

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

3BTECH, INC.,
Petitioner,

v.

JINGLE MASTER INTERNATIONAL LTD.,
Patent Owner.

Case IPR2018-00663
Patent 7,882,986 B2

Before MICHAEL W. KIM, FRANCES L. IPPOLITO, and
KEVIN W. CHERRY, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a); 37 C.F.R. § 42.73

Dismissing Motion to Amend as Moot
37 C.F.R. § 42.121

Denying Patent Owner's Motion to Exclude
37 C.F.R. § 42.64

I. INTRODUCTION

A. Background

3B Tech, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claim 1 of U.S. Patent No. 7,882,986 B2 (Ex. 1001, “the ’986 patent”). Jingle Master International Ltd. (“Patent Owner”) filed a Preliminary Response (Paper 7). The Petition asserts the following grounds:

Ground	References	Basis	Claim challenged
1	Kikuchi ¹ and Sheu ²	§ 103(a) ³	1
2	Matsushita ⁴ , Kikuchi, and Sheu	§ 103(a)	1

Pet. 6.

On August 27, 2018, we instituted an *inter partes* review of the challenged claim on all of the asserted grounds. See Paper 8 (“Dec. on Inst.”), 30–31.

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 11, “PO Resp.”), and Petitioner filed a Reply (Paper 13, “Pet.

¹ Japanese Laid-Open Utility Model No S53-149264, published Nov. 24, 1978 (Ex. 1005, “Kikuchi”). The record includes a certified English translation of Kikuchi. Ex. 1006. All citations will be to this certified translation.

² U.K. Published Patent Application No. GB 2 223 092 A, published Mar. 28, 1990 (Ex. 1007, “Sheu”).

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103. Because the ’986 patent was filed before the effective date of the relevant amendment, the pre-AIA version of § 103 applies.

⁴ Japanese Published Patent Application S57-45411, published Oct. 6, 1982 (Ex. 1011, “Matsushita”). The record includes a certified English translation of Matsushita. Ex. 1012. All citations will be to this certified translation.

Reply”). We also permitted Patent Owner to file a Sur-Reply (Paper 16, “PO Sur-Reply”) in lieu of observations on cross-examination. Petitioner supports its Petition with the Declaration of Laurens E. Howle, Ph.D., P.E., dated February 16, 2018 (Ex. 1002), and the Declaration of Dr. Laurens Howle in Support of Petitioner’s Reply to Patent Owner’s Response, dated February 7, 2019 (Ex. 1022). Patent Owner relies on the Declaration of John M. Morris, dated June 1, 2018 (Ex. 2001), the Declaration of John Morris in Support of Patent Owner’s Response to the Petition, dated November 21, 2018 (Ex. 2019), and the Declaration of John Morris in Support of Patent Owner’s Sur-Reply, dated February 27, 2019 (Ex. 2022). Patent Owner also relies on the Declaration of John Blumenstein in Support of Patent Owner’s Sur-Reply to Reply to Response to Petition, dated February 27, 2019 (Ex. 2023).

Patent Owner filed a contingent Motion to Amend. Paper 12 (“Motion to Amend,” or “Mot. Amend”). Petitioner filed an Opposition to the Motion to Amend (Paper 14), Patent Owner filed a Reply in support of its Motion to Amend (Paper 17), and Petitioner filed a Sur-Reply (Paper 20). Patent Owner supports the Motion to Amend with the Declaration of John M. Morris in Support of Patent Owner’s Motion to Amend, dated November 21, 2018 (Ex. 2020), and the Declaration of John M. Morris in Support of Patent Owner’s Reply to Opposition to Motion to Amend, dated February 27, 2019 (Ex. 2025). Petitioner filed the Declaration of Laurens Howle in Support of Petitioner’s Opposition to Patent Owner’s Contingent Motion to Amend, dated February 7, 2019 (Ex. 1027).

Patent Owner also filed a Motion to Exclude. Paper 18 (“Motion to Exclude” or “Mot. Exclude”). Petitioner filed an Opposition to the Motion to Exclude (Paper 24), and Patent Owner filed a Reply (Paper 26).

Oral argument was held on May 6, 2019, a transcript of which is included in the record. Paper 32 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. See 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has not shown by a preponderance of the evidence that claim 1 of the ’986 patent is unpatentable. See 35 U.S.C. § 316(e). We dismiss Patent Owner’s Motion to Amend as moot. We deny Patent Owner’s Motion to Exclude.

B. Related Proceedings

The ’986 patent is the subject of an action in *MercAsia USA, Ltd. d/b/a Aervana v. Jianqing “Johnny” Zhu & 3BTech, Inc.*, Civil Action No. 3:17-cv-00718-JD-MGG (N.D. Ind.). Pet. 5; Paper 6, 2.

C. Real Parties in Interest

The Petition identifies “3BTech, Inc., its president, Jianqing Zhu, its related entities, Zake Group, Inc., Zake International Inc., and Zake IP Holdings, LLC,” as the real parties in interest. Pet. 4. Patent Owner identifies “Patent Owner Jingle Master International Ltd., a private limited company of the British Virgin Islands, having its principal place of business

at Palm Grove House, PO. Box 438, Road Town, Tortola, and MercAsia USA Ltd., a private limited company of the United States, d/b/a Aervana, having its principal place of business at 4513 Lincoln Ave, Suite 206, Lisle IL 60532,” as the real parties in interest for Patent Owner. Paper 6, 1. According to Patent Owner, MercAsia USA Ltd. is the exclusive licensee of the '986 patent. *Id.*

D. The '986 Patent

The '986 patent is titled “Liquid Dispenser.” Ex. 1001, [54]. The '986 patent describes a liquid dispenser mounted on a container and dispensing liquid from the container. *Id.* at Abs., 1:5–9. The liquid dispenser has a shell, a spout assembly, an injection assembly, a power pack, and an activating assembly. *Id.* at Abs. The shell is mounted on the container and has an injection tube; the spout assembly is formed on and protrudes from the shell; and the injection assembly mounted in the shell pumps air into the injection tube to force liquid from the spout assembly. *Id.* The activating assembly selectively activates the injection assembly and selectively seals or opens an air passage to the injection tube. *Id.* Figure 2 of the '986 patent is reproduced below.

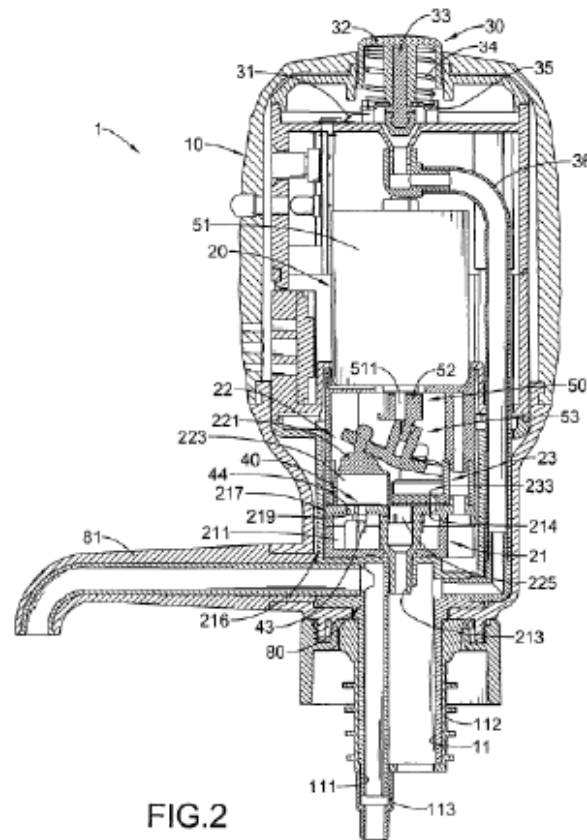


Figure 2 is an enlarged cross-section side view of a liquid dispenser “in accordance with the present invention mounted on a container.” *Id.* at 1:65–2:2. Regarding conventional liquid dispensers, the ’986 patent states:

Conventional liquid dispensers may be manual or automatic, are mounted on a container holding a liquid and having a top and a bottom and usually comprise a top, a spout, a push button, an air pump, an [sic] discharge tube and a pick-up tube. The push button is mounted on the top of the liquid dispenser. The spout protrudes transversely from the liquid dispenser and has an inner end. The air pump is mounted in the liquid dispenser below the push button and is operated and expels air into the container by pressing the push button. The discharge tube is connected to and communicates with the bottom of the air pump. The pick-up tube is connected to the liquid dispenser and extends to the bottom of the container so liquid in the container is forced into the pick-up

tube and out the spout by increased air pressure on the liquid when the air pump pumps air into the container.

