

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.

IPR2022-01032
Patent 10,662,663 B2

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

DEFRANCO, *Administrative Patent Judge*.

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

American Wave Machines, Inc., (“AWM”) is the owner of U.S. Patent No. 10,662,663 B2 (Ex. 1001, “the ’663 patent”). WhiteWater West Industries, Ltd. (“WhiteWater”) filed a Petition requesting *inter partes* review of claims 1–9, 13, and 14 of the ’663 patent. Paper 2 (“Pet.”). AWM filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Because we determine that WhiteWater has not demonstrated a reasonable likelihood that any of the challenged claims of the ’663 patent is unpatentable, we do not institute an *inter partes* review. See 35 U.S.C. § 314(a).

I. BACKGROUND

A. Related Matters

The ’663 patent is the subject of an infringement action, filed May 20, 2022, in *Whitewater West Industries, Ltd. v. American Wave Machines, Inc.*, Case No. 3-22-cv-00729 (S.D. Cal.). See Paper 5, 2. WhiteWater notes that they have filed petitions challenging three other AWM patents, namely, U.S. Patent Nos. 8,434,966 B1 (IPR2022-001033), 9,279,263 B2 (IPR2022-01034), and 10,738,492 B1 (IPR2022-01035). Pet. 1.

B. The ’663 Patent

The ’663 patent is directed to a wave-generating apparatus with a wave-damping trough. See Ex. 1001, 2:2–3. According to the ’663 patent, the wave energy created from generating a wave is subsequently dampened upon the wave encountering a static body of water retained by the trough. *Id.* at 2:17–19. The ’663 patent explains that the static body of water in the trough creates a hydraulic jump that abruptly changes the flowing water’s velocity, absorbing the wave propagation energy. *Id.* at 2:19–21. Figures 3A, 3B, and 3C of the ’663 patent, reproduced below, illustrate an embodiment of the wave-generating apparatus.

