

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

FLUIDMASTER, INC.

Petitioner

v.

DANCO, INC.

Patent Owner

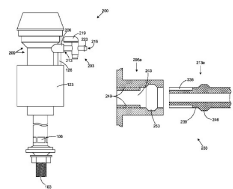
IPR2024-00633 (Patent 9,139,993 B1); IPR2024-00634 (Patent 9,103,105 B1);
IPR2024-00635 (Patent 10,934,698 B1)

PETITIONER'S DEMONSTRATIVE EXHIBIT
June 10, 2025

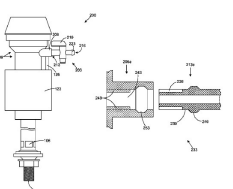
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Challenged Patents

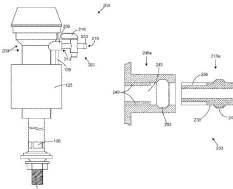
U.S. Patent No. 9,139,993

 US09139993B1	
(12) United States Patent Schuster et al.	(10) Patent No.: US 9,139,993 B1 (45) Date of Patent: *Sep. 22, 2015
(54) TOILET FILL VALVE (71) Applicant: Danco, Inc., Irving, TX (US) (72) Inventors: Michael J. Schuster, Shorewood, IL (US); Larry Schneider, Wadsworth, IL (US) (73) Assignee: Danco, Inc., Irving, TX (US) (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.	(56) References Cited U.S. PATENT DOCUMENTS 136,128 A 21871 Bailey 594,746 A 61911 Dwyer 596,743 A 71911 Yancy 1,112,857 A 101914 Schumann 1,187,601 A 11011 Swenberg 2,087,503 A 71937 Clemmons 2,465,566 A 31699 Gause 2,512,176 A 61959 Shaffer 2,768,011 A 21099 Harber 2,791,235 A 51957 Smith 2,799,805 A 71957 Schuster 3,048,709 A 61962 Lamb 3,086,546 A 41963 Brown (Continued)
(21) Appl. No.: 14164,424 (22) Filed: Jan. 27, 2014 Related U.S. Application Data (63) Continuation of application No. 13/346,355, filed on Jan. 9, 2012, now Pat. No. 8,650,671, which is a continuation of application No. 12/786,904, filed on May 25, 2010, now Pat. No. 8,104,105, which is a continuation of application No. 10/938,797, filed on Oct. 5, 2004, now Pat. No. 7,243,436, which is a continuation-in-part of application No. 10/798,606, filed on Mar. 11, 2004, now Pat. No. 6,823,889.	OTHER PUBLICATIONS US Patent 6,823,889, File History, 2004-2005 Great-Great-Grand-parent Patent to this Application (copy not attached). (Continued) Primary Examiner —Tuan N Nguyen (74) <i>Attorney, Agent, or Firm</i> —Thomas J. Horstemeyer, LLP. (57) ABSTRACT In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the toilet fill valve provides a first portion of the water to a toilet tank. A bowl fill outlet port of the toilet fill valve provides a second portion of the water to a bowl fill restriction that is in direct contact with an extended portion of the toilet fill valve. The bowl fill restriction restricts the flow of the second portion of the water. The bowl fill restriction provides the second portion of the water to a tube that is in direct contact with the bowl fill restriction. The tube provides the second portion of the water to a toilet tank overflow tube.
(51) Int. Cl. E03D 1/00 (2006.01) E03D 1/32 (2006.01) (52) U.S. Cl. E03D 1/32 (2013.01) (58) Field of Classification Search CPC E03D 1/32 USPC 4331, 324, 366, 415, 675; 285/91; 13715.26; 432, 434, 436, 437, 137441, 444 See application file for complete search history.	20 Claims, 9 Drawing Sheets 

U.S. Patent No. 9,103,105

 US09103105B1	
(12) United States Patent Schuster et al.	(10) Patent No.: US 9,103,105 B1 (45) Date of Patent: *Aug. 11, 2015
(54) TOILET FILL VALVE (71) Applicant: Danco, Inc., Irving, TX (US) (72) Inventors: Michael J. Schuster, Shorewood, IL (US); Larry Schneider, Wadsworth, IL (US) (73) Assignee: Danco, Inc., Irving, TX (US) (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.	(56) References Cited U.S. PATENT DOCUMENTS 136,128 A 21871 Bailey 594,746 A 61911 Dwyer et al. 596,743 A 71911 Yancy 1,112,857 A 11011 Swenberg 2,087,503 A 71937 Clemmons 2,465,566 A 31699 Gause 2,512,176 A 61959 Shaffer 2,768,011 A 21099 Harber 2,791,235 A 51957 Smith (Continued)
(21) Appl. No.: 14457,697 (22) Filed: Aug. 12, 2014 Related U.S. Application Data (63) Continuation of application No. 14/164,424, filed on Jan. 27, 2014, which is a continuation of application No. 13/346,355, filed on Jan. 9, 2012, now Pat. No. 8,650,671, which is a continuation of application No. 12/786,904, filed on May 25, 2010, now Pat. No. 8,104,105, which is a continuation of application No. 10/938,797, filed on Oct. 5, 2004, now Pat. No. 7,243,436, which is a continuation-in-part of application No. 10/798,606, filed on Mar. 11, 2004, now Pat. No. 6,823,889.	OTHER PUBLICATIONS US Patent 6,823,889, File History, 2004-2005 Great-Great-Grand-parent Patent to this Application. (Continued) Primary Examiner —Tuan N Nguyen (74) <i>Attorney, Agent, or Firm</i> —Thomas J. Horstemeyer, LLP. (57) ABSTRACT In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the toilet fill valve provides a first portion of the water to a toilet tank. A bowl fill outlet port of the toilet fill valve provides a second portion of the water to a bowl fill restriction that is in direct contact with an extended portion of the toilet fill valve. The bowl fill restriction restricts the flow of the second portion of the water. The bowl fill restriction provides the second portion of the water to a tube that is in direct contact with the bowl fill restriction. The tube provides the second portion of the water to a toilet tank overflow tube.
(51) Int. Cl. E03D 1/00 (2006.01) E03D 1/32 (2006.01) E03D 1/34 (2006.01) (52) U.S. Cl. E03D 1/32 (2013.01); E03D 1/34 (2013.01) (58) Field of Classification Search CPC E03D 1/32 USPC 4331, 324, 366, 415, 675; 285/91; 13715.26; 432, 434, 436, 437, 137441, 444 See application file for complete search history.	24 Claims, 9 Drawing Sheets 

U.S. Patent No. 10,934,698

 US10934698B1	
(12) United States Patent Schuster et al.	(10) Patent No.: US 10,934,698 B1 (45) Date of Patent: *Mar. 2, 2021
(54) TOILET VALVE (71) Applicant: Danco, Inc., Irving, TX (US) (72) Inventors: Michael J. Schuster, Shorewood, IL (US); Larry Schneider, Wadsworth, IL (US) (73) Assignee: Danco, Inc., Irving, TX (US) (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.	(58) Field of Classification Search CPC E03D 1/34; B23P 15/00 USPC 4331, 438, 418 See application file for complete search history. (56) References Cited U.S. PATENT DOCUMENTS 136,128 A 21871 Bailey 594,746 A 61911 Dwyer 596,743 A 71911 Yancy 1,112,857 A 101914 Schumann 1,187,601 A 11011 Swenberg 2,087,503 A 71937 Clemmons (Continued)
(21) Appl. No.: 16/686,328 (22) Filed: Nov. 18, 2019 Related U.S. Application Data (63) Continuation of application No. 14/858,901, filed on Sep. 17, 2015, now Pat. No. 10,519,639, which is a continuation of application No. 14/164,424, filed on Jan. 27, 2014, now Pat. No. 8,104,105, which is a continuation of application No. 13/346,355, filed on Jan. 9, 2012, now Pat. No. 8,650,671, which is a continuation of application No. 10/938,797, filed on Oct. 5, 2004, now Pat. No. 7,243,436, which is a continuation-in-part of application No. 10/798,606, filed on Mar. 11, 2004, now Pat. No. 6,823,889.	OTHER PUBLICATIONS U.S. Pat. No. 6,823,889, File History (2004-2005) Great-Great-Grand-Parent Patent to this Application. (Continued) Primary Examiner —Tuan N Nguyen (74) <i>Attorney, Agent, or Firm</i> —Thomas Horstemeyer, LLP. (57) ABSTRACT According to various embodiments, a toilet system includes a toilet fill valve and a bowl fill valve that is configured to attach directly to the toilet fill valve. The toilet fill valve can include a body having an extended portion that forms a bowl fill outlet port, a water inlet configured to couple to a water source, and a tank water outlet configured to output water to a toilet tank. The bowl fill valve can include a bowl fill valve inlet port that is configured to mate directly to the bowl fill outlet port of the body of the toilet fill valve, a bowl fill valve outlet port, a provision configured to insert into a recess of the toilet fill valve and retain the bowl fill valve to the toilet fill valve, a slot that is configured to receive an extension of the toilet fill valve, and a water flow adjustment handle.
(51) Int. Cl. E03D 1/00 (2006.01) E03D 1/34 (2006.01) B23P 15/00 (2006.01) (52) U.S. Cl. E03D 1/34 (2013.01); B23P 15/00 (2013.01)	14 Claims, 9 Drawing Sheets 

(-633: EX1001; EX1007; EX1005)
 (-634: EX1007; EX1001; EX1005)
 (-635: EX1007; EX1005; EX1001)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Overview

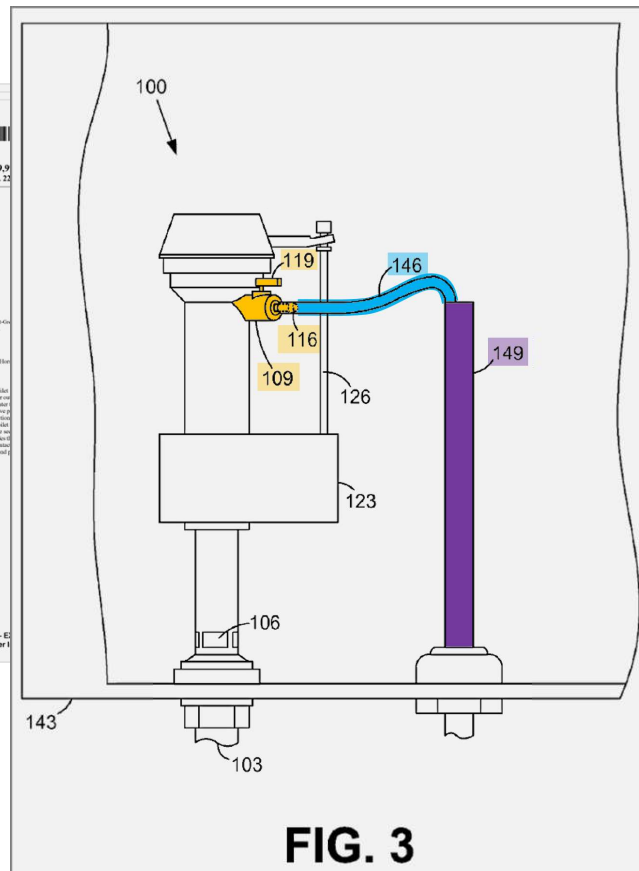
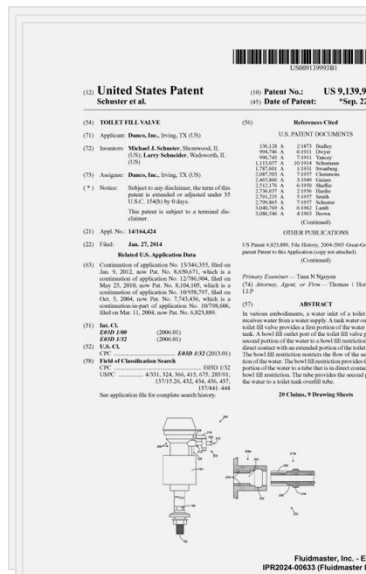


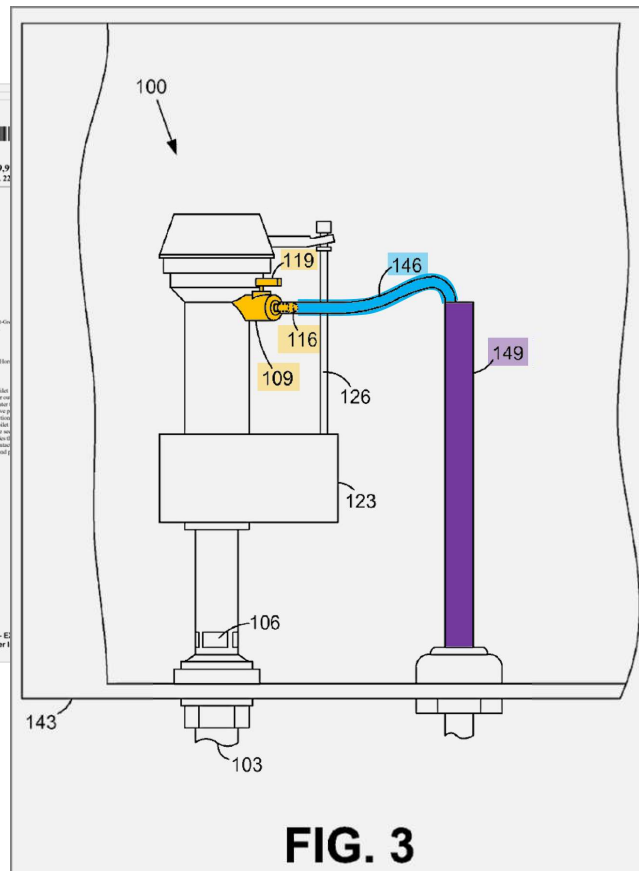
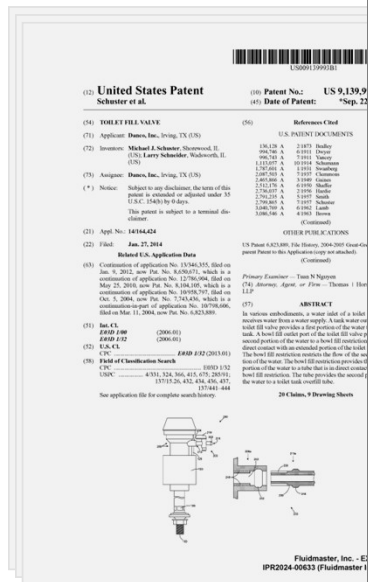
FIG. 3

- “With reference to FIG. 3, shown is the toilet fill valve 100 as installed within a toilet tank 143 according to an embodiment of the present invention. In this respect, the toilet fill valve 100 includes the water inlet 103 that is coupled to a water source outside of the toilet tank 143. The toilet fill valve 100 also includes one or more water outlets 106 that direct a flow of water into the toilet tank 143 during the operation of a flush cycle. The bowl fill valve 109 includes the bowl fill valve inlet (not shown) and the bowl fill valve outlet 116, where the bowl fill valve inlet is operatively coupled to the water inlet 103 as described above.”
- The toilet fill valve 100 also includes a bowl fill valve 109 according to an embodiment of the present invention. The bowl fill valve 109 includes a bowl fill valve inlet 113 and a bowl fill valve outlet 116. In addition, the bowl fill valve 109 includes a handle 119 that facilitates a manual adjustment of the bowl fill valve 109.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

(-633: EX1001, Fig. 3 (annotated), 3:47-59; 2:10-16)
 (-634: EX1001, Fig. 3 (annotated), 3:47-59; 2:10-16)
 (-635: EX1001, Fig. 3 (annotated), 2:56-4:2; 2:19-24)

Overview



- “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.”
- “The tube 146 directs water that flows out of the bowl fill valve outlet 116 into the overflow tube 149 and refills the toilet bowl associated with the toilet tank 143 as can be appreciated by those with ordinary skill in the art.”