Id. at 1:11–25.

The '986 patent explains that the shortcoming of conventional liquid dispensers is:

[W]hen a person stop [sic] pressing the push button, residual air pressure in the container forces additional liquid to be discharged from the spout that wastes liquid and causes the area around the container to be messy. Furthermore, the liquid dispenser has a specific size and can be mounted only on a corresponding container and cannot be mounted on a container with a larger or smaller mouth.

Id. at 1:25–35.

The '986 patent asserts that “[t]he main objective . . . is to provide a liquid dispenser for a container to dispense liquid from the container precisely and easily” (*id.* at 1:39–41), and emphasizes the following two advantages:

1. To dispense liquid from the container (90), the switch (32) is pushed, which simultaneously closes the pressure release tube (36) and activates the injection assembly (20) that pumps pressurized air into the container (90). The pressurized air presses liquid in the container (90) through the spout assembly (80). Therefore, using the liquid dispenser (1) to dispense liquid is easy and convenient.
2. When the switch (32) is released, pressurized air in the container (90) is released immediately through the injection tube (11) and the pressure release tube (36). This prevent[s] excess liquid from being dispensed from the container (90).

Id. at 5:37–47.

E. Challenged Claim

Claim 1 is the sole claim challenged in this proceeding, and is reproduced below:

1. A liquid dispenser being mounted in a container having a top, a bottom and a mouth, and the liquid dispenser comprising a shell being hollow, being adapted to be mounted on the mouth at the top of the container and having
 - a bottom;
 - a top end;
 - an injection tube being formed on and protruding longitudinally from the bottom of the shell and having
 - an internal surface;
 - an external surface;
 - an upper end; and
 - a discharge tube being formed longitudinally on the internal surface of the injection tube and having
 - a top end; and
 - a bottom end; and
 - multiple air ports being formed through the shell between the bottom and the top end;
 - a spout assembly being connected to and communicating with the discharge tube of the injection tube and having
 - a spout being mounted on and protruding from the shell below the air ports, being connected to and communicating with the injection tube near the upper end and having
 - an inner end being connected to the upper end of the injection tube and communicating with the discharge tube; and
 - an outer end protruding from the shell; and

- a pick-up tube being connected to and extending longitudinally from the bottom end of the discharge tube and having
 - an upper end connecting to and communicating with the discharge tube; and
 - a lower end being open;
- an injection assembly being mounted in the shell and pumping air into the injection tube;
- a power pack being mounted in the shell and being electrically connected to the injection assembly; and
- an activating assembly being mounted on the top end of the shell, being electrically connected to the power pack, selectively sealing or opening an air passage to the injection tube and having
 - a pressure release tube being mounted in the shell, being connected to the injection tube and having
 - an air inlet being connected to the injection tube near the upper end opposite to the spout and communicating with the container through the injection tube; and
 - an air outlet extending to the top end of the shell and having a relief valve seat;
 - a switch being movably mounted in and protruding from the top of the shell, activating the injection assembly and having
 - a bottom; and
 - a central mounting tube being formed on and protruding from the bottom of the switch and extending toward the relief valve seat on the air outlet of the pressure release tube; and
 - a relief valve disk assembly being mounted in and protruding from the central mounting tube of the switch, selectively opening or closing the relief valve seat on the air outlet of the pressure release tube and having

- a shaft being mounted in and protruding from the central mounting tube of the switch and having a distal end; and
- a valve disk being mounted on the distal end of the shaft, closing the relief valve seat when the switch is pressed and opening the pressure release tube when the switch is released.

Ex. 1001, 5:65–6:67.

II. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner contends that a person of ordinary skill in the art at the time of the claimed invention would have had at least a bachelor's degree in mechanical engineering, or an equivalent degree, and at least two years of engineering design experience relating to mechanical and/or electromechanical devices. Pet. 13 (citing Ex. 1002 ¶¶ 23–25); Pet. Reply 3–4. Patent Owner argues that a person of ordinary skill in the art, at the time of the claimed invention, would have had at least (1) a bachelor's degree in mechanical engineering, or an equivalent degree, (2) two years of engineering design experience relating to mechanical and/or electromechanical devices, and (3) two years of engineering design experience related to fluid control, such as experience in valve design and/or operation. PO Resp. 40. We are unable to discern any differences between these two definitions that would play a meaningful role in this analysis. Thus, for purposes of this Decision, we will apply Petitioner's level of skill in the art, which we find is consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

III. CLAIM CONSTRUCTION

In an *inter partes* review based on a petition filed prior to November 13, 2018, claim terms in an unexpired patent are construed according to their broadest reasonable interpretation in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2017);⁵ *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). There is a presumption that claim terms are given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art in the context of the specification. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Nonetheless, if the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor’s lexicography governs.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). Another exception to the general rule that claims are given their ordinary and customary meaning is “when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Uship Intellectual Props., LLC v. United States*, 714 F.3d 1311, 1313 (Fed. Cir. 2013) (quoting *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). Additionally, only terms that are in controversy need to be expressly construed, and these need be

⁵ A recent amendment to this rule does not apply here because the Petition was filed before November 13, 2018. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (codified at 37 C.F.R. pt. 42 (2019)) (amending 37 C.F.R. § 42.100(b) effective Nov. 13, 2018).

construed only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

In the Decision on Institution, we considered five claim terms disputed by the parties: (1) “valve seat,” (2) “relief valve disk,” (3) “an injection tube being formed on and protruding longitudinally from the bottom of the shell,” (4) “an air outlet extending to the top end of the shell,” and (5) “a switch . . . having a bottom; and a central mounting tube being formed on and protruding from the bottom of the switch.” Dec. on Inst. 10–15. Petitioner sought construction of the last three terms because it contended that these limitations were unclear. *See* Pet. 24–27. Patent Owner disputed Petitioner’s constructions of “valve seat” and “relief valve disk,” and contended that, under the proper construction for those terms, the asserted prior art fails to teach or suggest those elements. Prelim. Resp. 3–11, 14–18, 31–35.

The parties do not renew their dispute regarding terms (3)–(5) above, and the construction of these terms is unnecessary for this Final Written Decision. *See* Dec. on Inst. 13–15.

The parties continue to dispute “valve seat” and “relief valve disk.” We address those terms below.

A. “valve seat”

The term “valve seat” appears in several limitations of claim 1, which are reproduced below with emphases added:

- (1) “a pressure release tube . . . having . . . an air outlet extending the top end of the shell and having a *relief valve seat*,” Ex. 1001, 6:41–46;

- (2) “switch being movably mounted in and protruding from the top of the shell, activating the injection assembly and having . . . a central mounting tube being formed on and protruding from the bottom of the switch and extending toward the *relief valve seat* on the air outlet of the pressure release tube,” *id.* at 6:47–56;
- (3) “a relief valve disk assembly being mounted in and protruding from the central mounting tube of the switch, selectively opening or closing the *relief valve seat* on the air outlet of the pressure release tube,” *id.* at 6:57–63; and
- (4) “a valve disk being mounted on the distal end of the shaft closing the *relief valve seat* when the switch is pressed,” *id.* at 6:64–67.

In its Preliminary Response, Patent Owner argued that this term should be construed as “a stationary element exposed to the fluid flow that the cooperating moving closure member closes against.” Prelim. Resp. 8. Petitioner did not offer a construction for this term in its Petition, but the Petition’s analysis relies on a construction that Dr. Howle, Petitioner’s expert, offers in his declaration. Pet. 46 (citing Ex. 1002 ¶ 92); *see* Ex. 1002 ¶ 92. For purposes of our Decision on Institution, we adopted the proposed construction of Dr. Howle,—“a part of a valve arranged to receive or contact another part of the valve to open or close a passage in which the valve is positioned.” Dec. on Inst. 12.

