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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 B2

PATENT OWNER'S PRELIMINARY RESPONSE

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I. INTRODUCTION

Pursuant to 37 C.F.R. § 42.107, Danco, Inc. (“Patent Owner”) submits this Preliminary Response to the Petition for inter partes review IPR2024-00635 (“the Petition” or “this IPR”) of U.S. Patent No. 10,934,698 (“the ’698 Patent”) filed by Fluidmaster, Inc. (“Fluidmaster” or “Petitioner”). This submission is timely under 35 U.S.C. § 313 and 37 C.F.R. § 42.107, as it is filed within three months of March 13, 2024, the mailing date of the Notice of Filing Date (Paper 3).

Petitioner asserts a single ground of rejection against Claims 1-14 of the ’698 Patent. In doing so, Petitioner purportedly relies upon a single primary reference and an amalgamation of secondary and tertiary references, selectively relied upon when convenient in a failed attempt to piecemeal a toilet fill valve having all features of the ’698 Patent as claimed. As set forth in more detail herein, the Petition must be denied because the single ground is fatally flawed for numerous reasons, including in view of the standards set forth under 35 U.S.C. §§ 102, 103, 312(a)(3), 314(a), and 325(d) and the IPR practice rules for the Board.

First, the Board can and should exercise its discretion to deny institution of the Petition under 35 U.S.C. §§ 312(a)(3) and 314(a) as the Petition is deficient on its face under 37 C.F.R. § 42.104(b)(4) and § 42.104(b)(5). Petitioner’s allegations are so vague and ambiguous that the Petition fails to set forth a complete *prima facie* case of obviousness as to any claim.

Indeed, the lone ground advanced in the Petition, even in an interpretation most favorable to Petitioner, is effectively a combination of *six* different references. Paper 1, 5-6. Petitioner selectively cites both Guoxin and Ho (interchangeable as both primary and secondary references) to show where certain claim limitations are disclosed in the prior art, but must further cite to a group of four tertiary references – namely, Bjerke, Calmettes, Hall, and Kimber – to try to fill in the gaps for various material claim limitations that are plainly not disclosed in Guoxin and Ho. *See, e.g., id.*, 21-27. Even worse, Petitioner improperly groups the four tertiary references into a single reference, referred to in the Petition as the “Quick Connection Art,” and cites to them collectively for certain claim limitations, while pointing to them individually for other claim limitations. *Id.*, 5. The result is an incredibly vague and ambiguous combination of references that creates dozens of potential combinations without any clear indication by Petitioner (or its purported expert) of what might be the end result of such combinations, much less whether the combination would be successful. This is improper, and for this reason alone the Petition should be denied.

Second, like the related Petitions in IPR2024-00634 and IPR2024-00633, the Board can and should further exercise its discretion to deny institution of the Petition under 35 U.S.C. §§ 312(a)(3) and 314(a), as the Petition is deficient on its face under 37 C.F.R. § 42.104(b)(4) and § 42.104(b)(5) because many of the annotations and/or labels on the figures – which are necessary for Petitioner to meet its burden to show

a complete prima facie case of obviousness as to any claim – are not viewable, cut off, or simply missing in the Petition. As but a few examples, on pages 28, 32, and 34, Petitioner states that it “will be referring to the annotated figures from Guoxin and Ho” to show how independent Claim 1 of the ’698 Patent is obvious over Guoxin in view of Ho and the “Quick Connection Art.” But the referenced figures either contain incomplete annotations or, in many cases, no labels for the annotations are included at all. As a result, the Petition alleges that certain features of Claim 1 (as well as Claims 8, 10, and 12 since Petitioner simply incorporates by reference arguments from Claim 1) are shown in the annotated figures, but the figures themselves fail to show where various claim elements are allegedly disclosed. For this additional reason, Petitioner has not met its burden of proof and the Petition should be denied.

Third, the Board can and should further exercise its discretion to deny institution of the Petition under 35 U.S.C. § 325(d) because i) one of the tertiary references that Petitioner groups into the Quick Connection Art – namely, Bjerke – was already considered and highly scrutinized by the Office,¹ and ii) Guoxin and Ho

¹ Petitioner inaccurately represents to the Board that the “Petition raised invalidity challenges based on prior art, none of which was the basis for a rejection by the Examiner/Patent Office.” Paper 1, 9.

are the same or substantially the same as the art previously presented to and considered to the Office. As such, the *Becton, Dickinson* factors, discussed in greater detail herein, weigh against institution of the Petition.

Indeed, even though the use of Bjerke as a secondary reference was overcome by Patent Owner during prosecution through amendment and argument, Petitioner again attempts to use Bjerke in a manner nearly identical to the Office. Petitioner merely substitutes the primary reference cited during prosecution, DeMarco, with two different references, Guoxin and Ho, that are not materially different from DeMarco with respect to the manner in which DeMarco was cited during prosecution. As such, Petitioner is urging the Board to reexamine the claims using nearly the same art cited during prosecution. *See Nu Mark LLC v. Fontem Holdings I, B.V.*, IPR2016-01309, Paper 11 (decision denying institution due to Petition citing “substantially the same art or arguments as those previously presented to the Office”).

Fourth, all of the cited references are deficient in showing each and every feature of the Claims 1-14 are obvious because none of the cited references teach one or more of the following claim limitations: i) a bowl fill valve outlet port attached directly to a tube that provides water from the bowl fill valve out let port to an overflow tube (Claims 8 & 12); ii) a bowl fill valve having a protrusion configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet

fill valve, the protrusion being configured to snap fit into the recess (Claims 1, 8, 10 & 12); and iii) a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve (Claims 1, 8, 10 & 12). As but one example, Petitioner completely ignores the limitations of Claim 8 and 12 that relate to a bowl fill valve outlet port that attaches directly to a tube that provides water from the bowl fill valve outlet port to an overflow tube. *See* EX1001, 11:1-3; 12:10-13. The Petition does not point to any reference in the six cited references as allegedly disclosing an overflow tube, for example.

Lastly, Petitioner groups the four tertiary references into a single group (*i.e.*, the “Quick Connection Art”) and then selectively cites to them using impermissible hindsight. Indeed, none of the Quick Connection Art, which spans various technology areas, such as bathtubs, motor vehicles, and radiator hoses, teaches or suggests the use of the disclosed couplings in connection with valves, much less toilet fill valves or bowl fill valves. As a result, as discussed in more detail herein, Petitioner has not shown any teaching or suggestion that would motivate a PHOSITA to use the disclosed couplings in connection with toilet fill valves or bowl fill valves.

For at least the foregoing reasons, the Petition should be denied.

II. PETITIONER’S CHALLENGES TO THE CLAIMS

Petitioner’s challenge to Claims 1-14 of the ’698 Patent is based on the following single ground:

Ground	Claims	Basis	Primary Reference	Secondary Reference(s)
1	1-14	103	Guoxin	Ho Bjerke Calmettes Hall Kimber ²

Paper 1, 7. Petitioner’s ground is based upon one or more of the following cited references:

- China Utility Model Number CN2447417Y to Guoxin published September 12, 2001 (EX1015, Certified Translation at EX1016, “Guoxin”).
- U.S. Patent No. 5,862,538 to Ho issued June 26, 1999 (EX1022, “Ho”).
- U.S. Patent No. 5,926,868 to Bjerke issued July 27, 1999 (EX1017, “Bjerke”).
- U.S. Patent No. 5,249,830 to Calmettes, et al. issued October 5, 1993 (EX1018, “Calmettes”).

² The Petition refers to Bjerke, Calmettes, Hall, and Kimber collectively as the “Quick Connection Art.”

- U.S. Patent No. 989,251 to Hall issued April 11, 1911 (EX1019, “Hall”).
- Canadian Patent No. 1,320,235 to Kimber granted and published July 13, 1993 (EX1020, “Kimber”).

III. BACKGROUND OF SUBJECT MATTER AND PARTIES

Excessive water usage in toilets is a significant issue with various implications, both on a micro and macro scale. Traditional toilet fill valves often dispense more water than necessary to refill the toilet bowl after flushing. EX1001, 1:29-36. This results in a significant amount of water being wasted with each flush, contributing to overall water wastage in households and commercial buildings.

Wasting water has direct environmental consequences. Freshwater is a finite resource, and excessive usage strains local water sources, especially in regions prone to droughts or water scarcity. Moreover, the energy required to treat and transport water adds to the environmental footprint. Wasted water can translate to higher water bills for households and increased operational costs for businesses. This can strain household budgets and reduce the profitability of commercial establishments. As a result, addressing excessive water usage in toilets and other areas is crucial for environmental sustainability, cost savings, and responsible resource management.

