

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

**PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE TO
PETITION**

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EX1001	U.S. Patent No. 10,934,698 to Schuster et al.
EX1002	Prosecution History of U.S. Patent No. 10,934,698 to Schuster et al. (Application No. 16/686,328, filed Nov. 8, 2019)
EX1003	Complaint (Dkt. 1) in <i>Danco, Inc. v. Fluidmaster, Inc., et al.</i> , Case No. 8:23-cv-01156 (C.D. Cal.), filed June 28, 2023
EX1004	Expert Declaration of Dr. Kimberly Cameron, Regarding Invalidity of the Challenged Claims of U.S. Patent No. 9,139,993 to Schuster et al.
EX1005	U.S. Patent No. 9,103,105 to Schuster et al.
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EX1010	Prosecution History of U.S. Patent No. 8,104,105 to Schuster et al. (Application No. 12/786,904, filed on May 25, 2010)
EX1011	Prosecution History of U.S. Patent No. 7,743,436 to Schuster et al. (Application No. 10/958,797, filed October 5, 2004)
EX1012	Prosecution History of U.S. Patent No. 6,823,889 to Schuster (Application No. 10/798,606, filed on Mar. 11, 2004)
EX1013	Amended Complaint (Dkt. 35) in <i>Danco, Inc. v. Fluidmaster, Inc., et al.</i> , Case No. 8:23-cv-01156 (C.D. Cal.), filed October 2, 2023
EX1014	U.S. Patent No. 6,546,568 B1 to Schuster issued April 15, 2003 from Application No. 09/969,320 filed October 1, 2001, as a continuation of Application No. 09/634,249 filed August 8, 2000 (now U.S. Patent No. 6,295,660)

Exh. No.	Description of Exhibit
EX1015	Registered Utility Model Publication Number CN2447417Y to Guoxin published September 12, 2001
EX1016	Certified Translation (together with a statement that the translation is true and accurate) of Registered Utility Model Publication Number CN2447417Y to Guoxin published September 12, 2001
EX1017	U.S. Patent No. 5,926,868 to Bjerke issued July 27, 1999
EX1018	U.S. Patent No. 5,249,830 to Calmettes, et al. issued October 5, 1993
EX1019	U.S. Patent No. 989,251 to Hall issued April 11, 1911
EX1020	Canadian Patent No. 1,320,235 to Kimber granted and published July 13, 1993
EX1021	U.S. Patent No. 3,086,546 to Brown issued April 23, 1963
EX1022	U.S. Patent No. 5,862,538 to Ho issued June 26, 1999
EX1023	U.S. Patent No. 4,980,932 to Stemples issued January 1, 1991
EX1024	U.S. Patent No. 5,708,991 to DeMarco issued January 20, 1998
EX1025	U.S. Patent No. 5,715,860 to Horad issued February 10, 1998
EX1026	U.S. Patent No. 5,134,729 to Shaw issued August 4, 1992
EX1027	U.S. Patent No. 5,855,025 to Williams issued January 5, 1999
EX1028	U.S. Patent No. 6,219,856 to Alles issued April 24, 2001
EX1029	U.S. Patent No. 8,104,105 to Schuster et al. issued January 31, 2012
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Exh. No.	Description of Exhibit
EX1033	Declaration of Ranjini Acharya in Support of Petitioner's Motion for Admission <i>Pro Hac Vice</i> of Ranjini Acharya
EX1034	Order Granting Defendant's Motion to Stay Case Pending IPR (Dkt. 48) in <i>Danco, Inc. v. Fluidmaster, Inc., et al.</i> , Case No. 8:23-cv-01156 (C.D. Cal.), entered April 3, 2024
EX1035	Comparison of Annotated Figures in Petition (Paper 1) and Expert Declaration (EX1004)
EX1036	Supplemental Expert Declaration of Dr. Kimberly K. Cameron, Ph.D., dated March 19, 2025
EX1037	Transcript of Deposition of Michael Jobin, taken March 11, 2025
EX1038	Demonstrative of Figure 7 of EX1022 (Ho), marked during deposition of Michael Jobin, taken March 11, 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
'698 Patent	U.S. Patent No. 10,934,698
Board	USPTO Patent Trial and Appeal Board
Challenged Claims	Claims 1-14 of the '698 Patent
Danco, Patent Owner, or PO	Danco, Inc.
Fluidmaster or Petitioner	Fluidmaster, Inc.
Institution Decision, or ID	IPR2024-00635 Paper 20
<i>Lampi</i>	<i>Lampi Corp. v. Am. Power Prods.</i> , 228 F.3d 1365 (Fed. Cir. 2000)
Parties	Danco and Fluidmaster, collectively
Petition	IPR2024-00635 Paper 1
POR	IPR 2024-00635 Paper 26 (Patent Owner Response)
POSITA	Person of Ordinary Skill in the Art
QCA	QCA
<i>Smythe</i>	<i>In re Smythe</i> , 480 F.2d 1376 (CCPA 1973)
USPTO	United States Patent and Trademark Office

