

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

REBOOT LABS LLC,
Petitioner,

v.

LPI, INC.,
Patent Owner.

IPR2023-00134
Patent 7,712,161 B2

Before JOSIAH C. COCKS, JEREMY M. PLENZLER, and
CYNTHIAL. MURPHY, *Administrative Patent Judges*.

MURPHY, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner (Reboot Labs LLC) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–20 (“the challenged claims”) of U.S. Patent No. 7,712,161 B2 (Ex. 1001,¹ “the ’161 Patent”). Patent Owner (LPI, Inc.) did not file a Preliminary Response.

An *inter partes* review may not be instituted unless the Petition shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least [one] of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see also* 37 C.F.R. § 42.4(a). Petitioner bears the burden of demonstrating this reasonable likelihood. 35 U.S.C. § 314(a).

After careful consideration of the arguments and evidence presented in the Petition, we do not institute *inter partes* review. We deny institution because Petitioner has not shown a reasonable likelihood that any of the challenged claims would be anticipated by, or obvious over, the prior art presented in the Petition.²

II. THE ’161 PATENT

“[I]t is an object of the invention to provide a spa system incorporating a tub and heating and cooling devices operatively associated with a circulating system for providing the ability to provide the tub with hot water and also with cold water.” Ex. 1001, 2:32–36.

¹ We note that none of Petitioner’s exhibits, including Exhibit 1001, complies with the labeling and page numbering requirements of our rules. *See* 37 C.F.R. § 42.63(d).

² The Petition states that the Patent Owner filed a complaint in the United States District Court for the Eastern District of California alleging infringement by Petitioner of the ’161 Patent. Pet. 62. Because we deny institution based on the arguments and evidence presented with respect to the prior art, we need not address Petitioner’s arguments about discretionary denial. *See id.* at 62–64.

Figure 2 reproduced below depicts a spa system 20 disclosed in the '161 Patent.