The '698 Patent describes a toilet fill valve system designed to address the issue of excessive water usage during flush cycles, thereby aiming to reduce water

waste. See generally EX1001. Specifically, the '698 Patent describes a toilet fill valve that restricts the flow of water into the toilet bowl during a flush cycle to ensure only the required amount of water is used, preventing any unnecessary wastage. EX1001, 2:35-46. In some implementations, a manual adjustment handle is provided on the bowl fill valve, allowing users to control the flow rate according to their needs and to better control an amount of water used in a flush cycle. *Id.*

Notably, prior bowl fill valves were often provided in a middle of a tube, which creates a “pressure head” within the tube. EX1001, 4:3-21. A pressure head refers to “the pressure exerted by a column of fluid on the bottom of a well. It is the depth of fluid that will exert an equivalent pressure.” EX2002, p. 1. In the context of toilet systems, the pressure head is a factor in determining the force with which water is delivered to flush the toilet bowl. The configuration of the toilet fill valve 100 described in the '698 Patent ensures that “a pressure head is not created in any portion of the tube 146 prevents the tube 146 from working its way off of the bowl fill valve outlet 116 over time.” EX1001, 4:3-21. “By virtue of the fact that the bowl fill valve 100 is integrated within the toilet fill valve 100, a pressure head is prevented from being created due to any potential pinching of the tube 146 or other similar adjustment mechanism.” *Id.* at 4:63-67.

As a result of the various inventions disclosed in the '698 Patent, Patent Owner has enjoyed considerable commercial success in the marketplace. After

Patent Owner released its own products incorporating the claimed inventions in the '698 Patent, Petitioner introduced various products that incorporate the claimed inventions to capitalize on Patent Owner's inventions. Petitioner's infringing actions have resulted in litigation between Patent Owner and Petitioner, including the case styled *Danco Inc. v. Fluidmaster Inc. et al.*, Case No. 8:23-cv-01156 (CDCA).

IV. OVERVIEW OF THE '698 PATENT AND PATENT FAMILY

The '698 Patent is one among a family of applications and patents ("the Patent Family") filed by Patent Owner. Table I, below, identifies the entire family as of June 13, 2024 ("the Patent Family"), with the '698 Patent emphasized in bold.

Patent App. No.	Filing Date	Status	Patent No.
10/798,606	03/11/2004	Patented	6,823,889
10/958,797	03/11/2004	Patented	7,743,436
12/786,904	10/05/2004	Patented	8,104,105
13/346,355	12/06/2010	Patented	8,650,671
14/164,424	06/11/2012	Patented	9,139,993
14/457,697	08/12/2014	Patented	9,103,105
14/856,901	09/17/2015	Patented	10,519,639
16/686,328	11/18/2019	Patented	10,934,698

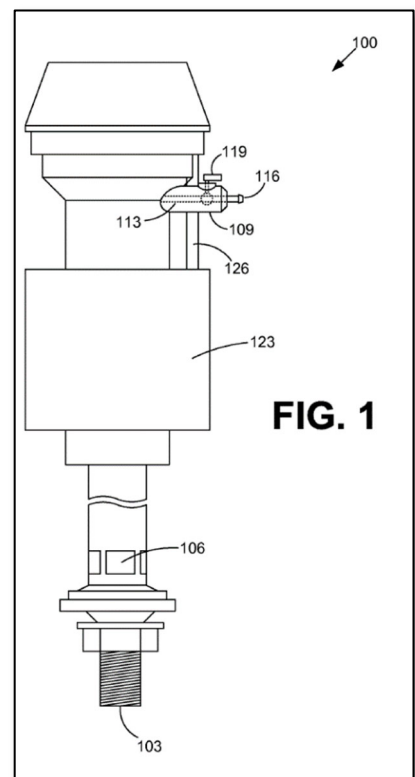
Table I: '698 Patent Family

The application for the '698 Patent was filed on November 18, 2019 (EX1001, INID 22), as a continuation of U.S. Patent No. 10,519,639, which is a continuation of U.S. Patent No. 9,139,993. *Id.*, INID 63. The '993 Patent was filed as a

continuation of U.S. Patent No. 8,650,671, which was a continuation of U.S. Patent No. 8,104,105, which was a continuation of U.S. Patent No. 7,743,436 (the “’436 Patent”), which was a continuation-in-part of U.S. Patent No. 6,823,889 (the “’889 Patent”). *Id.* The ’698 Patent includes four (4) independent claims, including Claims 1, 8, 10, and 12, as discussed in more detail below. *Id.*, 10:16-67; 11:1-28; and 12:1-27.

A. Subject Matter of the ’698 Patent

The ’698 Patent is entitled “Toilet Valve,” and describes a toilet fill valve system designed to efficiently manage water flow during the flush cycle of a toilet. *Id.*, 1:28-36; and 2:35-46. The system includes a toilet fill valve with a body that has an extended portion forming a bowl fill outlet port. *Id.*, 2:21-24 and 2:35-46. The valve is equipped with a water inlet to receive water from a supply source and a tank water outlet to provide a portion of the water to the toilet tank. *Id.*, 2:35-46. Additionally, the system features a bowl fill valve configured to attach directly to the extended portion of the valve body. *Id.*, 2:25-34, Fig.



3. This restriction is designed to receive, regulate, and constrict the flow rate of a second portion of water during the flush cycle. *Id.* (“the flow of water is regulated

so that enough water flows out of the bowl fill valve 109 to fill a toilet bowl without wasting any water down a drain.”).

The bowl fill valve can be locked onto the integrally molded, extended portion of the toilet fill valve body using a protrusion that inserts into a recess in the valve. *Id.*, 7:4-13. This direct attachment method is intended to prevent the formation of a pressure head within the connecting tube. *Id.*, 4:3-21. Such pressure heads can cause a tube, also part of the system, to become loose, disconnect, or leak over time. *Id.* The tube is designed to attach directly to the bowl fill valve and direct the constricted flow of water to the toilet tank’s overflow tube. *Id.*, 3:29-32. A slot and a rib can be provided that prevents the rotation of the bowl fill valve with respect to the bowl fill outlet port a when the bowl fill valve inlet port is inserted into the bowl fill outlet port. *Id.*, 6:54-7:3.

The ’698 Patent also outlines a method of operation for the toilet fill valve system. *See generally id.* It involves coupling a water inlet of a toilet fill valve to a water source, coupling a water inlet of a toilet fill valve to a water source, attaching a bowl fill valve directly to a body of the toilet fill valve by at least: mating a bowl fill valve inlet port of the bowl fill valve directly to a bowl fill outlet port that extends from the body of the toilet fill valve; snap fitting a protrusion of the bowl fill valve into a recess of the toilet fill valve; and, inserting an extension of the toilet fill valve

into a slot of the bowl fill valve, where the slot is configured to prevent rotation of the bowl fill valve relative to the toilet fill valve. *Id.*

The bowl fill valve restricts the flow rate of this second portion of water, which is then provided to a tube that directs it to the toilet tank overflow tube. *Id.*, 2:35-46. The method ensures that the water level in the toilet bowl reaches a predefined level at the end of the flush cycle, minimizing water wastage. *Id.*, 4:40-46.

The claims of the patent focus on the system's components, including the toilet fill valve that is configured to attach directly to the body of the toilet fill valve, the bowl fill valve with its locking mechanism, and a water flow adjustment handle. *See generally id.* The system is designed to prevent water wastage by ensuring that the water level in the toilet bowl is adequately refilled without excess during the flush cycle, which can save consumers money on water bills or provide additional environmental benefits through decreased water usage. *Id.*, 4:40-46. The direct attachment of the bowl fill valve to the valve body and the prevention of pressure head formation in the tube are various advantages. *Id.*, 4:4-21.

B. Prosecution History of the '698 Patent

The originally-filed claims of the application that matured into the '698 Patent were rejected on January 15, 2020 in a Non-Final Office Action (the "First Office Action"). EX1002, 94.

Initially, the First Office Action included a minor formality rejection regarding the drawings. *Id.*, 96. The Office rejected claims 3, 8, and 14 as allegedly failing to comply with the written description requirement. *Id.*, 97-98. Specifically, the First Office Action took the position, with respect to original claim 3, that it was “unclear as to what structure is being referred to by the limitation,” while alleging these limitations were “considered as new matter.” *Id.* Claims 4 and 8 were similarly rejected as lacking antecedent basis. *Id.*

Further, the First Office Action indicated that originally-filed claims 1-3, 5-7, 11-14, 17-19, and 22-25 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by DeMarco. *Id.*, 98-102. Moreover, the Office Action alleged that originally-filed Claims 4, 9, 10, 15, 16, 20, and 21 were obvious under 35 U.S.C. § 103 in view of DeMarco and Robinson. *Id.*, 102-103. Finally, the Office Action rejected the claims on the grounds of non-statutory double patenting. *Id.*, 103. Patent Owner filed a response to the Office Action on April 15, 2020. *Id.*, 73. Patent Owner included features relating to a snap connection in the independent claims and argued that such features were not shown in the cited art. *Id.*, 85-91.