During trial, Patent Owner again contends that Petitioner’s construction is unreasonably broad. PO Resp. 14. Moreover, Patent Owner proposes a construction of “valve seat” different from that offered in its Preliminary Response, arguing that the term should be construed as “the wetted, stationary part of a valve that receives or contacts the valve’s

moving closure member in a sealing manner to close or to restrict the valve's flow passageway.” *Id.* With the benefit of full briefing and oral hearing, we agree with Patent Owner that our initial construction was too broad, and we agree with Patent Owner that the full context of the term in the claims precludes Petitioner's construction.

“As with any claim construction analysis, we begin with the claim language.” *In re NTP, Inc.*, 654 F.3d 1279, 1288 (Fed. Cir. 2011) (citing *Phillips*, 415 F.3d at 1312); *In re Power Integrations, Inc.*, 884 F.3d 1370, 1376 (Fed. Cir. 2018) (“Claim construction must begin with the words of the claims themselves.” (internal quotations and brackets omitted)). As Patent Owner persuasively points out, PO Resp. 2–4; Tr. 15:3–20:11, claim 1 provides that the valve seat is a part of the “air outlet,” not the pressure release tube generally, *see* Ex. 1001, 6:41–46 (“an air outlet . . . having a relief valve seat”), 6:47–56 (“extending toward the relief valve seat *on the air outlet* of the pressure release tube”), 6:57–63 (“selectively opening or closing the relief valve seat *on the air outlet* of the pressure release tube”). Petitioner conceded that the claim recites that the “relief valve seat” is part of the air outlet.⁶ Tr. 23:21–24:5.

⁶ At the oral hearing, Petitioner went on to argue, for the first time, that “air outlet” could be more than just the opening, and could include a part of the tube. Tr. 24:10–12. When considered in light of all of Petitioner's arguments, Petitioner is asserting that this part of the tube would include an exterior surface of the tube. We disagree that the claim language is so broad that the “air outlet” could include an exterior surface of the tube. The common understanding of an “outlet” of a tube is the opening where the fluid leaves the tube. This appears to be Petitioner's original understanding of “air outlet” as well. Pet. 25–26. Petitioner also suggested at the oral hearing that the “relief valve seat” only had to be “associated” with the air outlet. Tr. 24:6–25:23. However, the claim recites an “air outlet . . . having

Because the “valve seat” is part of the air outlet of the pressure release tube, we agree with Mr. Morris and Patent Owner that such a valve seat would be exposed to fluid flow from the tube. Ex. 2001 ¶¶ 55–58; PO Resp. 2–4; PO Sur-Reply 2–3. Moreover, in addition to requiring that the valve seat be physically part of the air outlet, the claim also requires that the valve disk “clos[e]” the “relief valve seat” to stop fluid flow, not merely close the pressure release tube. This language reinforces the claim language that locates the relief valve seat in the air outlet and indicates that it is subject to fluid flow (or wetted). PO Resp. 9 (citing Ex. 2001 ¶¶ 52, 57, 58, 60, 67, 83). This same claim language also supports Patent Owner’s contention that the “valve seat” is “stationary,” i.e., “exerts a reaction force against the closure member, sufficient to significantly resist or stop the movement of the closure member and provide sealing pressure.”⁷ Ex. 2001 ¶ 61. As Mr. Morris persuasively testifies, in order for the “valve seat” to be “clos[ed]” it must exert a force to oppose the further movement of the closure member. *Id.* Thus, the claim language provides strong support for Patent Owner’s construction.

a relief valve seat,” not a relief valve seat associated with an air outlet. We decline to rewrite the claims to broaden the plain language.

⁷ We note that Petitioner emphasizes dependent claim 5’s use of the term “stationary” as evidence that Patent Owner knew how to use the word stationary, but chose not to in the context of “valve seat.” Tr. 7:1–18. However, claim 5 and the associated text in the Specification deal with the electrical contacts, not the valve seat. See Ex. 1001, 4:63, 9:6–12. We also do not find claim 5’s use of “stationary” particularly probative because although the Specification shows both stationary and movable electrical contacts, it only shows a stationary valve seat, which suggests it would have been unnecessary to distinguish types of valve seats.

The remainder of the Specification supports this understanding of the claim. See *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) (“[T]he specification is always highly relevant to the claim construction analysis and is, in fact, the single best guide to the meaning of a disputed term.” (emphasis and internal quotation marks omitted)). As we noted in our Decision on Institution, if the claim supported a broader construction, there is nothing in the Specification that *requires* limiting the term “valve seat” to Patent Owner’s construction. Dec. on Inst. 12. However, in view of the constraints, discussed above, that the claim language places on “valve seat,” we are persuaded that Patent Owner’s requirements that the “valve seat” be stationary and wetted is the construction that is most consistent with the claim language and the remainder of the Specification. As Patent Owner illustrates in an annotated version of Figure 6, reproduced below, the Specification depicts the “valve seat” as being stationary (i.e., providing a force to oppose the force being applied to the valve seat and to seal the opening) and physically located as part of the air outlet—i.e., subject to fluid flow.

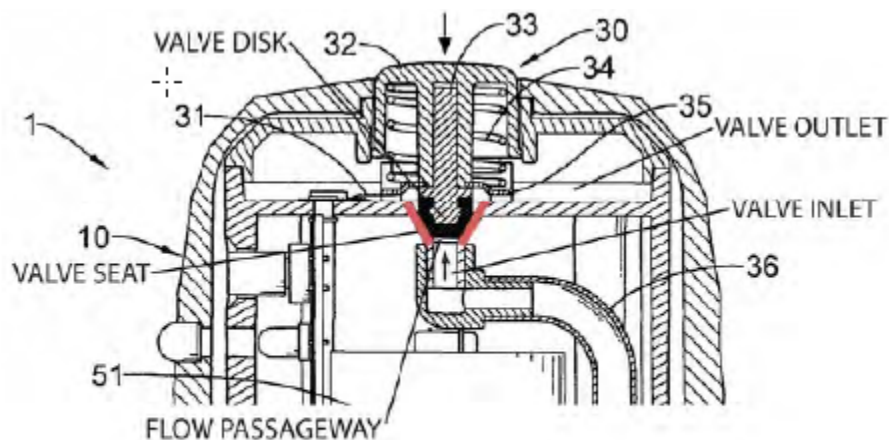


FIGURE 6

Annotated Figure 6 of the '986 patent shows a cross-section side view of a liquid dispenser with the claimed valve seat in brown and the claimed valve disk in black. PO Resp. 6; see Ex. 1001, 2:9–11. This is further illustrated in Patent Owner's annotated version of Figure 8 of the '986 patent, reproduced below.

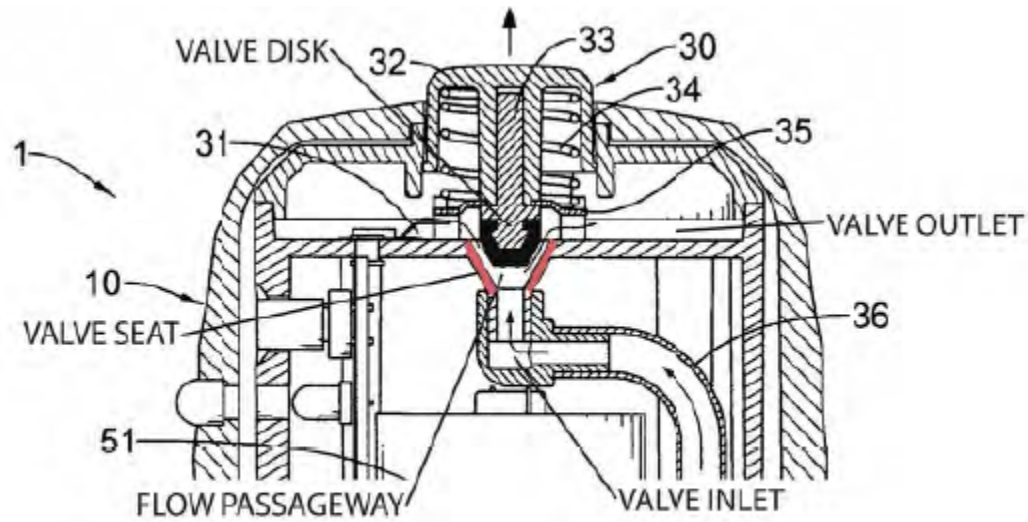


FIGURE 8

Figure 8, as annotated by Patent Owner, shows the relief valve assembly—with the relief valve seat in brown and the relief valve disk in black—in the open position allowing air to escape from the air outlet of the pressure release tube. PO Resp. 7. The Specification contains additional description, which although broad and functional, is entirely consistent with Patent Owner's construction. See Ex. 1001, 5:4–6, 12–27, Fig. 2; Ex. 2001 ¶¶ 68, 76. The Federal Circuit has explained that “[t]he correct inquiry in giving a claim term its broadest reasonable interpretation in light of the specification is not whether the specification proscribes or precludes some broad reading of the claim term.” *In re Smith Int’l, Inc.*, 871 F.3d 1375, 1382–83 (Fed. Cir. 2017). Instead, “[i]t is an interpretation that corresponds with what and