I. Introduction

Patent Owner (“PO”) contends that that the Petition must be denied as “fatally flawed.” POR, 1. This does not withstand scrutiny. For the reasons stated in the Petition and below, all claims of the ’698 Patent should be cancelled.

II. Ground 1: Guoxin in View of Ho Renders Obvious All Claims Challenged

Guoxin in view of Ho renders obvious independent claims 1, 8, 10 and 12, as well as all claims that depend therefrom. *See* Petition, 21–59. PO counters that the prior art does not render obvious the “overflow tube” mentioned in Claims 8[B] and 12[B] (*see* POR, 10–15)¹ ; Guoxin does not disclose the “flow limitations” of Claims 1[B5], 8[E], 11, 12[E], and 13 (*id.* 15–18); and there is no motivation to combine Guoxin and Ho, and further the QCA. *Id.*, 19–25. Each counterargument fails.

¹ PO refers throughout to Claims 8[C] and 12[B] in discussing the “overflow tube.” *See* POR, 10–15. Petitioner treats these as a typographical error and understands PO to have in fact referred to Claims 8[B] and 12[B]. *See* Petition, viii, ix, 46. Petitioner will refer to Claim 8[B] where PO mistakenly refers to Claim 8[C].

A. PO’s Arguments Regarding the “Overflow Tube” are Untenable²

1. Claims 8[B] and 12[B] Recite Elements of the Claimed Bowl Fill Valve, and Not a Toilet Tank System Generally

PO suggests that a separate toilet tank overflow tube is “*required*” by limitations 8[B] and 12[B]. POR, 12.³ Not so.

Claims 8 and 12 are directed to features of the claimed *bowl fill valve*, which is but one component of the toilet tank system. This can be contrasted with Claim 1, which is more broadly directed to the features of the claimed toilet system. *Compare* EX1001, Claim 8[pre] and Claim 12[pre] (“A bowl fill valve comprising...”), *with* Claim 1[pre] (“A toilet system comprising...”). Indeed, the elements of Claims 8 and 12 “largely mirror the bowl fill valve elements of claim 1,” but specifically omit the other generic toilet system elements and do not recite any additional elements.

² PO treats Claim 1[E] as representative of Claims 8[E]-[F] and 14[B]. *See, e.g.*, POR, 11, n.3. Where PO addresses only a representative claim, the Board has done the same. *See, e.g., Trend Micro Inc. v. Cupp Computing Assn*, No. IPR2019–00767, 2020 WL 5031970, at *17 (PTAB Aug. 25, 2020). Petitioner agrees that “overflow tube” (Claim 1[E], 14[B]) and “overfill tube” (Claim 8[F]) are “functionally equivalent.” POR, 12, n.3.

³ All emphases added unless otherwise noted.