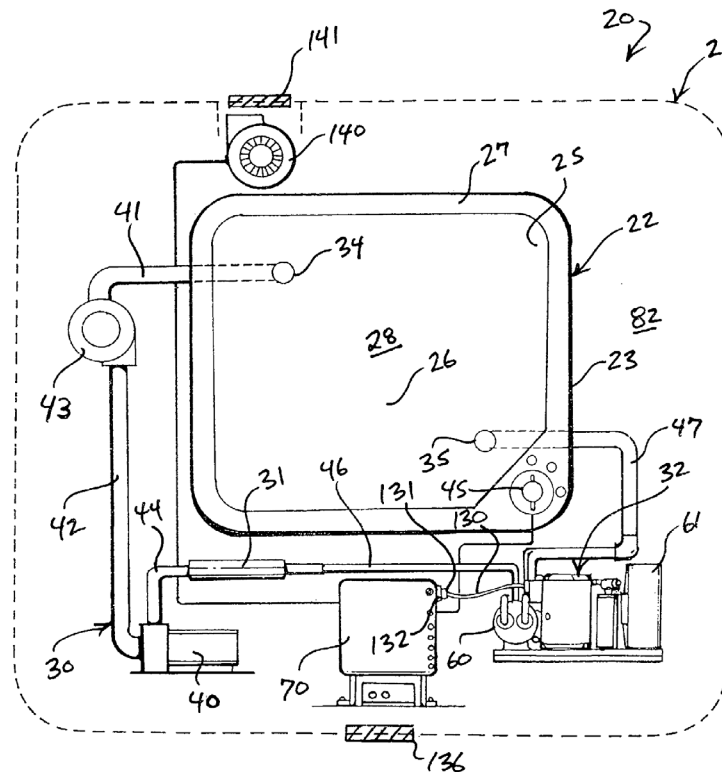


FIGURE 2

Figure 2 above is a schematic plan view of a spa system according to the '161 patent. *See* Ex. 1001, 4:40. Spa system 20 comprises a tub 22, a water circulating system 30, a heating device 31, and a cooling device 32. *See id.* at 5:67–6:3. Tub 22 has a chamber 28 “for holding a volume of water” (*id.* at 5:11–12) and circulating system 30 “withdraws and returns water” relative to the tub’s chamber 28 (*id.* at 5:67–6:1). Heating device 31 and cooling device 32 are “operatively coupled/plumbed in series to circulating system 30.” *Id.* at 6:15–16. More particularly, circulating system 30 “withdraws water” from the tub’s chamber 28 through drain port 34, and “conducts the water first through heating device 31 and then through cooling device 32” before returning the water to the tub’s chamber 28 through inlet port 35. *Id.* at 6:4–9.

III. ILLUSTRATIVE CLAIM

Claims 1, 5, 10, and 15 are the independent claims challenged by Petitioner, with the rest of the challenged claims (i.e., claims 2–4, 6–9, 10–14, and 16–20) depending therefrom. Ex. 1001, 12:26–16:4. Independent claim 1 (*id.* at 12:26–43) is set forth below.

1. A spa system, comprising:
 - a tub;
 - water heating and cooling devices operatively coupled in series to a water circulating system adapted to withdraw and return water relative to the tub to convey water from the tub in series first to one of the water heating and cooling devices and then to the other of the water heating and cooling devices and then back to the tub, the water heating device operative to heat water passing through the circulating system, and the water cooling device operative to chill water passing through the circulating system; and
 - a thermostat operatively coupled to both the heating and cooling devices, the thermostat operative to control the operation of both the heating and cooling devices to set a desired temperature of water passing through the circulating system.

Independent claim 1, and also independent claims 5, 10, and 15, require the spa system to comprise a tub, a water circulating system that is adapted to withdraw and return water relative to the tub, a water heating device,³ and a water cooling device. Independent claim 1, and also independent claims 5, 10, and 15, require the water heating device and the water cooling device to be operatively coupled in series to the circulating system. Independent claim 1, and also independent claims 5, 10, and 15, further require water to be conveyed in series from the tub, first to one of the water heating and cooling devices, and then to the other of the water heating and cooling devices, and then back to the tub.

³ Independent claim 15 recites a “water heater” instead of a water heating device. Ex. 1001, 14:31. Our subsequent references to the claimed heating device also refer to the claimed water heater recited in claim 15.

The challenged claims, therefore, all require a water heating device and a water cooling device that are operably coupled in series in a specific arrangement with respect to water being withdrawn and returned to the tub.

IV. CLAIM CONSTRUCTION

Petitioner contends that “[d]uring *inter partes* review, a patent claim ‘shall be given its broadest reasonable construction.’” Pet. 16. And Petitioner’s prior art arguments hinge upon the challenged claims being construed under this broadest reasonable interpretation (BRI) standard. *See id.* at 34–62.

Petitioner’s contention that we should construe the challenged claims under the BRI standard is incorrect. In an *inter partes* review, we construe a patent 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). With this correct standard, we construe a 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.” 37 C.F.R. § 42.100(b) (2020); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).⁴

Petitioner’s use of the incorrect BRI claim construction standard, alone, calls into question the likelihood that Petitioner would prevail with respect to at least one of the challenged claims, especially because Petitioner has not apprised us of what differences would exist between the two claim construction standards.

⁴ As discussed below, Petitioner provides little to no discussion about the level of skill in the art. For the purposes of this proceeding, we presume that “the prior art itself reflects an appropriate level.” *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Petitioner further contends that “no express [claim] constructions are required to institute review and find claims 1–20 of the ‘161 patent invalid.” Pet. 12. Yet, as mentioned above, Petitioner’s prior art arguments hinge upon claim terms being construed in some unspecified manner under the incorrect BRI standard. *See id.* at 34–62. In any event, we consider it necessary to construe certain claim terms, and we do so below using the correct claim construction standard.⁵

A. water heating device

The challenged claims all require a water heating device. Ex. 1001, 12:28, 13:1, 13:48, 14:31. A person of ordinary skill would understand that a “water heating device” is a device that actually heats water, as opposed to, for example, a device that merely interacts with already heated water. This claim construction aligns with the disclosure of the ‘161 Patent. *See, e.g.*, Ex. 1001, 6:39–45.⁶

Consequently, the claim term “water heating device” would not be met by a device that merely interacts with already hot water.