how the inventor describes his invention in the specification, i.e., an interpretation that is ‘consistent with the specification.’” *Id.* at 1383; *see also In re Suitco Surface, Inc.*, 603 F.3d 1255, 1259–60 (Fed. Cir. 2010). Given the claim language, we agree with Patent Owner that the interpretation most consistent with the Specification is one where the valve seat is “stationary” and exposed to fluid flow.

Finally, both parties submit extensive extrinsic evidence on the meaning of “valve seat.” *See* PO Resp. 13–15 (citing Ex. 2001 ¶¶ 52–64; Ex. 2003; Ex. 2004; Ex. 2016); Pet. Reply 9–12 (citing Exs. 1022, 1024, 1025). Although we are permitted to consider extrinsic evidence, like expert testimony, such evidence is generally of less significance than the intrinsic record. *Phillips*, 415 F.3d at 1317 (citing *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). Here, the evidence, at best, can be read to suggest that the term “valve seat” could be used both with valves where the valve seat is exposed to fluid flow, such as globe valves, and where the valve seat is not subject to fluid flow, such as pinch valves. Yet the broadest possible definition “does not necessarily result in the broadest reasonable definition in light of the specification.” *PPC Broadband, Inc. v. Corning Optical Commc’ns RF, LLC*, 815 F.3d 747, 752 (Fed. Cir. 2016). Here, the claim language is clear that the “valve seat” must be part of the air outlet, which is consistent with the Specification. The most reasonable construction in view of this claim language and the remainder of the Specification is that the claimed “valve seat” is subject to fluid flow. Thus, we do not find this ambiguous extrinsic evidence entitled much weight in our analysis.

In sum, we agree with Patent Owner and adopt its proposed construction of “valve seat.” Although the isolated term “valve seat” may be capable of a broader meaning, we determine that this construction is most reasonable in light of the claim language and the remainder of the Specification. *See In re Man Machine Interface Techs., LLC*, 822 F.3d 1282, 1287 (Fed. Cir. 2016) (“This court’s cases on BRI make clear that the proper BRI construction is not just the broadest construction, but rather the broadest reasonable construction in light of the specification.”); *Microsoft Corp. v. Proxyconn Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (“A construction that is unreasonably broad and which does not reasonably reflect the plain language and disclosure will not pass muster.” (internal quotation marks and citations omitted)); *see also PPC Broadband*, 815 F.3d at 755 (“Above all, the broadest reasonable interpretation must be reasonable in light of the claims and specification.”). Accordingly, we adopt Patent Owner’s construction of the term “valve seat,” and determine that, in the context of claim 1 of the ’986 patent, the broadest reasonable construction of “valve seat” is “the wetted, stationary part of a valve that receives or contacts the valve’s moving closure member in a sealing manner to close or to restrict the valve’s flow passageway.”

B. “Valve Disk”

The term “valve disk” appears in several limitations of claim 1, reproduced below with emphases added:

- a *relief valve disk* assembly being mounted in and protruding from the central mounting tube of the switch, selectively opening or closing the relief valve seat on the air outlet of the pressure release tube . . . ; and
- a *valve disk* being mounted on the distal end of the shaft, closing the relief valve seat when the switch is pressed and

opening the pressure release tube when the switch is released.

Ex. 1001, 6:57–68.

Patent Owner argues that the term “valve disk” should be construed as “the moving closure member of the valve that closes fluid flow through the flow passageway by sealing against the valve seat.” PO Resp. 2. Petitioner argues that no construction is necessary, but that a person of ordinary skill in the art would have understood “valve disk” to refer to “an element of a valve that engages and disengages with a valve seat to close and open the passage of the valve.” Pet. Reply 7. These two constructions share much in common. The key distinctions recognized by the parties are Patent Owner’s contentions that (1) the valve disk seals against a stationary valve seat, and (2) both the valve seat and valve disk are wetted. PO Sur-Reply 1; Pet. Reply 4–5.

For both contentions, the parties raise essentially the same arguments that were discussed above with respect to the term “valve seat.” *See* PO Resp. 10–11, 15–16; Pet. Reply 7–9; PO Sur-Reply 1–5. This makes sense because both parties agree that the valve disk engages with the valve seat. *See* PO Resp. 2 (noting the valve disk “seal[s] against the valve seat”); Pet. Reply 7 (noting the valve disk “engages and disengages with the valve seat”). If the valve seat is stationary and subject to fluid flow, then the valve disk will engage a stationary valve seat and also be subject to fluid flow. The plain language of claim 1 confirms this. For example, the claim requires that the relief valve disk “assembly selectively open[] or clos[e] the relief valve seat,” “clos[e] the relief valve seat,” and “open[] the pressure release tube.” Ex. 1001, 6:55–67. This is also consistent with the Specification as discussed above with respect to “valve seat.” Thus, for the

reasons provided above with respect to valve seat, we agree with Patent Owner that the “valve disk” is also exposed to fluid flow and engages a “stationary valve seat.”

We further note that Patent Owner presents persuasive extrinsic evidence that “disk,” and similar terms, are more consistently used in the manner that Patent Owner contends. Ex. 2001 ¶¶ 54, 57, 72; Ex. 2003, 698 (defining “plug” in the context of globe valves); Ex. 2004 (same). This further supports our determination that Patent Owner’s construction is correct. Accordingly, we adopt Patent Owner’s construction for this term, and determine that the broadest reasonable construction of “valve disk,” in the context of claim 1 of the ’986 patent, is “the moving closure member of the valve that closes fluid flow through the flow passageway by sealing against the valve seat.”

C. Remaining Terms

We determine that no further express construction of other terms is necessary. *See Vivid Techs.*, 200 F.3d at 803.

IV. ANALYSIS

A. Obviousness over Kikuchi and Sheu

Petitioner contends the combination of Kikuchi and Sheu would have rendered the subject matter of claim 1 obvious to one of ordinary skill in the art at the time of the invention. Pet. 28–58.

1. Obviousness

The U.S. Supreme Court set forth the framework for applying the statutory language of 35 U.S.C. § 103 in *Graham v. John Deere Co. of Kansas City*:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

383 U.S. 1, 17–18 (1966). As explained by the Supreme Court in *KSR International Co. v. Teleflex Inc.*:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)).

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016). “[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan ‘would have had a reasonable expectation of success from doing so.’” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine*

Hydrochloride Extended-Release Capsule Patent Litig., 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

2. *Level of Ordinary Skill in the Art*

As discussed *supra*, we find a person of ordinary skill in the art at the time of the '986 patent would have had at least a bachelor's degree in mechanical engineering or an equivalent degree and at least two years of engineering design experience relating to mechanical and/or electromechanical devices. *See supra* Section II.

3. *Scope and Content of the Prior Art*

a. *Kikuchi*

Kikuchi is titled “Structure for Preventing Natural Pressure Increase in Heat-Insulated Bottle,” and discloses:

A structure for preventing the natural pressure increase in a heat-insulated bottle, characterized by a heat-insulation bottle equipped with an air supply pump inside a lid body, a ventilation channel communicating via an opening in the upper surface of a plug to an outlet of the pump that opens on the bottom surface of the lid body, a packing plug made from an elastic material and having an exhaust pipe that is connected at the midpoint of the ventilation channel, wherein a portion of a pushbutton switch that actuates the pump driver can press said exhaust pipe.

