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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FLUIDMASTER, INC.,
Petitioner,

v.

DANCO, INC.
Patent Owner.

Case No. IPR2024-00635
U.S. Patent No. 10,934,698 B1

PATENT OWNER'S SURREPLY TO PETITIONER'S REPLY

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TABLE OF EXHIBITS

Exhibit	Description
EX2001	Declaration of Eric G. Maurer in Support of Motion for Admission <i>Pro Hac Vice</i>
EX2002	Definition of Pressure Head
EX2003	Definition of Valve
EX2004	Definition of Overflow Tube
EX2005	Annotations to U.S. Patent Pub. No. 2024/0026990 A1 (“Cao”) Fig. 6B
EX2006	Annotations to U.S. Patent No. 8,028,719 (“Johnson”) Fig. 1
EX2007	Annotations to Petitioner’s EX1016 (“Guoxin”)
EX2008	Deposition Transcript of Dr. Kimberly Cameron, Dated Nov. 19-20, 2024
EX2009	Flowmatic Valves (https://www.flomatic.com/assets/pdf_files/literature/Flo-Trol-Literature.pdf) (last accessed Dec. 4, 2024)
EX2010	“What is a Flow Restrictor, and How Does It Work?” (https://www.theleeco.com/insights/what-is-a-flow-restrictor-and-how-does-it-work/) (last accessed Dec. 4, 2024).
EX2011	U.S. Patent Pub. No. 2024/0026990 A1 (“Cao”)
EX2012	U.S. Patent No. 8,028,719 (“Johnson”)
EX2013	Declaration of Michael Jobin
EX2014	Curriculum Vitae of Michael Jobin
EX2015	Deposition Transcript of Dr. Kimberly Cameron, Dated Apr. 23, 2025

GLOSSARY

Abbreviation	Term
'606 Application	U.S. Patent App. No. 10/798,606
'698 Patent	U.S. Patent No. 10,934,698
'904 Application	U.S. Patent App. No. 12/786,904
Board	USPTO Patent Trial and Appeal Board
Challenged Claims	Claims 1-14 of the '698 Patent
Danco or PO	Patent Owner Danco, Inc.
Flow Limitations	Limitations 1[B5], 8[E], 11, 12[E], and 13 (collectively)
Fluidmaster or Petitioner	Fluidmaster, Inc.
Institution Decision	IPR2024-00635 Paper 20
Parties	Danco and Fluidmaster, Collectively
Petition	IPR2024-00635 Paper 1
POPR	IPR 2024-00635 Paper 13 (Patent Owner Preliminary Response)
POR	IPR2024-00635 Paper 26 (Patent Owner's Response)
POSITA	Person of Ordinary Skill in the Art
QCA	Quick Connection Art as defined in Petitioner's Reply (Paper 30, i)
Reply	IPR2024-00635 Paper 30 (Petitioner's Reply)
USPTO	United States Patent and Trademark Office

I. INTRODUCTION

PO identified deficiencies in the Petition which preclude a finding of invalidity. Paper 26. In Reply, Petitioner resorted to new arguments and evidence, which justifies wholesale exclusion of the Reply. *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016).

II. GROUND 1

A. Guoxin does not disclose the claimed overflow tube configuration.

Guoxin teaches water supply line 403 “(1) ‘is directed to the toilet’ and (2) ‘*directly* provide[s] water supply to the toilet.’” POR, 13-14 (citing EX1016, p. 005; EX2007, 2:18-21; EX2013, ¶¶90-91). Guoxin also depicts line 403 *below* the water line. POR, 13-15 (citing EX2013, ¶¶92-94). A POSITA would have understood supply line 403 is *not* configured to provide water from the bowl fill valve outlet to an overflow tube, because said overflow tube must necessarily be *above* the water line. *Id.*; EX2015, 176:5-177:6.¹

Petitioner ignores Guoxin’s explicit disclosure. Reply, 6-7 (alleging “Guoxin’s description of line 403 ‘directly’ suppling water to the bowl does not

¹ Dr. Cameron also testified a tube which provides water to an overflow tube would likely include either anti-siphoning means or a clip to hold it above the water line. EX2015, 75:9-79:19, 81:5-15. Guoxin depicts no such features.

preclude an intermediating connection via an overflow tube”); EX1036, ¶25 (Dr. Cameron “do[es] not attach *any weight* to the depiction of water supply line 403”).² Rather, Petitioner believes Guoxin discloses the claimed overflow tube “even though there’s no indication that [Guoxin’s line 403] goes to an overflow tube.” EX2015, 157:13-158:17. Dr. Cameron expressly *assumes* Guoxin’s line 403 is directed to an overflow tube solely because (she believes) Guoxin doesn’t explicitly depict an alternative configuration. EX2015, 178:17-179:18. But Petitioner has “the burden of proving a proposition of unpatentability by a preponderance of the evidence. The absence of a finding that [a reference] does not have [claimed features] therefore cannot establish [the reference] in fact has those features.” *Medtronic, Inc. v. Teleflex Innovations S.A.R.L.*, 70 F.4th 1331, 1338 (Fed. Cir. 2023).