The as-amended claims of the '698 Patent were rejected on July 1, 2020 in a Final Office Action (the “Second Office Action”). EX1002, 61. The Office then rejected pending Claims 1-7, 12-14, 17-19, 22, 23, and 25 as allegedly being obvious over DeMarco in view of Bjerke. *Id.*, 63-67. Patent Owner submitted amendments

and arguments in reply on October 8, 2020 in which Patent Owner generally amended the claims to include recitations regarding a slot configured to receive an extension of the toilet fill valve, and prevent rotation of the bowl fill valve relative to the toilet fill valve, arguing that each and every element of the claims was not shown by the cited art. *See id.*, 55. Patent Owner's amendments and arguments were persuasive, and, after the filing of a terminal disclaimer by Patent Owner, a Notice of Allowance was issued on November 3, 2020. *Id.*, 10.

V. PERSON OF ORDINARY SKILL IN THE ART

A PHOSITA in the field to which the '698 Patent is directed would have had at least a Bachelor of Science degree in mechanical engineering or a related field or, as a substitute, at least two years of work or research experience in the design or development of toilet products, parts, and accessories.

VI. CLAIM CONSTRUCTION

Beyond the constructions set forth below, Patent Owner reserves the right to offer constructions for other claim terms in other responses in this IPR.

A. "means for adjusting water flow"

Applicant agrees with Petitioner that the term "means for adjusting water flow" recited in Claim 12 is a means-plus-function limitation under 35 U.S.C. § 112. Paper 1, 7. For purposes of this petition, "means for adjusting water flow" should

cover an adjustment handle and equivalents thereof (structure) for adjusting or regulating water flow (function).

VII. OVERVIEW OF THE CITED REFERENCES

A. Guoxin

Guoxin is a Chinese utility model relating to a water supply switching device specifically designed for one-piece toilets that have insufficient water storage capacity in the tank, which results in sufficient water volume to thoroughly flush the toilet of waste. *See* Ex. 1016, 1:1-5. In stark contrast to the invention of the '698 Patent, which is directed to reducing the amount of water flowing into the toilet bowl, the water supply switching device of Guoxin aims to *increase the amount of* water flowing to the toilet bowl during the flush address the issue of *insufficient water* volume in single-unit toilets. *See id.* The device ensures that a portion of the water supply is directed straight into the toilet during flushing to compensate for any deficiency in the water volume, thereby ensuring a thorough flush. *Id.* As such, Guoxin is not directed to saving water by regulating or restricting the flow of water in the toilet bowl, but instead is directed to increasing the flow of water.

B. Ho

Ho describes a toilet flushing device designed to be installed in a water supply tank, featuring a diverter valve that directs high-pressure water to the rim flushing conduit of a toilet bowl during flushing. EX1022, Abstract. Like Guoxin, Ho aims

to increase the amount of water directed to the toilet bowl, in stark contrast to the '698 Patent. The diverter valve includes a valve housing and a valve rod that moves in response to changes in water level in a water supply tank. *Id.*, Abstract. A longitudinal passage through the valve rod allows high-pressure water to flow to the water supply tank. *Id.*, 4:46-49.

The flushing device aims to address issues found in prior art, such as the fouling that can occur on the rotation axle of a flap in the diverter valve, which can lead to malfunctions. *Id.*, 2:8-11. The device includes a water supplying pipe connected to an external pressurized water source, a float-controlled valve to regulate water flow, a manually operated flush valve for discharging water, and the diverter valve means. *Id.*, 2:51-67. The diverter valve has a hollow housing, an inlet pipe, a supply line to the rim flushing conduit, and a float member that moves the valve rod in response to water level changes, ensuring proper water flow during flushing and tank refilling. *Id.*, 3:12-17, 3:53-61.

C. Quick Connection Art (Bjerke, Calmettes, Hall, and Kimber)

In an improper effort to combine a multitude of references into a single ground, the Petition coalesces four different patents in its reference to “Quick Connection Art,” namely, Bjerke, Calmettes, Hall, and Kimber. Nonetheless, while Petitioner cites a multitude of reference from various applications, such as bathtubs, motor vehicles, and hoses, none of the Quick Connection Art teaches or suggests the

use of the disclosed couplings in connection with a fluid flow restrictor, such as a valve.

Bjerke was already considered during the prosecution of the application for the '698 Patent. EX1002, 114. Bjerke outlines a detachable bathtub shower system that can be swiftly connected to a bathtub faucet via a screw-threaded fitting. EX1017, 3:23-48. This system incorporates a backflow preventer with a quick connect/disconnect feature, allowing for easy attachment or removal. *Id.*, 3:5-22. The system is designed to be user-friendly, facilitating a shower-like experience for individuals who prefer to bathe while seated or reclining in a tub. *Id.*, 2:4-26.

Calmettes describes a coupling device designed to securely connect the ends of two coaxial tubes, such as those found in motor vehicle cooling circuits or other industrial applications. EX1018, 1:21. The device features a locking mechanism that includes a longitudinally grooved outer tube and an inner tube with radially projecting bosses. *Id.*, 10:23; 3-30-47. A flexible locking tab, attached to the outer tube and positioned adjacent to the groove, contains apertures to receive the bosses. *Id.*, 3:67-68; 4:1-2; 10:10-20.

Hall pertains to a hose-coupling device that enables the quick and secure connection of adjacent hose sections without the use of traditional coupling threads. EX1019, 1:8-14. The coupling consists of mating sections, one with bayonet slots and the other with corresponding lugs designed to fit into these slots. *Id.*, 1:66-85. A

distinctive feature of this coupling is a spring-pressed sleeve or collar that slides over one of the hose sections and is equipped with locking plates that close the entrance to the bayonet slots once the lugs are inserted, thereby locking the hose sections together. *Id.*, 1:100-112. The design also includes a gasket to prevent leakage at the junction of the hose sections and mechanisms to limit the sliding collar's movement and to automatically lock it in place when extended. *Id.*, 1:86-99.

Kimber describes a coupling designed to create a sealed connection between two conduits, such as hoses and radiators in automobiles. EX1020, 1. The coupling consists of a tubular male fitting with an external conical portion and a tubular female fitting that snugly fits over the male fitting, featuring a complementary internal conical portion. *Id.*, 2. A seal is placed within one of these conical portions to ensure a tight seal between the male and female fittings once connected. *Id.* The design includes axially oriented guide means for proper angular alignment and relative axial movement of the fittings, as well as locking means that secure the fittings axially upon assembly. *Id.*, 3. This coupling allows for quick and easy connection and disconnection, which is particularly advantageous in automated assembly lines and maintenance scenarios. *Id.*, 8.

VIII. REASONS TO DENY THE PETITION UNDER 35 U.S.C. § 314(A) AND 325(D)

Institution of *inter partes* review is always discretionary. *See* 35 U.S.C. § 314(a) (“The Director may not authorize an inter partes review to be instituted unless

the Director determines that the information presented in the petition filed under section 311 . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”); *Oil States Energy Servs. LLC v. Greene’s Energy Grp., LLC*, 138 S. Ct. 1365, 1371 (2018)(“The Decision whether to institute inter partes review is committed to the Director’s discretion.”). Moreover, “Section 325(d) provides that the Director may elect not to institute a proceeding if the challenge to the patent is based on matters previously presented to the Office.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 7 (PTAB Feb. 13, 2020)(precedential).

For at least the following reasons, the Board should exercise its discretion under §§ 314(a) and 325(d) to deny the Petition.

A. The Petition is Facially Deficient and the Combination of References are Ambiguous

The Board should deny institution under 35 U.S.C. § 314(a) because the Petition is ambiguous, fails to identify evidence with particularity, and fails to

account for how each claim is unpatentable as required under 35 U.S.C. § 312(a)(3)³ and 37 C.F.R. § 42.104(b).⁴ The Petition is deficient on its face under 37 C.F.R. § 42.104(b)(4) and § 42.104(b)(5).

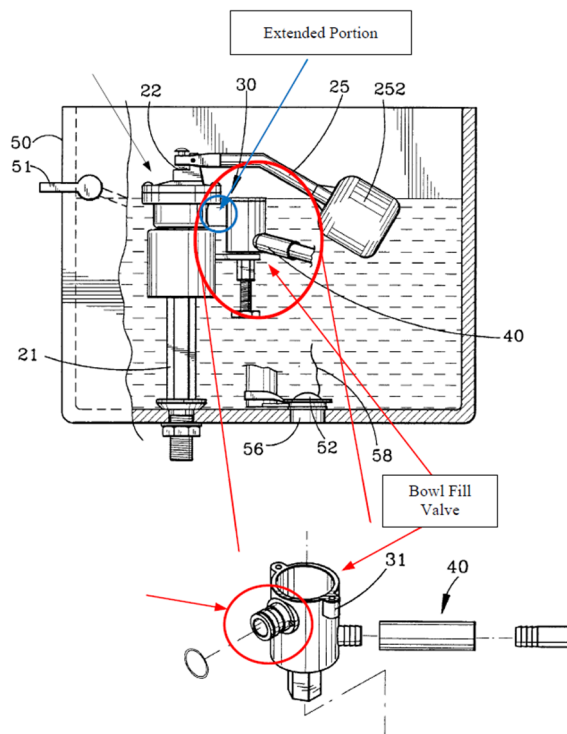
Petitioner's allegations are vague and incomplete such that the Petition fails to set forth a complete *prima facie* case of obviousness as to any claim. The most glaring example of this issue in the Petition are the reproductions of the figures from the cited references that Petitioner has materially relied upon to allegedly show where various elements of Claims 1-14 of the '698 Patent are purportedly disclosed in the prior art. Many of the annotations and/or labels on these figures – which are necessary for Petitioner to meet its burden to show a complete *prima facie* case of

