the proceeding, we are persuaded that Raike discloses every limitation of independent claim 1. Petitioner has demonstrated a reasonable likelihood that it would prevail in demonstrating independent claim 1 is unpatentable under 35 U.S.C. § 102(b) and § 103(a) in view of Raike. *See Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (“[A] disclosure that anticipates under § 102 also renders the claim invalid under § 103, for ‘anticipation is the epitome of obviousness.’” (quoting *In re Fracalossi*, 681 F.2d 792 (CCPA 1982))).

3. *Independent Claim 13*

Petitioner’s contentions for independent claim 13 are the same as its contentions for independent claim 1. Pet. 21–25. Patent Owner similarly relies on the same arguments for independent claim 13 as independent claim 1. Prelim. Resp. 21–28.

Our analysis for independent claim 1 above in section III.C.2 applies to independent claim 13. For the reasons discussed in that section, Petitioner has shown, on the current record and for purposes of institution, that Raike discloses every limitation of independent claim 13. Petitioner has demonstrated a reasonable likelihood that it would prevail in demonstrating independent claim 13 is unpatentable under 35 U.S.C. § 102(b) and § 103(a) in view of Raike.

4. *Claims 2–6, 8–12, and 14–19*

Petitioner asserts Raike discloses each limitation of claims 2–6, 8–12, and 14–19. Pet. 25–38. Patent Owner does not raise arguments for these claims separate from its arguments for independent claims 1 and 13, which we discuss above in sections III.C.2–3. *See* Prelim. Resp. 28 (“Petitioner also fails to establish a reasonable likelihood that it can prevail with respect to any of claims 2–6, 8–12 and 14–19 for at least the same reasons explained above in connection with the discussion of claims 1 and 13.”).

At this stage of the proceeding, we see no need to further address these claims because, as set forth above in sections III.C.2–3, Petitioner has shown a reasonable likelihood that it would prevail in demonstrating independent claims 1 and 13 are unpatentable under 35 U.S.C. § 102(b) and § 103(a) in view of Raike. As Petitioner has made a sufficient showing for institution for independent claims 1 and 13, we are compelled to institute an *inter partes* review on all challenged claims with respect to all grounds asserted in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018) (“Section 314(a) does not require the Director to evaluate every claim individually. Instead, it simply requires him to decide whether the petitioner is likely to succeed on “at least 1” claim. Once that single claim threshold is satisfied, it doesn't matter whether the petitioner is likely to prevail on any *additional* claims; the Director need not even consider any other claim before instituting review.”).

D. *Obviousness Based on Raike and Schuster*

Petitioner challenges claim 7 under 35 U.S.C. § 103(a), contending the combined teachings of Raike and Schuster render obvious the claimed subject matter. Pet. 38–40. Patent Owner argues Petitioner has not

established a reasonable likelihood that it will prevail with respect to claim 7. Prelim. Resp. 28–29. As we discuss *Raike* above in section III.C.1, we begin our analysis of this asserted ground of unpatentability with an overview of *Schuster* and then turn to the parties’ contentions.

1. Schuster

Schuster relates to forming waves in wave-activated swim pools.

Ex. 1005, 1:72–73. An air pressure source directly acts on separate portions of the water surface in wave-forming tanks to cause depression of the water and consequent formation of waves without requiring any mechanical apparatus immersed in the water. *Id.* at Abstract.

Figure 1, reproduced below, depicts a wave-actuated pool.