1. Petitioner misrepresents the Challenged Claims.

The Challenged Claims require more than “an outlet port that is configured to attach directly to a tube.” Reply, 2-4. Rather, Claims 8[B] and 12[B] explicitly require that said tube “provides water from the bowl fill valve outlet portion to an overflow tube.” EX1001, Limitations 8[B], 12[B]. Had PO intended to claim a generic tube, they would have done so. *See* Limitations 1[C] (“a tube configured to attach directly to the bowl fill valve outlet port of the bowl fill valve” without

² All emphasis added unless otherwise noted.

referencing an overflow tube”), 10[C] (“attaching a tube directly to a bowl fill valve outlet port of the bowl fill valve” without referencing an overflow tube). Petitioner’s interpretation of Claims 8 and 12 completely reads out the clause “that provides water from the bowl fill valve outlet port to an overflow tube.” *Versa Corp. v. Ag-Bag Int’l Ltd.*, 392 F.3d 1325, 1330 (Fed. Cir. 2004) (“The doctrine of claim differentiation creates a presumption that each claim in a patent has a different scope. The difference in meaning and scope between claims is presumed to be significant to the extent that the absence of such difference in meaning and scope would make a claim superfluous.”); *see also Wapp Tech Ltd. P’ship v. Seattle SpinCo, Inc.*, No. 4:18-CV-519, 2020 U.S. Dist. LEXIS 73089, at *55 (E.D. Tex. Apr. 27, 2020) (“‘configured to’ has a narrower meaning than merely ‘capable of’”) (citing *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1349 (Fed. Cir. 2012)). Although Petitioner argues the claimed overflow tube is merely a “reference point,” this argument (1) is not in the Petition,³ (2) completely reads out the final clause of Limitations 8[B] and 12[B], and (3) incorrectly implies *any* outlet port which is “configured to attach directly to a [generic] tube” invalidates the Challenged Claims.

³ Petitioner’s argument is waived. *Intelligent Bio-Systems*, 821 F.3d at 1369.

2. The Petition lacks *any* evidence Guoxin discloses the claimed overflow tube configuration.

Because Guoxin *does not disclose* an overflow tube, Petitioner’s Reply lacks citations to Guoxin itself. Reply, 4-6 (citing EX1004, ¶¶120, 148-49). Similarly, Petitioner’s Reply lacks citations to the Petition or Dr. Cameron’s first declaration, likely because the Petition’s *did not reference* overflow tubes in its analysis of the Challenged Claims, other than to restate the claim language. *Id.* Petitioner cannot correct its deficient analysis at this late stage. *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015).

3. Petitioner concedes it did not previously address the claimed overflow tube.

Dr. Cameron concedes she “did not explicitly address the connection of the bowl fill valve, via a first tube, to the overflow tube” in her first declaration. EX1036, ¶18. This admission is fatal.

Petitioner attempts to introduce additional evidence under the guise of “fully developing the record.” Reply, 8. However, the question posed by the Board for “further development” was not whether Guoxin discloses overflow tubes, but rather “whether the Petition adequately explains how limitation 8[B] ... and limitation 12[B] ... would be met by the corresponding identified prior art teachings.” Paper 20 at 29-30. Dr. Cameron’s admission makes clear that the Petition did not “adequately explain” how Guoxin allegedly discloses Limitations 8[B] and 12[B].

Petitioner cannot introduce argument and evidence at this late stage in the proceeding which properly belonged in the Petition and claim it is merely “elaborating.” *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015).⁴

4. Petitioner’s “supplemental evidence” does not prove the claimed overflow tube configuration is conventional.

Even accepting Petitioner’s “supplemental evidence,” Petitioner’s invalidity challenges rest on the tenuous premises that (1) overflow tubes are conventional in toilet design, and (2) a single reference (Brown) discloses the claimed overflow tube configuration. Reply, 4-6.