Petition, 45. This is consistent with the specification, which confirms that the overflow tube is a generic component of the ***toilet tank system***, and not a feature of the claimed bowl fill valve. *See, e.g.*, EX1001, 4:3–4 (“A tube 146 is coupled to the bowl fill valve outlet 116 and is directed into the overflow tube 149 ***of the toilet tank 143***.”) 6:41–43 (“...until a desired flow of water flows out of the bowl fill valve outlet port 216 into a tube and into the overflow tube 149 ***of a toilet***.”). One of ordinary skill in the art would thus understand that the overflow tube is a generic component of the toilet, and not recited as a feature of the claimed bowl fill valve of Claims 8 and 12. *See* EX1004 at ¶145, EX1036, ¶¶28–29.

Moreover, where Claims 8 and 12 do mention “overflow tube,” each simply requires that the claimed bowl fill valve have an outlet port that is “***configured to***” attach directly to a tube that provides water from the bowl fill valve outlet port to an overflow tube. This confirms that the “overflow tube” is not recited as a separate structure – rather, is recited solely to define the function of the outlet port on the bowl fill valve. Thus, the overflow tube is not separately claimed but rather serves as a “reference point” to define the “purpose and structure” of the bowl fill valve outlet port. *See Eko Brands, LLC v. Adrian Rivera Maynez Enterprises, Inc.*, 946 F.3d 1367, 1377 (Fed. Cir. 2020) (where claims recited a beverage brewing device “for use with” a single serve beverage brewer, the latter was merely “a ‘reference

point’ to define the purpose and structure of the brewing device” and not a structure that was affirmatively recited in the claim).

Therefore, when addressing Claims 8 and 12, it is sufficient to show – as Petitioner has done – that the prior art discloses a bowl fill valve with *an outlet port that is configured to* attach directly to a tube that provides water from the outlet port to an overflow tube. Guoxin discloses this. *See* EX1004, ¶¶123–124 (“Guoxin discloses a tube 403 configured to attach directly to the bowl fill valve of the outlet port of the bowl fill valve (switching mechanism 4)”); annotating Fig. 2); ¶142–143 (same); ¶149. Thus, Claims 8[B] and 12[B] are obvious in light of the prior art.

B. A POSITA Would Understand that Guoxin’s Water Supply Line 403 is *Configured to Connect to an Overflow Tube*

To the extent that Claims 8[B] and 12[B] require Petitioner to specifically address an overflow tube (and they do not), one of ordinary skill in the art would understand that Guoxin’s water supply line 403 would conventionally be connected to an overflow tube, and that the water supply line 403 supplies water from the bowl fill valve outlet port to the overflow tube because such a connection is conventional in the prior art.

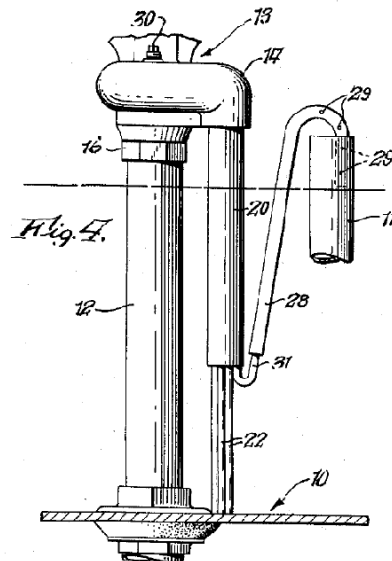
As an initial matter, the use of overflow tubes in toilet tanks is undisputedly conventional in toilet design. *See e.g.*, EX1004, ¶75 (conventionally, water enters “into the bowl through a connection to the toilet’s overflow tube”); ¶78 (Shaw

(EX1026) shows an overflow tube to discharge water into the bowl); ¶79 (Williams (EX1027) shows a bowl fill restrictor (20) connected to an overflow tube); EX2008, 85:6–13 (“Q. How does [water] go into the bowl? A. *Through a tube.*”). See also EX2013, ¶83 (describing water draining through an overflow tube into the toilet bowl); ¶84 (describing water running from a fill valve via a tube to the overflow tube); ¶87 (referencing the “prevalence of overflow tubes among residential toilets”).