B. operatively coupled in series

The challenged claims all require the water heating device and the water cooling device to be operably coupled in series to the water circulating system.

⁵ *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (Terms in controversy must be construed to the extent necessary to resolve the controversy); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs* in the context of an *inter partes* review).

⁶ “Heating device 31 is operated by electricity from a power source (not shown), such as a dedicated power source, a battery power Source, a generator, etc.” and “when operational functions to heat the water passing through circulating system 30 for ultimately heating the water held by tub 22 chamber 28 to a predetermined temperature.” Ex. 1001, 6:39–45.

Ex. 1001, 12:28–29, 13:1–2, 13:48–49, 14:33–34. Petitioner argues that “[a] ‘series’ means a number of things or events of the same class coming one after another in spatial or temporal succession” and cites to a dictionary definition to support this assertion. Pet. 14 (citing <https://www.merriam-webster.com/dictionary/series>; definition 1a). For the purposes of this proceeding, and consistent with the meaning offered by Petitioner, we construe “series” in a similar manner requiring the water heating device and the water cooling device to be two devices that come one after one another (as opposed to a single device).

Consequently, the claim terms “water heating device” and “water cooling device” would not be collectively met by a single device that is switchable between a heating mode and a cooling mode.

C. specific coupled-in-series arrangement

The challenged claims all require a specific coupled-in-series arrangement of a water heating device and a water cooling device in which water is conveyed “from the tub in series **first to one of** the water heating and cooling devices **and then to the other** of the water heating and cooling devices **and then back to the tub.**” Ex. 1001, 12:31–34, 13:3–6, 13:51–54, 14:35–38 (emphasis added).

A person of ordinary skill would understand that, because the challenged claims specify when water is conveyed **from the tub**, when water is conveyed to the heating and cooling device, and when water is conveyed **back to the tub**, water must be conveyed to **both** the water heating device and the water cooling device before being conveyed back to the tub. That is the plain and ordinary understanding from the phrasing in the claims, and is a claim construction that also aligns with the disclosure of the ’161 Patent. *See, e.g.*, Ex. 1001, 2:52–59.⁷

⁷ “According to the principle of the invention, a spa system is provided which is low in cost, which is simple in structure, which is safe, which incorporates

Consequently, the claimed coupled-in-series arrangement would not be met by an arrangement in which water can be conveyed to both the heating device and the cooling device only by passing through the tub therebetween.

V. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner's prior art arguments all hinge, one way or another, on what would have been known, understood, envisioned, or obvious to a person of ordinary skill in the art. *See, e.g.*, Pet. 4, 12, 27, 28, 29, 31, 32, 33. Yet Petitioner does not discuss, much less provide us with a proposed definition of, the level of ordinary skill in the art. Petitioner's omission of any discussion whatsoever about the level of ordinary skill in the art, alone, makes us question the likelihood that Petitioner would prevail with respect to at least one of the challenged claims. Although the prior art can be used to establish the level of ordinary skill, here, Petitioner does not give any indication that its position is based upon a level of ordinary skill established in this manner. This, at best, introduces conjecture into Petitioner's prior art arguments because, as indicated above, they all hinge on what would have been known, understood, envisioned, or obvious to a person of ordinary skill in the art.

VI. ALLEGED GROUNDS OF UNPATENTABILITY

Ground	Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1	1, 15	102	Hargrove ⁸

a single tub, and which incorporates a circulating system adapted to withdraw and return water relative to the tub together with heating and cooling devices operatively coupled in series to the circulating system for chilling and heating the water circulating therethrough from the tube.” Ex. 1001, 2:52–59.