Ex. 1006, 3:5–11.⁸ Figures 1 and 2 of Kikuchi are reproduced below.

⁸ When citing to Exhibit 1006, we will use the exhibit page numbers in the lower right-hand corner.

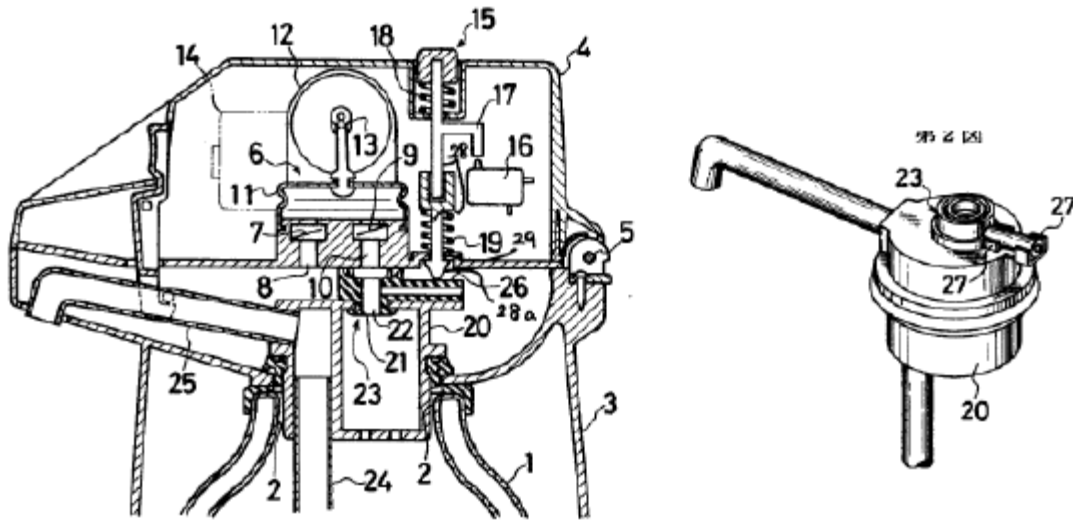


Figure 1 (shown above on left) is a vertical cross-sectional view depicting an illustrative embodiment of Kikuchi, and Figure 2 (shown above on right) is an oblique view illustrating the plug of Kikuchi. *Id.* at 6:12–13

Kikuchi describes heat-insulation bottle 1 equipped with air supply pump 6 inside lid body 4, where pushbutton switch 15 is disposed to control both the on/off operation of pump 6 and the opening/closing of exhaust pipe 26. Ex. 1006, Figs. 1–3; Ex. 1002 ¶ 62. The liquid dispenser of Kikuchi includes a hollow shell being adapted to be mounted on the mouth of bottle 1 with plug 20. Ex. 1006, 5:18–19. Exhaust pipe 26 is connected to the upper surface of plug 20 via packing 23. *Id.* at 5:25–26. Kikuchi also discloses position shift prevention guard 27 so that exhaust pipe 26 is set at the prescribed position without changing positions. *Id.* at 4:10–13, Fig. 2. Pushbutton switch 15, with exhaust pipe open/close rod 28, is arranged perpendicular to switch manipulating piece 17, which can be manipulated to press micro-switch 16 of the power supply circuit to activate pump 6. *Id.* at 3:26–31, 4:13–24. Exhaust pipe open/close rod 28 is upward-biased by

return springs 18, 19. *Id.* at 5:8–22. When pushbutton switch 15 is pressed, switch manipulating piece 17 moves downward to activate driver 12 of pump 6; at the same time, exhaust pipe open/close rod 28 also moves downward with its lower end portion 28a pressing against and blocking exhaust pipe 26. *Id.* at 4:25–5:1.

As a result, ambient air is drawn into bottle 1 via ventilation channel 22 of plug 20. *Id.* at 5:4–5. Under the pressure of the drawn-in air, the liquid stored in bottle 1 is pushed up through lifting pipe 24 and flows out through outlet pipe 25. *Id.* at 5:6–8. Once the pressure applied to pushbutton switch 15 is released, pushbutton switch 15 moves up together with switch manipulating piece 17 and exhaust pipe open/close rod 28 under the action of return springs 18, 19. *Id.* at 5:8–9. The upward movement of switch manipulating piece 17 on micro-switch 16 cuts off the power supply to pump 6, ending its operation, and, at the same time, exhaust pipe 26 that was pressed by exhaust pipe open/close rod 28 is opened, so that the air inside bottle 1 is exhausted via exhaust pipe 26. *Id.* at 5:8–13.

b. Sheu

Sheu is titled “Electrically operated thermos flask with a diaphragm pump,” and describes an electrically operated thermos flask with diaphragm pump 4. Ex. 1007, [54], [57]. Figures 3 and 6 of Sheu are reproduced below.

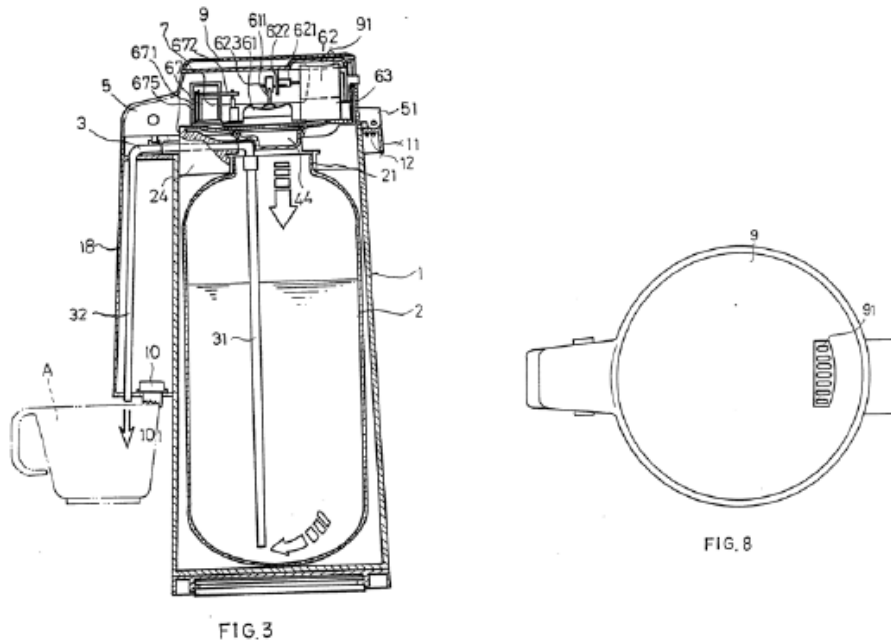


Figure 3 (shown above on the left) is a diagram showing the sectional view of the motor-operated thermos bottle of Sheu, and Figure 8 (shown above on the right) is a top view of the lid of the motor-operated thermos bottle of Sheu showing the plurality of air inlets disposed at the rear periphery thereof. *Id.* at 3:9–14, 3:28–30.

The liquid dispenser of Sheu (shown in Figure 3 above) includes pump means 61 having diaphragm pump 4 and motor 62 for pumping air into vacuum bottle 2, and through hole 501 for releasing air pressure in vacuum bottle 2. *Id.* at 4:20–24, 4:15–18. Motor 62 is operatively coupled to vertical stick 673 disposed in guide seat 674 for opening and closing through hole 501. *Id.* at 5:15–18. Accordingly, when switch 10 is activated, and motor 62 begins to rotate, horizontal rod 672 moves downward to cover through hole 501 with vertical stick 673, and the air pumped by pump means 61 will increase the pressure inside vacuum bottle 2, causing the liquid

contained therein to be discharged through elongated tube 31. *Id.* at 5:29–35.

When switch 10 is deactivated and the motor stops functioning, horizontal rod 672 resumes its original position, making vertical stick 673 move upward to unplug through hole 501, causing the air inside vacuum bottle 2 to be flushed and allowing the air pressure therein to decrease to a normal value. *Id.* at 5:35–6:4.