Moreover, connecting a first tube to direct water from the bowl fill valve to a second, separate, overflow tube is also conventional. See, e.g., EX1004, ¶76 (citing Brown (EX1021) at 4:20–44):

Referring now to FIG. 4, another embodiment of the water silencing and saving means comprising the invention is illustrated therein. In this embodiment, the opening 21 in main chamber 15 is closed by a plug 30, and the improved water saving means is inserted into the fill tube 20 together with the water silencing rods 21. The preferred form of this water saving means differs from that illustrated in FIG. 1 in that adapter tube 23, and the slotted portion 24 and set screw 26 forming the metering valve are completely eliminated, and replaced by a smaller tube 31 forming the desired restricted opening. This relatively short tube 31 is bent into a substantially U-shape, and one end is inserted into fill tube 20, being held securely in place therein by the water silencing rods 21. The other end of U-shaped tube 31 is inserted into the relatively long flexible tube 28 which is connected to the overflow pipe 11, as in FIG. 1.

As will be apparent, the U-shaped tube 31 provides a restricted opening for the water saving means, which opening is much smaller than that found in the conventional valveless refill tube (not shown), in order to accomplish substantially the same results as the adapter tube 23 and the metering valve formed by slotted portion 24 and set screw 26 of FIG. 1, albeit lacking their feature of adjustability.



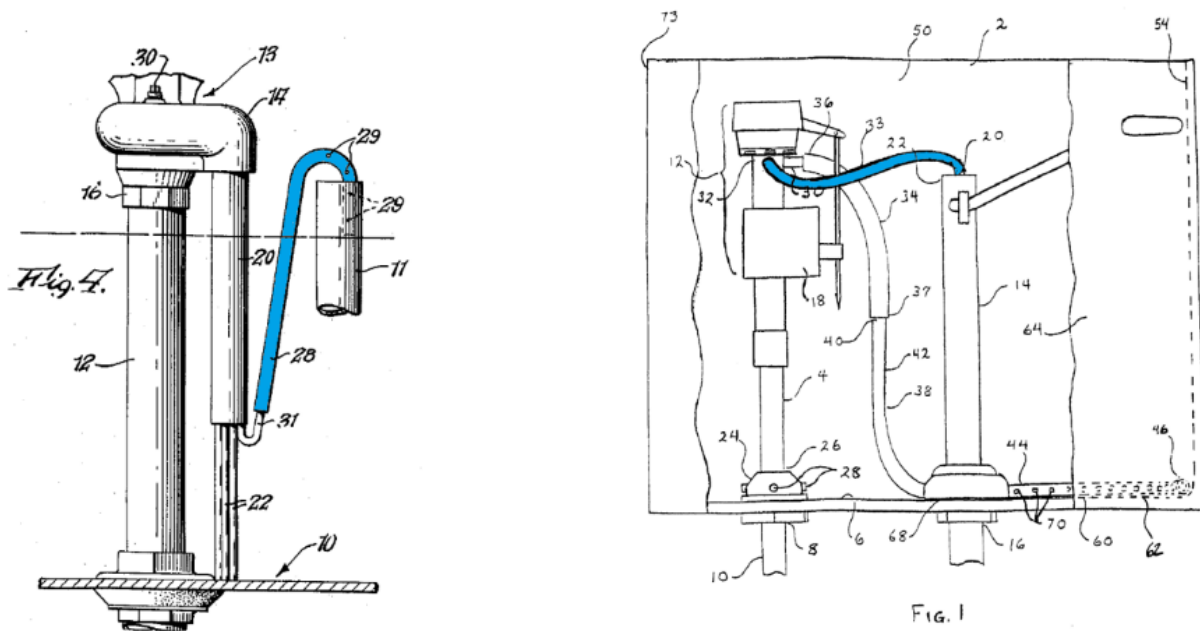
Based on these conventional connections, a POSITA would understand that Guoxin discloses a tube (water supply line 403) that is conventionally connected to

an overflow tube, and which provides water from the bowl fill valve outlet port to the overflow tube. EX1036, ¶¶11–23.