³ 35 U.S.C. § 312(a)(3) states that a petition may be considered only if “(3) the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge”

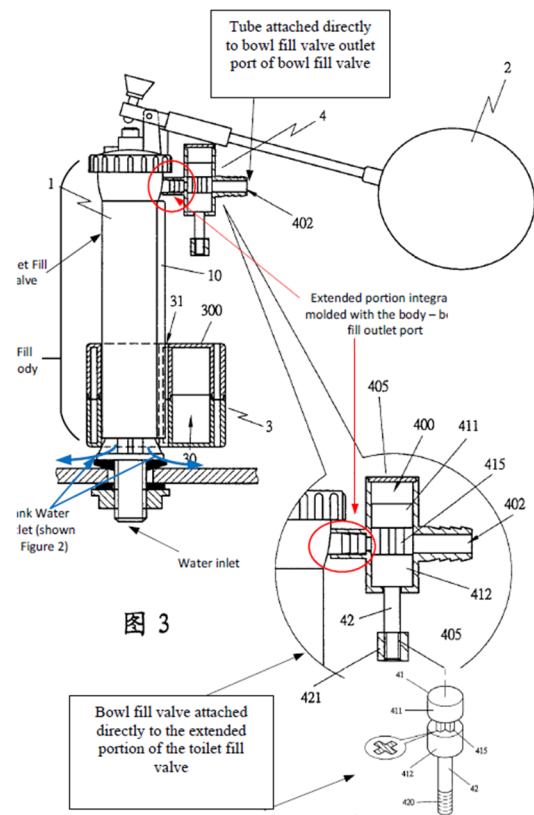
⁴ 37 C.F.R. § 42.104(b) states that the Petition must identify how each “claim is unpatentable under the statutory grounds,” “where each element of the claim is found in the prior art patents or printed publications relied upon,” and “specific portions of the evidence that support the challenge.”

obviousness as to any claim – are not viewable, cut off, or simply missing in the Petition provided to Patent Owner and the Board.

As but one example, on pages 27-29 of the Petition, Petitioner states that it “will be referring to the annotated figures from Guoxin and Ho provided below” to show how independent Claim 1 of the ’698 Patent are obvious over Guoxin in view of Ho and the Quick Connection Art. But the referenced figures that follow (Figs. 3 and 5 from Guoxin and Figs. 2 and 5 from Ho), purportedly annotated, either contain incomplete annotations or, in many cases, no labels for the annotations are included at all. Examples of these deficiencies are shown below.



Missing Annotations on pp. 29, 34 of
Petition



Cut-off and Missing Annotations on
Page 28 of Petition



No Annotations on p. 32 of Petition

As another example, on page 55 of the Petition, Petitioner again references various annotated figures from Ho to show the relevance of Ho to the challenged claims when combined with Guoxin. But, once again, Figure 1 of Ho contains missing labels for the annotations, as shown below:

Ho

Missing Annotations on p. 55 of Petition

There is no discussion corresponding to these annotations. As a result, the Petition alleges that certain features of Claims 1, 8, 10, and 12 are shown in the annotated figures, but the figures themselves fail to show where various claim

elements are allegedly disclosed. For at least this reason alone, Petitioner has not met its burden of proof and the Petition should be denied. *See* 37 C.F.R. § 42.104(b)(5) (“The Board may exclude or give no weight to the evidence where a party has failed to state its relevance or to identify specific portions of the evidence that support the challenge.”).⁵

Moreover, the Grounds identified in the table on page 8 of the Petition are ambiguous, as Petitioner attempts to group a large swath of references, Bjerke, Calmettes, Hall, and Kimber, into a single interchangeable group of references, referred to in the Petition as “Quick Connection Art.” Such combinations are vague because there are dozens of potential combinations including these references, and Petitioner’s attempt to merely consolidate them into a single reference puts an onus

⁵ While Petitioner’s expert declaration includes various figures which Patent Owner anticipates Petitioner will later rely on to support its glaring failures, these figures were not referenced in the Petition and any attempt to incorporate by reference such figures is impermissible. *See* 37 C.F.R. § 42.6; *see also* 3M Co. v. Evergreen Adhesives, Inc., 860 F. App’x 724 (Fed. Cir. 2021) (acknowledging that that arguments are not permitted to be incorporated by reference from one document into another document.).

on Patent Owner to respond to each potential combination of references. As the Board has already noted:

...Petitioner's reliance on up to ten references connected by the conjunction "and/or" results in a multiplicity of grounds, none of which is presented with sufficient particularity. Even if we were to disregard the order of references and consider only the two-reference combinations encompassed by Petitioner's asserted ground, Petitioner's contention encompasses nine combinations with Bendel and another eight distinct combinations with Sartorius, for a total of seventeen possible combinations. Even that conservative interpretation of Petitioner's contention yields an unduly burdensome number of combinations.

Adaptics Ltd. v. Perfect Co., IPR2018-01596, Paper 20 (P.T.A.B. March 6, 2019); *see also, e.g., Biofrontera Inc. v. DUSA Pharms., Inc.*, IPR2018-01585, Paper 10 (P.T.A.B. Feb. 26, 2019) ("Although we do not look strictly at precise percentages of institutable grounds and/or claims, this case presents a clear instance where the benefits of holding a trial to resolve the challenges having a reasonable likelihood would be overwhelmed by the burden of addressing the challenges having no reasonable likelihood."). For instance, Petitioner does not make clear whether the addition of Calmettes modifies the modified toilet valve of Guoxin as modified by Ho, or does Calmettes modify the modified toilet valve of Guoxin as modified by Ho as modified by Bjerke. Petitioner thus does not provide an end result of its vague

combinations of references, much less whether the combination would be successful in operating as intended.

This is improper and due to the ambiguity and vagueness of the challenges set forth in the Petition, institution should be denied.

B. The Petition Relies on the Same or Substantially the Same References Already Presented to the Office

The Board should deny institution under 35 U.S.C. § 325(d) in view of the precedential decisions in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017)(precedential) and *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (PTAB Dec. Feb. 13, 2020)(precedential), because the Petition is based on patents or publications that are either the same or substantially the same as those previously presented to the Office.

The Board can consider a number of factors in exercising the discretion to deny institution of this IPR. *Becton, Dickinson*, IPR2017-01586, Paper 8, 17-18. These factors include: (1) the similarities and material differences between the asserted art and the prior art involved during examination; (2) the cumulative nature of the asserted art and the prior art evaluated during examination; (3) the extent to which the asserted art was evaluated during examination; (4) the extent of the overlap between the arguments made during examination and the manner in which a petitioner relies on the prior art or a patent owner distinguishes the prior art; (5)

whether a petitioner has pointed out sufficiently how the Examiner erred in evaluating the asserted prior art; and (6) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments. *Id.* As applied to the facts in this IPR, these factors weigh heavily against institution of the Petition as discussed below.

In *Advanced Bionics*, the Board emphasized the following two-part framework in the analysis of the *Becton, Dickinson* factors: “(1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, IPR2019-01469, Paper 6, 8. “If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Id.*, 8-9.

As an initial matter, the Petition highly relies on at least one reference that was previously considered and cited by the Office during prosecution – namely, Bjerke. *See* EX1002, 63-67 (Final Office Action rejecting all claims using a combination of DeMarco and Bjerke). Petitioner’s statement that it “presents prior art not considered during prosecution of the ’698 patent that discloses the features

that Patent Owner ... contended were missing from the prior art,” is materially false.
Paper 1, 1.

More importantly, however, the primary reference Guoxin and the secondary reference Ho are substantially the same as the art previously presented to the Office. Specifically, during prosecution of the application that matured into the '698 Patent, the Office rejected all pending claims under 35 U.S.C. § 103 as being unpatentable over DeMarco in view of Robinson, and DeMarco in view of Bjerke. *See, e.g.*, EX1002, 94-105; 61-70. In doing so, the Office took the position that DeMarco did not disclose a “protrusion configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet fill valve, the protrusion being configured to snap fit into the recess.” *Id.*, 64. Rather, the Office alleged that Bjerke teaches an analogous snap connection. *Id.*

Here, Guoxin, Ho, and the Quick Connection Art are the same or substantially the same as DeMarco and Bjerke. Guoxin and Ho, like DeMarco, do not show or suggest the above-mentioned protrusion, recess, and snap fit, and is not a more material reference than DeMarco, despite allegations of so by Petitioner. Paper 1, 21. Also, Guoxin, Ho, and Bjerke do not teach “a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve.” EX1001, 10:34-36. Thus, the Petition relies on the amalgamation of the Quick Connection Art to selectively piece together various

components of the claims relying on impermissible hindsight and without advancing sufficient motivation to combine these six references.