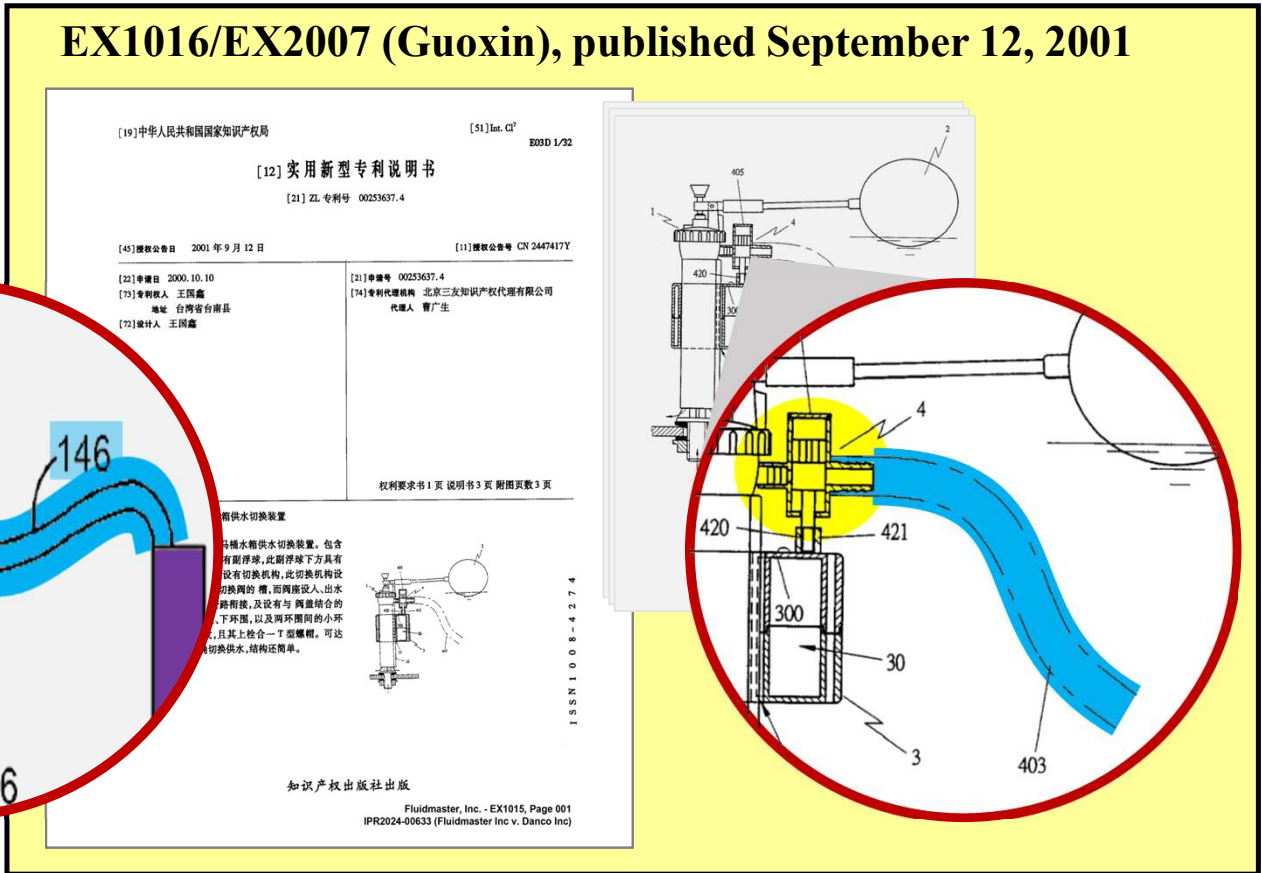
(-633: EX1001, Fig. 3 (annotated), 3:60-65)

(-634: EX1001, Fig. 3 (annotated), 3:60-65)

(-635: EX1001, Fig. 3 (annotated), 4:3-8)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

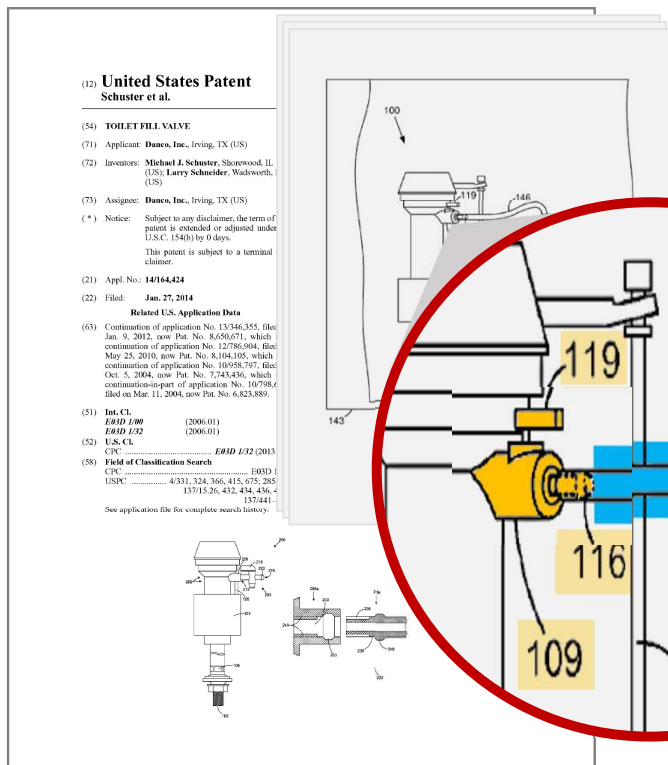
EX1016/EX2007 (Guoxin), published September 12, 2001



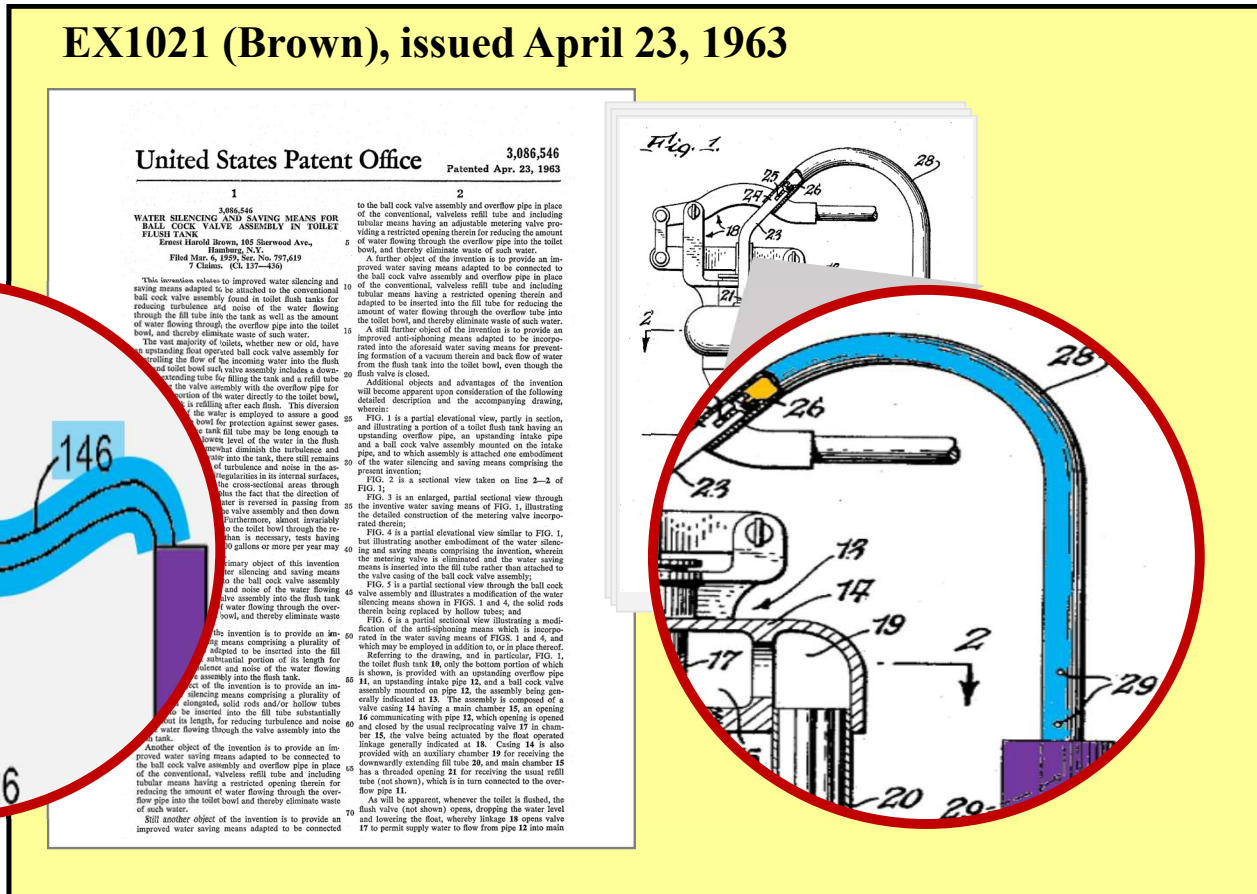
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Overview of Primary Prior Art References: Brown

U.S. Patent No. 9,139,993



EX1021 (Brown, issued April 23, 1963

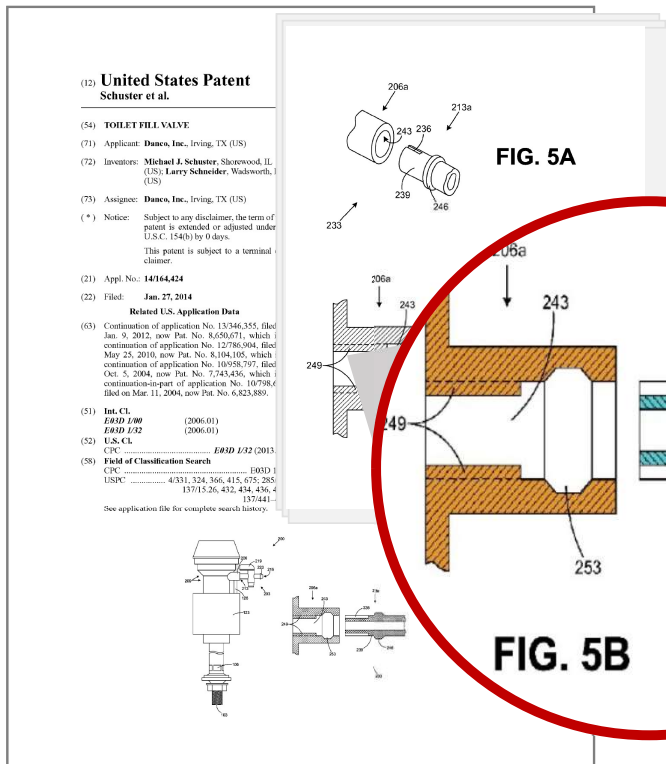


(-633: EX1001, Fig. 3 (annotated); EX1021, Fig. 1 (annotated))
 (-634: EX1007, Fig. 3 (annotated); EX1021, Fig. 1 (annotated))
 (-635: EX1007, Fig. 3 (annotated); EX1021, Fig. 1 (annotated))

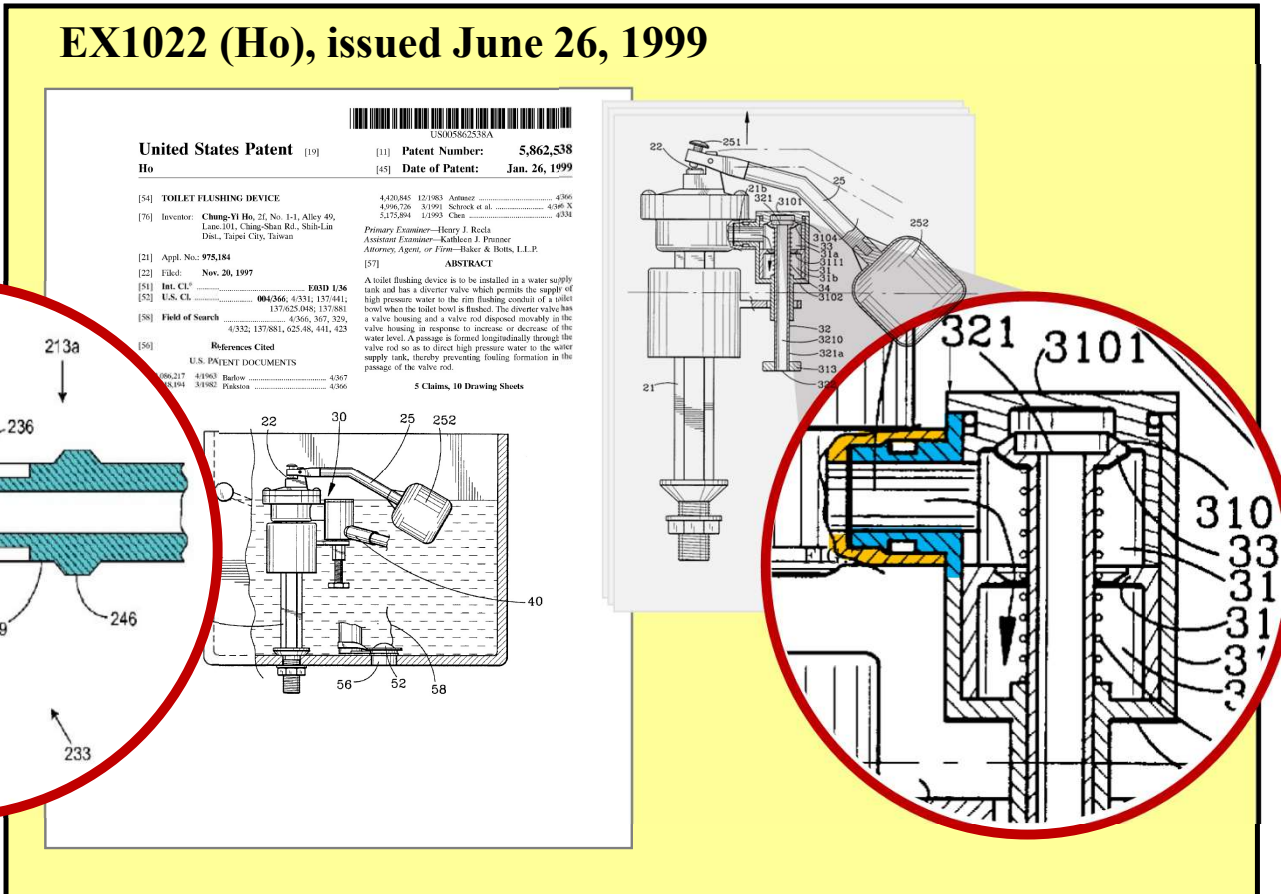
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Overview of Primary Prior Art References: Ho