In addition, Sheu discloses a plurality of air ports 91 formed through cover 5 of lid member 9, as shown in Figure 8 (reproduced above). *Id.* at Fig. 8, 6:24–29. Sheu teaches that the plurality of air ports 91 permit air to go therethrough, through cover 5, and then through top cap 7 into vacuum bottle 2. *Id.*

4. *Discussion: Differences Between the Prior Art and the Claims*

Petitioner maps elements from Kikuchi and Sheu to each limitation of claim 1, with support from the testimony of Dr. Howle. Pet. 27–50. In particular, Petitioner relies on Kikuchi to teach or suggest most of the elements of claim 1, but concedes that Kikuchi does not expressly disclose two elements: (1) “multiple air ports through the shell” and (2) “an air outlet [of a pressure release tube] extending to the top of the shell.” *See id.* at 3. Petitioner relies on Sheu to teach “multiple air ports through the shell” and submits that a person of ordinary skill would have been motivated to combine Kikuchi with Sheu to facilitate air flow through the shell when pump 6 is operating. *See id.* at 31–35. As for the air outlet extending to the top of the shell, Petitioner, relying on the testimony of Dr. Howle, argues

that this would have been an obvious design choice. *Id.* at 43–46 (citing Ex. 1002 ¶¶ 88–91).

Patent Owner argues that the combination of Kikuchi and Sheu fails to teach or suggest the claimed “valve seat” and “valve disk.” PO Resp. 21 (citing Ex. 2001 ¶¶ 83, 84; Ex. 2019 ¶¶ 27, 28), 28–31. We agree. As we explained above, we have adopted Patent Owner’s constructions for “valve seat” and “valve disk.” Petitioner submits that Kikuchi discloses the claimed “release valve seat” through its disclosure of a pinch valve that closes the distal end of exhaust pipe 26, as shown in the annotated versions of Figure 1 (partial) and Figure 2 of Kikuchi, which are reproduced below. Pet. 46–47.

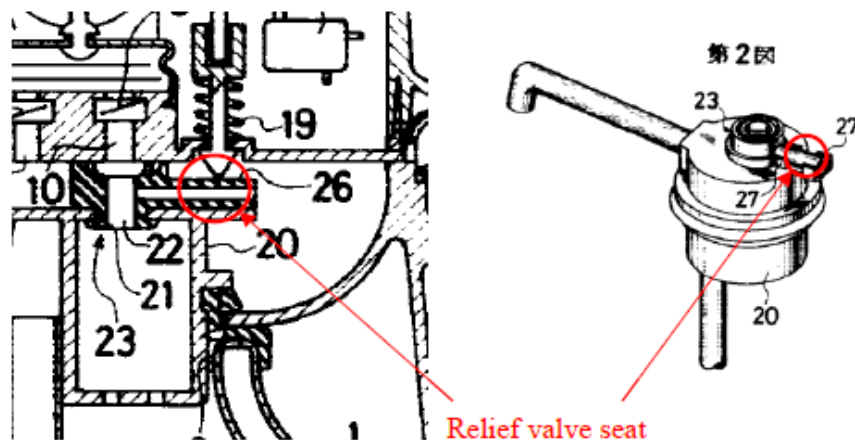
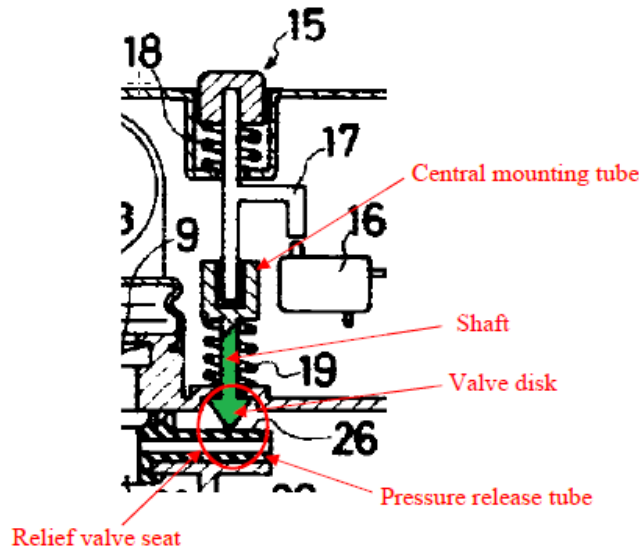


Figure 1 (partial version, left) and Figure 2 (right) of Kikuchi, as annotated by Petitioner to show what it contends is the relief valve seat, are reproduced above. In its Reply, Petitioner argues that it also contends the valve seat includes the bottom-wall portion of exhaust pipe 26 and position shift prevention guard 27. Pet. Reply 20.

With respect to the claimed “relief valve disk,” Petitioner argues that Kikuchi discloses a “relief valve disk,” through its disclosure of a pinch

valve connected to a switch, as shown below in a partial, annotated version of Figure 1.



A partial, annotated version of Figure 1 of Kikuchi is reproduced above showing Petitioner's contentions regarding Kikuchi's disclosure of a valve disk.

Although Petitioner contends in the Reply that what it identifies as Kikuchi's valve seat includes stationary elements, Petitioner provides no argument or evidence that Kikuchi would meet the "wetted" requirement of our claim construction. See Pet. Reply 18–20; Pet.. Accordingly, we agree with Patent Owner that Petitioner has failed to meet its burden of showing that Kikuchi teaches or suggests the claimed "valve seat" and "valve disk." See Ex. 2001 ¶¶ 83–85; Ex. 2019 ¶¶ 27–29.

5. Summary

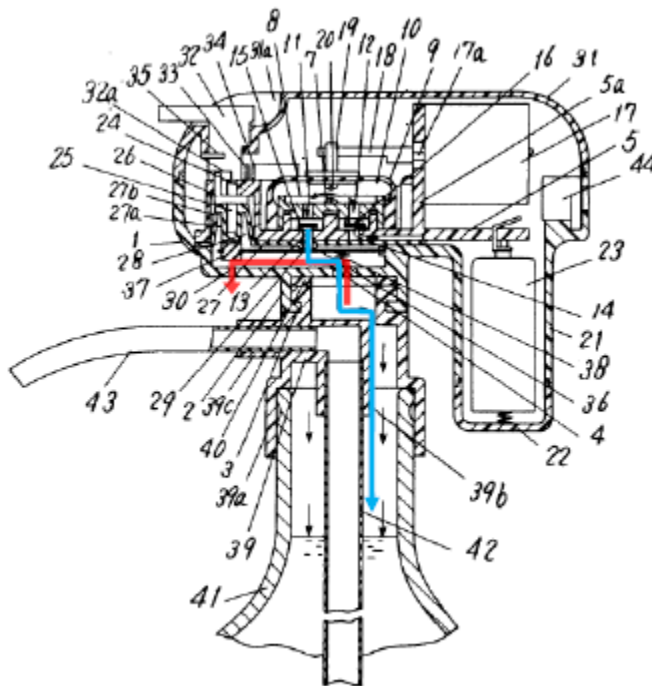
For the reasons explained above, Petitioner has not demonstrated by a preponderance of the evidence that the combination of Kikuchi and Sheu would have rendered the subject matter of claim 1 of the '986 patent obvious to one of ordinary skill in the art at the time of the invention.

B. Obviousness over Matsushita, Kikuchi, and Sheu

Petitioner contends the combination of Matsushita, Kikuchi, and Sheu would have rendered the subject matter of claim 1 obvious to one of ordinary skill in the art at the time of the invention. Pet. 51–77.

1. Matsushita

Matsushita is titled “Pump,” and generally relates to a pump suitable for discharging fluids from bottles or cans and distributing these fluids. See Ex. 1012, [54], 2:17–18. Figure 1 of Matsushita, as annotated by Petitioner, is reproduced below.



Annotated Figure 1 of Matsushita is a cross-sectional view illustrating an embodiment of the device. *Id.* at 8:21–22. Matsushita describes that rotating switch 32 to the right side activates motor 17 to drive pump 9 and inject pressurized air into the container (see the blue arrow in annotated Figure 1 above) and, at the same time, pushes valve section 37 down to close off air vent hole 30. *Id.* at 6:26–7:20. Conversely, rotating switch 32 to the

left side deactivates motor 17 to stop pump 9, and retracts valve section 37 upwardly to open air vent hole 30, through which the pressurized air in the container is discharged (see the red arrow in annotated Figure 1 above). *Id.* at 7:21–30.