To be clear, the use of Bjerke as a secondary reference was overcome by Patent Owner during prosecution through amendment and argument. Petitioner, however, again attempts to utilize Bjerke to indicate that Claims 1-14 are invalid in a manner nearly identical to the Office, despite Patent Owner overcoming Bjerke and other references cited by the Office. As such, the proposed combination of references advanced by Petitioner merely substitutes the primary reference cited during prosecution, DeMarco, with a different primary reference, Guoxin, and reutilizes Bjerke, despite Bjerke being overcome by Patent Owner during prosecution. To this end, Petitioner is pleading the Board to reexamine the claims using nearly the same art cited during prosecution. *See Nu Mark LLC v. Fontem Holdings I, B.V.*, IPR2016-01309, Paper 11 (decision denying institution due to Petition citing “substantially the same art or arguments as those previously presented to the Office”).

As applied to the *Becton, Dickinson* factors, there is no substantive difference between the DeMarco and Bjerke references and those relied upon in the Petition. The record also shows that the Office evaluated Bjerke at great detail, so much so that it was explicitly cited by the Office in an office action. EX1002, 63-67. However, Petitioners have not offered additional facts or evidence in the Petition to

warrant reconsideration of Bjerke. Nor have Petitioners pointed out how the examiner erred in evaluating the references.

As applied to the *Advanced Bionics* framework, the Board should exercise its discretion not to institute this IPR. Patent Owner has established that substantially the same references were already presented to and considered by the Office, but Petitioners have not demonstrated that the Office erred. *Advanced Bionics*, IPR2019-01469, Paper 6, 8. Under these conditions, “the Director generally will exercise discretion not to institute *inter partes* review.” *Id.*, 8-9.

Accordingly, the facts, the *Becton*, *Dickinson* factors, and the *Advanced Bionics* framework weigh in favor of the Board denying institution of the Petition under § 325(d).

IX. DETAILED REASONS FOR DENYING THE PETITION

The Director may not authorize an *inter partes* review to be instituted unless “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

Petitioner asserts a single ground for challenging claims of the ’698 Patent under 35 U.S.C. § 103. Here, there is no reasonable likelihood that Petitioner will prevail on its sole alleged ground.

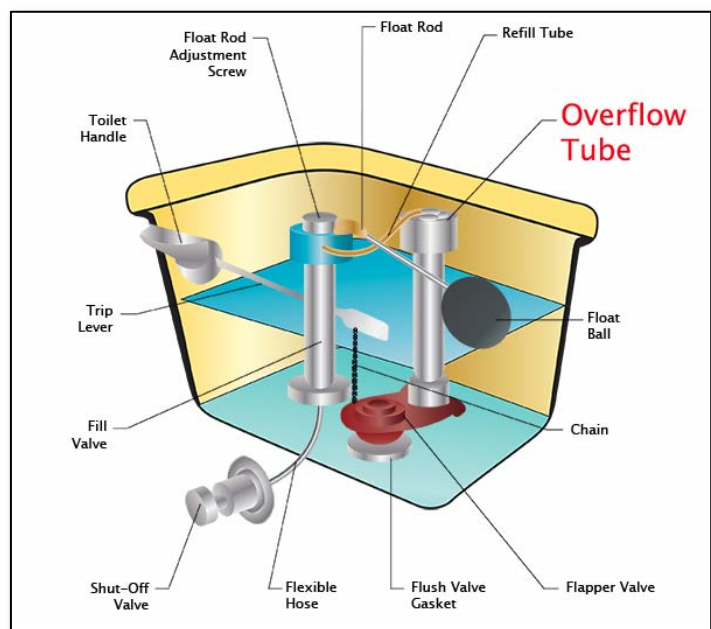
A. Ground 1: Guoxin in view of Ho and in further view of Bjerke, Calmettes, Hall, and Kimber under 35 U.S.C. § 103

Petitioner’s sole ground alleges that Guoxin in view of Ho in further view of Bjerke, Calmettes, Hall, and Kimber renders obvious Claims 1-14. Paper 1, 7. For at least the reasons discussed below, Petitioner fails to establish a reasonable likelihood that that any of these claims are unpatentable.

1. The Cited Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber References Fail to Render Obvious Independent Claims 8 and 12

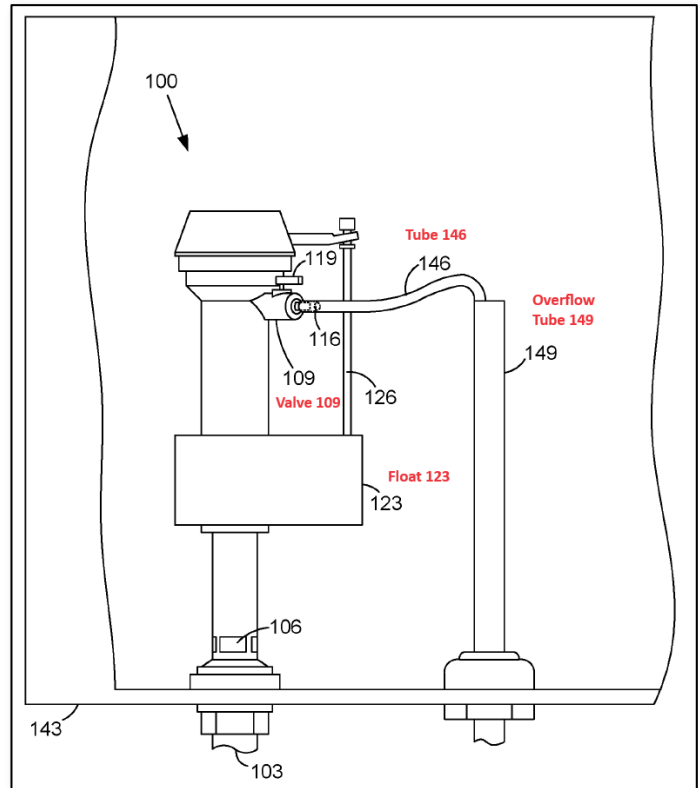
a) None of Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber disclose a bowl fill valve outlet port to attach directly to a tube that provides water from the bowl fill valve outlet port to an overflow tube

Claim 8 and 12 each recite, “a bowl fill valve outlet port configured to attach directly to a tube that provides water from the bowl fill valve outlet port to an overflow tube.” EX1001, 11:1-3; 12:10-13. An example of an overflow tube is shown to the right. EX2004, 1. With respect to Guoxin, the Petition contends that “Guoxin and Ho each satisfy this element.” Paper 1, 36. More specifically, Petitioner alleges that



Guoxin discloses a tube 403 configured to attach directly to the bowl fill valve outlet port of the bowl fill valve (switching mechanism 4). *Id.* Petitioner continues, “The valve seat 40 has water inlet and outlet 401 and 402, where the water outlet 402 can be connected to the water supply pipeline 403, and the water supply line 403 is directed to the toilet to directly provide water supply to the toilet.” *Id.*

While Petitioner alleges that the “water supply pipeline 403” of Guoxin is directed to the toilet, Petitioner explicitly fails to address the claim limitation: “a tube that provides water from the bowl fill valve outlet port to an overflow tube.” *See id.* Petitioner does not allege which component of Guoxin or Ho equates to an “overflow tube” or “a tube that provides water from the bowl fill valve outlet port to [the] overflow tube,” because there is no “overflow tube described in



Guoxin or Ho. *See id.* For reference, Fig. 3 of the '698 Patent is reproduced above, which illustrates both a tube 146 and an overflow tube 149. *Id.*, Fig. 3 (annotated); *compare with* EX2004, 1.

While Petitioner points to Guoxin, at reference numeral 403, to show a tube, Petitioner does not allege that such tube “provides water from the bowl fill valve outlet port to an overflow tube.” *Id.* Guoxin does not disclose an overflow tube, nor does Petitioner even attempt to address the claim term “overflow tube.” *Id.*, 35-36.

Petitioner then goes on to reference “supply line 40” of Ho, again equating the supply line 40 to the tube of Claim 8. However, Ho clearly does not show an overflow tube, the supply line 40 of Ho does not couple to an overflow tube, and the Petition merely references the “transverse supply line 40” that is directly “connected to and suppl[ies] water to the rim flushing rim conduit 54.” EX1022, 3:12-17. The rim flushing rim conduit 54 of Ho is clearly not an overflow tube. *See id.*

As Claims 8 and 12 recite “a tube” and “an overflow tube,” these terms are presumed to have different meanings. *Bd. of Regents v. BENQ Am. Corp.*, 533 F.3d 1362, 1371 (Fed. Cir. 2008) (internal citations omitted). In sum, while Petitioner equates various components of Guoxin and Ho to “a tube,” as recited in Claims 8 and 12, Petitioner does not point to “an overflow tube” separate from the equated components of Guoxin and Ho, and the Petition is generally silent on the term “overflow tube” in its purported analysis of Claims 8 and 12. Moreover, none of Bjerke, Calmettes, Hall, and Kimber disclose an overflow tube as these references do not relate to toilet fill valves, instead relating to showers, automotive parts, and other technology areas.