However, the alleged prevalence of overflow tubes among residential toilets does not mean the claimed configuration (a separate tube which provides water from a specific bowl fill valve to an overflow tube) is conventional. In fact, Ho provides an example of a tube (supply line 40) which provides water from a valve to the bowl *without* first passing through an overflow tube, yet nevertheless discloses a stand-alone overflow tube. EX1022, Figs. 1-2; EX2015, 145:14-20, 156:14-157:9. Petitioner’s circular recitation that a POSITA “would understand that Guoxin’s line 403 would conventionally be connected to an overflow tube” because “the use of

⁴ Each of Petitioner’s cited cases addresses further support for arguments which were already present in the Petition. Reply, 8-10. That is not the case here.

overflow tubes in toilet tanks is undisputedly conventional in toilet design” (Reply, 4-6) does not prove obviousness because it lacks “a reasoned explanation that avoids conclusory generalizations.” *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328-29 (Fed. Cir. 2009); *see also Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361-62 (Fed. Cir. 2016) (“references to common sense ... cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from the prior art references specified”).⁵

Finally, the fact that a single reference (Brown) discloses an overflow tube is irrelevant. Petitioner did not rely on Brown in its Petition, allege obviousness in view

⁵ Petitioner erroneously cites Dr. Cameron’s deposition to prove overflow tubes are conventional. Reply, 4-5. Dr. Cameron, however, did not reference an *overflow* tube. Immediately after Petitioner’s excerpt, Dr. Cameron was asked “what tube” she was referring to and responded: “I don’t know what you mean by that” and “I don’t know how to answer that.” EX2008, 85:9-20. Mr. Jobin, meanwhile, testified that “toilet systems may use an overflow tube,” but the claimed valve, first tube, overflow tube configuration is not conventional. EX2013, ¶¶84-87. Even if overflow tubes are conventional, there is no evidence Guoxin’s line 403 directs water to an overflow tube.

of Brown, or identify any motivation to combine Guoxin/Ho with Brown. It cannot do so now. *Ariosa Diagnostics*, 805 F.3d at 1367.

Petitioner points to instances where Guoxin is silent and (in Petitioner’s view) not inconsistent with the claimed configuration. But, Petitioner has failed to show Guoxin *actually discloses* a tube that “provides water from the bowl fill valve outlet port to an overflow tube.” Petitioner’s conclusory, unsupported reference to the alleged conventionality of overflow tubes generally does not render the Challenged Claims obvious, and its belated reliance on Brown underscores the Petition’s deficiencies.

B. Guoxin does not disclose the Flow Limitations.

The ’698 Patent contains several limitations directed to precisely how water flow through the bowl fill valve (collectively, the “Flow Limitations”). POR, 15-16 (citing EX1001, Limitations 1[B5], 8[E], 11, 12[E], and 13). Petitioner fundamentally misunderstands the Flow Limitations, which specifically refer to water that flows *out* of the bowl fill valve. As explained in PO’s Response, a POSITA would have understood “flow” as the rate at which water flows *through* (or out of) the bowl fill valve. EX2013. 97-98 (referencing “*water passing through the bowl fill valve*”).

Guoxin discloses a mechanism to adjust *how long* water flows through the switching mechanism. Increasing the length of the valve stem (by loosening the T-

shaped nut) causes the switching mechanism to open later and close earlier in the fill cycle. This reduces both the total *amount* of water entering the bowl and the total *time* water passes through the switching mechanism and, thus, has no impact on the *rate* water passes through the switching valve. The overall length of the fill cycle is irrelevant. EX2015, 88:5-89:1. Conversely, decreasing the length of the valve stem (by tightening the T-shaped nut) causes the switching mechanism to open earlier and close later. This increases both the total *amount* of water entering the bowl and the total *time* water passes through the switching mechanism and, again, does not impact the *rate* water passes through the switching valve. POR, 49 (citing EX2013, ¶¶103-04).⁶ Guoxin *does not* disclose a mechanism for adjusting flow rate.

Petitioner incorrectly refers to flow rate as “the amount of water that leaves the bowl fill valve during refilling of the toilet tank divided by *the time it takes for the tank to refill*.” Reply, 13. This is incorrect. The flow rate of the water flowing *out of the bowl fill valve outlet port* is the amount of water that leaves the outlet port, divided by *the time the water is passing through the outlet port*. Water which does

⁶ Petitioner does not explain its attempt to distinguish between flow and flow rate. Reply, 13. Regardless, the “flow” of water “out of the bowl fill valve outlet port” is likewise not adjusted by changing *when* the bowl fill valve closes. If the valve is closed, there is no “flow” out of the outlet port to adjust.

not pass through the bowl fill valve—either before it opens or after it closes—is irrelevant.