U.S. Patent No. 9,139,993



EX1022 (Ho), issued June 26, 1999

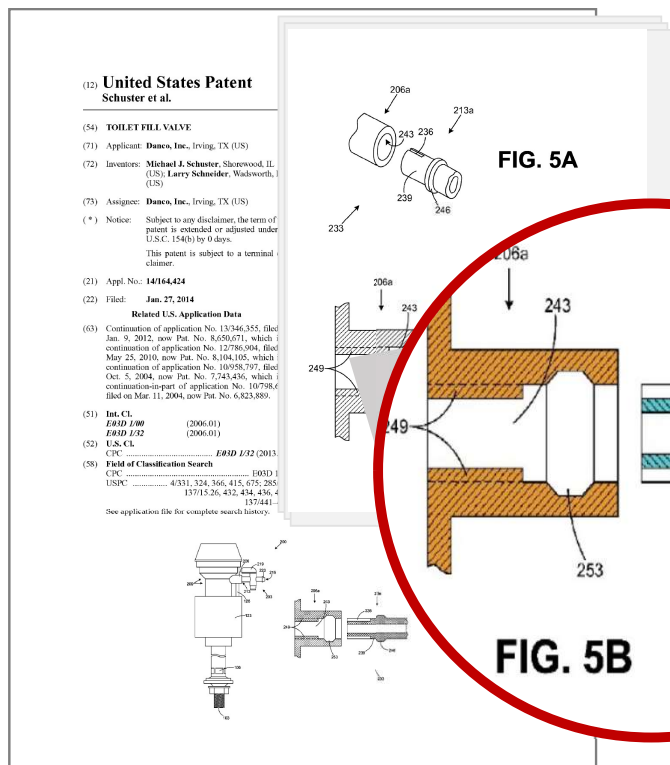


(-633: EX1001, Fig. 5B (annotated); EX1022, Fig. 7 (annotated))
 (-634: EX1007, Fig. 5B (annotated); EX1022, Fig. 7 (annotated))
 (-635: Fig. 5B (annotated); EX1022, Fig. 7 (annotated))

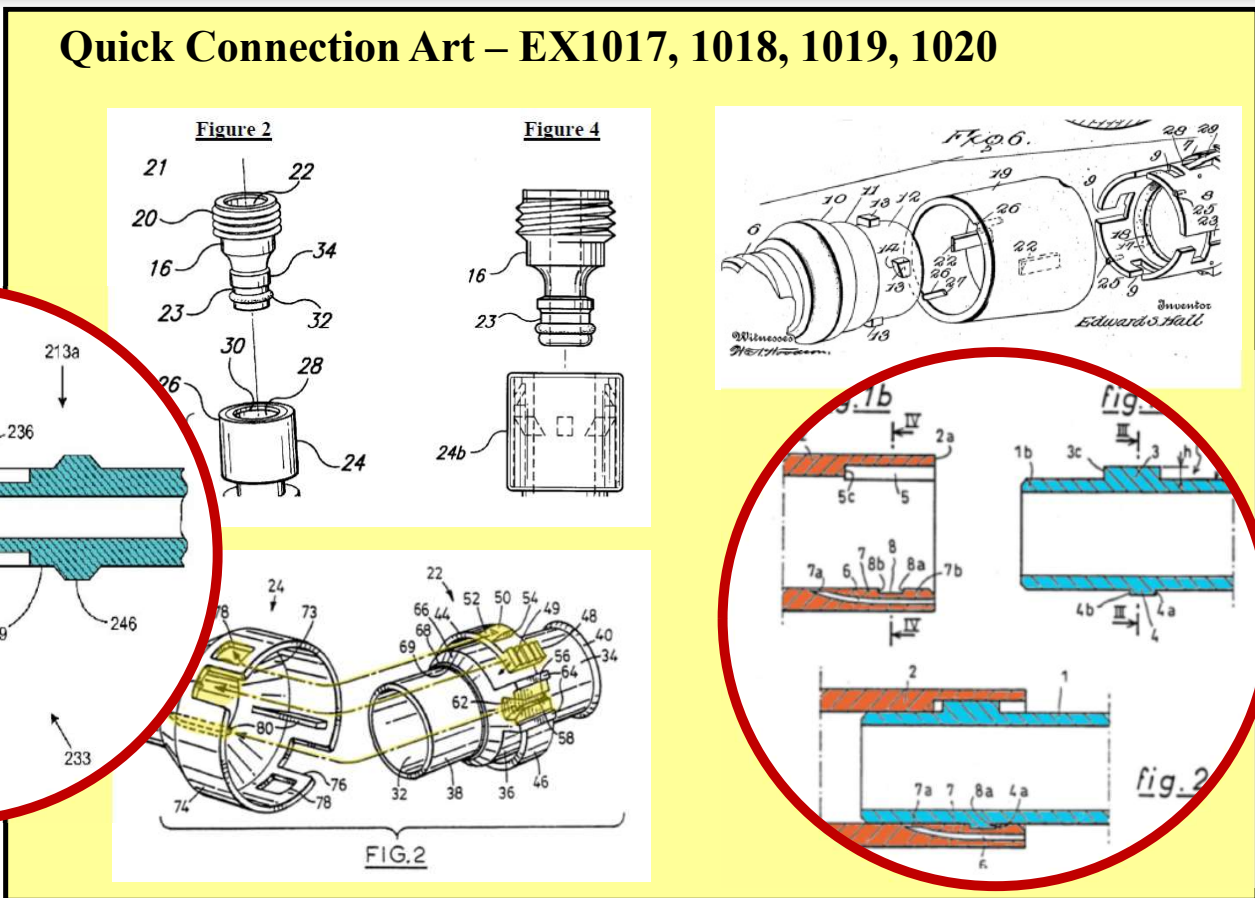
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Primary Prior Art References – Quick Connection Art (“QCA”)

U.S. Patent No. 9,139,993



Quick Connection Art – EX1017, 1018, 1019, 1020



(-633: EX1001, Fig. 5B (annotated); EX1017, Figs. 2 and 4; EX1018, Fig. 1a, 1b, 2 (annotated); EX1019, Fig. 6; EX1020, Fig. 2) (-634: EX1007, Fig. 5B (annotated); EX1017, Figs. 2 and 4; EX1018, Fig. 1a, 1b, 2 (annotated); EX1019, Fig. 6; EX1020, Fig. 2) (-635: EX1007, Fig. 5B (annotated); EX1017, Figs. 2 and 4; EX1018, Fig. 1a, 1b, 2 (annotated); EX1019, Fig. 6; EX1020, Fig. 2)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Overview of Key Disputes

1

Must the claimed “extended portion” comprise a *plastic* structure?

2

Does the prior art disclose a tube configured to direct water to an overflow tube?

3

Is the “flow rate” measured over the time it takes the tank to refill?

4

Has PO shown that certain claims of the '993 and '105 Patents are entitled to a 2004 priority date?

1. “Wherein the Extended Portion is Integrally Molded with the Body”

“Wherein the Extended Portion is Integrally Molded with the Body”

U.S. Patent No. 9,139,993

 US09139993B1	
(12) United States Patent Schuster et al.	(10) Patent No.: US 9,139,993 B1 (45) Date of Patent: *Sep. 22, 2015
(54) TOILET FILL VALVE	(56) References Cited
(71) Applicant: Danco, Inc. , Irving, TX (US)	U.S. PATENT DOCUMENTS
(72) Inventors: Michael J. Schuster , Shorewood, IL (US); Larry Schneider , Wadsworth, IL (US)	136,128 A 21873 Bailey 994,746 A 61911 Dwyer 996,741 A 71911 Yoney 1,113,087 A 101914 Schuman 1,287,601 A 11951 Smalleg 2,087,503 A 71937 Clemmon 2,463,506 A 31909 Citron 3,513,150 A 61959 Shaffer
(73) Assignee: Danco, Inc. , Irving, TX (US)	
(74) Attorney: Robinson Silverglad & Associates, P.C.	

U.S. Patent No. 9,103,105

 US09103105B1	
(12) United States Patent Schuster et al.	(10) Patent No.: US 9,103,105 B1 (45) Date of Patent: *Aug. 11, 2015
(54) TOILET FILL VALVE	(56) References Cited
(71) Applicant: Danco, Inc. , Irving, TX (US)	U.S. PATENT DOCUMENTS
(72) Inventors: Michael J. Schuster , Shorewood, IL (US); Larry Schneider , Wadsworth, IL (US)	136,128 A 21873 Bailey 994,746 A 61911 Dwyer et al. 996,741 A 71911 Yoney 1,113,087 A 101914 Schuman
(73) Assignee: Danco, Inc. , Irving, TX (US)	
(74) Attorney: Robinson Silverglad & Associates, P.C.	

a body comprising an extended portion, wherein the extended portion is integrally molded with the body

Oct. 5, 2004, now Pat. No. 7,743,436, which is a continuation-in-part of application No. 10/796,606, filed on Mar. 11, 2004, now Pat. No. 6,823,889.

(51) Int. Cl.
E03D 1/00 (2006.01)
E03D 1/32 (2006.01)

(52) U.S. Cl.
CPC *E03D 1/32* (2013.01)

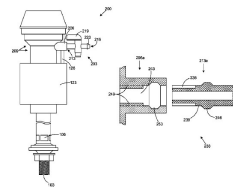
(58) Field of Classification Search
CPC *E03D 1/32*
USPC 4/331, 324, 366, 415, 675, 285/91;
137/15, 26, 432, 434, 436, 437,
137/441, 444

See application file for complete search history.

(57) **ABSTRACT**

In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the toilet fill valve provides a first portion of the water to a toilet tank. A bowl fill outlet part of the toilet fill valve provides a second portion of the water to a bowl fill restriction that is in direct contact with an extended portion of the toilet fill valve. The bowl fill restriction restricts the flow of the second portion of the water. The bowl fill restriction provides the second portion of the water to a tube that is in direct contact with the bowl fill restriction. The tube provides the second portion of the water to a toilet tank overflow tube.

20 Claims, 9 Drawing Sheets



Oct. 5, 2004, now Pat. No. 7,743,436, which is a continuation-in-part of application No. 10/796,606, filed on Mar. 11, 2004, now Pat. No. 6,823,889.

(51) Int. Cl.
E03D 1/00 (2006.01)
E03D 1/32 (2006.01)
E03D 1/44 (2006.01)

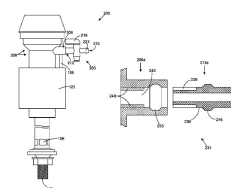
(52) U.S. Cl.
CPC *E03D 1/32* (2013.01); *E03D 1/44* (2013.01)

(58) Field of Classification Search
CPC *E03D 1/32*
USPC 4/331, 324, 366, 415, 675, 285/91;
137/15, 26, 432, 434, 436, 437,

(57) **ABSTRACT**

In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the toilet fill valve provides a first portion of the water to a toilet tank. A bowl fill outlet part of the toilet fill valve provides a second portion of the water to a bowl fill restriction that is in direct contact with an extended portion of the toilet fill valve. The bowl fill restriction restricts the flow of the second portion of the water. The bowl fill restriction provides the second portion of the water to a tube that is in direct contact with the bowl fill restriction. The tube provides the second portion of the water to a toilet tank overflow tube.

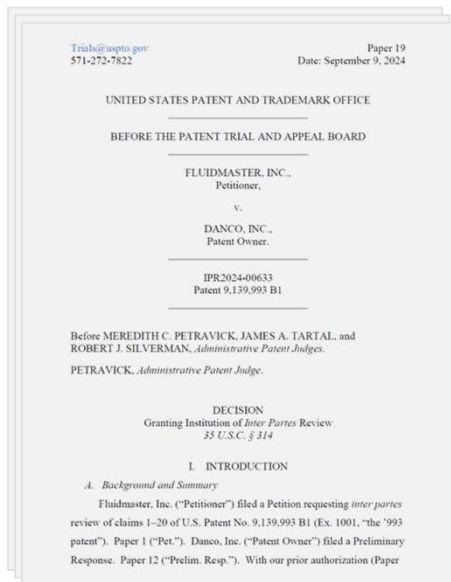
24 Claims, 9 Drawing Sheets



(-633: EX1001, Claims 1, 8, 14)
(-634: EX1001, Claims 1, 9, 15)

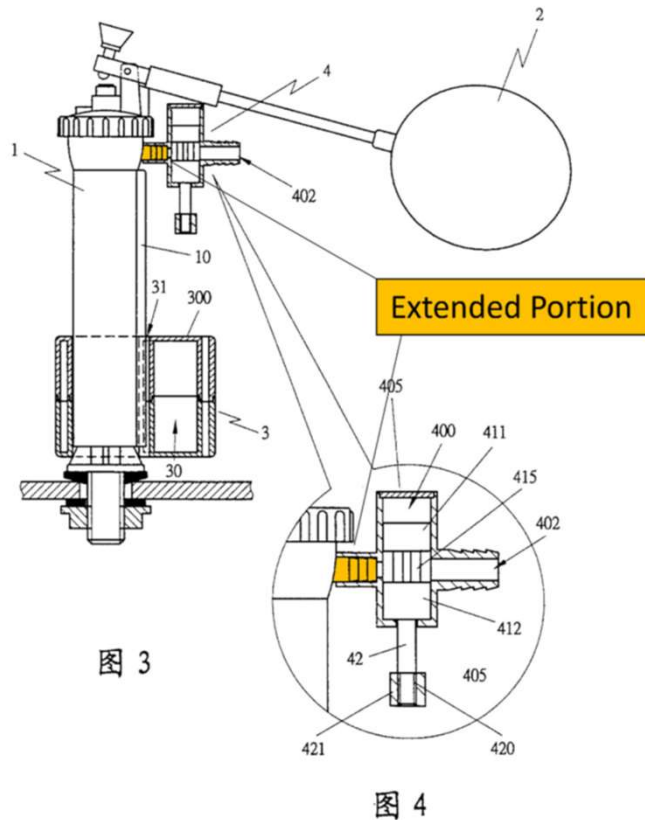
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Board's Construction of "Integrally Molded"



On this record, we are persuaded by Patent Owner that the claim phrase “integrally molded with” should be construed to mean “molded together as a single structure” and to exclude items created as separate pieces and attached together later. Patent Owner’s construction is consistent with the plain language of the claims, which requires the extended portion be “integrally molded with” the body and not just the extended portion be integral with the body.