⁸ US 4,761,838, issued August 9, 1988 (Ex. 1008).

Ground	Claims Challenged	35 U.S.C. §	Reference(s)/Basis
2	1, 15	102	Jung ⁹
3	1, 15	102	Bolton ¹⁰
4	1–20	103	Hargrove, Plugge, ¹¹ Cavestany ¹²
5	1–20	103	Jung, Plugge, Cavestany
6	1–20	103	Bolton, Plugge, Cavestany

VII. PRIOR ART REFERENCES

A. Hargrove

Hargrove discloses “a contrast-healing water spa system 10” (Ex. 1008, 3:64–65), which is depicted in Figure 1 reproduced below.

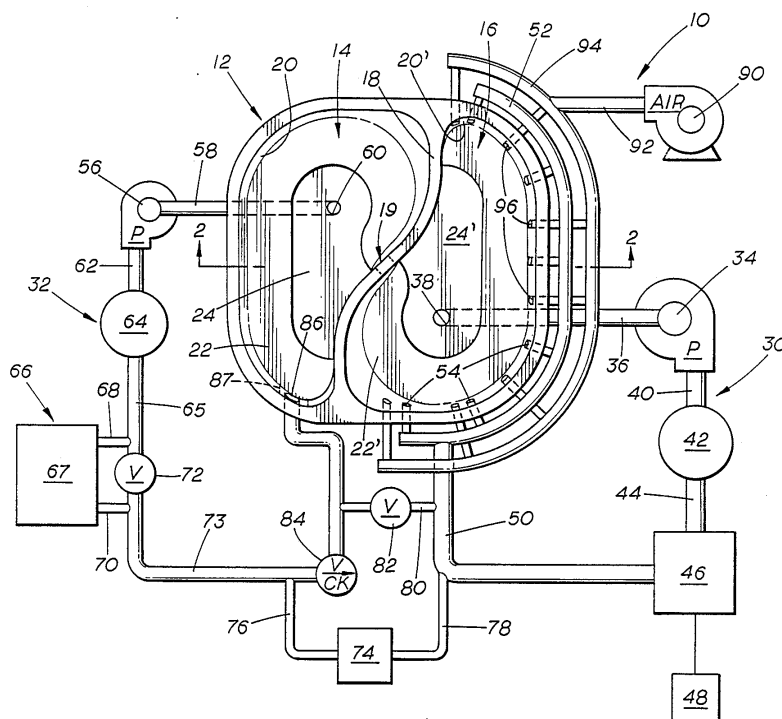


FIG. 1

⁹ KR20030047424A, published June 18, 2003 (Ex. 1009).

¹⁰ GB 2,380,666A, published April 16, 2003 (Ex. 1010).

¹¹ US 4,047,522, issued September 13, 1977 (Ex. 1005).

¹² US 4,679,545, issued July 14, 1987 (Ex. 1011).

Figure 1 above is a schematic plan view of a contrast-healing water spa system according to an embodiment of Hargrove. Ex. 1008, 3:50-53. Hargrove's spa system 10 comprises tub 12, two circulating systems 30 and 32, water heating device 46, and a water cooling device 67. *See id.* at 4:54–5:38,

Hargrove's tub 12 has cold water chamber 14 and hot water chamber 16 that are separated by an “insulated structural wall 18.” Ex. 1008 3:66–4:1. “Each chamber 14 and 16 has associated therewith its own independent water circulating system 32 and 30, respectively.” *Id.* 4:25–26. The circulating system 30 withdraws water from the tub's chamber 16 through a drain port 38, and conducts the water through heating device 46 before returning the water to the tub's chamber 26 through nozzle ports 54. *See id.*, 4:54–5:1. The circulating system 32 withdraws water from the tub's chamber 14 through a drain outlet 60, and conducts the water through cooling device 67 before returning the water to the tub's chamber 14 through inlet port 86. *See id.*, 4:54–5:1.