2. Discussion

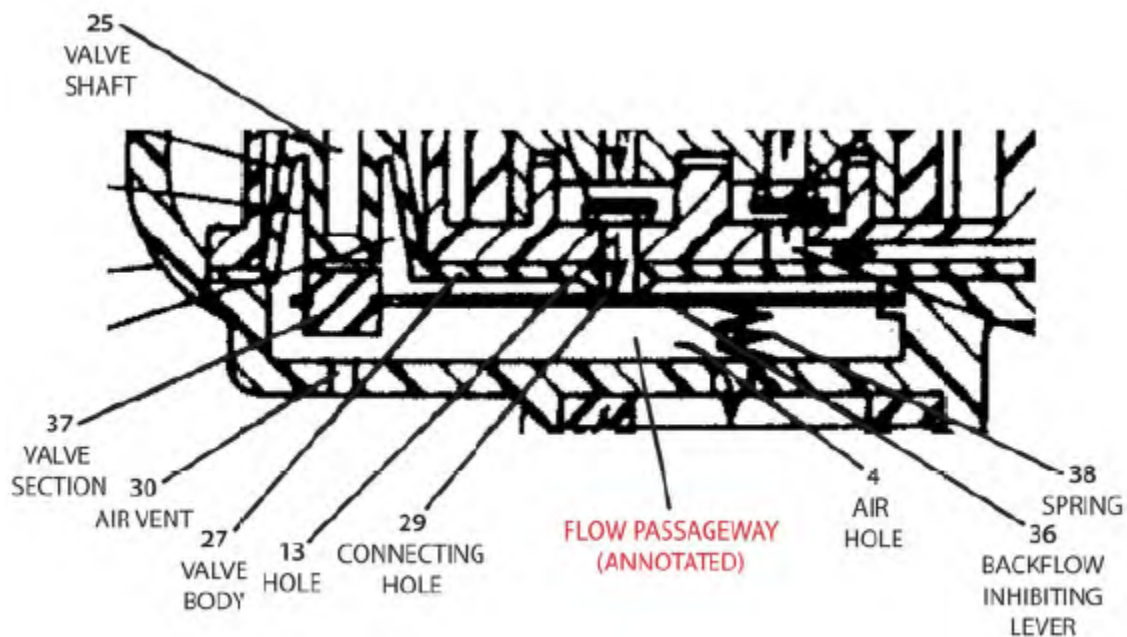
Petitioner maps elements from Matsushita, Kikuchi, and Sheu to each limitation of claim 1, with support from the testimony of Dr. Howle.

Pet. 51–77. In particular, Petitioner relies on Matsushita to teach or suggest many of the elements of claim 1, but concedes that Matsushita does not expressly disclose, *inter alia*, the claimed “pressure release tube.” Pet. 65 (“But *Matsushita* does not specifically disclose that its pressure release passageway is in the form of a tube . . .”). Petitioner relies on Kikuchi for this teaching. *Id.* at 66. Petitioner contends that a person of ordinary skill in the art would have understood that, at the time of the invention, pressure release passageways, such as the pressure release passageway of Matsushita, could be in the form of a tube and connected to the injection tube opposite to the spout. *Id.* at 67 (citing Ex. 1002 ¶ 122). Petitioner asserts that it would have been obvious to replace pressure release passageway 4 of Matsushita with pressure release tube 26 of Kikuchi. *Id.* (citing Ex. 1002 ¶ 123).

Petitioner also contends that it would have been obvious to try the pressure release tube of Kikuchi on Matsushita, because both devices face similar problems associated with drawing air from outside the shell, and a person of ordinary skill would have recognized that Kikuchi provided a solution to that problem. *Id.* at 67–68 (citing Ex. 1002 ¶ 124). Finally, Petitioner argues, because the modification proposed is simple and a person of ordinary skill would have known exactly how to combine the teachings of Matsushita

without any technical difficulties, the combination is merely the combination of well-known elements to achieve predictable results. *Id.* at 68 (citing Ex. 1002 ¶ 125).

Patent Owner argues that there is no motivation to modify Matsushita in the manner proposed, because it would render Matsushita inoperable. PO Resp. 37. Patent Owner provides the following partial and annotated version of Figure 1 of Matsushita to help illustrate its argument.



Reproduced above is a partial magnified view of Figure 1 of Matsushita as annotated by Patent Owner. *Id.* at 38. Patent Owner explains that Matsushita's flow passageway (or, as Petitioner calls it, pressure release passageway) is formed within pump case 1, is always connected to the inside of the fluid container by air hole 4, and is selectively connected to the atmosphere via air vent 30 and to the pump via connecting hole 29. *Id.* at 39 (citing Ex. 1012, 4:11–13, 6:5–10). Thus, Matsushita uses the flow passageway (or pressure release passageway) to connect both the pump and the atmosphere to the container. Patent Owner argues that if one were to

replace the flow passageway with the tube of Kikuchi in order to vent the container, the tube would not allow air to exit the pump (via connecting hole 29), and would not allow air from the pump to reach the container via air hole 4. *Id.* at 40. Patent Owner contends that as a result, the container would not be pressurized, as the air could not reach the container via air hole 4. *Id.*

Petitioner responds that Patent Owner's emphasis on Matsushita's 3-way valve design is "unsustainable," and Patent Owner "mischaracterized [Petitioner]'s proposed modification." Pet. Reply 24. Petitioner argues that such 3-way valves are common in the liquid dispenser art. *Id.* Petitioner contends that "the operational characteristics of *Matsushita's* 3-way valve are substantially identical to those of *Kikuchi* and *Sheu* (and also *Zojirushi*, Exs. 1008 and 1009)." *Id.* at 25. Petitioner asserts that "[b]ecause the 3-way valve design was well-known and widely used in the art, a [person of ordinary skill in the art] would have been motivated to modify *Matsushita's* dispenser to form its pressure release passageway in the form of a tube as taught by, for example *Kikuchi*." *Id.* at 27. Petitioner also argues that Patent Owner incorrectly includes the functionality of backflow inhibiting lever 36 for closing connecting hole 29. *Id.* Petitioner contends that even without backflow inhibiting lever 36, the deactivation of motor 17 and simultaneous opening of air vent 30 sufficiently inhibits any flow of liquid from bottle 41 back into connecting hole 29. *Id.* at 28. Thus, Petitioner argues that the proposed modification would not render Matsushita inoperative. *Id.*

In its Reply, Petitioner also proposes a new modification, where in addition to incorporating Kikuchi's tube, a person of ordinary skill would have also incorporated a 3-way connector like the 3-port packing 23 taught

by Kikuchi. *Id.* Petitioner contends that this modification would have eliminated any interference with the operation of backflow inhibiting lever 36. *Id.* at 28–29.

We agree with Patent Owner that Petitioner has failed to provide an adequate motivation to combine. Based on our review of Matsushita, we agree with Patent Owner’s (and Mr. Morris’s) characterization of how Matsushita works. *See* Ex. 2019 ¶¶ 34, 35; Ex. 2001 ¶¶ 86, 87. Petitioner’s main technical argument—that Patent Owner improperly incorporates the functionality of Matsushita’s backflow inhibiting lever 36—is not persuasive. *Pet. Reply* 27–28; Ex. 1022 ¶ 32. Petitioner’s argument appears to be that backflow inhibiting lever 36 does not materially affect the principle of operation of Matsushita’s 3-way valve, because “even without the backflow inhibiting lever 36, the deactivation of motor 17 and simultaneous opening of air vent 30 sufficiently inhibits any flow of liquid from the bottle 41 back into the connecting hole 29.” *Pet. Reply* 28. However, as Patent Owner points out, Matsushita contradicts this contention. *PO Sur-Reply* 24. In particular, Matsushita expressly states that backflow inhibiting lever 36 closes connecting hole 29 “when the power supply to the motor 17 is off,” and “[a]s a result, the liquid, foam, or the like does not enter the interior valve body 15.” Ex. 1012, 8:1–11. Without more explanation, we decline to credit Petitioner’s argument or Dr. Howle’s testimony that backflow inhibiting lever 36 does not “materially” affect the operation of Matsushita’s device. Instead, we credit Mr. Morris’s testimony on this point as consistent with Matsushita. Ex. 2019 ¶¶ 34–44; Ex. 2022 ¶¶ 38, 39. Thus, we find Patent Owner’s explanation of Matsushita’s operation to be more persuasive. Dr. Howle’s failure to account for the

actual operation of Matsushita leads us to significantly discount his testimony regarding why a person of ordinary skill would have been motivated to modify Matsushita to incorporate Kikuchi's pressure release tube 26.