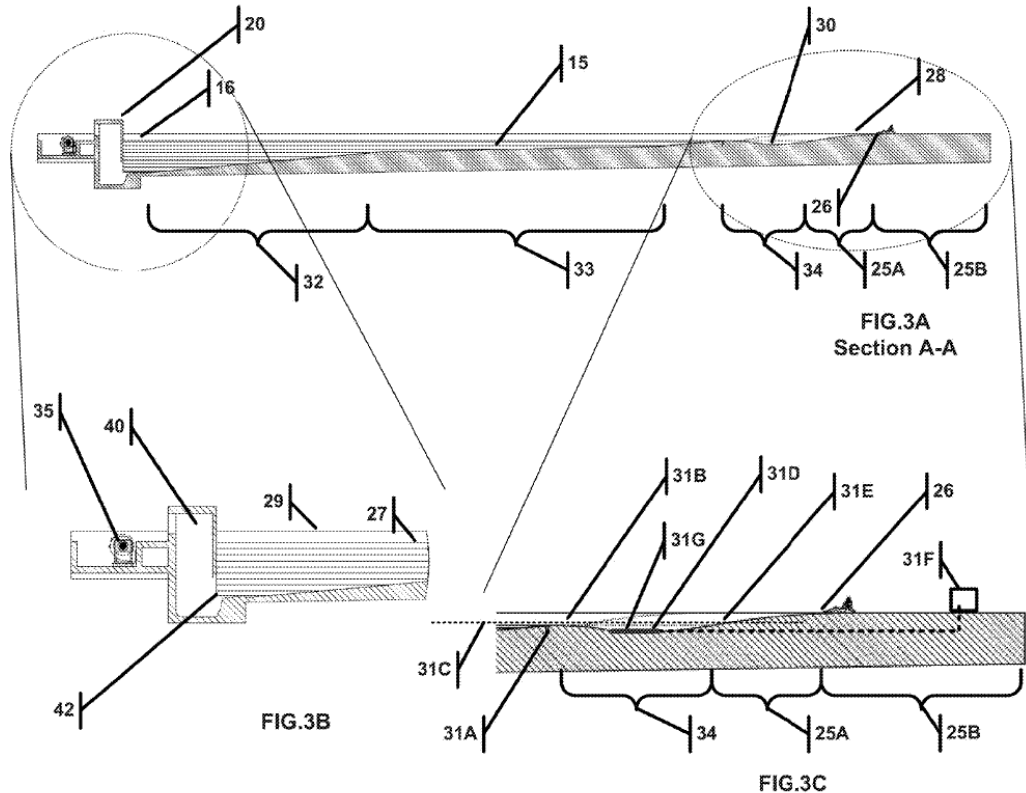


Figure 3A is a cross-sectional view of the wave-generating apparatus; Figure 3B is an enlarged section of the wave generator depicted in the cross-section of Figure 3A; and Figure 3C is an enlarged section of the wave-dampening trough depicted in the cross-section of Figure 3A. *Id.* at 2:61–66. Wave-generating apparatus 10 includes wave pool 15 having a bottom with two portions 32, 33, in which first portion 32 has an angle of inclination relative to horizontal that is steeper than the angle of inclination of second portion 33. *Id.* at 5:56–61. The variance in steepness assists in creating the wave. *Id.* at 5:61–62. The bottom 32, 33 defines deep edge 16 and beach edge 25B, with wave generator 20 adjacent deep edge 16. *Id.* at 5:65–67. When the wave generator 20 is not actuated, pool 15 retains water at static water level 27, with a portion of shore edge 28 above the pool's water level. *Id.* at 5:67–6:3.

Adjacent to beach edge 25B is shore 25A, which has an upwardly-inclined bottom, and adjacent to shore 25A is open wave-damping trough 30 that retains the static body of water. *Id.* at 6:6–9. Between trough 30 and pool bottom 32, 33 is mound 31A, which has maximum height point 31B. *Id.* at 6:11–13. The '663 patent explains that trough 30 has trough bottom 31D that begins at the maximum height point 31B and slopes down and up, forming a bowl in which the static body of water is retained. *Id.* at 6:13–16. Horizontal plane 31C intersects maximum point 31B to define one edge of trough 30, and the other edge is defined by the point where trough bottom 31D intersects plane 31C (shown as point 31E). *Id.* at 6:16–19. “From point 31E to the point where the shore bottom is substantially horizontal defines the shore 25A and the shore terminal edge 26.” *Id.* at 6:20–22.

According to the '663 patent, when the wave generator is actuated, it creates a wave that propagates across the wave pool from the deep edge to the beach edge, and the wave energy is dampened when the wave encounters the static body of water retained in the trough. *Id.* at 2:15–19. This encounter forms a backwash that propagates in a direction opposite to the original wave, and that propagation of the backwash is also dampened by the wave-damping trough. *Id.* at 8:29–39, Figs. 7D–7F.

C. The Asserted Challenges

Claims Challenged	35 U.S.C. §	Basis
1, 4–6, 9	102	Black ¹
1, 2, 4–6, 9	103	Black
1, 4, 6, 9, 13, 14	103	Mount Olympus ²
1, 2, 4–9	103	Black, Wharton ³
3	103	Black, Wharton, Mandalay Bay ⁴
13, 14	103	Black, Wharton, Mount Olympus
1, 4–6, 9	103	Black, Peterka ⁵

In support of these challenges, WhiteWater also submits the declaration of Glen Stevick, Ph.D., P.E. *See* Ex. 1009. AWM, in turn, responds with the declaration of Charles Alexander Garris, Jr., Ph.D. *See* Ex. 2004.

D. The Challenged Claims

Of the challenged claims, claim 1 is the sole independent claim and recites:

1. A wave-generating apparatus, comprising:
a deep edge;
a beach edge having a shore and a shore terminal edge;
a wave generator adjacent to the deep edge;
a wave pool with a pool bottom, wherein the pool bottom comprises two portions, a first pool bottom portion having a first

¹ US 6,912,738 B2, issued July 5, 2005 (Ex. 1003, “Black”).

² Wisconsin Department of Commerce Conditional Approval Plan for Big Chiefs Mount Olympus Theme Park, dated June 20, 2007 (Ex. 1005, “Mount Olympus”).

³ US 586,983, issued July 27, 1897 (Ex. 1004, “Wharton”).

⁴ Clark County, Nevada, Building Department Permit for Mandalay Bay Temple Ruins Wave Pool, dated Sept. 4, 1998 (Ex. 1006, “Mandalay Bay”).