Hargrove's spa system 10 comprises a “one-way weir 19” for “permitting cold water from chamber 14 to ‘overflow’ into chamber 16. Ex. 1008, 4:1–3. Thus, Hargrove's weir 19 provides a passage through which water can flow from cold chamber 14 to hot chamber 16.

Hargrove's spa system 10 comprises a “cross-feed line 80” that is utilized “in cold weather” to deliver water from hot water return line 50 at “a low rate” to cold water return line 73 “to raise and maintain the water temperature” in cold water chamber 14. Ex. 1008, 6:64–7:4. Thus, Hargrove's cross-feed line 80 provides a passage through which heated water can flow from the circulating system 30 to the circulating system 32.

B. Jung

Jung discloses a bathtub 10 “using a thermoelectric element” for the supply of “hot and cold water at the proper temperature” (Ex. 1009, 1) which is depicted in Figure 2, reproduced below.

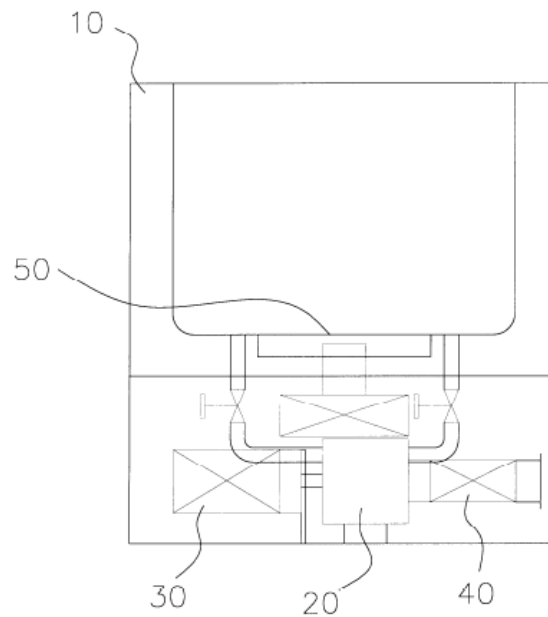
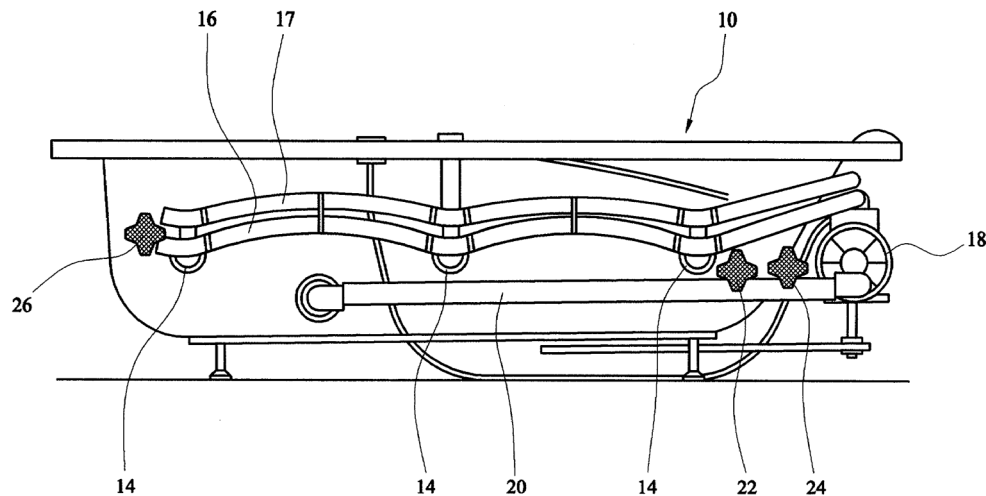


Figure 2 above “is a side view of a bathtub using a thermoelectric device.” *Id.* at 2. Jung’s bathtub 10 has pump 20 and thermoelectric element 40. *Id.* Jung’s thermoelectric element 40 is “installed at the water outlet side of the pump 20 to convert the water at room temperature discharged from the pump 20 into hot water or cold water at a constant temperature.” *Id.* More particularly, Jung’s thermoelectric element 40 “uses a Peltier element” that switches between a heating mode and a cooling mode by changing polarity of the power supply terminals. *See id.*

Thus, Jung discloses a single thermoelectric apparatus which is both a water heating device and a cooling device operatively coupled to a water circulating system to withdraw and return water to the tub.