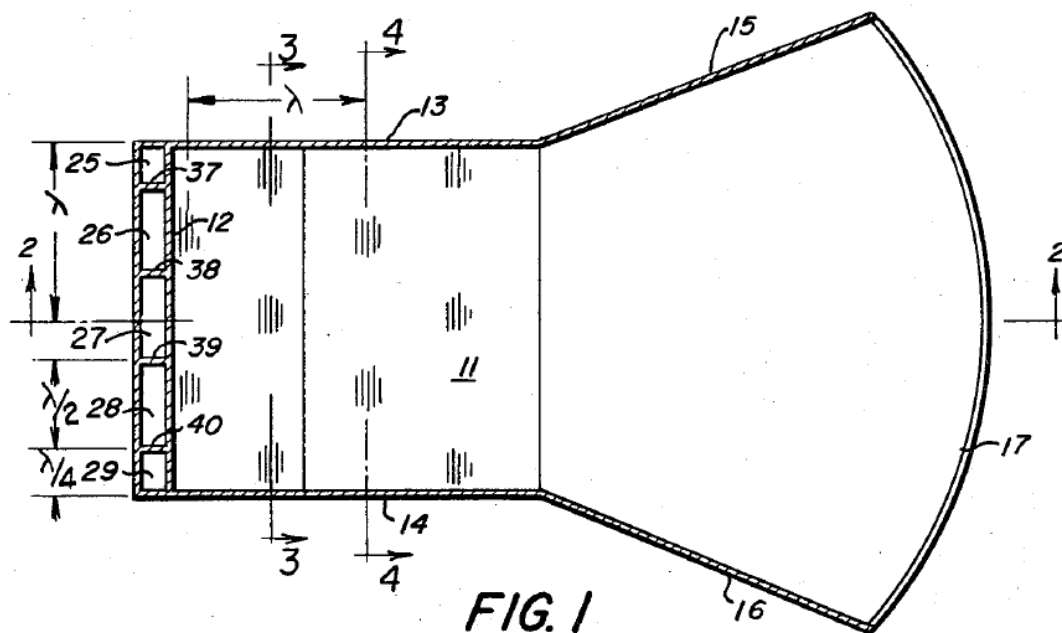


Figure 1 is a plan view of a wave-activated swim pool. Ex. 1001, 2:3–4.

Schuster teaches:

The fact that there are a plurality of wave-forming tanks 25–29 across the width of the deep end of the pool and the fact that there

are an uneven number of these tanks plus the fact that these tanks are energized with air pressure alternately, establishes the synchronism of wave formation caused by water being forced out through the openings in the lower edge of these tanks and establishes the greater height of waves in the center of the deep end of the pool and lower waves along the pool rim.

Id. at 3:61–69.

The tanks cooperate with various valve mechanisms, as seen in Figure 9, reproduced below.

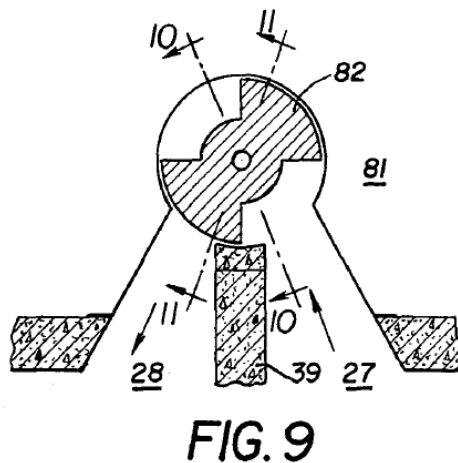


Figure 9 is a schematic diagram of an air pressure valve. Ex. 1001, 2:14–15. Valve mechanism 81 is a turning or rotating valve having segmented plates 82, 83 turned sequentially to alternate positions 90° apart. *Id.* at 5:19–22. Valve mechanism 81 cooperates with wave-forming tanks 27, 28. *Id.* at 5:22–23. Pressurized air is directed by segmented plates 82, 83 into tank 28 while air is permitted to escape from tank 27. *Id.* at 5:25–29. When plates 82, 83 are rotated 90° the opposite condition will prevail—pressurized air will be applied to tank 27 and exhausted from tank 28. *Id.* at 29–32.

2. *Claim 7*

Petitioner relies on Schuster’s valve mechanism 81 for teaching the two way valve recited in claim 7. Pet. 38–40. Petitioner argues Schuster’s valve mechanism 81 directs air into tank 28 or exhausts air from tank 28 depending on the position of segmented plates 82, 83. *Id.* at 39–40 (citing Ex. 1005, 5:17–32, Figs. 9–11; Ex. 1009 ¶ 104). Petitioner also argues “a POSITA would be motivated to use the valve mechanism 81 in the system disclosed by Raike and could do so with a simple substitution of valves and without undue experimentation.” *Id.* at 40.