C. Guoxin's Disclosures Do Not Support a Different Conclusion

PO raises three counterarguments as to why Guoxin's water supply line 403 would not be connected to an overflow tube, as is conventional in the art. None withstands scrutiny.

First, PO argues that because Guoxin's "line 403 *descends* from" the point of attachment in Fig. 2, it cannot connect to an overflow tube. POR, 14–15 (emphasis in original). This is wrong. Guoxin's line 403 is only partially depicted in Fig. 2, and both the specification of the '698 Patent and the prior art confirms such tubes may ascend or descend (or both) before connecting to the overflow tube:



EX1021, Fig. 4 (annotated); EX1014, Fig. 1 (annotated). PO's expert confirmed the same in deposition. EX1037, 28:17–29:7; 30:18–31:2; 32:9–33:19; 36:12–16. EX1036, ¶¶24–25.

Second, PO argues that Guoxin's line 403 must terminate directly at the bowl. POR, 13–14. But Guoxin does not specify a terminus. PO's heavy reliance on the word “directly” in Guoxin's disclosure is unavailing. *Id.* (citing EX2007, 2:18–21). Elsewhere, Guoxin teaches “a portion of the water from the inlet device is **directly** supplied to the toilet bowl” (*id.*, 2:5–7); but this does not mean that the water inlet device terminates at the bowl. Indeed, Guoxin discloses several intermediating connections between the water inlet device and the bowl. *Cf.* EX1037, 52:1–21. Applying that same logic, Guoxin's description of line 403 “directly” supplying water to the bowl does not preclude an intermediating connection via an overflow tube, especially since that is conventional. EX1036, ¶¶26–27.

Third, Guoxin's goal of increasing flush volume does not conflict with connecting Guoxin's line 403 to an overflow tube, since the latter undisputedly serves a separate purpose of preventing overflow in the event of fill valve failure. POR, 10; EX2013, ¶¶ 79, 83–84.

In sum, Guoxin discloses a line 403 that is configured to provide water to an overflow tube, and a POSITA would understand that it is connected to an overflow tube, as is conventional. PO's arguments to the contrary should be rejected.

D. Petitioner Is Permitted to Rebut, With Supplemental Evidence, PO's Arguments Regarding the "Required" Overflow Tube

Dr. Cameron's supplemental declaration specifically addresses PO's argument regarding the "overflow tube" aspect of Claims 8 and 12 and seeks to assist the Board by fully developing the record. *See* ID, 29–30 (noting particularly that as with respect to Claims 8[B] and 12[B], the "resolution of this issue would benefit from further development of the record during trial."). Dr. Cameron's testimony specifically demonstrates that connecting Guoxin's water supply line 403 to an overflow tube is conventional in the art and that a POSITA would understand that the outlet port of Guoxin's switching mechanism 4 is configured to attach directly to the water supply line 403 that provides water from the switching mechanism to an overflow tube. Controlling Federal Circuit authority, as well as the Board's previous decisions, confirms that it is appropriate for the Board to consider this additional evidence regarding Guoxin's disclosures.

In *Rembrandt*, the Federal Circuit confirmed that the Board does not abuse its discretion in considering a petitioner's responsive arguments raised in a reply, where those arguments do not constitute new theories. *Rembrandt Diagnostics, LP v. Alere, Inc.*, 76 F.4th 1376 (Fed. Cir. 2023). There, patent owner contended that petitioner improperly raised new theories as reply arguments. *Id.* at 1384. The Court rejected this, finding instead that petitioner's reply argument elaborated on the arguments in