C. Bolton

Bolton discloses “a water temperature control system” (Ex. 1010, 1) for whirlpool bath 10 which is depicted in its sole drawing, reproduced below.



As shown in the above drawing, Bolton’s bath 10 has circulation pump 18, a return pipe 20, cold water valve 22, and hot water valve 24. *See id.* at 2. Valves 22 and 24 “are located in the return pipe 20 close to the inlet of the pump 18” and the valves are controlled so that “the temperature of the water can be controlled precisely.” *Id.* According to Petitioner, “the valves are fed from an external source.” Pet. 21. Thus, when valve 22 is opened, already cold water from an external source is introduced into circulation line 20; and, when valve 24 is opened, already hot water from an external source is introduced into circulation line 20.

VIII. ANALYSIS

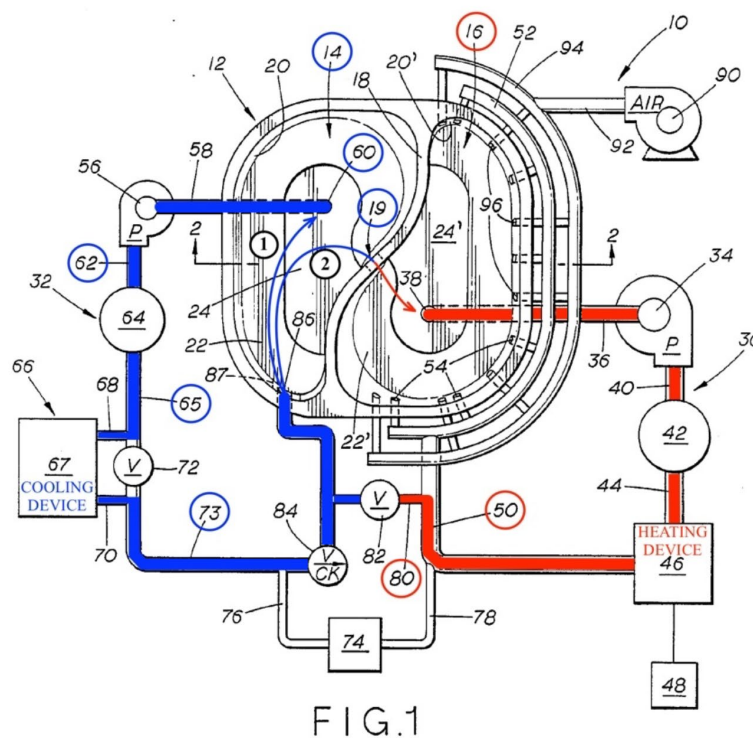
A claim is unpatentable under 35 U.S.C. § 102 (Grounds 1–3) if each and every claim element, arranged as in the claim, is found in a single prior art reference. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). A claim is unpatentable under § 103 (Grounds 4–6) if the differences

between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

A. Ground 1

Petitioner alleges that claims 1 and 15 are unpatentable under 35 U.S.C. § 102 as anticipated by Hargrove. *See* Pet. 34–36.

Petitioner argues that its annotated version of Figure 1, reproduced below, shows that Hargrove's heating device (heater 46) and cooling device (chilling unit 66) “are operatively coupled in series to the water circulating system (including the cross-feed arrangement) to convey water in series first to one of the heater 46 and chilling unit [66], and then the other, and then back to the tub.” Pet. 35.