Patent Owner contends “Petitioner’s reliance upon Schuster does not cure the deficiencies of its grounds based on Raike alone, and Petitioner also fails to establish a reasonable likelihood that it can prevail with respect to claim 7.” Prelim. Resp. 29 (citing Ex. 2003 ¶¶ 48–51). We address these alleged deficiencies in the asserted grounds based on Raike in section III.C.

Petitioner’s arguments and Dr. Stevick’s testimony regarding claim 7 are consistent with our review of Schuster. At this stage of the proceeding, Petitioner has made a sufficient showing that Schuster teaches the two way valve recited in claim 7, and that a POSITA would have combined the teachings of Raike and Schuster in the manner set forth in the Petition. For these reasons, as well as those set forth above in section III.C, Petitioner has demonstrated a reasonable likelihood that it would prevail in demonstrating claim 7 is unpatentable under 35 U.S.C. § 103(a) in view of Raike and Schuster.

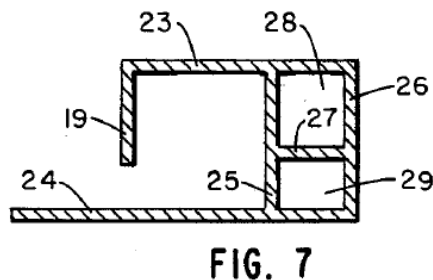
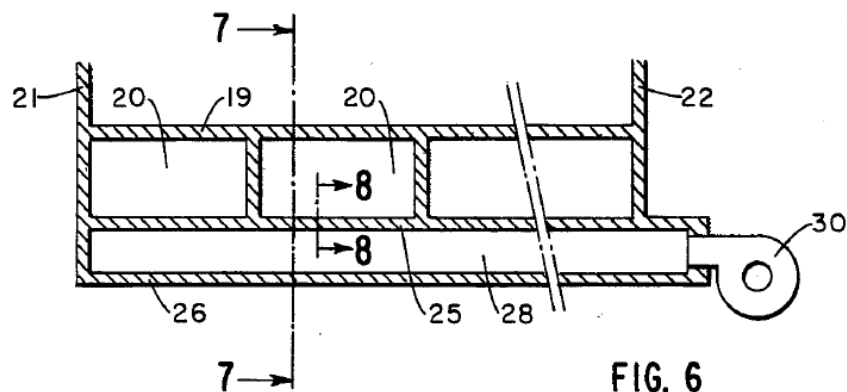
E. Anticipation and Obviousness Based on Bastenhof

Petitioner challenges claims 1–4, 6, 7, 10, and 13–15 under 35 U.S.C. § 102(b) and § 103(a), contending that Bastenhof anticipates and renders

obvious the claimed subject matter. Pet. 40–51. Patent Owner asserts that Bastenhof neither anticipates nor renders obvious the claimed subject matter. Prelim. Resp. 29–42. We begin our analysis of this asserted ground of unpatentability with an overview of Bastenhof and then discuss the parties' contentions for each of the claims.

1. *Bastenhof*

Bastenhof relates to a pneumatic wave generator for a surf pool, which is a swimming pool with artificial wave generation. Ex. 1006, 1:12–14. A wave generator is depicted in Figures 6 and 7, reproduced below.



Figures 6 and 7 depict a cross-sectional view and a vertical sectional view, respectively, of a wave generator. *Id.* at 3:7–11. The wave generator includes a plurality of wave generating chambers 20 that are defined between front wall 19, which extends from side wall 21 of the pool to

opposing side wall 22, as well as from roof 23 of wave generating chambers 21 to a point spaced a distance from bottom 24 of the pool so that water can pass between front wall 19 and bottom 24. *Id.* at 4:20–27. Rear wall 25 of wave generating chambers 20 is spaced a distance from rear wall 26 of the pool to create an interspace therebetween, which is divided by horizontal plate 27 into two halves. *Id.* at 4:27–31. Top half 28 serves as an expiration duct, and lower half 29 serves as an aspiration duct. *Id.* at 4:31–32. Compressor 30 is connected to aspiration duct 29 for propelling air through aspiration duct 29 to wave generating chambers 20. *Id.* at 4:33–36.