Guoxin Discloses an “Extended Portion” that is “Integrally Molded”



Dr. Cameron's Testimony:

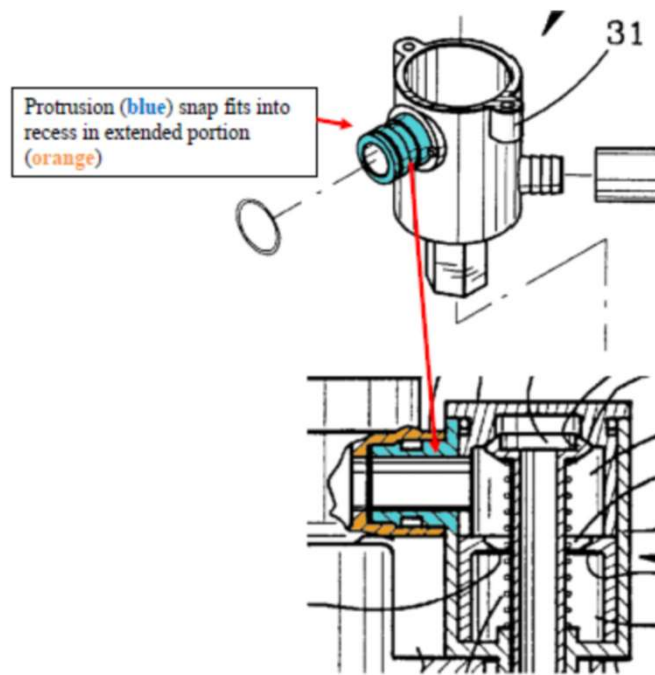
- “Guoxin discloses a toilet fill valve having an extended portion that is integrally molded with the water inlet device 1, as shown in Figure 3 and the exploded view of Figure 4. The extended portion of Guoxin’s toilet fill valve forms a bowl fill outlet port.”
- “A POSITA would understand that in the system depicted in Guoxin, the protrusion is integrally molded with the body **because there is nothing to indicate another connection.**”
- “**Forming the protrusion separately** and adding an additional connection between the protrusion and the body **would negatively impact the reliability of the connection and increase the cost,** which also informs the understanding of a POSITA that the main body and protrusion are integrally molded in the absence of a depiction or explanation to the contrary.”

(-633: Paper No. 1, p. 32 (citing EX1004, ¶ 123); Paper No. 30, pp. 7-8 (citing EX1036, ¶¶ 37-44))

(-634: Paper No. 1, p. 28 (citing EX1004, ¶ 123); Paper No. 32, pp. 7-8 (citing EX1036, ¶¶ 37-44))

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Guoxin in View of Ho Discloses an “Extended Portion” that is “Integrally Molded”



Dr. Cameron's Testimony

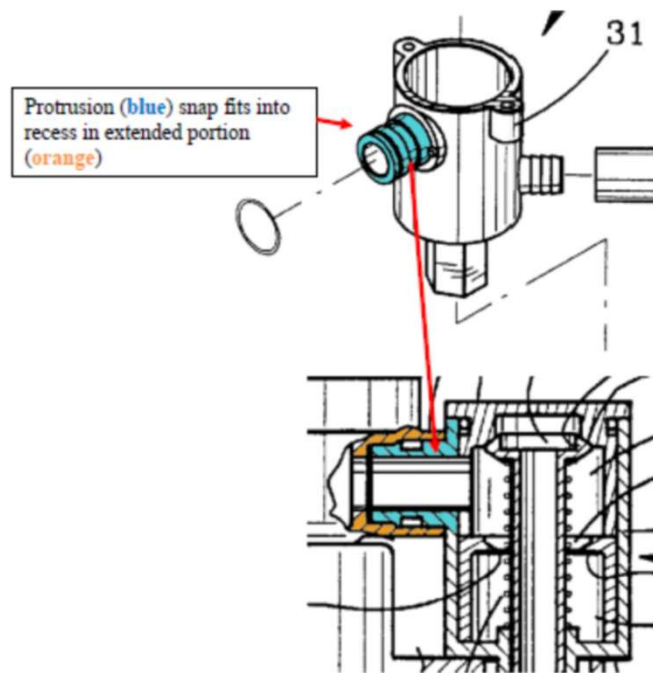
- “While Guoxin alone satisfies this element, if PO incorrectly argues that the extended portion illustrated in Guoxin is not ‘integrally molded,’ then Ho clearly discloses an integrally molded extended portion on a toilet fill valve with a recess into which a water flow regulator with a protrusion is inserted and locked into place. See EX1022, annotated Figs. 3 and 5 below.”
- “Integrally molding the extended portion of Guoxin with the inlet device as taught by Ho would be advantageous in improving the strength and integrity of the connection, and to make it easier to manufacture and assemble. Thus, it would have been obvious to integrally mold the extended portion of Guoxin with the inlet device as taught by Ho achieve these benefits.”

(-633: Paper No. 1, pp. 33-34 (citing EX1004, ¶¶ 124-126))

(-634: Paper No. 1, pp. 28-29 (citing EX1004, ¶¶ 124-126))

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Guoxin in View of Ho Discloses an “Extended Portion” that is “Integrally Molded”



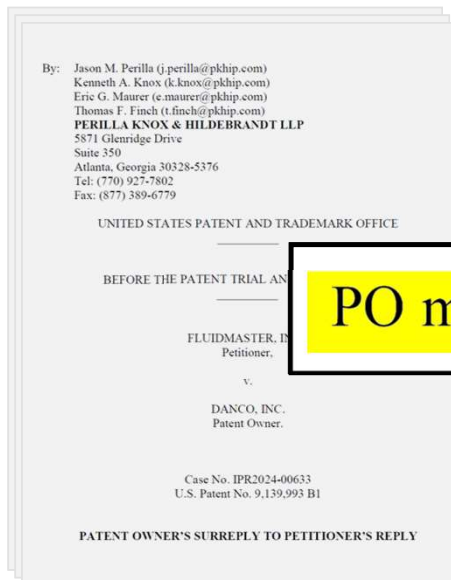
Dr. Cameron's Testimony

- “As with Guoxin, forming the extended portion of Ho as a single structure with the body of the toilet fill valve would be an insignificant step in terms of manufacturing complexity... This again confirms that the extended portion shown in Ho's figures is integrally molded with the body of the toilet fill valve, especially in the absence of a depiction or explanation to the contrary.
- “[I]f Figure 2 in fact shows a separate connection between the fill valve and the extended portion, then the diverter valve means 30 of Ho could just connect directly with the toilet fill valve via a screw or other connection. Since that is explicitly what is not shown, a POSITA would understand that the extended portion is present specifically to allow a single connection to the restrictor, not to introduce an additional connection between the restrictor and the fill valve.”

(-633: Paper No. 30, pp. 11-12 (citing EX1036, ¶¶ 66-74))

(-634: Paper No. 32, pp. 11-13 (citing EX1036, ¶¶ 53-61))

PO Seeks to Improperly Narrow “Molded” in the Board’s Construction



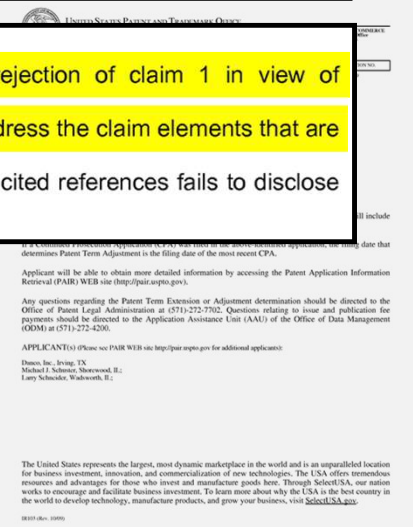
PO maintains “molded” denotes plastic structures.

There is No Support for PO's Position

- There is no mention of plastic or any other material or method of manufacture in the claims.
- There is no mention of plastic or any other material or method of manufacture in the specification.
- There is no mention of plastic material during prosecution of the challenged patents.
- There is no record of PO arguing around prior art references during prosecution based on a prior art structure not being made of plastic material.

Although DeMarco remain silent as to the extended portion is integrally molded with the body of the toilet fill valve, attention is directed to the Gish reference which teaches an analogous toilet fill valve system where the extended portion 224 is integrally molded with the toilet fill valve (see Fig. 12 and col. 4, line 19+). Therefore, it

Gish does not cure the deficiencies of the rejection of claim 1 in view of *DeMarco*, nor does the Office Action rely on *Gish* to address the claim elements that are discussed above. Accordingly, the combination of the cited references fails to disclose



(-633: Paper No. 30, pp. 8-10; EX1037, 16:25-17:13; EX1002, pp. 40, 52)

(-634: Paper No. 32, pp. 8-10; EX1037, 16:25-17:13; EX1008, pp. 40, 52)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

There is No Support for PO's Position

- PO's expert opined that a POSITA would understand that (1) "molded" refers only to plastic structures, and (2) "molded" does not refer to metal structures.
- The only "evidence" that PO's expert provided comprised citations to Dr. Cameron's testimony.

133. In order for two structures to be "molded together as a single structure," they must comprise a single molded structure. In the context of the toilet fill valves recited by the Challenged Claims, a POSITA would have understood the term "molded" to refer to plastic structures, which are manufactured through a process such as injection molding, overmolding, or extrusion molding. EX2008 (Cameron Tr.), 35:10-39:12.

134. A POSITA would also have understood that "molded" does not refer to metal structures, which are typically "cast" or "machined." EX2008 (Cameron Tr.), 63:21-65:21. Thus, a pre-requisite to showing that a particular prior art reference discloses "molded" toilet fill valves is first showing that the reference discloses plastic toilet fill valves. Dr. Cameron has failed to show (1) that reference to a patent

Case No. IPR2024-09633
U.S. Patent No. 9,139,993 B1

Declaration of Michael Jobin

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Patent Trial and Appeal Board
US Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450

Demon. Inc. - EX2013, Page 001
Fluidmaster, Inc. - IPR2024-09633

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

(-633: Paper No. 30, pp. 8-10; EX2013, ¶¶ 133-134)

(-634: Paper No. 32, pp. 8-10; EX2013, ¶¶ 132-133)

Dr. Cameron's Testimony is Consistent with the Board's Construction

Board's Construction

- “On this record, we are persuaded by Patent Owner that the claim phrase ‘integrally molded with’ should be construed to mean ‘molded together as a single structure’ and to exclude items created as separate pieces and attached together later. Patent Owner’s construction is consistent with the plain language of the claims, which requires the extended portion be ‘integrally molded with’ the body and not just the extended portion be integral with the body.”

Dr. Cameron's Testimony

“As with Guoxin, forming the extended portion of Ho as a single structure with the body of the toilet fill valve would be an insignificant step in terms of manufacturing complexity... This again confirms that the extended portion shown in Ho’s figures is integrally molded with the body of the toilet fill valve, especially in the absence of a depiction or explanation to the contrary.

(-633: Paper No. 19, p. 14; Paper No. 30, pp. 11-12 (citing EX1036, ¶¶ 66-74))

(-634: Paper No. 21, p. 14; Paper No. 32, pp. 11-13 (citing EX1036, ¶¶ 53-61))

PO's Reliance on *Nordt* is Unavailing



In *Axioma Metering*, the PTAB distinguished *Nordt*, noting:

- There was no evidence of “any distinct structural or functional differences between a monolithic polymer that is cast in a single mold and one that is not.”
- That *Nordt* was distinguishable because there, the patent applicant had asserted clear structural differences between a knee brace made with fabric components and a knee brace made with injection-molded components, and the specification conveyed a structural meaning to the term “injection molded.” By contrast, the limitation at issue in *Axioma* “does not appear to connote a structure, the specification does not convey any structural meaning to the limitation, and Patent Owner fails to direct us to any structural differences that casting in one piece imparts to the monolithic polymer housing.”
- And therefore, “we conclude that the limitation ‘cast in one piece’ is a process limitation that does not impart patentable weight to the claim. That is, as long as the prior art discloses a monolithic polymer structure, it satisfies the claim limitation regardless of the process used to produce it.”