⁵ A. J. Peterka, U.S. DEPT. OF THE INTERIOR BUREAU OF RECLAMATION, *Hydraulic Design of Stilling Basins and Energy Dissipators*, Engineering Monograph No. 25, Sept. 1958 (Ex. 1007, “Peterka”).

angle of inclination relative to horizontal, and a second pool bottom portion having a second angle relative to horizontal, wherein the first angle is greater than the second angle; and

a wave-damping trough adjacent to the shore and adapted to retain water, the trough comprising:

a mound with a mound height forming a first edge of the wave-damping trough that separates the water in the wave-damping trough from the water in the wave pool;

a trough bottom; and

a second edge of the wave-damping trough extending from the trough bottom and sloped upward to meet the shore and the beach edge of the apparatus;

wherein when the wave generator is not actuated, the wave pool retains water defining a static water level that is below the mound height of the wave-damping trough, and the wave-damping pool retains a static body of water below the mound height separated from the water in the wave pool; and

wherein when the wave generator is actuated, a wave forms at the deep edge, breaks over the junction of the first pool bottom portion and the second pool bottom portion, travels over the second pool bottom portion, then travels over the mound of the wave-damping trough toward the shore terminal edge, and wherein the wave energy is dampened by the static body of water retained in the wave-damping trough, such that the wave white water is dampened as the wave travels from the first edge of the wave-damping trough towards the second edge of the wave-damping trough and the shore, and the wave backwash is dampened as it travels from the second edge of the wave-damping trough towards the first edge of the wave-damping trough.

Id. at 10:42–11:15 (emphases added).

II. ANALYSIS

A. Claim Construction

We apply the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). That is, “the words of a claim ‘are generally given their ordinary and customary meaning’

. . . that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1312–13; *see also* 37 C.F.R. § 42.100(b).

WhiteWater asks that we construe three terms of claim 1: (1) the term “beach edge” to mean “the edge of the wave generating apparatus that is opposite to the wave generators” (Pet. 29–30); (2) the term “shore terminal edge” to mean “the part of the beach edge that is substantially horizontal” (*id.* at 30); and (3) the term “a wave . . . breaks” to mean, “a wave begins to curl over and water begins to collapse back toward the pool surface” (*id.* at 30–31).

AWM responds that WhiteWater’s proposed constructions for the first and third terms “can be afforded their plain and ordinary meaning.” Prelim. Resp. 6. As for the second term, “shore terminal edge,” AWM disputes WhiteWater’s proposed construction and proposes that the term be construed to mean “the edge where the shore bottom becomes substantially horizontal.” *Id.* at 7–9. AWM additionally notes that the term “wave-damping pool,” as recited in the first “wherein” clause of claim 1, “contains a clear typographical or clerical error that is minor in nature” and that the term should actually read as “wave-damping *trough*.”⁶ *Id.* at 10–11.

Having reviewed the parties’ proposed constructions, we do not perceive the need to expressly construe any of these claim terms, as the threshold question of institution can be decided regardless of their construction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor*

⁶ AWM indicated in an email to the Board, dated Sept. 16, 2022, that it “intends to file a request for a Certificate of Correction” relating to this apparent typographical error. *See* 37 C.F.R. § 1.323.

Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (approving Board decision not to construe claim language where the construction is not material to the dispute).

B. Level of Ordinary Skill in the Art

WhiteWater asserts that one skilled in the art of wave pools “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 “could be obtained by successfully completing a Master’s degree in Mechanical Engineering or at least 5 years of experience in a job working with control systems, including designing or implementing such wave generation machines and wave-dampening pool structures.” Pet. 28. AWM does not contest that assertion. See Prelim. Resp. 5–6. Nor do we discern any reason to question its credibility. Thus, for purposes of institution, we review the asserted prior art mindful of the level of skill in the art as stated by WhiteWater.

C. Challenges 1 and 2—Anticipation/Obviousness Based on Black

WhiteWater asserts that claims 1, 2, 4–6, and 9 of the ’663 Patent are unpatentable as anticipated by, or obvious over, Black. Pet. 31. In challenging those claims, WhiteWater submits a detailed mapping of how Black allegedly satisfies each of the recited claim elements, as well as providing citations to testimony from its declarant. See *id.* at 32–38. For the reasons that follow, we find that WhiteWater fails to demonstrate that Black discloses the claim limitations pertaining to “a wave-damping trough adjacent to the shore and adapted to retain water . . . wherein when the wave generator is actuated, . . . the wave energy is dampened by the static body of water retained in the wave-damping trough.”