Alternating aspiration and expiration of wave generating chambers 20 is effected by alternately opening and closing valves coupled together with each chamber. Ex. 1006, 4:51–54. The aspiration and expiration of wave generating chambers is effected in such a sequence to generate a desired wave form in the surf pool. *Id.* at 4:55–58. A computer control effects the sequence of aspiration and expiration and the rhythm in which this is effected by operating the systems of valves per chamber in that sequence and in that rhythm. *Id.* at 4:58–63.

A valve system is depicted in Figure 8, reproduced below.

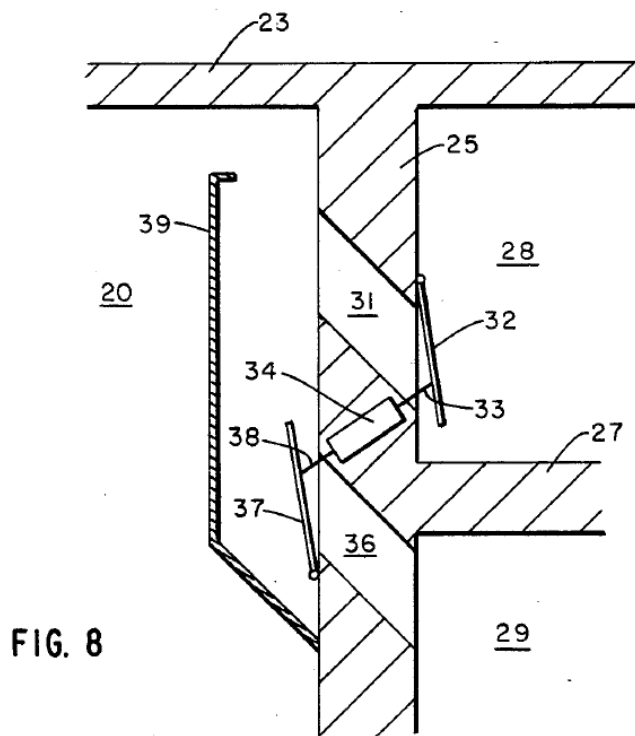


Figure 8 depicts a vertical sectional view of the wave generator.

Ex. 1006, 3:12–13. Rear wall 25 of wave generating chamber 20 includes duct 31 between wave generating chamber 20 and expiration conduit 28. *Id.* at 5:3–5. Duct 31 can be shut off by valve cover 32, which is connected to servo cylinder 34 by cable 33. *Id.* at 5:5–7. Similarly, rear wall 25 includes duct 36 between wave generating chamber 20 and aspiration conduit 29. *Id.* at 5:7–9. Duct 36 can be shut off with valve cover 37, which is connected to servo cylinder 34 by cable 38. *Id.* at 5:9–11. Cylinder 34 operates valves 32, 37 so that when one valve is open, the other is closed. *Id.* at 5:11–13.

2. *Independent Claim 1*

Petitioner maps the limitations of independent claim 1 to Bastenhof's disclosure and argues that Bastenhof discloses and renders obvious every

limitation of the claim. Pet. 41–45. Patent Owner alleges Bastenhof does not disclose or render obvious the controller and its operation steps recited in limitations [1.C] and [1.D.1], respectively. Prelim. Resp. 31–42. At this stage of the proceeding, Patent Owner does not dispute Petitioner’s arguments for the other limitations of independent claim 1.