Petitioner's argument that the 3-way valve of Matsushita is not unique is beside the point. *See* Pet. Reply 27; PO Resp. 40–41. Instead, the key question is whether using Kikuchi's tube in place of Matsushita's flow passageway—the only modification suggested in the Petition—would render the device inoperative. *See* Pet. 66–68. Dr. Howle answers that question affirmatively. *See* Ex. 1022 ¶ 33. As Dr. Howle stated in his Reply Declaration, simply replacing the pressure release/flow passageway with Kikuchi's exhaust pipe 26 would “render[] the device completely useless.” *Id.* Yet all the Petition proposed was using exhaust pipe 26 in place of the pressure release/flow passageway of Matsushita. *See* Pet. 66–68. Thus, we agree with Patent Owner that the combination *described in the Petition* would render the device inoperable and a person of ordinary skill in the art would not have been motivated to make that modification *as the Petition proposed*.

In his Reply Declaration, Dr. Howle now proposes also incorporating a 3-way flow connector, like the 3-port packing 23 of Kikuchi, in addition to exhaust pipe 26. Ex. 1022 ¶¶ 33, 34. Even accepting this new proposed modification, we agree with Patent Owner that Petitioner has failed to account for the claimed “air outlet extending to the top end of the shell and having a relief valve seat.” PO Sur-Reply 26–27. In particular, even accepting the Petition's original proposal to use the switch structures of Matsushita and Kikuchi, and routing the tube all the way to the top of the

shell, there is no indication, either in the Petition or Reply, how this combination would account for “air outlet . . . having a relief valve seat” as we have construed that term. As we explained above, the outside surface of a pressure release tube is not part of the “air outlet.” *See supra* at 36 n. 6. Thus, the exterior surface of Kikuchi’s pressure release tube, which we understand the Petition to identify as the claimed valve seat in the combination, is not part of the air outlet. *See* Pet. 70–71. Moreover, there is no explanation, in either the Petition or the Reply, how this valve seat would be either “stationary” or “wetted” as required by our construction of the term.

In sum, we agree with Patent Owner that Petitioner has failed to show sufficiently that a person of ordinary skill would have been motivated to modify Matsushita as the Petition proposes. *See McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001) (“If references taken in combination would produce a ‘seemingly inoperative device,’ we have held that such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness.”). We further find that, even accepting Petitioner’s new proposed modification articulated in its Reply, we agree with Patent Owner that Petitioner has failed to show adequately that the combination would account for the claimed “air outlet extending to the top end of the shell and having a relief valve seat.” Thus, we agree with Patent Owner that Petitioner has failed to carry its burden to show that claim 1 would have been obvious over Matsushita, Kikuchi, and Sheu.

V. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner seeks to exclude Exhibits 1025 and 1026. Mot. Exclude 1. Exhibit 1025 is a published patent application, US 2016/0135942 A1, published May 19, 2016, and has an earliest possible priority date of November 14, 2014. *See* Ex. 1025, [71], [60], [43]. Exhibit 1026 is a printout from a website relating to valves. *See* Ex. 1026. Both exhibits were introduced by Petitioner in its Reply brief to support its construction of the “valve disk” and “valve seat.” *See* Pet. Reply 9.

A. Exhibit 1025

Patent Owner seeks to exclude Exhibit 1025 under Federal Rules of Evidence (“Fed. R. Evid.”) 401 and 402 as irrelevant because it post-dates the filing date of the '986 patent by over seven years. Mot. Exclude 2. Petitioner responds that Exhibit 1025 is offered to rebut Patent Owner's assertion that the term “valve seat” is not used in the valve art in connection with pinch valves, so it “has at least a ‘tendency to make [this] fact [of consequence] more or less probable than it would be without the evidence.’” Pet. Opp. Exclude 2 (quoting Fed. R. Evid. 401).

We agree with Petitioner that Exhibit 1025 should not be excluded. Evidence is relevant if it has *any tendency* to make a fact more or less probable than it would be without the evidence and the fact is of consequence in determining the action. Fed. R. Evid. 401. Given the parties' dispute about whether valve seats are used at all in connection with pinch valves, this is sufficient to establish that these exhibits are relevant under the low standard of Rule 401. *See United States v. Whittington*, 455 F.3d 736, 739 (6th Cir. 2006) (“[T]he district court correctly noted that the relevance threshold is very low under Rule 401.” (internal quotation marks

omitted)). Patent Owner's arguments go more to the weight we should give this evidence than its admissibility. We agree with Patent Owner that we must determine what the term meant at the time of the invention. *See Schering Corp. v. Amgen Inc.*, 222 F.3d 1374, 1353 (Fed. Cir. 2000). We also agree with Patent Owner that a reference seven years after the '986 patent's filing date is entitled to little weight in determining what a term meant to a person of ordinary skill at the time of the invention, *see Brookhill 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1300 (Fed. Cir. 2003), but that does not mean that it should be excluded. Accordingly, we deny Patent Owner's Motion to Exclude with respect to Exhibit 1025.

B. Exhibit 1026

Patent Owner seeks to exclude Exhibit 1026 under Fed. R. Evid. 401, 402, and 802. Mot. Exclude 3–4. In particular, Patent Owner contends that Exhibit 1026 is irrelevant because it post-dates the filing of the '986 patent, and it is inadmissible hearsay. *Id.* We agree with Petitioner that Exhibit 1026 should not be excluded. Pet. Opp. Exclude 3–6.

With respect to Patent Owner's objections regarding relevance because Exhibit 1026 post-dates the '986 patent, we are unpersuaded for the same reasons stated with respect to Exhibit 1025. *See supra* Section V.A.

As for Patent Owner's hearsay objection, we agree with Petitioner that, as Petitioner seeks to use it, the exhibit is not hearsay. Pet. Opp. Exclude 5–6. Hearsay is defined as “a statement that: (1) the declarant does not make while testifying at the current trial or hearing; and (2) a party offers in evidence to prove the truth of the matter asserted in the statement.” Fed. R. Evid. 801(c). Evidence is not hearsay if it is not offered to prove the truth of the matter asserted. *See, e.g., Stalbosky v. Belew*, 205 F.3d 890, 895

(6th Cir. 2000). Here, the definitions contained in the website printout are not offered to prove their truth, but merely for the significance that they were made—i.e., that the art did not necessary never refer to “valve seat” in the context of pinch valves. *See United States v. Branham*, 97 F.3d 835, 851 (6th Cir. 1996) (“[I]f the significance of a statement lies solely in the fact that it was made, rather than in the veracity of the out-of-court declarant’s assertion, the statement is not hearsay because it is not offered to prove the truth of the matter asserted.” (citation and internal quotation marks omitted)). In particular, the existence of these statements in the website associating “valve seat” and “valve disk” with pinch valves are evidence that Patent Owner is not correct that a person of ordinary skill would have only associated “valve seat” and “valve disk” with globe valves. Thus, we deny Patent Owner’s Motion to Exclude Exhibit 1026.

VI. CONTINGENT MOTION TO AMEND

Patent Owner also filed a Contingent Motion to Amend. *See* Mot. Amend. Because we have not found that the challenged claim is unpatentable, we do not reach the contingent motion to amend. Thus, we dismiss the contingent motion to amend as *moot*.

VII. CONCLUSION

For the foregoing reasons, on this record, Petitioner *has not* established by a preponderance of the evidence that claim 1 is unpatentable. We *dismiss* Patent Owner’s Motion to Amend *as moot*, and *deny* Patent Owner’s Motion to Exclude.

VIII. ORDER

Accordingly, it is:

ORDERED that claim 1 of U.S. Patent No. 7,882,986 B2 *has not been shown* to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend is *dismissed as moot*;

FURTHER ORDERED that Patent Owner's Motion to Exclude is *denied*; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2018-00663
Patent 7,882,986 B2

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