its petition. *Id.* at 1385. The Court also distinguished its prior holding in *Ariosa*, where petitioner relied on an embodiment of the prior art that was not discussed in the petition to switch theories between its petition and reply. *Id.* (citing *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367–68 (Fed. Cir. 2015)). The Court found that, unlike the petitioner in *Ariosa*, the petitioner in *Rembrandt* “[did] not point to any new embodiments not previously identified to advance a meaningfully distinct contention from what it first asserted in its petition,” and that therefore the reply argument involved “the same ‘legal ground’ based on ‘the same prior art references’ and the ‘same legal argument’ [as the petition]” and was thus permissible. *Id.* (quoting *Apple Inc. v. Andrea Electronics Corp.*, 949 F.3d 697, 706 (Fed. Cir. 2020)). *See also e.g., Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1081–82 (Fed. Cir. 2015) (rebuttal evidence that is offered “to explain, repel, counteract, or disprove the evidence of the adverse party” is permissible).

Applying *Rembrandt*, the Board has likewise allowed petitioners to introduce additional testimony regarding a previously disclosed prior art reference. In *Micron*, petitioner initially relied on the definition of a “Ball Grid Array (BGA)” in a prior art reference (Ball) to argue that a POSITA would have understood a BGA to include the claimed “packaging-use external terminals” limitation to connect the bottom side of a substrate to a chassis or motherboard. *Micron Tech., Inc. v. Katana Silicon Techs. LLC*, No. IPR2023-00071, 2024 WL 2137717, at *21 (PTAB May 13, 2024).

Patent owner responded, arguing that Ball failed to disclose “packaging-use terminal.” *Id.* at *22. In its reply to the patent owner’s response, petitioner subsequently specifically pointed to Ball’s disclosure of “bump connections” to evince such terminals, even though petitioner had not previously identified or discussed that disclosure in connection with this claim limitation in the petition. *Id.* (citing reply). The patent owner objected, arguing that petitioner’s reliance on “bump connections” as disclosing the claimed “packing-use external terminals” was a new rationale and improper. *Id.* at *26. The Board disagreed. *Id.*

The Board held that under the circumstances of the case, “petitioner’s reliance on Ball’s ‘bump connections’ as disclosing the claimed packaging-use external terminals [was] responsive to patent owner’s arguments,” and “appropriately expand[ed] on arguments raised in the petition.” *Micron*, 2024 WL 2137717 at *26. The Board noted that petitioner and its expert had generally discussed conductive arrangements known in the art, albeit not in the context of this specific claim limitation. *Id.* The Board further noted that, when arguing that Ball failed to disclose the claimed “packaging-use external terminal,” the patent owner had quoted from Ball’s disclosure and offered testimony of its own expert regarding whether Ball’s disclosure was ambiguous. *Id.* The Board concluded that therefore, “patent owner raised the issue of whether Ball’s ‘bump connections’ disclose the claimed ‘packaging-use external terminal,’ and that petitioner’s reply argument was “directly

responsive” to that argument and evidence,” and therefore, petitioner’s reply argument was “a fair extension of petitioner’s previously raised argument[.]” *Id.* at *27.

That applies with equal force here. Petitioner has already previously identified Guoxin and the water supply line 403 as disclosing Claims 8[B] and 12[B], and has generally identified the conventional connection of such a tube to an overflow tube in the prior art. In its POR, PO presented direct testimony from its expert to argue that an “overflow tube” is not (and could not) be present in Guoxin. *See* POR, 10–15. And so, Petitioner presents arguments and evidence in direct response to PO, and these are a fair extension of Petitioner’s prior arguments with respect to Guoxin. This is permissible and has the additional benefit of developing the record as specifically requested by the Board. *See* ID, 29–30. The Board should permit this additional testimony and evidence.