For the controller recited in limitation [1.C], Petitioner relies on Bastenhof’s computer control. Pet. 43–44 (citing Ex. 1006, 4:20–37, 55–63). Petitioner contends “Bastenhof confirms that the sequence of alternating aspiration and expiration of the wave generating chambers [20] can be effected, for example, electronically by means of computer control and that ‘[a]ny person skilled in the art knows how this can be realized.’” *Id.* at 44 (first alteration in original) (citing Ex. 1006, 4:58-66.). Petitioner also contends “[a]t the time of Bastenhof, it was already well understood that each chamber is connected to a controller such that each chamber can be actuated independently of the other chambers to create waves independently of the release of water from the other chamber(s).” *Id.* (citing Ex. 1009 ¶ 109).

Patent Owner argues Petitioner fails to clearly identify where claim limitation [1.C] is found in Bastenhof. Prelim. Resp. 32. Patent Owner also argues the portion of Bastenhof that Petitioner cites does not expressly disclose any form of connection between the computer control and the wave generating chambers, much less a connection constructed to actuate the release of water from each chamber to create waves independently of the release of water from the other chambers, as recited in claim limitation [1.C]. *Id.* at 32–33. According to Patent Owner, Bastenhof merely discloses the intake and expulsion of air from one chamber. *Id.* at 33

(citing Ex. 1006 3:63–4:2; Ex. 2003 ¶ 58). Patent Owner further argues that the recited controller is not inherent in Bastenhof’s disclosure. *Id.* at 34–35.

In particular, Patent Owner argues:

It is not necessarily the case that a *connection* between a controller (one controller) and a plurality of *chambers* that is constructed to introduce and release *air* from the chambers is constructed for *the release of water from each chamber to create waves independently of the release of water from the other chambers* is a required feature of Bastenhof. For example, the valves that control the operation of the chambers can be located remotely from the chambers themselves.

Id. at 34.

As we explain with respect to the asserted grounds premised on Raike in section III.C.2, claim limitation [1.C] does not recite a controller connected directly to the chambers, as Patent Owner’s argument suggests. As disclosed in the cited portion of Bastenhof, the aspiration and expiration of air from the various wave generating chambers in a sequence generates a desired wave form in the surf pool, and the computer control effects the sequence of aspiration and expiration by controlling the systems of valves per chamber. Pet. 43–44 (citing Ex. 1006, 4:20–37, 55–63). On the current record, we are persuaded a POSITA would have understood that the computer control is connected to the systems of valves per chamber to effect the sequence of aspiration and expiration of air from the various wave generating chambers to generate a desired wave form. *See, e.g., In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.”).

Bastenhof, however, does not appear to describe the sequence of aspiration and expiration of the systems of valves in the wave generating chambers. Dr. Stevick testifies that, at the time of Bastenhof, it was well understood that a control could be connected to wave generating chambers to independently actuate the chambers, but Dr. Stevick does not provide any support for this testimony. Ex. 1009 ¶ 109; *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”). It remains unclear from Bastenhof’s disclosure whether the valves in each chamber draw and expire air in a sequence such that water is released from the chambers at the same time or whether the chambers draw and expire air in a sequence such that chambers release water at different times. More simply put, it is unclear whether Bastenhof discloses sequencing the aspiration and expiration of air from the wave generating chambers or the sequencing of the release of water from the chambers. The parties should address this ambiguity during trial.

In regard to the controller operation steps recited in claim limitation [1.D.1], Petitioner’s arguments are similar to its arguments for the controller recited in claim limitation [1.C]. *Compare* Pet. 44–45, *with id.* at 43–44. Specifically, Petitioner relies on Bastenhof’s computer control that operates the systems of valves in each wave generating chamber to effect the sequence of aspiration and expiration of air from the chambers and generate a desired wave form. *Id.* at 44–45 (citing Ex. 1006, 3:44–51, 4:55–63, Fig. 1; Ex. 1009 ¶¶ 111–112).

Likewise, Patent Owner’s arguments for claim limitation [1.D.1] are similar to its arguments with respect to claim limitation [1.C]. *Compare*

Prelim. Resp. 36–42, *with id.* at 31–35. In particular, Patent Owner maintains the portion of Bastenhof that Petitioner cites refers only to the sequence of aspiration and expiration of one chamber. *Id.* at 37–39 (citing Ex. 1006, 5:5–13, Fig. 8; Ex. 2003 ¶¶ 68–70).