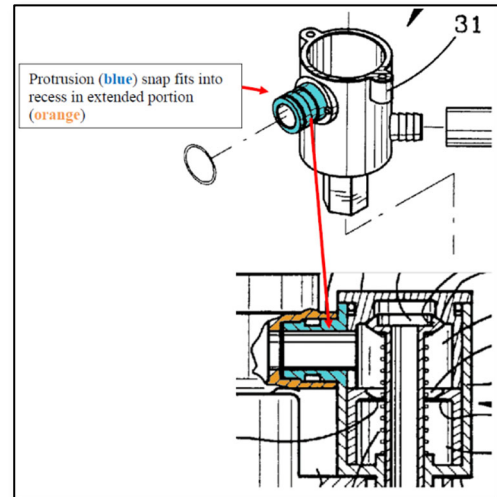
For at least these reasons, Petitioner has failed to establish a *prima facie* case of obviousness of Claims 8 and 12.

2. The Cited Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber References Fail to Render Obvious Independent Claims 1, 8, 10, and 12

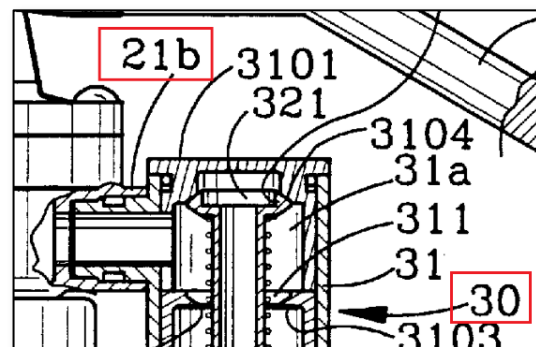
- a) None of Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber disclose a bowl fill valve having a protrusion configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet fill valve, the protrusion being configured to snap fit into the recess*

Claim 8, for example, recites, “a bowl fill valve, comprising: a protrusion configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet fill valve, the protrusion being configured to snap fit into the recess.” EX1001, 10:65-67–11:1-14. Claim 1 further recites, “a toilet fill valve that comprises: a body comprising an extended portion that forms a bowl fill outlet port.” *Id.*, 10:16-38. The Petition concedes that Guoxin does not disclose the coupling arrangement of the ’698 Patent. Paper 1, 21 (Petitioner acknowledges the coupling arrangement of Guoxin “is the reverse of the mating arrangements depicted in the ’698 Patent”).

Petitioner, however, goes on to allege that Ho has a protrusion, shown in blue, that snap fits into a recess in an extended portion. Paper 1, 23. However, Petitioner's argument plainly misinterprets the claimed connection. The alleged extended portion shown in orange, as annotated by Petitioner, is not an extended portion of a purported toilet fill valve, but is instead a portion of diverter valve means 30. Ho explicitly states that, "Referring to FIGS. 1, 3, 4, 5 and 6, **the diverter valve means 30 ... includes** a hollow valve housing 31, a **transverse inlet pipe (21b)** which receives water from the water supplying pipe 21, and a transverse supply line 40 connected to and supplying water to the rim flushing rim conduit 54." EX1022, 3:12-17 (emphasis added); *See e.g., id.*, Fig. 3 (annotated). The transverse inlet pipe (21b) is thus clearly a component of the diverter valve means 30.



Petitioner appears to equate the "diverter valve means 30" to the "bowl fill valve" of Claim 1. However, Petitioner then cites a component of the diverter valve means 30 as allegedly being a component of the toilet fill valve, a separate component claim in Claim 1. Petitioner conveniently does not



include the reference numerals of Fig. 3 of Ho that identify the orange component as the traverse inlet pipe 21b. Fig. 3 of Ho, reproduced above, clearly shows the diverter valve means 30 in a cross-section and the purported toilet fill valve as a shaded three-dimensional device. *See id.* Petitioner also does not identify a recess in the purported toilet fill valve, nor does it identify a toilet fill valve protrusion having a recess. *See id.* As such, Petitioner's colored labeling of Ho is inconsistent with the detailed description of Ho and is an apparent attempt to pick-and-choose various components ad hoc in an effort to confuse the Board.

Moreover, as Petitioner does not cite to any portion of Ho that shows a bowl fill outlet port, it follows that Petitioner has failed to establish that Ho discloses "a protrusion configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet fill valve, the protrusion being configured to snap fit into the recess." While Ho, in Fig. 5, appears to include an irregular top surface on the transverse inlet pipe (21b) of the diverter valve means 30, such irregular top surface is not shown as being configured to retain the diverter valve means 30 to the purported toilet fill valve of Ho. *See* EX1022, Fig. 3. For instance, the irregular top surface is not nested in a corresponding groove or aperture.

Petitioner's fallback position is that "[u]sing Ho's connection instead of Guoxin's could have been obvious to a POSITA as a matter of design choice as they are well-known substitute structures for performing the same function in their known

and expected manner.” Paper 1, 24. However, Petitioner’s alleged motivation to combine these references as purported, in which Guoxin and Ho are summarily interchangeable, is lacking and fails to establish a *prima facie* case of obviousness. Petitioner additionally relies on the conclusory statement that the snap fit and slot/rib (or slot/extension) connections between the two fluid channels recited by the claims are well-known fluid flow connections disclosed by numerous documents, such as Bjerke, Calmettes, Hall, and Kimber. *Id.*

Petitioner’s conclusions are based on a verbatim statement from Dr. Cameron. EX1004, ¶ 100. Such reliance fails to satisfy Petitioner’s burden of providing an articulated reasoning, based on any rational underpinning, to show that a POSITA would have had reason to modify Guoxin (or Ho) and in such a way that all claim elements are disclosed or rendered obvious. *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record to support the legal conclusion of obviousness.”). The Petition’s vague assertions purporting to state suitable motivations such a generic “design preference,” alone, to combine references are not supported by substantial evidence. As a result, Petitioner fails to make the requisite showing of motivation to combine or interchange the Guoxin, Ho, and composite Quick Connection Art references.

Petitioner falsely contends that a statement in the '698 Patent permits interchangeability a female connector with a male connector. Paper 1, 26. However, the statement in the '698 Patent discusses adjusting the locations of slots and ribs, as opposed to changing the locations of an extended portion of a toilet valve body and a projection of a bowl fill valve. EX1001, 7:36-48.

When evaluating a combination of teachings, the Board must “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 127 S. Ct. 1727 (2007 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011) (“[O]bviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.”)).

[I]t is the petitioner’s burden to prove, by a preponderance of the evidence, that a person of ordinary skill in the art would have been motivated to combine the prior art references the petitioner is relying on in its obviousness grounds. *See* 35 U.S.C. § 316(e) (“In an inter partes review instituted under this chapter, the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.”)

Sun Pharm. Indus. v. Incyte Corp., No. 2019-2011, 2023 U.S. App. LEXIS 21990, at *7 (Fed. Cir. Aug. 22, 2023).

As the Federal Circuit has found, and as the Board has repeatedly emphasized, “[a] determination of obviousness cannot be reached where the record lacks ‘explanation as to how or why the references would be combined to produce the claimed invention.’” *See Hyundai Motor Co. v. Blitzsafe Texas, LLC*, Case IPR2016-01476, slip op. at 32 (PTAB Jan. 24, 2017) (Paper 12). Thus, a petitioner must “explain why a person of ordinary skill in the art would have combined elements from specific references in the way the claimed invention does.” *ActiveVideo Networks, Inc. v. Verizon Comms, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012). The mere allegation that references are analogous art to the claimed invention will be insufficient for the Board to institute an obviousness ground. *See Shopkick Inc. v. Novitaz, Inc.*, Case IPR2015-00279, slip op. at 29–30 (PTAB May 29, 2015) (Paper 7).

Where Petitioner nakedly asserts that two references are analogous art, and as a result, should be combined, without an “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness,” such attempted reasoning is insufficient. *See KSR*, 550 U.S. at 418. It does not suffice to meet the motivation to combine requirement to recognize that two alternative arrangements

were both known in the art. *Virtek Vision Int'l ULC v. Assembly Guidance Sys., Inc.*, 97 F.4th 882, 886 (Fed. Cir. 2024).

The only evidence submitted in support of Petitioner's conclusory statements that a POSITA would be motivated to combine Guoxin and Ho consists of the declaration of Dr. Kimberly Cameron.

Using Ho's connection instead of Guoxin's would have been obvious to a POSITA as a matter of design preference, as they are well-known substitute structures for performing the same function in their known and expected manner. ... Similarly, the snap fit and slot/rib (or slot/extension) connections between the two fluid channels recited by the claims are well-known fluid flow connections disclosed by numerous documents such as Calmettes, Hall, and Kimber—the Quick Connection Art. [citing Dr. Cameron's declaration, EX1004 at ¶¶100-103].