E. Guoxin Discloses the “Flow Limitations”

PO argues that each of the “Flow Limitations” as identified by PO (POR at 15–16) “relates to water passing through the bowl fill valve, and ultimately out of the [bowl fill valve] outlet port.” *Id.*, 16. PO asserts that a reference must therefore disclose “adjusting the flow of water which *exits* the flow valve,” and that Guoxin

“*does not* disclose an adjustable flow rate.” *Id.* 17 (emphases in original).⁴ PO also argues that Guoxin’s T-shaped nut discloses a mechanism to adjust “when the flow of water through the switching mechanism is discontinued,” but “does nothing to impact the flow *rate* of the water passing through the switching valve.” POR, 18 (underlined emphasis added, italics in original).⁵

⁴ As to PO’s complaint that Dr. Cameron’s citations are deficient (POR, 17), this largely seeks to elevate form over substance. The cited evidence from Guoxin for Dr. Cameron’s testimony is easily located within that reference. For example, Dr. Cameron has explained that “Guoxin discloses an adjustable bowl fill valve that adjusts the water flow rate through the valve based on a setting of the bowl fill valve.” EX1004, ¶137. Guoxin does so. *See* EX2007, 2:28–31. Dr. Cameron has explained that the level is set by adjusting the T-shaped nut. EX1004, ¶137. Guoxin discloses this. EX2007, 2:31–36. Although EX1016 and EX2007 use different page/line citation methodologies, the passages from Guoxin that Petitioner has relied upon can and have been adequately identified.

⁵ PO also takes the position that adjustments of Guoxin’s T-shaped nut reduces or increases the total amount of water that enters the toilet bowl. POR, 18 (*citing* EX2013, ¶¶103–104). In deposition, testified that adjusting Guoxin’s T-shaped nut

As an initial matter, the claim language of the '698 Patent discusses adjusting the water flow, not specifically the “flow rate.” But to the extent that “flow rate” is relevant to the '698 Patent, it is undisputed that the term “flow rate” is generally understood as the volume of water through a conduit over a period of time. EX1036, ¶¶28–29; EX1037, 69:4–6. Thus, the relevant rate of water flow in the Flow Limitations claims of the '698 Patent is 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. EX1036, ¶30. This is consistent with the specification of the '698 Patent. *Id.*, ¶31.⁶

This is obvious in light of Guoxin. EX1036, ¶¶35–38. Adjustment of Guoxin's T-shaped nut reduces and then eliminates water flow out of the switching mechanism, and changes the amount of water that exits the switching mechanism. *Id.* This in turn alters the flow rate (the volume of water exiting the switching mechanism during the tank refill) and thereby increases or decreases the water

does not impact the volume delivered. EX1037, 54:25–56:25. That is wrong, and contradicts both PO's position and his earlier opinions. EX1036, ¶39.

⁶ This does not mean the flow through the bowl fill valve cannot change during the fill cycle. EX1036, ¶34.

delivered to the bowl. *Id.* Thus, Guoxin satisfies the Flow Limitations of the '698 Patent, even under PO's interpretation. *Id.*

F. Petitioner Articulates a Basis to Reverse Guoxin in View of Ho and to Combine Guoxin and Ho with the QCA

Finally, PO argues that Petitioner has failed to articulate a motivation to combine the teachings of the prior art. POR, 19–25. In support, PO states that it is insufficient to show that a POSITA would have known that they *could* reverse the configuration of Guoxin in view of Ho and the QCA. POR, 20 (emphasis in original).

But it is black letter law that “the mere substitution of equivalents which do substantially the same thing in the same way, even though better results may be produced, is not such an invention as will sustain a patent.” *Dow Chem. Co. v. Halliburton Oil Well Cementing Co.*, 324 U.S. 320, 330 (1945). In other words, if it would have been obvious “as a matter of simple substitution” to replace one coupling mechanism with another, “to achieve the same locking function and achieve a predictable result,” then that is sufficient. *Ex Parte Franck Carrel & Laurent Barrelle*, No. 2013-006623, 2015 WL 6774483, at *3 (PTAB Oct. 23, 2015) (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007)).