As we explain above with respect to claim limitation [1.C], Bastenhof does not appear to describe the sequence of aspiration and expiration of the systems of valves in the wave generating chambers. Dr. Stevick testifies that Bastenhof discloses the sequenced activation of the wave generating chambers (Ex. 1009 ¶ 112), whereas Dr. Garris testifies that Bastenhof discloses the sequencing of aspiration and expiration in any chamber (Ex. 2003 ¶¶ 68–70). Thus, it is unclear whether Bastenhof discloses sequencing the aspiration and expiration of air from the wave generating chambers or the sequencing of the release of water from the chambers, and the parties should address this ambiguity during trial.

At this stage of the proceeding, we need not further address the asserted grounds based on Bastenhof alone because, as set forth above in sections III.C.2–3, Petitioner has shown a reasonable likelihood that it would prevail in demonstrating independent claims 1 and 13 are unpatentable under 35 U.S.C. § 102(b) and § 103(a) in view of Raike. As Petitioner has made a sufficient showing for institution for at least one claim, we are compelled to institute an *inter partes* review on all challenged claims with respect to all grounds asserted in the Petition.

3. *Independent Claim 13*

Petitioner’s contentions for independent claim 13 are the same as its contentions for independent claim 1. Pet. 40–45. Patent Owner similarly relies on the same arguments for independent claim 13 as independent

claim 1. Prelim. Resp. 29–42. Our analysis for independent claim 1 above in section III.E.2 applies to independent claim 13.

4. *Claims 2–4, 6, 7, 10, 14, and 15*

Petitioner asserts Bastenhof discloses each limitation of claims 2–4, 6, 7, 10, 14, and 15. Pet. 46–51. Patent Owner does not raise arguments for these claims separate from its arguments for independent claims 1 and 13, which we discuss above in sections III.E.2–3. *See* Prelim. Resp. 42 (“Petitioner also fails to establish a reasonable likelihood that it can prevail with respect to any of claims 2–4, 6, 7, 10, 14 and 15 for at least the same reasons explained above in connection with the discussion of claims 1 and 13.”). As claims 2–4, 6, 7, 10, 14, and 15 depend from independent claims 1 and 13, our analysis for independent claims 1 and 13 above in sections III.E.2–3 applies to claims 2–4, 6, 7, 10, 14, and 15.

F. *Obviousness Based on Bastenhof and Raike*

Petitioner challenges claims 1, 5, 8, 9, 11–13, and 16–19 under 35 U.S.C. § 103(a), contending that the combined teachings of Bastenhof and Raike render obvious the claimed subject matter. Pet. 51–58. Patent Owner argues Petitioner has not established a reasonable likelihood that it will prevail with respect to claim 7. Prelim. Resp. 42–43. In our analysis of this asserted ground of unpatentability, we address the parties’ contentions for each of the claims.

1. *Independent Claim 1*

Petitioner proposes to modify Raike’s control system to actuate the chambers in sequence and create any desired wave pattern, as taught by Bastenhof. Pet. 53–54. Petitioner contends a POSITA would have been motivated to combine the teachings of Raike and Bastenhof to result in the

claimed invention because both references seek to provide desirable waves and have a similar wave generator structure, including a plurality of chambers and a controller controlling a system of valves or valve assemblies to alternatively fill the one or more chambers with water and release water from the one or more chambers into the pool. *Id.* at 54 (citing Ex. 1009 ¶¶ 125–131). Petitioner also contends each of Bastenhof and Raike discloses and renders obvious every limitation of independent claim 1. *Id.* at 54–56.

Patent Owner argues the combination of Bastenhof and Raike would not result in each limitation of independent claim 1 because neither Bastenhof nor Raikes discloses claim limitation [1.C]. Prelim. Resp. 42–43. Patent Owner also argues Petitioner’s “conclusory assertions of obviousness do not clearly identify a difference between the claim and one more of the cited references, and does not clearly describe a modification that a [POSITA] would have been motivated to make in order to arrive at the claimed invention.” *Id.* at 43 (citing Ex. 2003 ¶¶ 76–79).