In its Petition, WhiteWater points to Black’s disclosure of an “external channel” around the periphery of wave pool 1, also called “lazy river 9,” as meeting the claimed “wave-damping trough” limitations. See Pet. 34–35 (citing Ex. 1003, 8:52–53, 8:56–9:2, 9:9–15, Figs. 1, 2A). According to WhiteWater, Black’s lazy river 9 is wave-damping because it ““assists in preventing currents from flowing back up waterway 2, avoiding a ‘rip’-like action”” and ““avoids or minimises [sic] the problem of currents tending to carry surfers back towards the [deep] end 3 into the path of other surfers and the problem of disrupting the smooth wave face by adverse currents in the wave pool 1.”” *Id.* (quoting Ex. 1003, 9:10–15) (first alteration added by Petitioner).

AWM, in turn, responds that the portions of Black relied upon by WhiteWater would not have been understood by one skilled in the art as “disclosing that the lazy river (9) possesses wave-damping functionality,” given that Black indicates that other structural aspects of the wave pool dissipate wave energy. Prelim. Resp. 19–20 (citing Ex. 2004 ¶¶ 53–55). According to AWM, the progressive rise of end portion 4 of the wave pool (i.e., along floor surface 4A and pool area 4B) “serve to dissipate wave energy before it even reaches the water contained inside the lazy river” so that, effectively, “[w]ater from the wave [pool] could simply fall into the lazy river 9, and circulate therein.” *Id.* at 20.

We agree with AWM for several reasons. First, nowhere do we discern that Black discloses, either expressly or inherently, that the lazy river functions as a “wave-damping trough.” Instead, Black expressly states that pool area 4B has “an increased width and curved depth contours to refract the waves around the pool area 4B” so that it “may thus be used for

recreational swimming *as the wave height is largely reduced in this area.*”

Ex. 1003, 6:29–35 (emphasis added). Moreover, according to Black,

The characteristics of the end portion 4 should thus be designed *so that waves from waterway 2 do not continue through the end portion 4*. This avoids the safety problems associated with allowing surfers to ride in the same area as recreational swimmers.

Id. at 6:38–42 (emphasis added). Those disclosures provide clear support for AWM’s assertion that wave energy is dissipated in pool area 4B prior to reaching lazy river 9, which is separated from pool area 4B by a walkway.

Indeed, Black fails to associate any wave damping function with the lazy river, despite using that very term when describing other aspects of the wave pool, for example, side walls 5, 6—

Wave damping means are provided on one or both of the side walls 5, 6 to reduce reflections within the waterway 2. Various wave energy absorption and dissipation devices are known in the art and any one or combination of these known devices may be used. Alternatively, the wave damping means may include an irregular surface such as a series of porous spaces or a series of water-filled elements, filled at a pressure so as to provide the most effective wave damping action. The wave damping means is located behind a cage (not shown) along the walls 5 and/or 6 and extend along most or all of the side walls 5 and/or 6.

Ex. 1003, 5:37–47; *see also id.* at 2:26–28 (“[T]he first and second side walls may include a wave damping means adapted to absorb or dissipate wave energy.”). Having described one structural aspect of the wave pool in terms of “wave damping,” Black likely would have used that same term to describe other structural aspects of the pool if they too performed that function. But nowhere does Black use that term in connection with the lazy river.

Nor does Black describe the lazy river in terms that denote a “static body of water” in which “wave energy is dampened,” as required by claim 1. Ex. 1001, 11:1–8. Rather, if anything, Black’s description of the lazy river appears to indicate the opposite, namely, that waves are created in the lazy river to assist in circulation of the water. For instance, according to Black, the purpose of lazy river 9 is “to provide a flow of water from end 4 to end 3” of the wave pool so that surfers “may travel back to end 3 along the lazy river 9, not having to leave the water until they approach the take-off tower (not shown).” *Id.* at 8:51–57. Notably, “[s]mall waves may travel up the lazy river 9,” which Black explains, is necessary for the circulation of water around the lazy river—

The waves may fall over end 4 into the lazy river, thereby creating head and providing pressure to assist in the circulation of water around the lazy river as indicated by the arrows within the lazy river 9 in FIG. 1. This head may work in combination with any additional pumps which may be required to circulate the water and/or feed water back into the waterway 2.