Petitioner has satisfied *KSR*. Reversing Guoxin’s configuration based on Ho is a simple substitution of known arrangements to obtain predictable results. EX1004, ¶105. The prior art confirms that various coupling arrangements are

conventional (*id.*) and satisfy the common goal of accurately controlling water flowing into the bowl. *Id.* This reversal is also obvious in light of the QCA. The QCA confirms that various coupling arrangements are conventional (*id.* ¶¶81–86), as is reversing or interchanging these arrangements with predictable results. *Id.*, ¶¶100–101, 132–133. A POSITA would generally look to any of these known methods of connecting two fluid channels when specifically looking to control the volume of water entering a toilet bowl. EX1004, ¶¶100–101, 133. Thus, the art provides a POSITA with a finite number of design choices that reflect simple substitutions with predictable results in controlling water flow into the toilet bowl, and supports the reversal of Guoxin’s coupling arrangement in view of Ho and the QCA. PO seemingly agrees. POR, 20 (“[T]he question of whether a POSITA would have been capable of reversing the fluid flow connector configuration ***is not in dispute.***”). Therefore, Petitioner has met the *KSR* standard. *See, e.g., Unified Pats. Inc. v. Ideahub, Inc.*, No. IPR2020–01338, 2022 WL 443888, *19 (PTAB Feb. 7, 2022) (petitioner satisfied *KSR* where petitioner had, *inter alia*, explained how the

substitution was a predictable variation, and PO's expert submitted testimony that was "substantially consistent" with the same).⁷

PO's "hindsight" arguments do not alter this conclusion. POR, 21–23. Petitioner's references to the '698 Patent and the '698 Patent provide *additional* illustrative examples. *See* EX1004, ¶102 (describing the '698 Patent as "*another* example"). Thus, the reversal of Guoxin's connections "does not result from hindsight reconstruction." *See Unified Pats.*, 2022 WL 443888 at *20 (no hindsight reconstruction where petitioner provided multiple persuasive rationales drawing on teachings outside the patent).

III. Conclusion

For the foregoing reasons, and those stated in the Petition, Petitioner respectfully seeks cancellation of all claims of the '698 Patent.

⁷ PO's passing demand that Petitioner must show "how (or why) each specific connection mechanism disclosed by [the QCA] would have been adapted by a POSITA for molded *plastic* toilet systems" is nonsensical. POR, 24. None of the claims of the '698 Patent require a "molded" component, and the claims (and specification) are otherwise silent as to material composition or method of manufacture of the structures recited by the claims. *See* EX1037, 18:5–18:16; 18:24–19:10.

Dated: March 19, 2025

Respectfully submitted,

By: /Carolyn S. Toto /

Carolyn S. Toto (Reg No. 58,617)

Evan Finkel (Reg. No. 49,059)

Ranjini Acharya (*pro hac vice*)

PILLSBURY WINTHROP SHAW

PITTMAN LLP

725 South Figueroa Street, 36th Floor

Los Angeles, CA 90017-5406

Telephone: (213) 488-7238

Facsimile: (213) 629-1033

carolyn.toto@pillsburylaw.com

evan.finkel@pillsburylaw.com

ranjini.acharya@pillsburylaw.com

Counsel for Petitioner Fluidmaster, Inc.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on March 19, 2025, a true copy of the foregoing **PETITIONER’S REPLY TO PATENT OWNER’S RESPONSE** and all exhibits/attachments thereto were served in their entirety via electronic mail on the following attorneys of record:

- Jason M. Perilla (Lead Counsel): j.perilla@pkhip.com
- Kenneth A. Knox (Backup Counsel): k.knox@pkhip.com
- Eric G. Maurer (Backup Counsel): e.maurer@pkhip.com

Dated: March 19, 2025

By: / Carolyn S. Toto /
Carolyn S. Toto (Reg No. 58,617)
Counsel for Petitioner Fluidmaster, Inc.

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that the foregoing Reply to Patent Owner's Response complies with the type-volume limitation of 37 C.F.R. §42.24(a) and, excluding the portions exempted by 37 C.F.R. §42.24(b), contains 3471 words according to the word processing program used to prepare this document.

Dated: March 19, 2025

By: / Carolyn S. Toto /
Carolyn S. Toto (Reg No. 58,617)

Counsel for Petitioner Fluidmaster Inc.