As set forth above in section III.C.2, on the current record and for purposes of institution, Petitioner has shown that Raike discloses every limitation of independent claim 1. Given that Petitioner has shown, at this stage of the proceeding, that Raike anticipates independent claim 1, Petitioner has demonstrated a reasonable likelihood that it would prevail in demonstrating independent claim 1 is unpatentable under 35 U.S.C. § 103(a) in view of Bastenhof and Raike.

2. *Independent Claim 13*

Petitioner’s contentions for independent claim 13 are the same as its contentions for independent claim 1. Pet. 54–56. Patent Owner similarly

relies on the same arguments for independent claim 13 as independent claim 1. Prelim. Resp. 42–43.

Our analysis for independent claim 1 above in section III.F.1 applies to independent claim 13. As we explain above in section III.C.3, on the current record and for purposes of institution, Petitioner has shown that Raike discloses every limitation of independent claim 13, and, thus, Petitioner has demonstrated a reasonable likelihood that it would prevail in demonstrating independent claim 13 is unpatentable under 35 U.S.C. § 103(a) in view of Bastenhof and Raike.

3. *Claims 5, 8, 9, 11–13, and 16–19*

Petitioner asserts that at least Raike discloses each limitation of claims 1, 5, 8, 9, 11–13, and 16–19. Pet. 56–57. Patent Owner does not raise arguments for these claims separate from its arguments for independent claims 1 and 13.

At this stage of the proceeding, we see no need to further address these claims because, as set forth above in sections III.C.2–3 and III.F.1–2, Petitioner has shown a reasonable likelihood that it would prevail in demonstrating independent claims 1 and 13 are unpatentable. As Petitioner has made a sufficient showing for institution for independent claims 1 and 13, we are compelled to institute an *inter partes* review on all challenged claims with respect to all grounds asserted in the Petition.

IV. DISCRETION UNDER 35 U.S.C. § 325(d)

Pursuant to 35 U.S.C. § 325(d), “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” In

considering whether to exercise discretion to deny a petition under § 325(d), the Board uses a two-part framework, namely:

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if either condition of the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”). If a condition in the first part of the framework is satisfied, and absent a material error, the Director generally will exercise discretion not to institute *inter partes* review. *Id.* at 8–9.

The factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) provide useful insight into how to apply this two-part framework. *Advanced Bionics* at 9. The *Becton, Dickinson* factors include:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art; (e) whether petitioner has pointed out sufficiently how the [Office] erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments.

Id. at 9 n.10 (citing *Becton, Dickinson*, Paper 8 at 17–18). “If, after review of [*Becton, Dickinson*] factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were presented to the Office, then [*Becton, Dickinson*] factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office.” *Id.* at 10.

Patent Owner argues that an application of the *Advanced Bionics* framework to the prosecution history of the ’263 patent supports the Board exercising its discretion to deny institution under § 325(d). Prelim. Resp. 8–17. Petitioner contends the Office relied on Patent Owner’s representations during prosecution and failed to consider the teachings of Raike, Schuster, and Bastenhof. Pet. 4–5, 12–13, 20–21. We begin our analysis with a review of the ’263 patent’s prosecution history (Ex. 1003). We then apply the *Advanced Bionics* framework in view of the prosecution history.

A. Prosecution History of the ’263 Patent

The ’263 patent issued from U.S. Patent Application No. 13/603,223 (“the ’223 application”). Ex. 1001, code (21). During prosecution, the Examiner issued a non-final Office action in which the Examiner rejected claims 1–19 of the ’223 application under 35 U.S.C. § 103(a) as being unpatentable over McFarland⁶. Ex. 1003, 60. In doing so, the Examiner determined that

[a]lthough McFarland et al. does not specifically disclose what sequence the controller is operating the chamber, it would have been obvious to one of skill in the art that the chambers can be operated in any known sequence or fashion to create any wave

⁶ McFarland et al., US 7,815,396 B2, issued Oct. 19, 2010 (“McFarland”) (Ex. 1008).

patterns which the provided apparatus and controller are capable of making.