According to Petitioner, the above drawing shows that “[h]ot water (red) exits heating device 46 through line 50,” “travels through cross-feed line 80,” “mixes with cold water (blue),” “enters tub 14,” takes “path (1) to drain outlet 60, “travels through lines 62/65 to cooling device 67,” “through line 73,” “back into tub 14,” takes “path (2) through weir 19,” “enters tub 16,” and “travel[s] back to heating device 46,” to complete “a circuit through the circulating system.” Pet. 15.

In the circuit diagrammed in Petitioner’s annotated drawing, water is conveyed through heating device 46, through cross-feed line 80, into cold tub chamber 14, out of cold tub chamber 14, through cooling device 67, into tub cold chamber 14, through weir 19, into hot water tub 16, out of hot water tub 16, and back to heating device 46. Thus, in Petitioner’s diagrammed circuit, water is conveyed to both the heating device 46 and the cooling device 67 only by passing through tub chambers 14/16 therebetween.

As discussed above in Section IV, the specific coupled-in-series arrangement required by the challenged claims is not met by an arrangement in which water is conveyed to both the heating device and the cooling device only by passing through the tub therebetween. Consequently, Hargrove does not disclose the specific coupled-in-series arrangement required by the challenged claims.

Thus, Petitioner has not shown a reasonable likelihood that it would prevail in showing that independent claims 1 and 15 are anticipated by Hargrove.

B. Ground 2

Petitioner alleges that independent claims 1 and 15 are unpatentable under 35 U.S.C. § 102 as anticipated by Jung. *See* Pet. 36–37.

Petitioner’s anticipation argument is premised upon Jung’s single thermoelectric device 40 qualifying as both the claimed water heating device and

the claimed water cooling device, because water could “circulate through the thermoelectric element in its heating capacity” and “then circulate through the thermoelectric element in its cooling capacity.” Pet. 19. As discussed above in Section IV, the water heating device and water cooling device required by the challenged claims would not be collectively met by a single device that can be switched between a heating mode and a cooling mode. Consequently, Jung does not disclose the water heating device and the water cooling device required by the challenged claims.

Thus, Petitioner has not shown a reasonable likelihood that it would prevail in showing that independent claims 1 and 15 are anticipated by Jung.

C. Ground 3

Petitioner alleges that independent claims 1 and 15 are unpatentable under 35 U.S.C. § 102 as anticipated by Bolton. *See* Pet. 38–39.

Petitioner’s anticipation argument is premised upon Bolton’s valve 24 being a water heating device. As discussed above, Bolton’s valve 24 does not actually heat water, it simply interacts with already heated water. As also discussed above in Section IV, the water heating device required by the challenged claims would not be met by a device that merely interacts with already hot water. Consequently, Bolton does not disclose the water heating device required by the challenged claims.

Thus, Petitioner has not shown a reasonable likelihood that it would prevail in showing that independent claims 1 and 15 are anticipated Bolton.

D. Ground 4

Petitioner alleges that claims 1–20 are unpatentable under 35 U.S.C. § 103 as obvious over Hargrove, Plugge, and Cavestany. *See* Pet. 39–52.

Petitioner’s obviousness argument is premised upon Hargrove disclosing the specific coupled-in-series arrangement required by the challenged claims. *See* Pet. 39. As we discussed above in connection with Ground 1, Hargrove does not do so.

Petitioner also argues that “to the extent Hargrove differs from the ‘161 patent, Hargrove and Plugge can be combined to teach water heating and cooling devices operatively coupled in series to a water circulating system adapted to withdraw and return water relative to the tub.” Pet. 39. But Petitioner does not articulate a reason for the proposed combination, much less support this reasoning with rational underpinning.¹³ And Petitioner does not otherwise rely upon Plugge and/or Cavestany to show the required coupled-in-series arrangement of the heating device and the cooling device. *See* Pet 39–52.

Thus, Petitioner has not shown a reasonable likelihood that it would prevail in showing that claims 1–20 would have been obvious over Hargrove, Plugge, and Cavestany.