2. A Tube “Configured to Direct” / “Providing” / “Provides” Water to an “Overflow”/“Overfill” Tube”

A Tube “Configured to Direct” / “Providing” / “Provides” Water to an “Overflow”/“Overfill” Tube”

U.S. Patent No. 9,139,993

U.S. Patent No. 9,103,105

U.S. Patent No. 10,934,698

 US09139993B1	 US09103105B1	 US10934698B1
(12) a tube that is configured to attach directly to the water flow regulator [bowl fill restriction], (54) wherein <u>the tube is configured to direct</u> the second portion of the <u>water</u> from the water flow (71) regulator <u>directly to a toilet tank overflow tube</u> (72) (73) (*) U.S.C. 154(b) by 9 days. 2,799,805 A 71097 Schuler This patent is subject to a terminal dis- 3,048,709 A 61962 Lamb cussion. 3,286,546 A 41963 Brown	U.S.C. 154(b) by 9 days. 2,805,806 A 71099 Linn This patent is subject to a terminal dis- 2,812,176 A 61950 Shaffer cussion. 2,786,887 A 21956 Harber 3,291,434 A 61957 Harber	U.S.C. 154(b) by 9 days. 1,987,001 A 11958 Brubaker This patent is subject to a terminal dis- 2,087,501 A 71957 Clemens cussion. (Continued)
(21) <u>providing, via the tube, the second portion of the water to a</u> (22) <u>toilet tank overflow tube</u> (63) filed on Mar. 11, 2004, now Pat. No. 6,821,889. In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the toilet fill valve provides a first portion of the water to a toilet	7,743,416, which is a continuation-in-part of application No. 10,798,606, filed on Mar. 11, 2004, now Pat. No. 6,821,889. In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the	Continued to application No. 12,765,266, filed on May 25, 2010, now Pat. No. 8,104,105, which is a continuation of application No. 10,958,797, filed on a toilet fill valve and a toilet fill valve that is configured to attach directly to the toilet fill valve. The toilet fill valve can include a body having an extended portion that forms a bowl
(51) Int. Cl. attaching a tube directly to the bowl fill restriction, wherein <u>the tube is configured to direct</u> the (52) <u>the water</u> from the bowl fill restriction <u>directly to a toilet tank overflow tube</u> (58) 		
a bowl fill valve outlet port <u>configured to attach directly to a tube that provides water from the</u> <u>bowl fill valve outlet port to an overflow tube</u>		

(-633: EX1001, Claims 1, 8, 14)

(-634: EX1001, Claims 1, 9, 15, 24)

(-635: EX1001, Claims 8, 12)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Federal Circuit Precedent Confirms the Overflow Tube is Not a Claimed Structure



[13] ARM contends that the district court erred in construing claim 8 of the '855 patent as not requiring a “single-serve beverage brewer,” and that the judgment of infringement should be set aside. Claim 8 recites:

A beverage brewing device for use with a single serve beverage brewer having a brewing holster, an inlet probe for dispensing water, the inlet probe moveable between a non-brewing position and a brewing position, and an outlet probe extending upwardly into the brewing holster for outleting a brewed beverage, the beverage brewing device comprising:

'855 patent, col. 15, ll. 13–18 (emphasis added).³

3 The remainder of claim 8 reads:

- (a) a body removably receivable within a brewing holster of a single serve beverage brewer, the body having at least one substantially vertical sidewall, a top opening, and a bottom surface intersecting the at least one substantially vertical sidewall, wherein the at least one substantially vertical sidewall and the bottom surface of the body define a brew chamber configured to contain a dry beverage medium;
- (b) at least one outlet probe receptacle defined in the body and extending from the bottom surface of the body and into the brew chamber such that the at least one outlet probe receptacle is configured to receive an outlet probe of the single serve beverage brewer when the body is received within the brewing holster, wherein the at least one outlet probe receptacle is fluidly isolated from the brew chamber to prevent the outlet probe from penetrating the brew chamber, thereby preventing fluid from exiting the brew chamber through the outlet probe;
- (c) a lid removably securable to the body, the lid engageable with the body to selectively enclose a top opening of the body;
- (d) an inlet probe opening defined in the lid, the inlet probe opening configured to receive an inlet probe of the single serve beverage brewer in a brewing position for placing the inlet probe into fluid communication with the brew chamber; and
- (e) at least one filter defined within the body, the at least one filter configured to retain the dry beverage medium within the brew chamber while allowing the brewed beverage to exit the brew chamber.

'855 patent, col. 15, ll. 19–48 (emphases added).

Federal Circuit Precedent Confirms the Overflow Tube is Not a Claimed Structure



□ *1377 Because it sold only the brewing device and not the beverage brewer itself, ARM asserts that it did not infringe. But claim 8 on its face does not require a beverage brewer, even if the preamble is limiting. To the extent that claim 8 mentions a beverage brewer, it is only as a “reference point” to define the purpose and structure of the brewing device. See *C.R. Bard, Inc. v. M3 Sys.*, 157 F.3d 1340, 1350 (Fed. Cir. 1998). And there is nothing in the prosecution history suggesting that the beverage brewer itself is part of the claim. The district court correctly construed that claim 8 on its face does not require a beverage brewer.

B. Jury Instruction 40

should be set aside. Claim 8 recites:

A beverage brewing device for use with a single serve beverage brewer having a brewing holster, an inlet probe for dispensing water, the inlet probe moveable between a non-brewing position and a brewing position, and an outlet probe extending upwardly into the

3 The remainder of claim 8 reads:

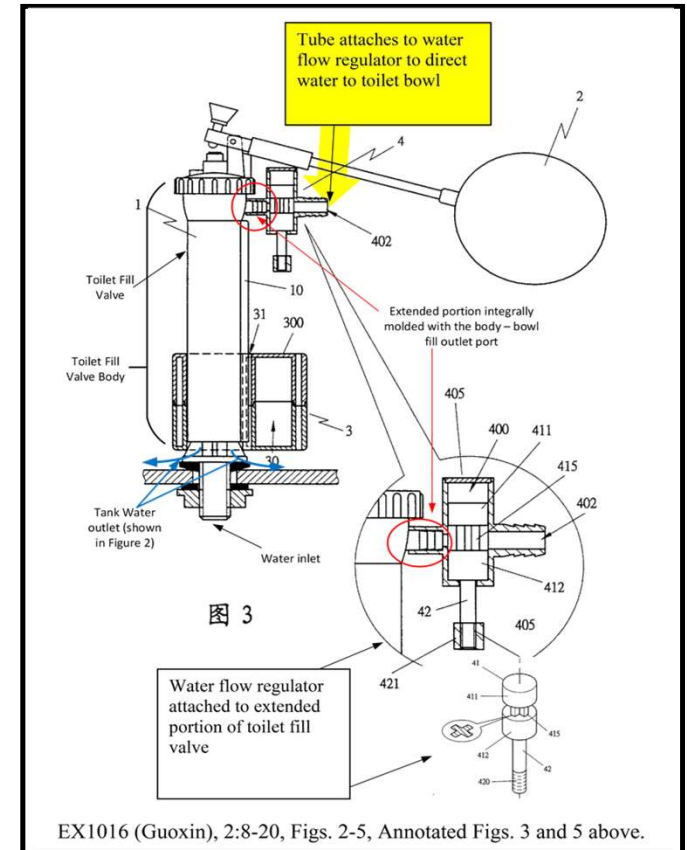
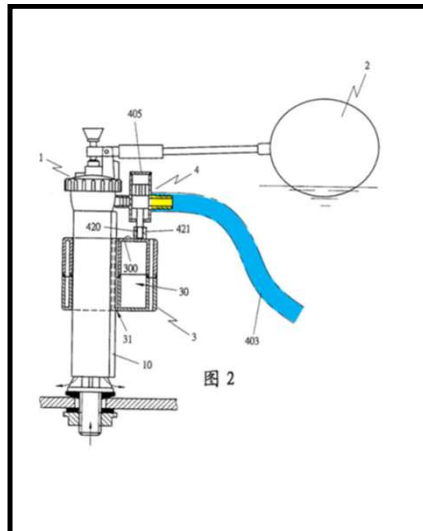
- (a) a body removably receivable within a brewing holster of a single serve beverage brewer, the body having at least one substantially vertical sidewall, a top opening, and a bottom surface intersecting the at least one substantially vertical sidewall, wherein the at least one substantially vertical sidewall and the bottom surface of the body define a brew chamber configured to contain a dry beverage medium;
- (b) at least one outlet probe receptacle defined in the body and extending from the bottom surface of the body and into the brew chamber such that the at least one outlet probe receptacle is configured to receive an outlet probe of the single serve beverage brewer when the body is received within the brewing holster, wherein the at least one outlet probe receptacle is fluidly isolated from the brew chamber to prevent the outlet probe from penetrating the brew chamber, thereby preventing fluid from exiting the brew chamber through the outlet probe;
- (c) a lid removably securable to the body, the lid engageable with the body to selectively enclose a top opening of the body;
- (d) an inlet probe opening defined in the lid, the inlet probe opening configured to receive an inlet probe of the single serve beverage brewer in a brewing position for placing the inlet probe into fluid communication with the brew chamber; and
- (e) at least one filter defined within the body, the at least one filter configured to retain the dry beverage medium within the brew chamber while allowing the brewed beverage to exit the brew chamber.

'855 patent, col. 15, ll. 19–48 (emphases added).

Guoxin Alone Discloses a Tube Configured to Direct Water to an Overflow Tube



149. Guoxin discloses a tube configured to attach directly to the water flow regulator to direct the second portion of water to a toilet tank overflow tube, as is conventional in the art. See annotated figure of Guoxin illustrated above regarding claim element 1[Pre] and annotated Fig. 2 below. As shown below, Guoxin discloses tube 403 (Fig. 2), that is configured to provide water supply to the toilet bowl. Guoxin (EX1016), 2:17-18. In view of the foregoing, Guoxin therefore satisfies this element.



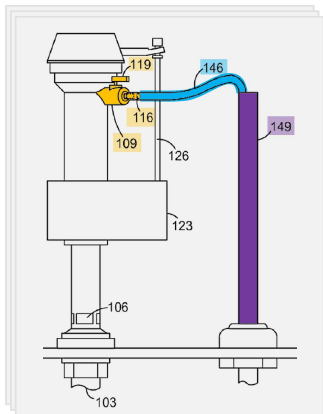
(-633: Paper No. 1, pp. 41-42; EX1004, ¶¶ 83-84, 86-87, 120, 148-149, 307; EX1016, Figs. 2-5, 2:8-20; Paper No. 30, pp. 2-6; EX1036, ¶¶ 25-36)

(-634: Paper No. 1, pp. 38-39; EX1004, ¶¶ 81, 82, 84-85, 119, 157-160, 223; EX1016, Figs. 2-5, 2:8-20; Paper No. 32, pp. 3-6; EX1036, ¶¶ 25-36)

(-635: Paper No. 1, pp. 11-14; EX1004, ¶¶ 75, 76, 79, 123-124, 143; EX1016, Figs. 2-5, 2:8-20; Paper No. 30, pp. 4-7; EX1036, ¶¶ 24-27)

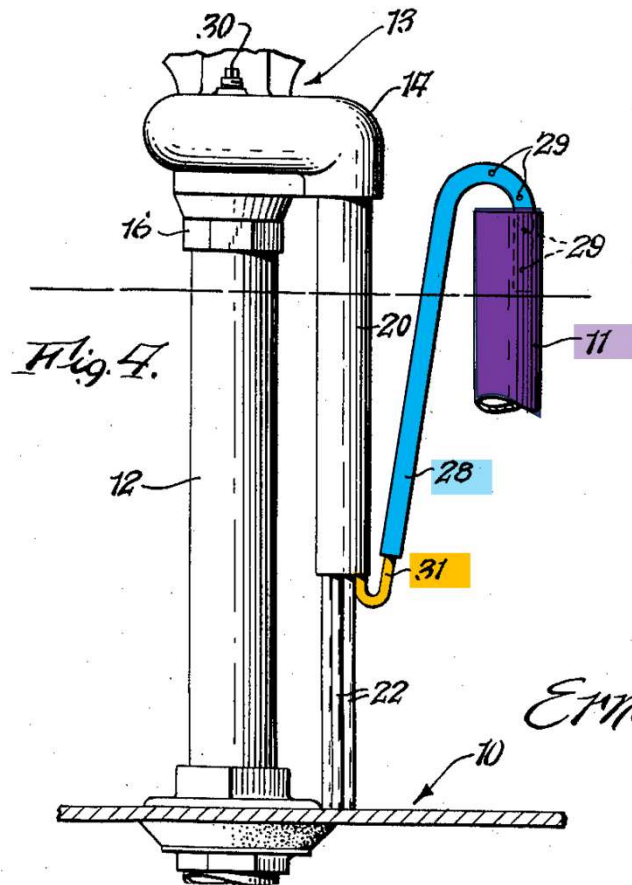
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Claimed Configuration is Conventional in the Art



(See, e.g., -633: EX1001, Fig. 3 (annotated))

(See, e.g., -634: EX1007, Fig. 3 (annotated))



U.S. Patent No. 3,086,546 to Brown ("Brown")

Issued April 23, 1963

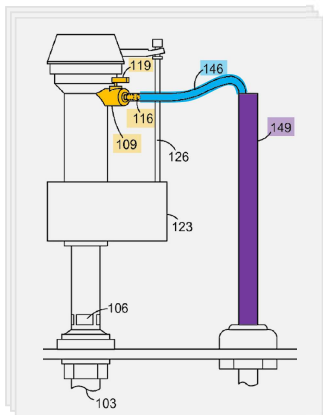
- Discloses a flow restrictor (31) connected via a tube (28) to the overflow pipe (11) and into the bowl.
- "Referring now to FIG. 4, another embodiment of the water silencing and saving means comprising the invention is illustrated therein...This relatively short tube [31] is bent into a substantially 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 23 which is connected to the overflow pipe 11, as in FIG. 1."

(-633: Paper No. 1, p. 19 (citing EX1004, ¶ 84 (citing EX1021, Fig. 4, 4:20-44)); see also EX2013, ¶¶100, 106-107, 110)

(-634: Paper No. 1, p. 14 (citing EX1004, ¶ 82 (citing EX1021, Fig. 4, 4:20-44)); see also EX2013, ¶¶100, 106-107, 109)

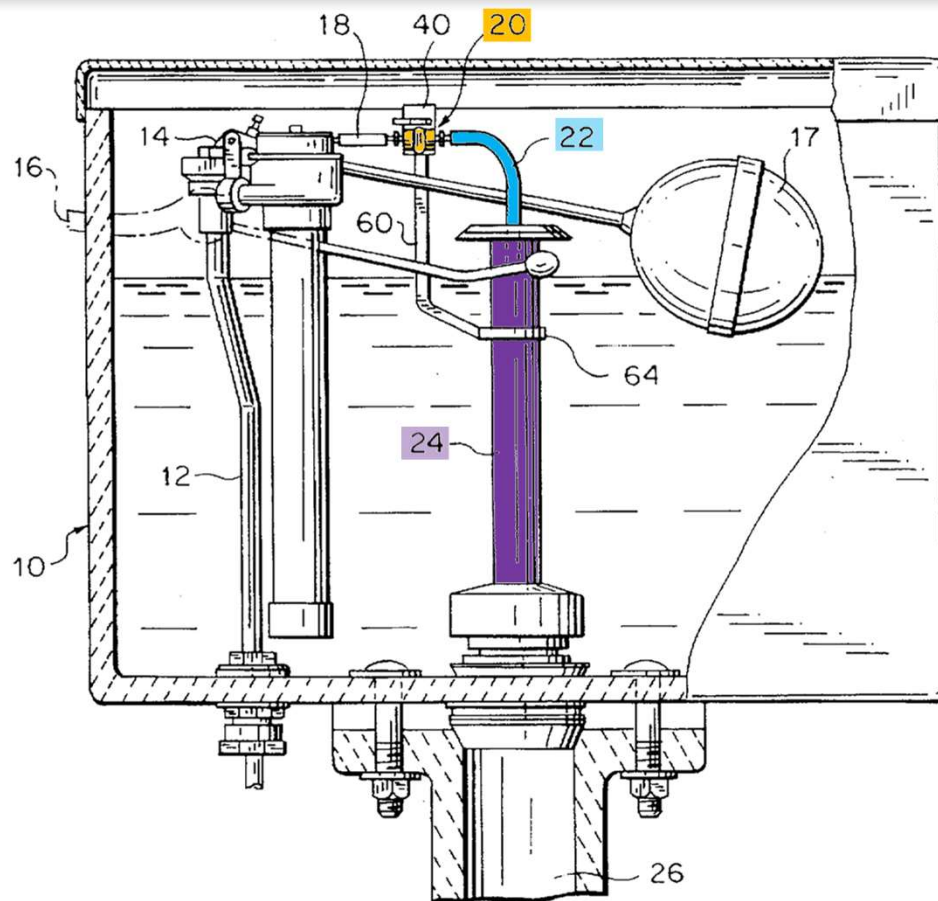
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Claimed Configuration is Conventional in the Art



(See, e.g., -633: EX1001, Fig. 3 (annotated))

(See, e.g., -634: EX1007, Fig. 3 (annotated))



U.S. Patent No. 5,715,860 to Horad et al. ("Horad")

Issued February 10, 1998

- Discloses a secondary valve (20) connected by a tube (22) to an overflow pipe (24).
- "The secondary valve 20 of the instant invention prevents [water wastage] by controlling the rate of water flow into the overflow pipe 24. By reducing the rate of water flow into the overflow pipe 24, the amount of water which can flow into the overflow pipe before the float 17 terminates the flow of water into the inlet tube 12 can be reduced substantially. This is because the reduced flow rate multiplied by time results in less water volume."