Id. Along with the non-final Office action, the Examiner provided an initialed copy of an Information Disclosure Statement (“IDS”) indicating that the Examiner considered the references cited therein, including Raike, Schuster, and Bastenhof. *Id.* at 64–65.

In its Response to the non-final Office action, Patent Owner amended independent claims 1 and 13 to specify that the controller is “connected to” the chambers and “the connection is constructed to actuate the release of water from each chamber to create waves independently of the release of water from the other chambers,” which is the subject matter of limitations [1.C] and [13.C] in the ’263 patent. *Id.* at 71, 74. In support of the amended claims, Patent Owner argued “[t]he claims of the present application are not obvious in view of McFarland because this reference does not disclose actuating the release of water from the chambers independently of each other to generate waves.” *Id.* at 76. Per Patent Owner, “the chambers of McFarland operate together in unison, unlike the present invention.” *Id.* at 77.

In reply to Patent Owner’s Response, the Examiner issued a Notice of Allowability for the amended claims. *Id.* at 92.

B. Applying the Advanced Bionics Framework

In regard to the first part of the *Advanced Bionics* framework, Patent Owner argues the Examiner considered all of the references Petitioner relies on for its asserted grounds of unpatentability, namely, Raike, Schuster, and Bastenhof, because these references are listed on an IDS that the Examiner initialed. Prelim. Resp. 10–11. Petitioner acknowledges that these references were cited during prosecution and argues the Examiner never

considered the references in any detail. Pet. 20–21. We, however, need not determine whether the same or substantially the same art or argument was previously presented to the Office pursuant to the first part of the *Advanced Bionics* framework because we determine that, under the second part of the framework, the Examiner materially erred by overlooking key aspects of Raike’s disclosure.

Regarding the second part of the *Advanced Bionics* framework, Patent Owner argues the Examiner considered Raike, Schuster, and Bastenhof in the IDS and found these references cumulative to McFarland, which the Examiner used to reject the claims during prosecution. Prelim. Resp. 15–16. Petitioner maintains the Examiner did not consider Raike, Schuster, and Bastenhof and failed to recognize their detailed descriptions of sequentially actuated wave generating chambers having pressure and vent valves controlled via a controller to generate the desired waves. Pet. 5.

As discussed above in sections III.C.2–3, Petitioner has demonstrated a reasonable likelihood that at least independent claims 1 and 13 of the ’263 patent are unpatentable over Raike. In doing so, Petitioner has shown that the Examiner erred in a manner material to the patentability of the challenged claims by not appreciating Raike’s disclosure of the limitations, i.e., limitations [1.C] and [13.C], that Patent Owner argued, and the Examiner acquiesced, were missing from McFarland. *See* Ex. 1003, 76–77 (Patent Owner arguing “[t]he claims of the present application are not obvious in view of McFarland because this reference does not disclose actuating the release of water from the chambers independently of each other to generate waves” and “the chambers of McFarland operate together in unison, unlike the present invention”). Because Petitioner persuasively

shows, at this stage of the proceeding, that Raike discloses the very limitations that were purportedly found to be missing in the prior art, we determine that the Examiner “erred in a manner material to the patentability of the challenged claims” per the second part of the *Advanced Bionics* framework. Thus, we decline to exercise our discretion to deny institution under § 325(d).

V. CONCLUSION

For the reasons set forth above, Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one of the challenged claims of the ’263 patent. We, therefore, institute an *inter partes* review based on the asserted grounds of unpatentability set forth in the Petition. *See* 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”). At this stage of the proceeding, however, we have not made a final determination as to the patentability of any challenged claim or any underlying factual or legal issue.

VI. ORDER

Accordingly, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1–19 of the ’263 patent on all grounds presented in the Petition, and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of trial, which will commence on the entry date of this Decision.

IPR2022-01034
Patent 9,279,263 B2

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