However, Dr. Cameron's declaration simply parrots Petitioner's assertion as to motivation to combine, insofar as "[o]ne of ordinary skill in the art would understand that male and female fluid flow connectors are generally interchangeable and the decision to make one component a male connector and the other a female connector is a matter of design preference." EX 1004, ¶101. Dr. Cameron fails to provide the required "substantial evidence" to underpin Petitioner's assertions as to a motivation to combine references, as it is not "such relevant evidence as a

reasonable mind might accept as adequate to support a conclusion.” *Novartis AG v. Torrent Pharms. Ltd.*, 853 F.3d 1316, 1324 (Fed. Cir. 2017)).

Instead, the testimony relied upon by Petitioner is simply unsupported argument. Petitioner does not define what are the market forces or essential design needs that supply any motivation to combine, thereby resulting in such argument being “entitled to little or no weight” in this proceeding. *See* 37 C.F.R. § 42.65(a); *see also Virtek Vision*, 97 F.4th at 888. In *Virtek Vision*, the court held:

There was no evidence that there are a finite number of identified, predictable solutions. There is no evidence of a design need or market pressure. In short, this case involves nothing other than an assertion that because two [male-female connection] systems were disclosed in a prior art reference and were therefore "known," that satisfies the motivation to combine analysis. That is an error as a matter of law. It does not suffice to simply be known. A reason for combining must exist.

Id.

Also like in *Virtek Vision*, Petitioner argues that the '698 Patent's claim elements are known in the prior art. “But this alone does not show a motivation to combine.” *Id.*, citing *KSR*, 550 U.S. at 418 (“[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. [I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”); *see also Belden Inc. v.*

Berk-Tek LLC, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention.”).

Here, Petitioner’s proffered conclusory testimony fails to address why or whether a skilled artisan would have been motivated to combine the references. Petitioner similarly fails to present any evidence as to why a skilled artisan would have been motivated to combine the teachings of Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber to meet the subject matter of claims 1, 9, 15, and 24.

For at least these reasons, as neither Guoxin or Ho show or suggest the coupling arrangements of Claims 1, 9, 15, and 24, and as the proposed combination of references in the Petition lacks any motivation to combine, Petitioner fails to establish a reasonable likelihood that that any of these claims are unpatentable.

3. The Cited Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber References Fail to Render Obvious Independent Claims 1, 8, 10, and 12

a) None of Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber disclose a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve

Claims 1, 8, and 12 each recite, “a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve.” EX1001, 10:16-38; 10:65-11:14; 12:9-21. Claim 10, a method claim, in a

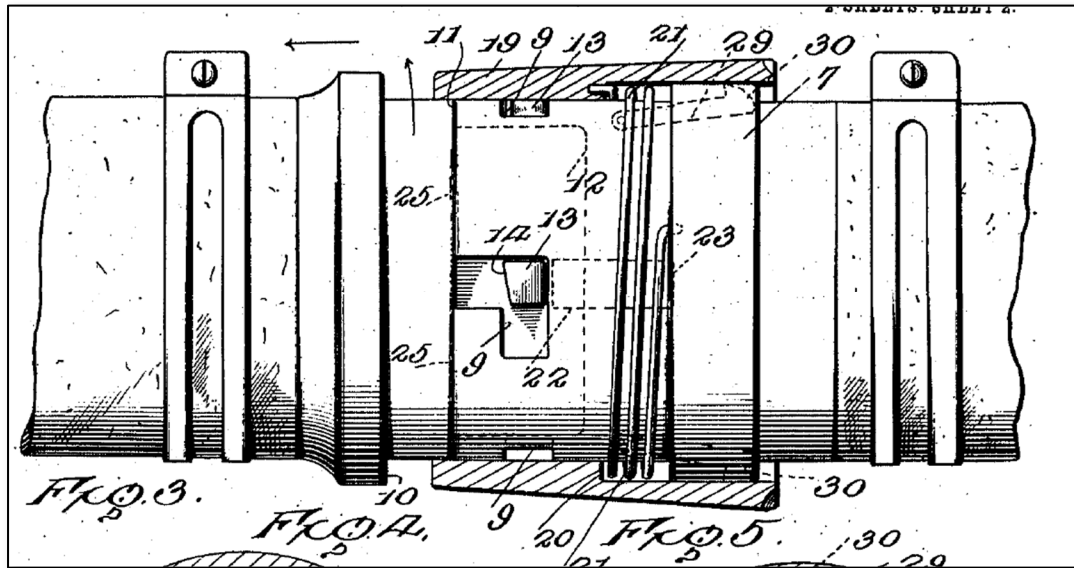
similar vein, recites, “inserting an extension of the toilet fill valve into a slot of the bowl fill valve, wherein the slot is configured to prevent rotation of the bowl fill valve relative to the toilet fill valve.” *Id.*, 11:18-12:6.

Petitioner concedes that neither Guoxin nor Ho show or suggest a “snap fit ... connection[,],” and further concedes that neither Guoxin nor Ho show or suggest a “slot/rib (or slot/extension) connection[.]” Paper 1, 24. Instead of articulating which of the references show or suggest these limitations of the claims, Petitioner makes a sweeping and vague statement: “the snap fit and slot/rib (or slot/extension) connections between the two fluid channels recited by the claims are well-known fluid flow connections disclosed by numerous documents such as Calmettes, Hall, and Kimber—the Quick Connection Art.” *Id.* Again, this is a non-permissible, vague assertion by Petitioner which does not set forth a *prima facie* case of non-obviousness. Instead of articulating which of these references discloses these connections, Petitioner attempts to allege that *all* of the Quick Connection Art references disclose these connections. However, this statement fails for a multitude of reasons.

Initially, the Petition is void of any explanation to which of the several references merged into the Quick Connection Art show the particular connections as claimed. *See id.* Even upon a cursory review, Guoxin, Ho, Bjerke, Calmettes, and Hall do not teach a slot/rib connection, nor does the Petition allege these references

do so. Instead, it appears (without clearly articulating which references show which connections) that Petitioner reproduces figures of Hall and Kimber as allegedly disclosing a slot/rib connection.

Petitioner alleges that “Hall’s coupling is the same as that shown in ... the ’698 Patent.” Paper 1, 16. This is not the case. Hall discusses a “hose-coupling” or a “coupler” device for joining two ends of hoses consisting of “mating sections 5 and 6, one of which [being] provided with a circumferential reinforcing rib 7 defining a cylindrical extension 8, there being a plurality of spaced bayonet slots 9 formed in the extension '8 and opening through the free end thereof, as shown.” For reference, Fig. 3 of Hall is reproduced below:



Nothing in Hall discloses, “a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve.” EX1001, 10:16-38; 10:65-11:14; 12:9-21. Hall discloses a three-piece

design, consisting of mating sections 6, 8 and a collar 19 slidably mounted on the mating sections adapted to close the entrances to some of the bayonet slots. EX1004, 19-46. Petitioner merely alleges that the mechanism of Hall can be employed with Guoxin and Ho, but provides no detail regarding which parts of Guoxin or Ho are being modified, the resulting end device, motivations for doing so, etc. *See* Paper 1, 16 and 37-38. Such failure leads to wild speculation on the proposed modification advanced by Petitioner.

The construction of Hall would appear to require three additional sections to be added to the valve of Guoxin as modified by Ho, merely to form a sealed connection between two valves. The design of Hall, however, appears to require mating sections, which appear to be generally rigid devices, to be added to hose sections in order to reinforce and provide rigidity to the hose sections, and further requires a collar to provide leak protection. *See generally* EX1019. The '698 Patent, however, seeks to reduce the number of components to reduce pressure heads that can occur in toilet systems, not increase them, thus teaches away from use of a complex coupler, like the one described in Hall. *See id.*, 4:13-21. Thus, the proposed modification of Guoxin and Ho, in view of Hall, would render the device inoperable for its intended purpose, namely, reducing a number of components to avoid pressure heads that can occur in tubing. *Id.*