E. Ground 5

Petitioner alleges that claims 1–20 are unpatentable under 35 U.S.C. § 103 as obvious over Jung, Plugge, and Cavestany. *See* Pet. 52–56.

Petitioner’s obviousness arguments are premised upon Jung disclosing the separate water heating and cooling devices required by the challenged claims. *See* Pet. 52. As we discussed above in connection with Ground 2, Jung does not do so.

¹³ An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim,” as the “inferences and creative steps that a person of ordinary skill in the art would employ” can be taken into account. *KSR*, 550 U.S. at 418. But “this analysis should be made explicit” and there must be “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.*

Petitioner also argues that “it would be obvious to put a second thermoelectric or other type of device along the circulating system, dedicating one to heating and one to cooling.” Pet. 52. But Petitioner does not articulate a reason for this modification, much less support this reasoning with rational underpinning.¹⁴ And Petitioner does not otherwise rely upon Plugge and/or Cavestany to show the separate heating and cooling devices required by the challenged claims. *See* Pet 52–56.

Thus, Petitioner has not shown a reasonable likelihood that it would prevail in showing that claims 1–20 would have been obvious over Jung, Plugge, and Cavestany.

F. Ground 6

Petitioner alleges that claims 1–20 are unpatentable under 35 U.S.C. § 103 as obvious over Bolton, Plugge, and Cavestany. *See* Pet. 56–62.

Petitioner’s obviousness arguments are premised upon Bolton disclosing the water heating device required by the challenged claims. *See* Pet. 56. As we discussed above in connection with Ground 3, Bolton does not do so.

Petitioner also argues that “it would be obvious” to “simply replace” Bolton’s hot water valve 24 with the conventional electrical heating device disclosed in the ’161 patent. Pet. 21. Petitioner further argues that “heating devices for hot tubs are well known prior art” and using a valve for hot water rather than an electrical heating device “is a matter of obvious design choice and

¹⁴ Petitioner notes that Jung shows, in Figure 2, that “the thermoelectric element 40 is installed at the water outlet side of the pump 20 to convert the water at room temperature discharged from the pump 20 into hot water or cold water at a constant temperature.” Pet. 52–53. This does not provide a reason (much less a rational underpinning) for the proposed modification.

routine skill in the art.” *Id.* at 57. But Bolton expressly teaches that its valving arrangement allows a constant bath water temperature to be maintained “without the need for heating elements in the bath pipe work, which is an additional complication and can be potentially a source of danger from electrocution or overheating should it be accidentally operated when the bath is empty.”

Ex. 1010, 2. At the very least, this teaching implicates that a person of ordinary skill would not have considered an electrical heating device to be a simple replacement or an alternative design-choice option for Bolton’s valve 24.¹⁵

Petitioner makes no effort to address this teaching by Bolton, and Petitioner does not rely upon Plugge and/or Cavestandy to provide contradictory teachings. *See* Pet. 56–62. Petitioner’s conclusory statements to the contrary fail to provide sufficient evidence or argument that it would have been obvious to substitute an electric heating device for the hot water valve of Bolton.

Thus, Petitioner has not shown a reasonable likelihood that it would prevail in establishing that claims 1–20 would have been obvious over Bolton, Plugge, and Cavestany.

IX. CONCLUSION

Petitioner does not show that there is a reasonable likelihood that it would prevail in establishing that at least one of the challenged claims is unpatentable over the prior art.

¹⁵ Petitioner provides only prior art references as evidence of unpatentability over the prior art. *See* Exs. 1001–1015. The record is completely lacking in declaratory evidence, despite Petitioner’s prior art arguments about what would have been obvious to a person of ordinary skill in the art.

X. ORDER

In consideration of the foregoing, it is hereby
ORDERED that the Petition is denied, and no *inter partes* review is
instituted.

IPR2023-00134
Patent 7,712,161 B2

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