Petitioner’s expert seemingly agrees, testifying that (1) water pressure and (2) the diameter of the orifice were the only things she could think of which impact flow rate. EX2015, 84:6-85:22. If those variables are constant, flow rate will not change. *Id.*, 88:5-12. Unlike adjustable valves such as Brown’s set screw 26 (which alters the diameter of the opening), adjusting *when* Guoxin’s switching mechanism opens and closes has no impact on flow rate. *Id.*, 88:14-89:1.

C. The Petition lacks motivation to reverse Guoxin’s fluid flow connectors.

Petitioner’s only non-hindsight motivation to reverse Guoxin’s fluid flow connector is its unsupported assertion that reversal is merely “a matter of design preference.” POR, 19-20 (citing Petition at 24-25, 27, 41-42). In Reply, Petitioner *still* fails to identify *any* design preferences, instead referencing “the common goal of accurately controlling water flowing into the bowl.” Reply, 14-15. But, *every* component in a toilet system shares that goal—that is the entire point of the system. Petitioner’s argument is “generic and bears no relation to any specific combination of prior art elements.” *ActiveVideo Networks, Inc. v. Verizon Communs., Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012).

In fact, the only record evidence instructs a POSITA to use male-to-female connectors in certain circumstances, and female-to-male connectors in others. POR,

20-21 (citing EX1017, 7:24-29; EX2013, ¶¶109-12). There is no evidence both configurations “do substantially the same thing.” Petitioner ignores this in Reply. Instead, Petitioner’s alleged motivation to combine is merely conclusory language supported by explicit hindsight. POR, 21-23. Petitioner excuses the hindsight as “additional illustrative examples.” Reply, 16. But absent hindsight, Petitioner is left with conclusory recitations of generic legal standards, which is insufficient. *In re Magnum Oil Tools Intl, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“[P]etitioner cannot employ mere conclusory statements. [It] must instead articulate specific reasoning, based on evidence of record.”).

D. The Petition lacks motivation to combine Guoxin/Ho with the QCA.

The Petition did not articulate a specific motivation to combine *any* of the “QCA” references with the alleged Guoxin/Ho combination. POR, 23-25. In Response, PO identified concerns which would caution against each proposed sub-combination, which Petitioner ignored in its Reply. *Id.* (citing EX2013, ¶¶117-20). Rather than address the substance of PO’s Response, Petitioner instead argues that “[n]one of the claims of the ’698 Patent require a ‘molded’ component.” Reply, 16 n. 7. Petitioner’s Reply misses the point.

Dr. Cameron repeatedly testified that Ho discloses a molded plastic component. EX2015, 137:20-138:20, 184:19-185:11. She also explained that a POSITA would have typically used either metal or plastic in a fluid system (but not

both), and that certain connection mechanisms are better suited for plastic fluid systems (as opposed to metal systems) because of (1) the pressure inside, and (2) because plastic is more easily deformed. EX2008, 57:14-58:13, 56:2-57:13. In light of this testimony, a POSITA would have understood that the QCA (which includes metal components) would not be combined with Guoxin/Ho. POR, 23-25.

It is Petitioner's burden to identify a motivation to combine, and it cannot do so solely through conclusory statements. *Magnum Oil Tools*, 829 F.3d at 1380; *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“[I]t can be important to identify a reason that would have prompted a [POSITA] to combine the elements in the way the claimed new invention does” and “this analysis should be made explicit.”); *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1373 (Fed. Cir. 2008) (“[K]nowledge of a problem and motivation to solve it are entirely different from motivation to combine *particular references*...”). Petitioner's generic and unsupported reference to “any of these known methods of connecting two fluid channels” does not support a finding of obviousness.

III. CONCLUSION

As explained herein and in PO's Response, the Challenged Claims are not invalid.

Dated: April 30, 2025

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Patent Owner's Sur-Reply to Petitioner's Reply contains 2,424 words according to Microsoft Word's word count feature.

Dated: April 30, 2025

Respectfully submitted,

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CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. § 42.6(e), the undersigned certifies that on the 30th day of April 2025, a complete and entire copy of the foregoing Patent Owner's Sur-Reply to the Petitioner's Reply including the exhibits relied upon, was served on counsel of record for Petitioners, as follows:

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