Id. at 8:58, 9:2–8; *see also id.* at 3:47–48 (“[W]aves [] spill over at least a portion of the second end of the waterway into the external channel.”).

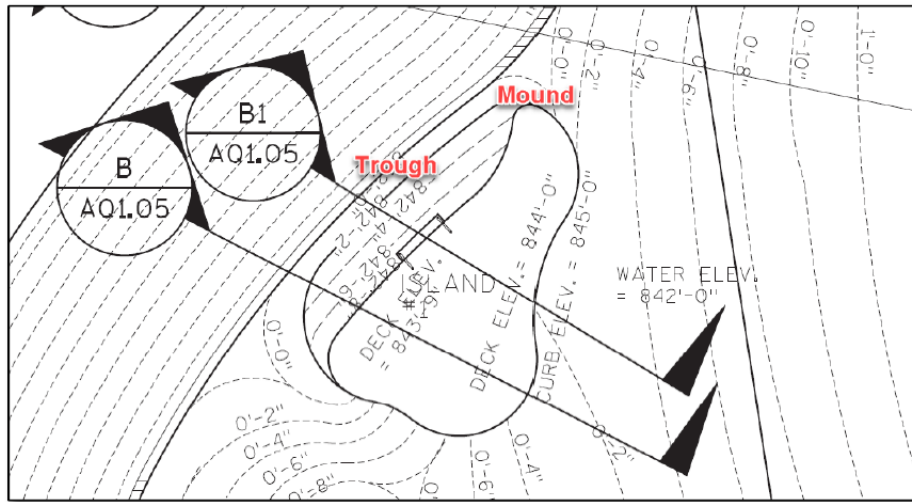
In other words, by allowing water to spill over from pool area 4 into lazy river 9, Black produces a *wave-induced* flow within the external channel forming the lazy river. As such, we highly doubt that one skilled in the art would consider the claimed “wave-damping trough,” where “wave energy is dampened by the static body of water” retained in the trough, to be met by Black’s lazy river, where waves are created by water spilling into a moving channel of water. *Compare* Ex. 1001, 2:17–21, 6:37–42, 8:20–28, Figs. 7A–7C, *with* Ex. 1003, 3:44–48, 8:51–9:8, Fig. 1. More likely, Black’s disclosure supports a clear distinction between a wave-damping

trough and a wave-inducing channel such that one skilled in the art would not consider Black’s lazy river 9 to be a wave-damping trough. *See, e.g.*, Ex. 2004 ¶¶ 55–60, 79–83.

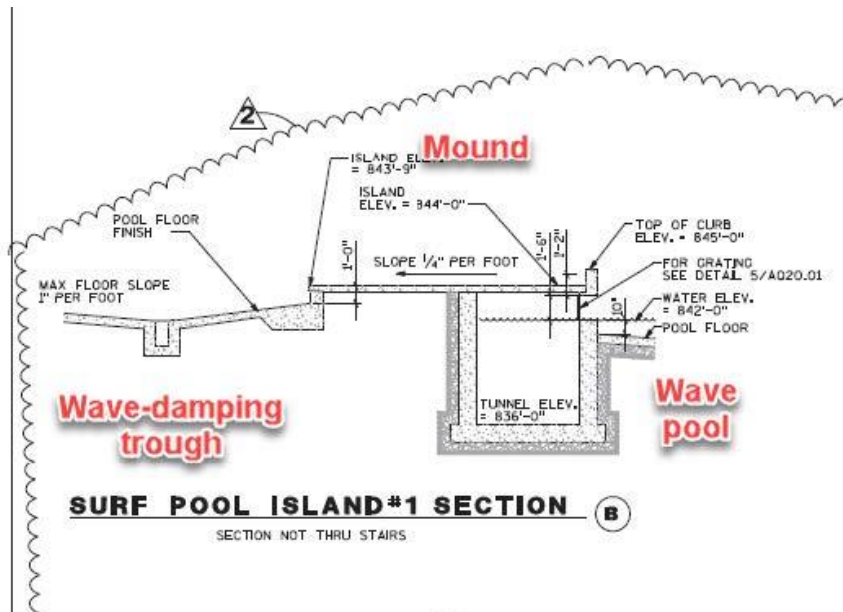
Because Black does not disclose or otherwise suggest the claim limitations requiring “a wave-damping trough . . . wherein when the wave generator is actuated, . . . the wave energy is dampened by the static body of water retained in the wave-damping trough,” we determine that WhiteWater’s Petition fails to support a reasonable likelihood that claim 1 is unpatentable as anticipated by, or obvious over, Black. And because WhiteWater’s challenge of dependent claims 2, 4–6, and 9 suffers the same deficiency, we likewise determine that WhiteWater falls short in demonstrating a reasonable likelihood that those dependent claims are unpatentable as anticipated by, or obvious over, Black.

D. Challenge 3—Anticipation Based on Mount Olympus

WhiteWater also challenges claims 1, 4, 6, 9, 13, and 14 as anticipated by Mount Olympus and provides a detailed mapping of how Mount Olympus allegedly meets each of the recited claim elements. *See* Pet. 42–49. At the outset, we note that Mount Olympus is a set of construction plans for a surf pool in a water park. *See* Ex. 1005, 6–28. In challenging claim 1, WhiteWater submits annotated figures from pages 10 and 16 of Mount Olympus, reproduced below, depicting an island near the shore of the surf pool. *See* Pet. 44–45.



Ex. 1005, page 10, annotated



Ex. 1005, page 16 (annotated)

The figure from page 10 of Mount Olympus is a top-view plan of the island deck in the surf pool, and the figure from page 16 is a cross-sectional view of the island deck in the pool. As shown above, WhiteWater annotates these figures to add the label “Mound” for the island and the label “Trough” for the area between the island and the shore of the pool. *See id.* According to WhiteWater, “[t]he trough has sloped edges, and a gutter, indicating that it

is designed to retain water.” *Id.* (citing Ex. 1005, 10, 11, 16). Based on that single teaching, WhiteWater then surmises that one skilled in the art looking at Mount Olympus “understands that the wave generated on the deep edge would continue to travel across the length of the wave pool . . . [and] would continue up and over the mound of the wave-damping trough toward the shore terminal edge” and also “understands the function of the trough disclosed in Mount Olympus is to dissipate or dampen the wave energy of incoming white water.” *Id.* at 46–47.

Having reviewed WhiteWater’s evidence and arguments, we are not persuaded that Mount Olympus’s trough has a “wave-damping” effect, as required by claim 1. Nor are we persuaded that WhiteWater demonstrates that Mount Olympus discloses or suggests that “when the wave generator is actuated, a wave . . . travels over the mound of the wave-damping trough” and “wave energy is dampened by the static body of water retained in the wave-damping trough,” as also required by claim 1. Rather, we agree with AWM that WhiteWater’s assertions in this regard are conclusory and speculative, at best. *See* Prelim. Resp. 30–31, 41–43.

Foremost, we note that neither WhiteWater nor its declarant points to any credible evidence for why one skilled in the art would understand Mount Olympus’s trough to have a wave-damping effect. *See* Pet. 44, 47. Indeed, there is absolutely no disclosure in Mount Olympus, express or otherwise, of a wave traveling over the island, let alone being dampened by water in the trough. More likely, the configuration and contours of the trough, and its location behind the island, suggest an area of shallow water where people can safely congregate without entering the deeper surf pool where waves are

generated. *See* Ex. 1005, 16 (depicting cross-sectional views of the trough area of the pool relative to the surf area of the pool).

Also, there is no indication whatsoever that, upon activation of the wave generator, a wave “travels over” Mount Olympus’s island, i.e., mound, and is dampened by a “static body of water,” as required by claim 1. Instead, Mount Olympus’s figures show the water in the trough at the same elevation as the water in the surf pool, namely, 842’-0,” which indicates that the trough is nothing more than a channel for water to flow around the island. *See* Ex. 2004 ¶¶ 89–92, 107–108 (annotating Mount Olympus’s figure on page 11 to show as much). And because there is no separation between the water in the surf pool and the water in the trough, meaning they are indivisible, water from the deeper surf pool would necessarily flow around, and circulate through, Mount Olympus’s trough. *See id.* ¶¶ 112–113. As such, we fail to see how one skilled in the art would view Mount Olympus’s trough as meeting the “static body of water” limitation.