(-633: Paper No. 1, p. 18; EX1004, ¶ 307; EX1025, Fig. 1, 2:5-46)); see also EX2013, ¶¶ 100, 106-107, 110)
 (-634: Paper No. 1, p. 13; EX1004, ¶ 339; EX1025, Fig. 1, 2:5-46)); see also EX2013, ¶¶ 100, 106-107, 110)
 (-635: Paper No. 1, p. 11; EX1025, Fig. 1, 2:5-46)); see also EX2013, ¶¶ 79, 83-84, 87)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

3. “Adjust the Flow Rate” and Other “Flow Limitations”

“Adjust the Flow Rate” and Other “Flow Limitations”

U.S. Patent No. 9,139,993

U.S. Patent No. 10,934,698

The method of claim 1, wherein the water flow regulator comprises an adjustable water flow regulator that is configured to adjust the flow rate of the second portion of the water based at least in part on a setting of the adjustable water flow regulator

Patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
This patent is subject to a terminal disclaimer.

2,701,235 A
2,799,805 A
3,040,769 A
3,080,346 A

6,192,977 Smith
7,107,717 Schuster
6,196,212 Lamb
4,190,310 Brown

(Continued)

Patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
This patent is subject to a terminal disclaimer.

4,113,959 A
2,787,801 A
2,087,503 A

10,191,414 Schumann
1,191,101 Stranberg
7,193,717 Clemmons

(Continued)

The system of claim 14, wherein the water flow regulator comprises an adjustable water flow regulator that is configured to adjust the flow rate of the water based at least in part on a setting of the adjustable water flow regulator

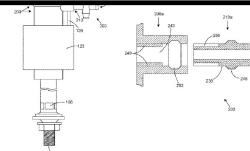
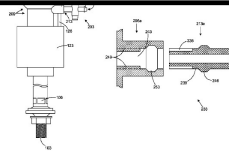
(58) Field of Classification Search
CPC F00D 1/32
E08D 1/32
USPC 4/331, 324, 366, 415, 675, 285/91;
137/15,26, 432, 434, 436, 437.

The bowl fill restriction restricts the flow of the second portion of the water. The bowl fill restriction provides the second portion of the water to a tube that is in direct contact with the bowl fill restriction. The tube provides the second portion of the water to a toilet tank overflow tube.

(51) Int. Cl.
E08D 1/00
E08D 1/34
B21P 15/00

Patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
This patent is subject to a terminal disclaimer.

“adjusting a flow of water out of the bowl fill valve”



(-633: EX1001, Claims 19 and 20)

(-635: EX1001, Claims 1, 8, 11, 12, 13 [described by PO as “Flow Limitations,” see Paper No. 26, pp.15-16])

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Experts Agree as to Definition of “Flow Rate” and Measurement of Volume

Mr. Jobin:

Q. And what does flow rate mean to you?

A. It's a simple engineering concept that a rate would indicate a **volume per unit time**.

Q. Is that a mathematical relationship that you're describing?

A. It's a -- it's a concept that helps us to understand fluidics. Here, for example, you could measure a certain number of milliliters per minute to determine how much -- what volume of water will flow through that system per unit time, so you could use whatever units are appropriate for the flow rate, but in this case it's -- **volume per unit time** is how one would understand the term "flow rate."

Q. And do you -- can you -- in that system, do you measure the volume of the water passing through at the source to see how much water enters the system?

A. Provided there are no losses in the system, **you can measure either at the beginning or at the end**. The same volume will pass through in that time. If there's leaks, that's a different matter, but **generally speaking, you could measure it either at the input or the output of the flow-control device**.

Dr. Cameron:

I note that neither PO nor its expert have offered a separate definition of “flow rate.” However, **I agree with Mr. Jobin that the plain and ordinary meaning of “flow rate” is “volume per unit time” of fluid passing through a flow control device**. See EX1037, 68:19–69:6. Moreover, when calculating flow rate, **I agree with Mr. Jobin that the volume can be measured at either the input or the output of the flow control device**. Id., 69:17–25.

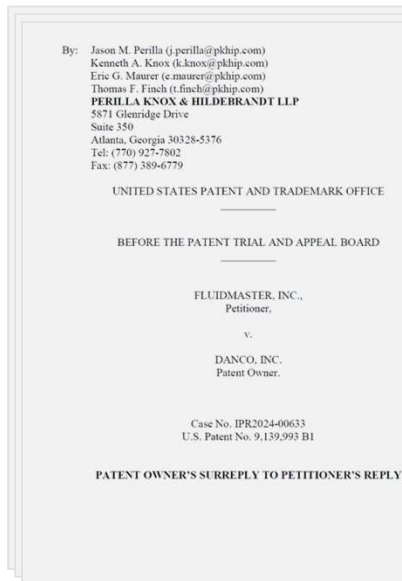
Dr. Cameron:

As an initial matter, **the claim language of the '698 Patent discusses adjusting the water flow, not specifically the “flow rate.”** To the extent that flow rate is a relevant concept here, **I agree with PO's expert that flow rate is generally understood as the volume of water through a conduit over a period of time**. See EX1037, 69:4-6.

(-633: Paper No. 30 at pp. 18-19; EX1037, 69:4-69:25; EX1036, ¶ 15)

(-635: Paper No. 30, pp. 11-14; EX1037, 69:4-69:25; EX1036, ¶ 29)

PO Agrees that Guoxin Discloses Means for Controlling *Volume*

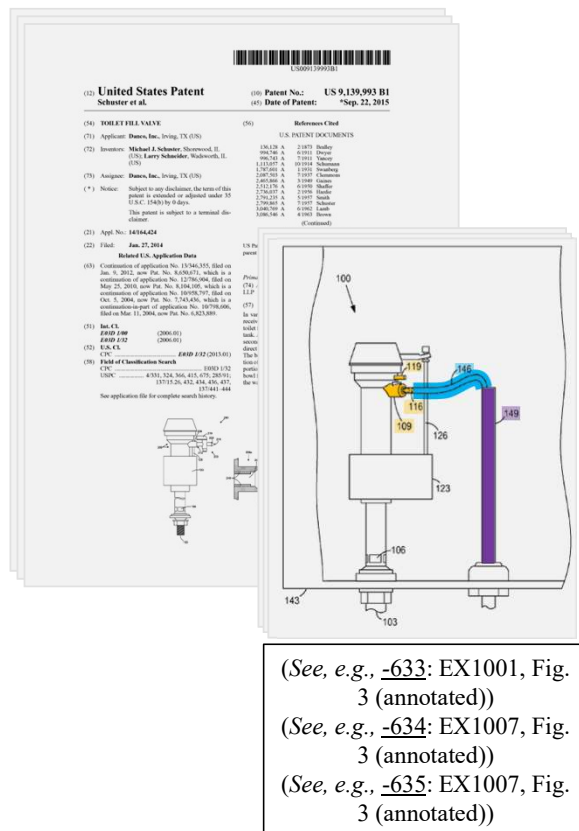


Guoxin discloses a mechanism to adjust *how long* water flows through the switching mechanism. Increasing the length of the valve stem (by loosening the T-shaped nut) causes the switching mechanism to open later and close earlier in the fill cycle. This reduces both the total *amount* of water entering the bowl and the total *time* water passes through the switching mechanism and, thus, has no impact on the *rate* water passes through the switching valve. The overall length of the fill cycle is irrelevant. EX2015, 88:5-89:1. Conversely, decreasing the length of the valve stem (by tightening the T-shaped nut) causes the switching mechanism to open earlier and close later. This increases both the total *amount* of water entering the bowl and the total *time* water passes through the switching mechanism and, again, does not impact the *rate* water passes through the switching valve. POR, 49 (citing EX2013, ¶¶196-97).

(-633: Paper No. 36, p. 19)
 (-635: Paper No. 38, pp. 7-8)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Specification Confirms that the Unit of *Time* is the Flush Cycle



Thus, the bowl fill valve **109** is configured to supply an adjustable flow of water **out of the bowl fill outlet 116 that is directed to a toilet bowl during a flush cycle of a toilet** to fill the toilet bowl. The flow of water is adjusted so that just **enough flows out of bowl fill valve 109** so as to fill the toilet bowl without wasting any water.

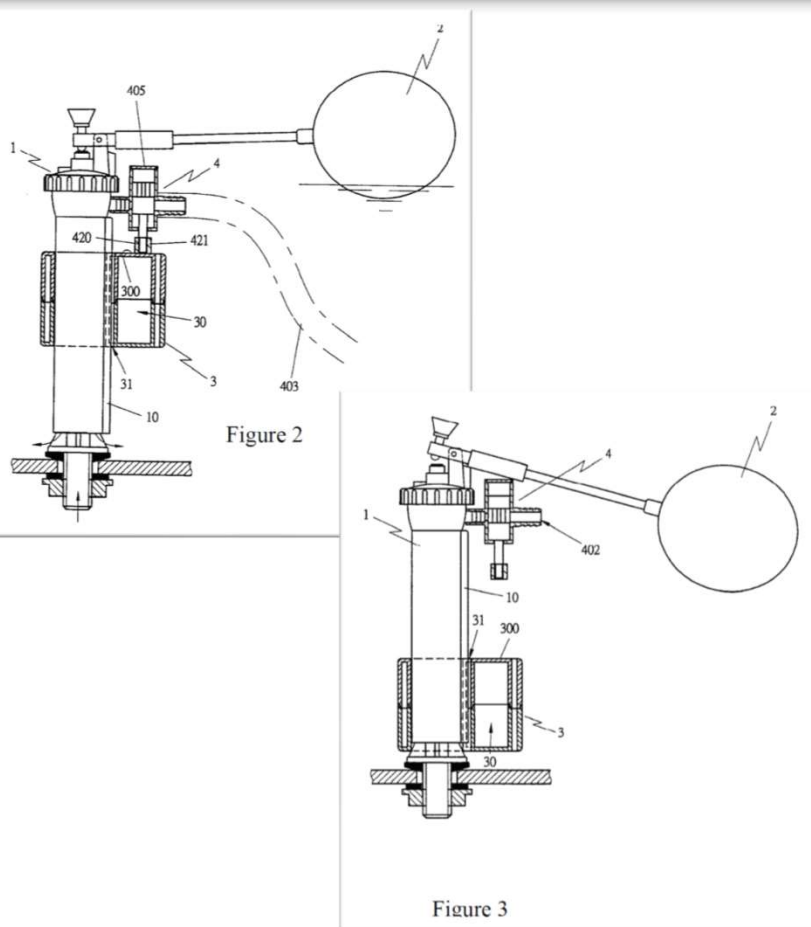
Ultimately, during use of the toilet that includes the toilet fill valve **100** and the toilet tank **143**, a user flushes the toilet and a predetermined flow of water exits the bowl fill valve outlet **116** and is directed into the toilet bowl. After the toilet tank has drained during the flush cycle, a flapper closes in the toilet tank and the toilet tank refills. During the refilling of the tank, the water supplied by the bowl fill valve **109** fills the toilet bowl itself. **The amount of water supplied by the bowl fill valve in the time it takes to refill the toilet tank** should be approximately equal to the amount of water needed to fill the toilet bowl. By virtue of the fact that the bowl fill valve **100** is

(-633: Paper No. 30 at pp. 18-19; EX1001, 2:40-45, 4:43-53)

(-635: Paper No. 30, pp. 11-14; EX1001, 2:47:52, 4:53-63)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Guoxin Discloses a Regulator Configured to Adjust the Flow Rate



Dr. Cameron's Testimony:

- “Thus, in my view, the relevant rate of water flow is the amount of water that leaves the bowl fill valve during refilling of the toilet tank divided by the time it takes to complete a flush cycle (the time it takes for the tank to return to full).”
- “In the case of Guoxin, the switching mechanism 4 reduces and then eliminates water flow to achieve a particular desired flow rate (amount of water exiting the bowl fill valve per the time to return the toilet to full). This flow rate is changeable by altering the setting of the T-shaped nut.”
- “As explained in Guoxin...Guoxin's switching mechanism 4 will change from closed to open (and open to closed) at a different particular height of water in the tank (the open position is shown in Figure 3 where water is also delivered to the bowl while the closed position is shown in Figure 2 where water is not being delivered to the bowl). For example, when the T-shaped nut is turned so that it is moved further down, the switching mechanism 4 will both open later and close earlier. Opening later and closing earlier both reduce the amount of water that exits switching mechanism 4 to be delivered to the toilet bowl. Turning the nut, therefore, does alter (in this case decreases) the amount of water exiting switching mechanism 4 and delivered to the bowl during the time it takes to refill the bowl (and hence in this case decreases the flow rate).”

(-633: Paper No. 30 at pp. 18-19; EX1036, ¶¶ 54-62; EX1016, Fig. 2 and 3)

(-635: Paper No. 30, pp. 11-14; EX1036, ¶¶ 28-39; EX1016, Fig. 2 and 3)

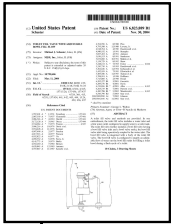
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

**4. Claims 1-18 of the '993 Patent and Claims
1-24 of the '105 Patent Are Not Entitled to
March 11, 2004 Priority Date**

PO First Used “Restriction” and “Regulator” in its Claims in 2014

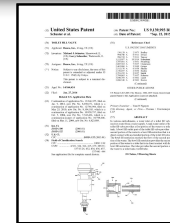
U.S. Patent No. 6,823,889, filed March 11, 2004

Uses term “bowl fill valve,” which is characterized as “adjustable”



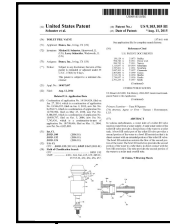
'993 Patent, filed Jan. 27, 2014

Replaces “bowl fill valve” with “bowl fill restriction” (and in 2015, with “water flow regulator”) that is characterized as “broader”



'105 Patent, filed Aug. 12, 2014

Uses the term “bowl fill restriction”



2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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(-633: Paper No. 1, pp. 92-102; Paper No. 30, pp. 25-28; EX1001; EX1012)

(-634: Paper No. 1, pp. 86-98; Paper No. 33, pp. 24-27; EX1001; EX1012)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

In 2004, PO Claimed to Have Invented an “Adjustable” Bowl Valve

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NUMBER: 10/796,006 FILING OR PRIORITY DATE: 03/15/2004 FIRST NAMED APPLICANT: Michael J. Schuster ATTORNEY DOCKET NUMBER: 175-803-0150 REQUEST ID: 5747

Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 10/15/2015 has been accepted.