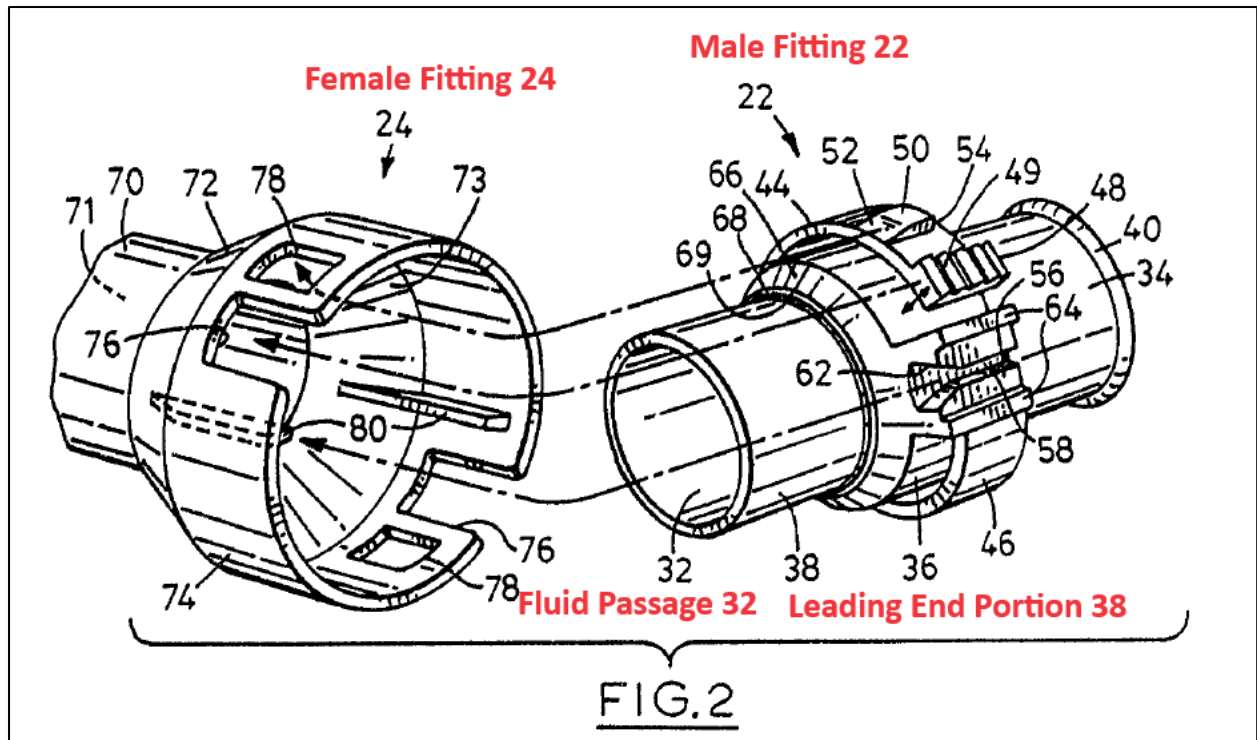
The '698 Patent, moreover, does not require use of a collar, instead having a toilet fill valve an extended portion of the body thereof that forms a bowl fill outlet port, and a bowl fill valve having a protrusion configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet fill valve, the protrusion being configured to snap fit into the recess. *See* EX1001, 10:16-38. The bowl fill valve further includes a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve. *Id.* The Petition thus fails to establish a *prima facie* case of obviousness by modifying Guoxin and Ho in view of Hall.

Kimber, on the other hand, relates to “coupling of hoses to the radiators of automobiles.” EX1020, 3. Kimber notes that “an automobile assembly line may experience difficulties when engaging the hose over the tube, especially if the parts are anything other than clean or access to the parts is restricted.” *Id.* Kimber continues, it is “therefore, an object of the present invention to provide a pipe coupling which can be connected with a minimum of operational steps which are of a nature to permit the use of robots or the like to connect the coupling.” *Id.*, 4.

Likely due to the nature of facilitating a connection using robotic arms or other mechanical device, Kimber discusses a multitude of corresponding coupling devices. Such multitude of coupling devices is required as Kimber further accounts for fluid pressure, heat, and vibration that occurs in automobile radiators, permitting

expansion as fluid pressure increases. *Id.*, 10. Kimber does not, however, disclose a bowl fill valve with a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve.

For instance, Claim 1 of the '698 Patent includes a bowl fill valve having a protrusion a protrusion configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet fill valve, the protrusion being configured to snap fit into the recess. While Petitioner does not provide any explanation or detail how to modify the connections of Guoxin or Ho using the devices of Kimber, for the sake of argument, Kimber discloses a male fitting 22 having a leading end portion 38. The male fitting 22 does not include a slot configured to receive an extension of the toilet fill valve and prevent rotation of the bowl fill valve relative to the toilet fill valve. Rather, the male fitting 22 includes raised substantially rectangular projections 48, detent projections 50, and the like. Also, as can be seen in Fig. 2 of Kimber reproduced below (annotated), the rotation of the male fitting 22 relative to the female fitting 24 appears to be impeded using “two diametrically opposed keying members 80 raised inside the mouth portion 74 for location of the guide slots 58 in the male fitting 22.



Finally, the Petition is devoid of any explanation regarding why further modification of Guoxin and Ho is necessary, assuming Guoxin and Ho are modified to include the coupling arrangement of Hall. In other words, the Petition does not explain why a PHOSITA would have further modified a purported device of Guoxin as modified by Ho and Hall, which each already include their own suitable coupling arrangement, with a coupling arrangement of Kimber. Such explanation and rationale is wholly missing in the Petition. *See generally* Paper 1.

For at least these reasons, as none of Guoxin, Ho, and the Quick Connection Art show or suggest the coupling arrangements of Claims 1, 9, 15, and 24, and as the Petition fails to articulate any motivation to combine the proposed combination

of references, Petitioner fails to establish a reasonable likelihood that that any of these claims are unpatentable.

4. The Combination of Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber is an Exercise of Impermissible Hindsight

“[T]he best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *In re Dembiczak*, 175 F.3d 994 at 999 (1999). The temptation to engage in impermissible hindsight is especially strong with seemingly simple mechanical inventions. *Teleflex, Inc. v. KSR Int’l Co.*, 119 F. App’x 282, 285 (Fed. Cir. 2005) (citing *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 663 (Fed. Cir. 2000)).

“The notion ... that combination claims can be declared invalid merely upon finding similar elements in separate prior patents would necessarily destroy virtually all patents and cannot be the law under the statute, § 103.” *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1575, 1 U.S.P.Q.2D (BNA) 1593, 1603 (Fed. Cir. 1987). “It is insufficient to establish obviousness that the separate elements of the invention existed in the prior art, absent some teaching or suggestion, in the prior art, to combine the elements.” *Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 U.S.P.Q.2D (BNA) 1294, 1297 (Fed. Cir. 1997).

Here, Petitioner selectively cites, in an ad hoc manner, to various references unrelated to toilets, toilet flush valves, toilet fill valves, and the like, in an effort to

piece together various components of the toilet fill valves claimed in the '698 Patent.

The only purported rationale to modify the protrusion, recess, and snap connection, as claimed in the '698 Patent, is a single conclusory sentence advanced by Petitioner: “swapping the mating surfaces such that a protrusion is located on the bowl fill valve and inserts into a recess in the toilet fill valve would have been obvious to a POSITA as a matter of design preference.” Paper 1, 37.

Petitioner’s expert Dr. Cameron offers the exact same conclusory statement in her declaration. *See* EX1004, ¶ 129. As such, the conclusory assertion in Dr. Cameron’s declaration does not provide substantial evidence for finding a motivation to combine. *See Virtek*, 97 F.4th at 887 n. 2. None of the Quick Connection Art, which spans various technology areas such as bathtubs, motor vehicles, and radiator hoses, teaches or suggests that use of the disclosed couplings in connection with valves, much less toilet fill valves or bowl fill valves. As a result, Petitioner has not shown any teaching or suggestion that would motivate a PHOSITA to use the disclosed couplings (one of which pertaining to robotic installation of radiator hoses) in connection with toilet fill valves or bowl fill valves, and the combination of references, namely, Guoxin, Ho, Bjerke, Calmettes, Hall, and Kimber, is an exercise of impermissible hindsight.

Moreover, as articulated above, the Petition is void of any evidence of a design need, market pressure, or a finite number of predictable solutions that would have

prompted a PHOSITA to combine the references as claimed. As the Petition clearly identifies, there are numerous potential connections available in a wide range of technologies. “The mere fact that these possible arrangements existed in the prior art” does not provide a reason that a skilled artisan would have substituted the connections of Hall, Kimber, or Bjerke with those of Guoxin or Ho. *See Virtek*, 97 F.4th at 887. Petitioner has submitted no evidence to support the idea that there were a finite number of identified, predictable solutions.

A PHOSITA must not only have had some motivation to combine the prior art teachings, but some motivation to combine the prior art teachings in the particular manner claimed. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000) (“Particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.”). There must be reasons shown “that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.” *In re Rouffet*, 149 F.3d 1350, 1357 (Fed.Cir.1998). Petitioner’s arguments and evidence offer no such reasons.

X. CONCLUSION

For at least the reasons discussed herein, the Petition fails to establish a reasonable likelihood that Petitioners would prevail with respect to any challenged

claim of the '698 Patent. Patent Owner's arguments are without prejudice or disclaimer. Patent Owner has not acquiesced to any allegations in the Petition and reserves the right to address Petitioners' contentions in this IPR.

Dated: June 13, 2024

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 13th day of June 2024, a complete and entire copy of the foregoing Patent Owner's Preliminary Response, including the exhibits relied upon, was served on counsel of record for Petitioners, as follows:

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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 Preliminary Response, excluding the portions exempted under 37 C.F.R. § 42.24(b), contains 11,547 words according to Microsoft Word's word count feature.

Dated: June 13, 2024

Respectfully submitted,

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