In sum, because Mount Olympus does not disclose (or otherwise suggest) the limitations of claim 1 pertaining to the trough being “wave-damping” and retaining a “static body of water,” we determine that WhiteWater fails to demonstrate a reasonable likelihood that claim 1 is unpatentable as anticipated by Mount Olympus. And because WhiteWater’s challenge of dependent claims 4, 6, 9, 13, and 14 suffers the same deficiency, we likewise determine that WhiteWater falls short in demonstrating a reasonable likelihood that those dependent claims are unpatentable as anticipated by Mount Olympus.

E. Challenge 4—Obviousness Based on Black and Wharton

WhiteWater also challenges claims 1, 2, and 4–9 as obvious over Black and Wharton. Pet. 49–59. More specifically, WhiteWater considers that it would have been obvious to “modify[] the cross-sectional shape of the channel (9) disclosed by Black to instead have a bowl-shaped wave-damping trough with a second edge that slopes upward to the shore terminal edge,” as taught by Wharton. *Id.* at 49–50. But, in proposing this modification, WhiteWater fails to remedy the deficiency discussed above with respect to Black’s channel (i.e., lazy river 9) lacking a wave-damping effect. Simply changing the shape of Black’s lazy river to be bowl-shaped would not change that fact. Thus, WhiteWater’s Petition fails to support a reasonable likelihood that claim 1 is unpatentable as obvious over Black and Wharton. And because WhiteWater’s challenge of dependent claims 2 and 4–9 suffers the same deficiency, we likewise determine that WhiteWater falls short in demonstrating a reasonable likelihood that those dependent claims are unpatentable as obvious over Black and Wharton.

F. Challenge 5—Obviousness Based on Black, Wharton, and Mandalay Bay

WhiteWater challenges dependent claim 3 as obvious based on Black, Wharton, and Mandalay Bay. WhiteWater only relies on Mandalay Bay for features related to claim 3, which depends from claim 1. *See* Pet. 59–62. WhiteWater does not point to any disclosure in Mandalay Bay that remedies the shortcomings of Black and Wharton discussed above with respect to claim 1. Thus, WhiteWater’s Petition fails to support a reasonable likelihood that claim 3 is unpatentable as obvious over Black, Wharton, and Mandalay Bay.

G. Challenge 6—Obviousness Based on Black, Wharton, and Mount Olympus

WhiteWater challenges dependent claims 13 and 14 as obvious over Black, Wharton, and Mount Olympus. WhiteWater only relies on Mount Olympus for features related to claims 13 and 14, which depend from claim 1. *See* Pet. 63–65. WhiteWater does not point to any disclosure in Mount Olympus that remedies the shortcomings of Black and Wharton discussed above with respect to claim 1. Thus, WhiteWater’s Petition fails to support a reasonable likelihood that claims 13 and 14 are unpatentable as obvious over Black, Wharton, and Mount Olympus.

H. Challenge 7—Obviousness Based on Black and Peterka

WhiteWater also challenges claims 1, 4–6, and 9 as obvious over Black and Peterka. Pet. 65–71. In doing so, WhiteWater asserts that “[t]o the extent Black does not teach a wave-damping trough, Peterka supplies this teaching” by disclosing “a stilling basin, which is used to catch and dissipate wave energy from open-channel water flows.” *Id.* at 67 (citing Ex. 1007, 34–45,⁷ Fig. 17). According to WhiteWater, one skilled in the art “would have needed only to substitute the form of the channel (9) taught by Black with one of the stilling basins described in Peterka,” because “[b]oth the channel of Black and the stilling basin of Peterka are designed to be separated from the main open water flow by a wall or mound, over which waves will surge” in order to “dissipate[] the wave energy and prevent[] some or all of the wave backwash from reentering the main water pool.” *Id.* at 65–66 (citing Ex. 1009 ¶¶ 199–201).

⁷ We cite to the page numbers of the exhibit rather than the page numbers of the original article.

We disagree that one skilled in the art would have undertaken to combine the teachings of Black and Peterka. As noted by AWM, Peterka's stilling basins are designed to create turbulence in a continuous inflow of water, such as from a spillway of a dam, that dissipates energy and increases the depth of the incoming flow. See Prelim. Resp. 54–55 (citing Ex. 1007, 46; Ex. 2004 ¶¶ 141–144). Figure 10, reproduced below, illustrates the manner in which Peterka's stilling basin creates turbulence as the water enters and exits the stilling basin.

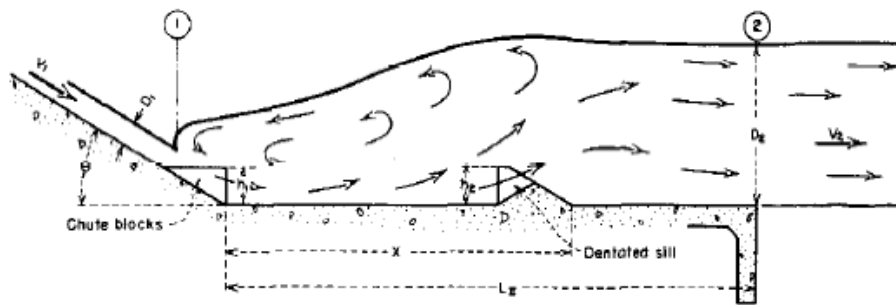


FIGURE 10.—*Definition of symbols (Basin II).*

Peterka's Figure 10 is a diagram of an exemplary stilling basin. As shown, relatively fast-moving water spills into the stilling basin and encounters "chute blocks" and "dentated sills," which create "energy dissipating eddies" that effectively decrease the velocity of the incoming flow while increasing its depth before exiting the basin. Ex. 1007, 34–35. That Peterka's stilling basin, which WhiteWater corresponds to a "wave-damping trough," results in an outgoing flow of substantially increased depth and turbulence shows that it is not a "static body of water," as required by claim 1. See Ex. 2004 ¶¶ 149–151.

Nor does WhiteWater provide any evidence or explanation as to how Peterka's stilling basin is configured to be "wave-damping," as also required by claim 1. That is because the creation of turbulence is the antithesis of wave-damping. Peterka recognizes as much by dedicating an entire section to addressing the problem of waves caused by the turbulence in stilling basins. *See* Ex. 1007, 58–71. Nowhere does WhiteWater account for this express disclosure in Peterka. *See* Pet. 65–70. Indeed, given Peterka's disclosure of the need for wave suppression downstream from the stilling basin, we highly doubt that one skilled in the art would reasonably view Peterka's stilling basin (which is the only structure on which WhiteWater relies) as corresponding to the claimed "water-damping trough." *See* Ex. 2004 ¶¶ 152, 158.

Moreover, we agree with AWM that WhiteWater's proposed modification lacks rational basis because it "fails to consider the teachings of both Black and Peterka as a whole, would result in modifications that are contrary to the fundamental principles and mode of operation of Black, and would be undesirable and detrimental to the intended use and enjoyment of the [Black's] lazy river." *See* Prelim. Resp. 61 (citing Ex. 2004 ¶ 162). More specifically, Black seeks to add energy (i.e., increase circulation) of water inflow by allowing waves to travel from the pool into the lazy river, whereas Peterka seeks to dissipate energy (i.e., decrease velocity) of inflow by introducing turbulence in the stilling basin. *Compare* Ex. 1003, 9:2–5, *with* Ex. 1007, 34. Based on those disclosures, one skilled in the art would understand that Black and Peterka have competing objectives, and that incorporating Peterka's teachings into Black's lazy river and wave pool would introduce undesirable turbulence that most likely would impede the

circulation of water within Black's lazy river and jeopardize the safety of the swimmers and surfers therein. See Ex. 2004 ¶¶ 160–161. As such, we do not discern a viable reason to combine these disparate teachings.

For the above reasons, WhiteWater's Petition fails to support a reasonable likelihood that claim 1 is unpatentable as obvious over Black and Peterka. And because WhiteWater's challenge of dependent claims 4–6 and 9 suffers the same deficiency, we likewise determine that WhiteWater falls short in demonstrating a reasonable likelihood that those dependent claims are unpatentable as obvious over Black and Peterka.

III. CONCLUSION

For the above reasons, we decline to institute *inter partes* review of any of the challenged claims of the '663 patent.

IV. ORDER

Accordingly, it is:

ORDERED that the Petition is *denied*.

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