CERTIFICATIONS:

Change of Entity Status:
☒ Applicant changing to register undocumented fee status.
 NOTE: Checking this box will be taken to be a modification of loss of entitlement to small or micro entity status, as applicable.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.604(d).

Signature: Michael J. D'Aurelio
 Name: Michael J. D'Aurelio
 Registration Number: 40977

[0009] Thus, the bowl fill valve 109 is configured to supply an adjustable flow of water out of the bowl fill outlet 116 that is directed to a toilet bowl during a flush cycle of a toilet to fill the toilet bowl. The flow of water is adjusted so that just enough flows out of bowl fill valve 109 so as to fill the toilet bowl without wasting any water.

[0012] The bowl fill valve 109 may be, for example, a ball valve, a gate valve, a globe valve, a plug valve, a diaphragm valve, a butterfly valve, a needle valve, a sliding gate, a quick turn valve, a knife valve or any other appropriate type of valve as can be appreciated by those with ordinary skill in the art.

[0016] 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. The tube 146 directs water that flows out of the bowl fill valve outlet 116 into the overflow tube 149 and refills the toilet bowl associated with the toilet tank 143 as can be appreciated by those with ordinary skill in the art. The bowl fill valve 109 is configured to supply the adjustable flow of water out of the bowl fill valve outlet through the tube 146 and into the overflow tube 149 for filling the toilet bowl during the flush cycle of the toilet. In this respect, no pressure is seen within the tube 146. Specifically, the fact that the bowl fill valve 109 is integral with the toilet fill valve 100 prevents the creation of a pressure head in the tube 146 as would be the case if the bowl fill valve 109 were included in the middle of the tube 146. The fact 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.

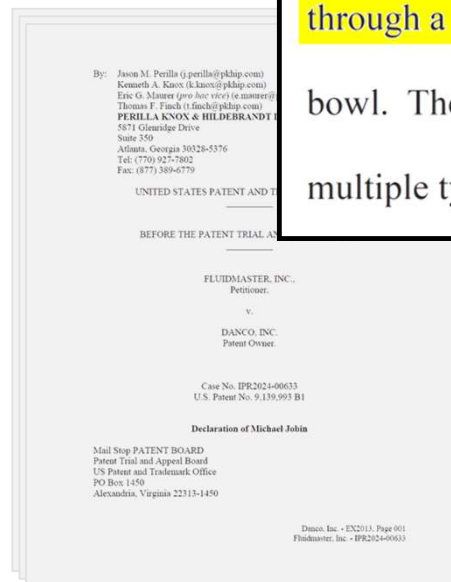
(-633: Paper No. 1, pp. 92-102; Paper No. 30, pp. 25-28; EX1012, pp. 47, 48)

(-634: Paper No. 1, pp. 86-98; Paper No. 33, pp. 24-27; EX1012, pp. 47, 48)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

PO's Expert Confirmed That a "Valve" is an "Adjustable" Device

281. A valve is typically an adjustable device that impacts the flow of a fluid through a system. Thus, a bowl fill valve is a valve that impacts the filling of a toilet bowl. The '606 Application contains numerous references to valves, including multiple types of bowl fill valves.



(-633: EX2013, ¶ 281)
 (-634: EX2013, ¶ 267)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Federal Circuit Precedent Confirms Priority Date Extends Only to That Which is Disclosed

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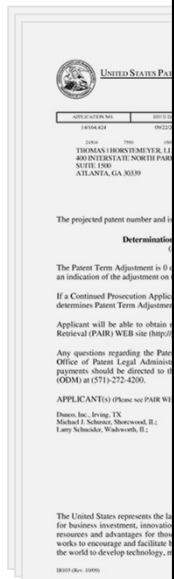


We do not agree. It is the disclosures of the applications that count. Entitlement to a filing date does not extend to subject matter which is not disclosed, but *1572 would be obvious over what is expressly disclosed. It extends only to that which is disclosed. While the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations must appear in the specification. The question is not whether a claimed invention is an obvious variant of that which is disclosed in the specification. Rather, a prior application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought. *See*

Lockwood v. Am. Airlines, Inc., 107 F.3d 1565, 1571–72 (Fed. Cir. 1997)
(–633: Paper No. 1, pp. 88-90); (–634: Paper No. 1, p. 83)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

By 2014, PO Claimed to Have Invented Something “Broader”



1. A system, comprising:
 - a toilet fill valve that comprises:
 - a body comprising an extended portion, wherein the extended portion is integrally molded with the body, wherein the extended portion forms a bowl fill outlet port;
 - a water inlet configured to receive water from a water source;
 - a tank water outlet configured to provide a first portion of the water to a toilet tank during at least a portion of a flush cycle;
 - a bowl fill restriction configured to attach directly to the extended portion of the body, wherein the bowl fill restriction is configured to receive a second portion of the water from the bowl fill outlet port during at least a portion of the flush cycle wherein the restriction is configured to constrict a flow rate of the second portion of the water that flows through the restriction; and
 - a tube that is configured to attach directly to the bowl fill restriction wherein the tube is configured to direct the second portion of the water from the bowl fill restriction directly to a toilet tank overflow tube.

REMARKS

At least some elements of the independent claims of the present application are broader in scope than elements in the claims pursued in the applications to which priority is claimed. For example, independent claim 1 of the present application recites, “a bowl fill restriction,” which is broader than “a bowl fill valve,” which is recited in independent claim 1 of Application No. 13/346,355.

To the extent that any prior amendments or arguments made during prosecution of the earlier applications could be construed as a disclaimer of any subject matter supported by the present disclosure, Applicants hereby rescind and retract such disclaimer. See *Hakim v. Cannon Avent Group, PLC*, 479 F.3d 1313 (Fed. Cir. 2007). Accordingly, the references previously presented in the applications to which priority is claimed may need to be revisited.

If the Examiner has any questions or comments, the Examiner is encouraged to telephone the undersigned attorney of Applicants.

PO's Expert Confirmed That a "Restriction" Can Be Fixed or Adjustable

285. Restriction is a concept of a geometry within a fluid system that hinders the flow of water, resulting in a pressure drop and reduced flow rate. As relevant to these proceedings, the term restriction is a generic term for something that restricts the flow of fluid through a system. It includes both adjustable devices (such as the typical valve) and static devices (such as the typical restrictor). Thus, a bowl fill restriction includes any device that restricts the flow of water from the toilet fill valve to toilet bowl.

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UNITED STATES PATENT

BEFORE THE PATENT

FLUID

Case 2:13-cv-00001

U.S. Pat.

Declarat

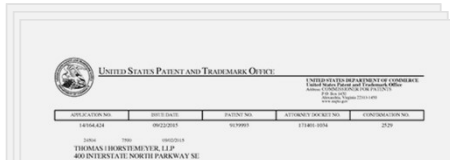
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(-633: EX2013, ¶ 285)

(-634: EX2013, ¶ 271)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

In 2015, PO “Stylistically Replaced” Its “Restriction” With a “Regulator”



a water flow regulator ~~a bowl fill restriction~~ configured to attach directly to the extended portion of the body, wherein a portion of the water flow regulator is configured to insert into, and come into contact with, the extended portion of the body, wherein the water flow regulator ~~bowl fill restriction~~ is configured to receive a second portion of the water from the bowl fill outlet port during at least a portion of the flush cycle, wherein the water flow regulator ~~restriction~~ is configured to constrict a flow rate of the second portion of the water that flows through the water flow regulator; ~~restriction;~~ and

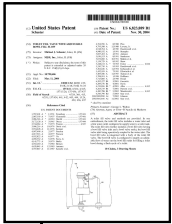
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In response, Patent Owner successfully argued that claims 4 and 17 satisfied the written description requirement, were definite, and specifically recited portions of the specification in highlighting the same. *Id.*, 35-37. Patent Owner also amended claims 1, 4-10, 12, and 15-19 to stylistically replace the term “bowl fill restriction” with “water flow regulator,” and Patent Owner successfully argued that the claims, as amended, are patentable over the combination of DeMarco and Gish on the basis that neither DeMarco or Gish were configured such that a water flow regulator was inserted into or came into contact with the extended portion of the body. *Id.*, 28-43.

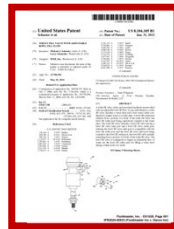
PO Has Not Shown that Certain of its “Restriction” and “Regulator” Claims Are Entitled to the 2004 Priority Date, and Therefore, Schuster (EX1010) Anticipates

U.S. Patent No. 6,823,889, filed March 11, 2004

Uses term “bowl fill valve,” which is characterized as “adjustable”

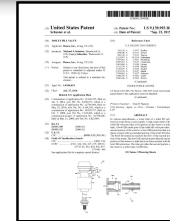


U.S. Patent No. 8,104,105, filed May 25, 2010, and issued Jan. 31, 2012 (EX1010), anticipates claims 1-18 of the '993 Patent and claims 1-24 of the '105 Patent



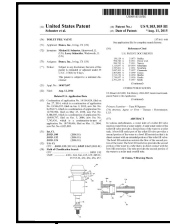
'993 Patent, filed Jan. 27, 2014

Replaces “bowl fill valve” with “bowl fill restriction” (and in 2015, with “water flow regulator”) that is characterized as “broader”



'105 Patent, filed Aug. 12, 2014

Uses the term “bowl fill restriction”



(-633: Paper No. 1, pp. 92-102; Paper No. 30, pp. 25-28; EX1001; EX1012; EX1010)

(-634: Paper No. 1, pp. 86-98; Paper No. 33, pp. 24-27; EX1001; EX1012; EX1010)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Other Issues

Brown Discloses a “Water Flow Regulator” / “Bowl Fill Restriction”

“A Water Flow Regulator” / “A Bowl Fill Restriction”

U.S. Patent No. 9,139,993

 US009139993B1	
(12) United States Patent Schuster et al.	(10) Patent No.: US 9,139,993 B1 (45) Date of Patent: *Sep. 22, 2015
(54) TOILET FILL VALVE	(56) References Cited

U.S. Patent No. 9,103,105

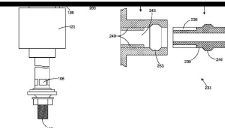
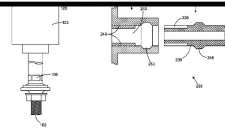
 US009103105B1	
(12) United States Patent Schuster et al.	(10) Patent No.: US 9,103,105 B1 (45) Date of Patent: *Aug. 11, 2015
(54) TOILET FILL VALVE	(56) References Cited

a water flow regulator configured to attach directly to the extended portion of the body, wherein a portion of the water flow regulator is configured to insert into, and come into contact with, the extended portion of the body...[and] a tube that is configured to attach directly to the water flow regulator

(22) Filed: Jan. 27, 2014
 Related U.S. Application Data
 (63) Continuation of application No. 13/346,355, filed on Jan. 9, 2012, now Pat. No. 8,650,071, which is a continuation of application No. 12/786,904, filed on May 23, 2010, now Pat. No. 8,104,105, which is a continuation of application No. 10/958,797, filed on Oct. 8, 2004, now Pat. No. 7,343,436, which is a continuation of application No. 10/280,466.
 Primary Examiner — Tuan N Nguyen
 (74) Attorney, Agent, or Firm — Thomas I Horstenmeyer, LLP
 (57) ABSTRACT

(22) Filed: Aug. 12, 2014
 Related U.S. Application Data
 (63) Continuation of application No. 14/164,424, filed on Jan. 27, 2014, which is a continuation of application No. 13/346,355, filed on Jan. 9, 2012, now Pat. No. 8,650,071, which is a continuation of application No. 12/786,904, filed on May 23, 2010, now Pat. No. 8,104,105, which is a continuation of application No. 10/958,797, filed on Oct. 8, 2004, now Pat. No. 7,343,436, which is a continuation of application No. 10/280,466.
 Primary Examiner — Tuan N Nguyen
 (74) Attorney, Agent, or Firm — Thomas I Horstenmeyer, LLP

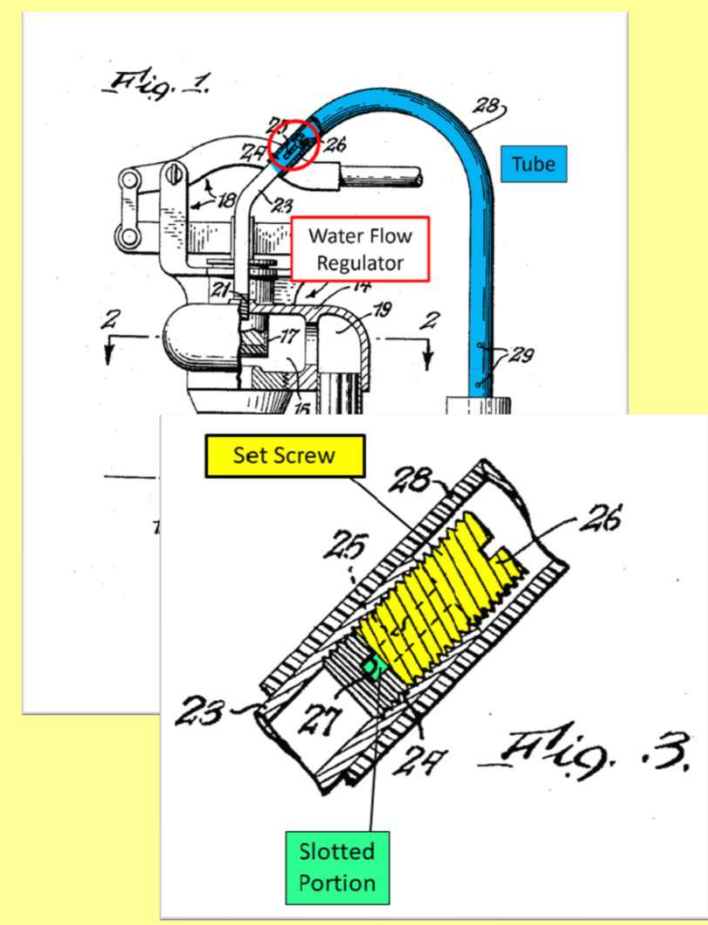
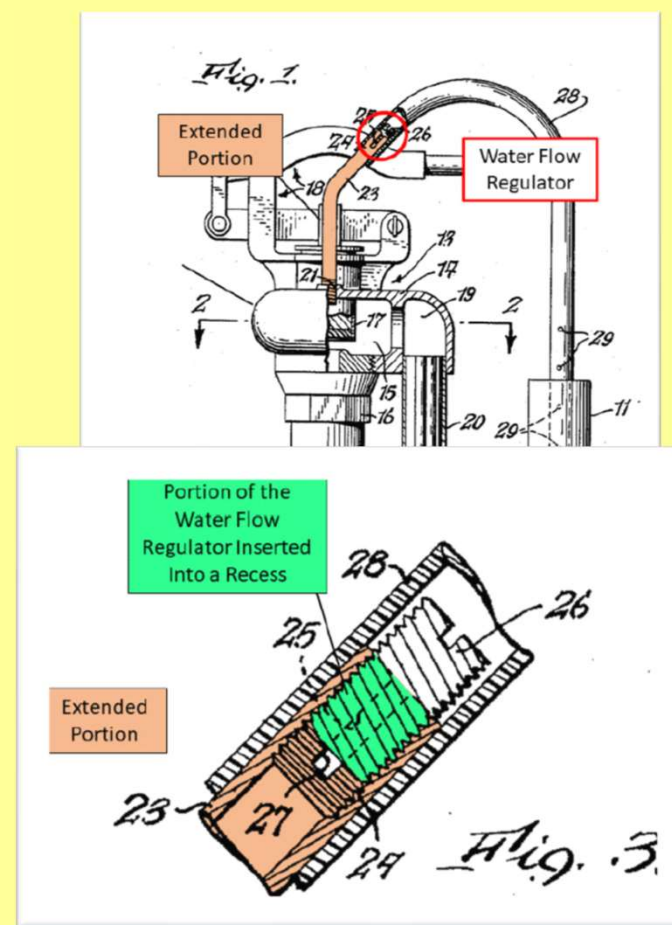
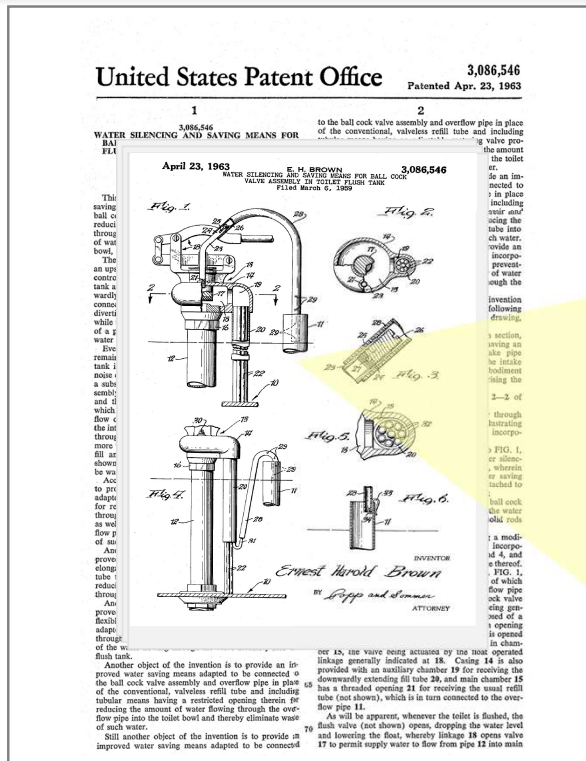
a bowl fill restriction configured to attach directly to the extended portion of the body, wherein the bowl fill restriction comprises a protrusion that is configured to insert into a recess in the toilet fill valve to lock the bowl fill restriction to the extended portion of the body...[and] a tube that is configured to attach directly to the bowl fill restriction



(-633: EX1001, Claim 1)
 (-634: EX1001, Claim 1)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Petition Identifies a Single Flow Device in Brown



(-633: Paper No. 30, pp. 21-22; Paper No. 1, p. 70-76; EX1004, ¶¶ 237, 239, 245, 247 (citing EX1021, Fig. 1 (annotated) and Fig. 3 (annotated)))

(-634: Paper No. 32, p. 21; Paper No. 1, p. 65-70; EX1004, ¶¶ 247, 264, 266 (citing EX1021, Fig. 1 (annotated) and Fig. 3 (annotated)))

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

**“An Actuating Arm...Angularly Offset
Relative to the Bowl Fill Valve...”**

“An Actuating Arm...Angularly Offset Relative to the Bowl Fill Valve...”

U.S. Patent No. 9,139,993



US09139993B1

an actuating arm coupled to the float, wherein the actuating arm extends radially relative to a longitudinal axis of the toilet fill valve, wherein the actuating arm is angularly offset relative to the bowl fill valve, thereby preventing an interference with the waterflow regulator and a translational stem that extends from the float to a free end of the actuating arm.

(22) Filed: Jul. 27, 2014

Related U.S. Application Data

(63) Continuation of application No. 13/346,355, filed on Jan. 9, 2012, now Pat. No. 8,650,071, which is a continuation of application No. 12/786,904, filed on May 23, 2010, now Pat. No. 8,104,105, which is a continuation of application No. 10/958,797, filed on Oct. 5, 2004, now Pat. No. 7,743,436, which is a continuation-in-part of application No. 10/786,606, filed on Mar. 11, 2004, now Pat. No. 6,823,889.

(51) Int. Cl.
F01D 1/00 (2006.01)

US Patent 6,823,889, File History, 2004-2005 Great-Great-Grand-parent Patent to this Application (copy not attached).
(Continued)

Primary Examiner — Tuan N Nguyen
(74) Attorney, Agent, or Firm — Thomas I Horstenmeyer, LLP

(57) **ABSTRACT**
In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the toilet fill valve provides a first portion of the water to a toilet tank. A bowl fill outlet of the toilet fill valve provides a



U.S. Patent No. 9,103,105



US09103105B1

an actuating arm coupled to the float, wherein the actuating arm extends radially relative to a longitudinal axis of the toilet fill valve, wherein the actuating arm is angularly offset relative to the bowl fill valve, thereby preventing an interference with the bowl fill restriction and a translational stem that extends from the float to a free end of the actuating arm.

(22) Filed: Aug. 12, 2014

Related U.S. Application Data

(63) Continuation of application No. 14/164,424, filed on Jan. 27, 2014, which is a continuation of application No. 13/346,355, filed on Jan. 9, 2012, now Pat. No. 8,501,071, which is a continuation of application No. 12/786,904, filed on May 23, 2010, now Pat. No. 8,104,105, which is a continuation of application No. 10/958,797, filed on Oct. 5, 2004, now Pat. No. 7,743,436, which is a continuation-in-part of application No. 10/786,606, filed on Mar. 11, 2004, now Pat. No. 6,823,889.

US Patent 6,823,889, File History, 2004-2005 Great-Great-Grand-parent Patent to this Application.
(Continued)

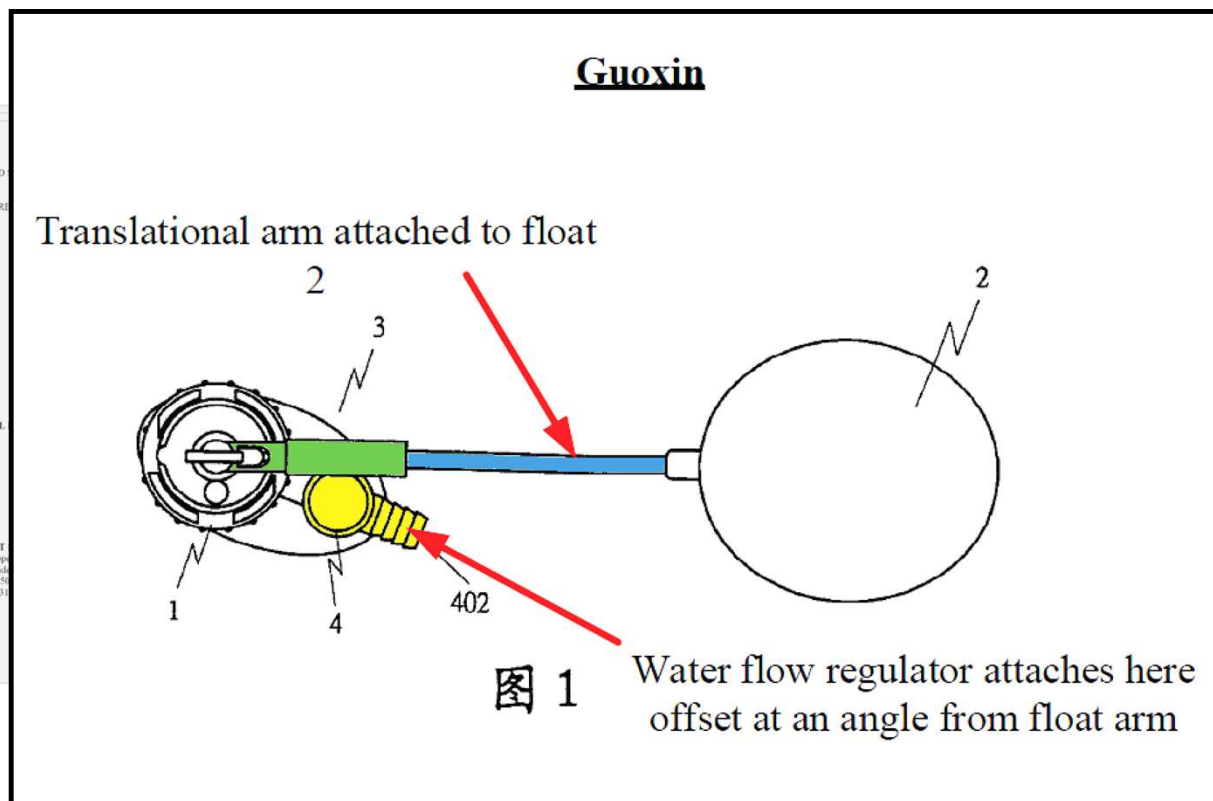
Primary Examiner — Tuan N Nguyen
(74) Attorney, Agent, or Firm — Thomas I Horstenmeyer, LLP

(57) **ABSTRACT**
In various embodiments, a water inlet of a toilet fill valve receives water from a water supply. A tank water outlet of the toilet fill valve provides a first portion of the water to a toilet



Guoxin Discloses “An Actuating Arm...Angularly Offset Relative to the Bowl Fill Valve...”

50



The translational stem (blue) extends from the float to a free end of the actuating arm (green) and therefore couples the actuating arm to the float, and the actuating arm is angularly offset relative to the switching mechanism 4 (yellow)

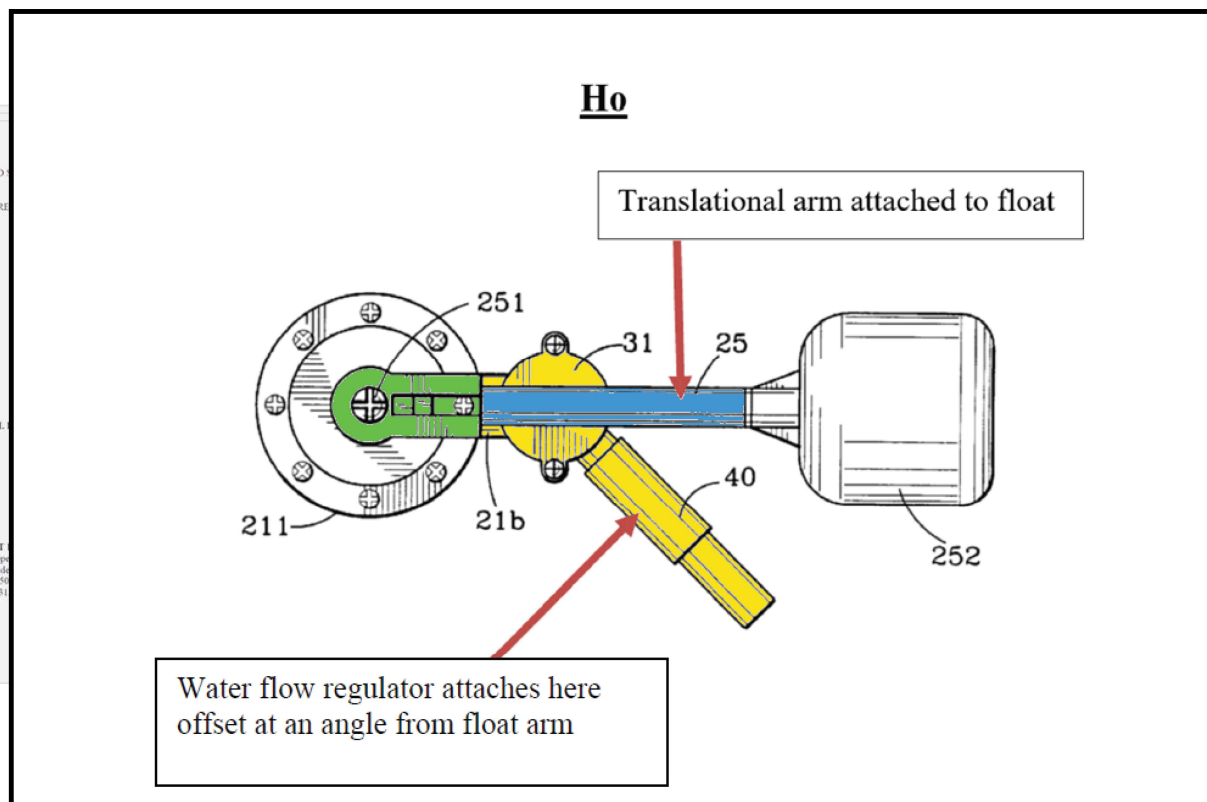
(-633: Paper No. 30, p. 15; EX1036, ¶ 46; EX1016, Fig. 1 (annotated))

(-634: Paper No. 32, pp. 16-17; EX1036, ¶ 46; EX1016, Fig. 1 (annotated))

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Ho Discloses “An Actuating Arm...Angularly Offset Relative to the Bowl Fill Valve...”

51



The translational stem (blue) extends from the float 252 to a free end of the actuating arm (green) and therefore couples the actuating arm to the float, and the actuating arm is angularly offset from Ho's diverter valve means 30 (yellow):

(-633: Paper No. 30, pp. 15; EX1036, ¶ 76; EX1022, Fig. 6 (annotated))
(-634: Paper No. 32, pp. 16-17; EX1036, ¶ 63; EX1022, Fig. 6 (annotated))

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE