

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)

Record of Oral Hearing
Held: June 10, 2025

Before MEREDITH C. PETRAVICK, JAMES A. TARTAL, and ROBERT
J. SILVERMAN, *Administrative Patent Judges*.

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

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P-R-O-C-E-E-D-I-N-G-S

(9:00 a.m.)

JUDGE PETRAVICK: Please be seated. It's going to take us a minute to log into the computer so we can see the record. Good morning. We are here today for oral argument in IPR 2024-00633, -00634 and -00635. My name is Judge Petravick, with me on the bench is Judge Tartal, and joining us remotely is Judge Silverman. I'm going to ask that when it is your turn to speak, you approach the podium and speak into the microphone, and don't move from the podium, in order for Judge Silverman to be able to hear you

Also, if you are using demonstratives, Judge Silverman may not be able to see the screen on the side of the hearing room, so it's important that you refer to what slide you're talking about. He does have a copy of the complete record and the slides, as do we, in front of us. With that, we'll have appearances, beginning with Petitioner.

MS. ACHARYA: Good morning, Your Honors. My name is Ranjini Acharya, I will be arguing on behalf of the Petitioner. I have with me Carolyn Toto, who is lead counsel for Fluidmaster, and backup counsel Evan Finkel as well.

JUDGE PETRAVICK: Welcome. And for Patent Owner?

MR. FINCH: Good morning Your Honors, my name is Thomas Finch, I'll be arguing on behalf of the Patent Owner, Danco Incorporated. Also with me is Jason Perilla who will be handling a portion of the argument. Jason is lead counsel.

JUDGE PETRAVICK: Great, thank you. I understand that Patent Owner has a LEAP request that was granted, so you will be given 75

1 minutes total, that's the 60 minutes plus the 15 minutes, and I believe
2 Petitioner has 60 minutes to argue. So with that, I would like to know,
3 Petitioner, would you like to reserve a certain amount of time for rebuttal?

4 MS. ACHARYA: Yes Your Honor, I'd like to reserve 20 minutes if I
5 may.

6 JUDGE PETRAVICK: 20 minutes okay. I have the clock set for 60,
7 that will include your 20. So I will give you a warning about five minutes
8 before your main argument time is up.

9 MS. ACHARYA: Understood, thank you.

10 JUDGE PETRAVICK: Great, and Patent Owner, do you want to
11 reserve some time for your rebuttal?

12 MR. FINCH: Yes Your Honor, we'd like to reserve 10 minutes,
13 please.

14 JUDGE PETRAVICK: Okay. With that, we'll get started.
15 Petitioner, you can approach the podium and begin whenever you are ready.

16 MS. ACHARYA: Thank you, Your Honor. Again, it's Ranjini
17 Acharya on behalf of the Petitioner, Fluidmaster. Well, we are here today to
18 talk about the ancient art of toilet tanks. As you can see here on slide two,
19 there are three patents at issue in the proceedings. I will be referring to these
20 as the '993 Patent, the '105 Patent, and the '698 Patent, and every claim of
21 each of these patents has been challenged in the petitions.

22 To first give the Court a brief overview of the subject matter of the
23 patents, Your Honors will be familiar with the '993 Patent. Figure 1 of the
24 '993 shows an embodiment of the invention. Here on Slide 3, we're
25 showing Figure 3 of the '993 Patent. This shows the toilet fill valve as
26 installed within a toilet tank. So just to orient the reader to what we're

1 seeing here, on the left hand side is a toilet fill valve, which is the primary
2 way in which the toilet tank is refilled once the flush cycle begins. So you
3 begin by pressing the lever on your flush, the water in the tank exits, goes
4 into the bowl, the waste is removed, the toilet tank begins to refill through
5 103 and then out through the holes at 106. Because that water comes in
6 under pressure, some of it goes to the top of the fill valve and exits through
7 what Patent Owner has described as the bowl fill valve, 109, and through the
8 tube 146, into an overflow tube. And that is the primary way in which the
9 water then enters the bowl and refills the bowl, ready for use again.

10 If we turn to Slide 4, here you can see the descriptions of the tube and
11 the overflow tube, and as the Specification of the patent describes, the tube
12 146 directs water that flows out of the bowl fill valve outlet 116 into an
13 overflow tube and refills the toilet bowl associated with the toilet tank, as
14 can be appreciated by those with ordinary skill in the art. So to be clear, the
15 components that you see here, the fill valve, the float mechanism, which is
16 123, which is responsible for shutting off the fill valve once the tank is full,
17 the overflow tube, these are all conventional components, generic
18 components that have been in toilet tanks for decades.

19 What the patents are directed to is a system and method by which to
20 regulate the amount of water that enters the bowl, and that is done through
21 the bowl fill valve, which we've annotated here in orange on Slide 5. And
22 what this does is allows for an adjustable amount of water to enter tube 146,
23 overflow tube 149, and that way you're either increasing the volume of
24 water to ensure that the waste is flushed out, or decreasing it so that you're
25 not wasting excess water down the drain on a bowl refill.

1 The primary prior art references beginning on Slide 6 that are outlined
2 in the petition, we'll start, and I think we will spend a fair bit of time today
3 talking about the Guoxin reference, G-U-O-X-I-N. This is Exhibit 1016 to
4 the petition, it also appears at Exhibit 2007, and this is a patent that was
5 published in 2001. As you can see, Guoxin also discloses a mechanism by
6 which the amount of water that exits the fill valve and enters the toilet bowl
7 via 243, it discloses a mechanism for adjusting that volume of water as well.

8 The second primary prior art reference that is one of the grounds in
9 each of the petitions is Brown, Exhibit 1021. This is a patent that was issued
10 in 1963, and again in the figures of this patent, you can see the generic toilet
11 components that I've mentioned already, including the tube in blue that
12 directs the water into an overflow tube, which we've annotated there in
13 purple. Inside the tube, we've annotated in orange here another similar
14 regulator mechanism, which in this case is directed to saving water, and so
15 decreasing the amount of water that enters the toilet bowl. Now, a focus of
16 the claims --

17 JUDGE PETRAVICK: Counsel?

18 MS. ACHARYA: Yes?

19 JUDGE PETRAVICK: Before you move on, is there anything special
20 about the tube 146 that is disclosed in the Specification of the patent that
21 would make it configured to attach to the bowl fill tube? Like is there an
22 attachment mechanism? What is the structure of the tube 146 disclosed in
23 the issued patents

24 MS. ACHARYA: Thank you, Your Honor. There is no special
25 features of the tube 146. The patent discloses that it connects to the outlet
26 port 116, and then is directed to the overflow tube, but it is essentially just a

1 tube, and that configuration, as we'll get into, are the regulator tube and
2 overflow tube, is conventional.

3 JUDGE PETRAVICK: So it's not disclosed having any special shape
4 or connection so that it connects or somehow directs the water to the overflow
5 valve tube? Is it just a tube?

6 MS. ACHARYA: Yes, Your Honor.

7 JUDGE PETRAVICK: Does it tell us what it's made of?

8 MS. ACHARYA: No Your Honor, there are no materials mentioned
9 for any of the components.

10 JUDGE PETRAVICK: And under normal circumstances, how is that
11 tube attached to the, in a normal toilet, attached to the tube? I'm sorry, the
12 overflow, the 149.

13 MS. ACHARYA: So it can take a variety of different forms. It can
14 just be directed to the overflow tube so that it just physically sits on top of
15 the overflow tube, it can be affixed by means of a clip, and that is something
16 that we will see in Brown, and it sometimes has other mechanisms that you
17 see in Slide 7 here, where it may have some holes, and that's designed to
18 prevent it siphoning off under pressure.

19 JUDGE PETRAVICK: So is it fair to say that in tubes at this port
20 they're just flexible tubes that -- I assume they're flexible so they can fit in
21 all different size --

22 MS. ACHARYA: Correct, Your Honor.

23 JUDGE PETRAVICK: The overflow tubes. And so we're just looking
24 for a tube that is flexible and long enough to fit in one of these things?

25 MS. ACHARYA: That's right, Your Honor.

1 JUDGE PETRAVICK: Because -- and it's fair to say that those tubes
2 come in all sorts of different shapes, sizes, and placements in toilet bowls?

3 MS. ACHARYA: That's right, Your Honor. My understanding, I'm
4 not an expert in toilet tanks, but my understanding is the primary purpose of
5 having it configured in this way is in the event that the toilet fill valve, the
6 valve on the -- let me go back to Figure 3. I'm on Slide 5 here, if the fill
7 valve on the left of this diagram fails for some reason and it doesn't shut off
8 as the float rises, what the arrangement of having that first tube and then the
9 overflow tube does, is that it ensures that the toilet tank doesn't overflow
10 ever, because you've got a narrow tube leading to a tube with a wider
11 diameter, and so any excess water will just go into the bowl and drain out
12 through gravity.

13 JUDGE PETRAVICK: Thank you.

14 MS. ACHARYA: So returning then to Slide 8, as I mentioned, one of
15 the focuses of the patents and the claims is the attachment mechanism of the
16 adjustable bowl fill valve to the toilet fill valve. And there are a number of
17 figures in the challenged patents, including the '993 Patent, that disclose a
18 number of different ways of connecting these two components together.
19 We've called out Figure 5B there, you can see it say slot and gap mechanism
20 that slides in there, and so we will see in the prior art where these kinds of
21 arrangements are present, and we've called out here the third of our primary
22 prior art references, which is Exhibit 1022, Ho, from 1999.

23 And finally, on Slide 9, we've summarized here the remainder of the
24 primary prior art references, which we refer to in the petition as the quick
25 connection art. These are patent references that we've collected together
26 that deal with components, fluid flow connectors. So in the context of

1 moving fluid through a conduit, what kinds of connections are disclosed in
2 the prior art? And these are the examples that are highlighted in the petition,
3 showing the various configurations of either slot card designs or male to
4 female connections, and we refer to those throughout as the quick
5 connection art.

6 I want to now turn to what I believe are the four main issues before
7 the Court here today. There are a number of other issues, and I'm happy to
8 take questions on any of them, but where I think the primary discussion will
9 focus on is one, whether the extended portion of the toilet fill valve to which
10 the bowl fill valve is affixed, must that comprise a plastic structure? The
11 second is, does the prior art disclose a tube that is configured to direct the
12 water to an overflow tube? The third is whether flow rate is measured over
13 the time it takes the tank to refill, and then finally, has the Patent Owner
14 shown that certain claims of the '993 and '105 Patents are entitled to that
15 early 2004 priority date?

16 So I'll start with the extended portion issue, and again, I'm happy to
17 take questions on the other issues as well. So Slide 12 summarizes the
18 portion of the claim limitation where this phrase appears. The relevant
19 phrase is, wherein the extended portion is integrally molded with the body of
20 the toilet fill valve. And this appears in Claims 1, 8, and 14 of the '993
21 Patent, and 1, 9, and 15 of the '105 Patent.

22 At Slide 13, I'm showing here the Board's construction. So the Board
23 already looked at the phrase integrally molded with, as part of your
24 institution decision. We as the Petitioner had set forth a construction that
25 allowed for the pieces to be created separately and attached together later.
26 The Board rejected that and said we're persuaded by Patent Owner that the

1 phrase integrally molded with should be construed to mean molded together
2 as a single structure, and to exclude items created as separate pieces and
3 attached together later. And the evidence shows that the primary art
4 reference of Guoxin discloses this type of extended portion that is indeed
5 integrally molded.

6 So in Slide 14, we have summarized for you the evidence that is cited
7 both in the petition and in Petitioner's Reply. Our expert, Dr. Cameron,
8 testified that if you look at Figures 3 and 4 of Guoxin, you see there an
9 extended portion that was annotated in orange.

10 JUDGE TARTAL: Counsel, could I just interrupt briefly?

11 MS. ACHARYA: Yes.

12 JUDGE TARTAL: On Slide 13 where you have the Board's
13 construction of integrally molded, does Petitioner still dispute that
14 construction, or is that no longer an issue that needs to be resolved?

15 MS. ACHARYA: Respectfully, we disagree with the construction,
16 but certainly for the -- and we set out in the petition why we believe that the
17 construction should encompass both scenarios, but for the purposes of the
18 Reply and the hearing, we've provided evidence that even under the Board's
19 construction, the prior art has the integrally molded extended portion.

20 JUDGE TARTAL: Were there grounds that relied on Petitioner's
21 construction that fail under the construction on Slide 13?

22 MS. ACHARYA: No Your Honor, we've provided under both
23 theories.

24 JUDGE TARTAL: Thank you.

25 MS. ACHARYA: So returning then to Slide 14, Dr. Cameron, our
26 expert, testified that this orange portion is the extended portion, and she

1 testified that the reason is really there is nothing to indicate another separate
2 connection between this orange portion and the body of the toilet fill valve.
3 If you think about the toilet tank and the various components that are
4 operating under pressure here, if that extended portion that Dr. Cameron has
5 highlighted were to be created as a separate piece and screwed in or attached
6 some other way, that would negatively impact reliability of the connection
7 because you're actually introducing another point of weakness into the
8 system. It would also increase the cost of manufacturing, and it would
9 increase the complexity, because rather than having a toilet fill valve with
10 that extended portion already present as part of a single structure, you're
11 now creating the toilet fill valve, attaching the extended portion, and then
12 attaching the switching mechanism of Guoxin to it.

13 But we did also provide evidence that while Petitioner believes that
14 Guoxin alone satisfies the element, to the extent that Patent Owner argues
15 that the extended portion in Figures 3 and 4 of Guoxin is not integrally
16 molded, then Ho clearly discloses this. And this is summarized for you at
17 Slide 15. Dr. Cameron testified that if you look at the figures of the Ho
18 reference, particularly Figures 3 and 5 with the annotations we've
19 reproduced here at Slide 15, you will see an extended portion that comes out
20 from the body of the fill valve is integral with that fill valve, and in this case,
21 what Ho describes as the diverter valve, that second valve slots into place,
22 with the extended portion being like a lobster claw, and the diverter valve
23 just slotting in there. And that's what you see in the bottom figure with the
24 annotations.

25 Dr. Cameron also provided testimony that establishes there would be
26 a motivation to combine these two references. She noted that both Guoxin

1 and Ho are directed to control and the volume of water that enter the toilet
2 bowl, and that if you integrally mold the portion that we saw in Guoxin in
3 the manner that is taught by Ho, that would be advantageous in terms of
4 improving that overall strength and integrity of the construction.

5 Dr. Cameron provided additional testimony in her supplemental
6 declaration to just make this, the evidence here crystal clear. She noted that
7 as with Guoxin, forming the extended portion of Ho as a single structure
8 would be an insignificant step in terms of manufacturing complexity. And
9 so she concluded that one of ordinary skill would understand, the reason that
10 you have it as a single structure with the body of the fill valve is so that you
11 can then just slot in the switching mechanism to the fill valve, and not have
12 an additional point of weakness between the restrictor and the fill valve.

13 Now, you will hear from Patent Owner today that the construction that
14 the Board provided of integrally molded, meaning molded together as a
15 single structure, that word molded must denote plastic structures, and we
16 believe that this is an improper narrowing of the Board's construction. And
17 at Slide 18, we have summarized for you the arguments that were made in
18 the papers on this point. And the key thing I want to note here is that if
19 molded has a much more specific meaning of a plastic structure, there has to
20 be some evidence for that in the record, and there just isn't. There is no
21 intrinsic evidence that Patent Owner has pointed to, there is no mention of
22 plastic in the claims of any of these patents. Your Honor asked earlier about
23 the material of the tube, there's no mention of plastic or any other material in
24 the Specification either. There was no mention of plastics materials in the
25 prosecution, and certainly there's no record of the Patent Owner arguing
26 around other prior art references during prosecution based on that prior

1 structure not being made of a plastic material. This was not an issue that
2 Patent Owner ever raised in any of the intrinsic record on these patents.

3 And at Slide 19, we make the point also that there is no extrinsic
4 evidence for Patent Owner's position. If molded has a narrower meaning of
5 plastic only, which is what Patent Owner's expert opined, you would expect
6 to see a dictionary treatise engineering handbook, something that would
7 support that view. The only evidence that was provided on this point
8 comprised citations to Dr. Cameron's deposition testimony, and as we've
9 outlined in the papers, the deposition testimony actually does not support
10 Patent Owner's position. Dr. Cameron was asked specific questions about
11 injection molding, which is a specific process, and she answered those
12 questions, and she also testified that plastic structures could be machined.
13 So certainly there isn't this clear line of demarcation that Patent Owner is
14 pointing to in support of their position that molded must mean plastic.

15 JUDGE TARTAL: Counsel, can I just ask, is Ho limited to non-
16 plastic materials?

17 MS. ACHARYA: Ho is silent as to the material composition, and
18 what we found as we developed the record was initially, Patent Owner's
19 expert in his original declaration went to some pains to point out certain
20 features in the figures of Ho that he thought indicated it was made out of
21 metal, not plastic. During his deposition, he made some references to certain
22 components in fact being plastic, and then when asked follow up questions,
23 he said he couldn't tell. So there is nothing in the record that establishes in
24 our view that Ho is made of plastic or metal.

25 JUDGE TARTAL: Thank you, Counsel.

1 MS. ACHARYA: So at Slide 20, we've again summarized that Dr.
2 Cameron's testimony, Petitioner's expert, has provided testimony that is
3 consistent with the Board's construction. If you say integrally molded with
4 should be construed to mean molded together as a single structure, and
5 what's important here is the Board excluded items created as separate pieces
6 and attached together later, then what we're really talking about here is
7 molding in the sense of being created or formed as single structure, and
8 certainly Dr. Cameron has testified that with both Guoxin and Ho, you are
9 forming creating that extended portion as a single structure with the body of
10 the fill valve.

11 I will briefly just anticipate, I believe Patent Owner in their Reply
12 raised the Federal Circuit decision of *Nordt* -- I apologize, I see Judge
13 Silverman is off screen. Would you like me to pause?

14 JUDGE PETRAVICK: Judge Silverman, you're pixelated in the
15 hearing room, but can you see us?

16 JUDGE SILVERMAN: I apologize (audio interference), but I can
17 hear you fine.

18 MS. ACHARYA: I will continue then.

19 JUDGE PETRAVICK: It's okay. Just because the Judge might be
20 pixelated in here doesn't mean that he can't see us clearly.

21 MS. ACHARYA: Okay, thank you. So as I was saying, Patent
22 Owner raised the *Nordt* decision in their Sur-reply, and so I want to just
23 briefly touch on that before I move on to say the Board has considered *Nordt*
24 previously, and in the *Axioma Metering* case, the citation for which is
25 provided on Slide 21, the Board confronted this very issue of how to
26 construe a limitation that in that case was cast in one piece, and there the

1 Patent Owner argued that there were clear structural differences between a
2 knee brace made with fabric components and a knee brace made with
3 injection molded components, and so the Specification conveyed a structural
4 meaning to the term injection molded.

5 And so to the extent -- it's not clear to us, but to the extent Patent
6 Owner is now making the argument that molded here is a structural
7 limitation requiring that construction of the material that's involved, we
8 would push back on that and say no, the Board has considered these kinds of
9 arguments before. And where there is nothing in the record to indicate that
10 it is a structural limitation, there's nothing in the claims, in the
11 Specification, in the prosecution history, the correct approach is to treat it as
12 a process limitation with no patentable weight to the claim. And so as long
13 as the prior art discloses something that is molded as a single structure,
14 which we believe means created or formed as a single structure, that will
15 satisfy the claim limitation, irrespective of the materials used to produce that
16 component.

17 If there are no other questions on integrally molded, I'll move on to
18 overflow tube. The second issue I think that we will spend some time on
19 today is the overflow tube issue, to paraphrase. Now, the language of the
20 claims is important here. We have several claims that refer to a tube
21 configured to direct water directly to a toilet tank overflow tube, others
22 describe it as providing water to the toilet tank overfill tube. Still others
23 describe it as a tube that provides water to an overflow tube, and we've
24 summarized on Slide 23 the claims in which this language appears.

25 And I'd like to start by pointing out that the overflow tube here is not
26 a claimed structure in the claim language itself. If you look at, for example,

1 Claim 1 of the '993 Patent, and I apologize, it's not in the slides, but you
2 will see there that it's a structural claim that sets out three key features of the
3 claimed toilet fill valve, and that the third of these elements is a tube, and
4 then it goes on to say a tube configured to direct water to an overflow tube.
5 And so the only time that the phrase overflow tube appears is as a reference
6 point to the configuration and purpose of that first tube. And this is directly
7 analogous to the *Eko Brands* case from the Federal Circuit in 2020, where
8 the Federal Circuit confirmed that if you have a claim that recites, in this
9 case a beverage brewing device, for use with a single-serve beverage brewer,
10 and if you look further down in the claim we've got it on the right hand side,
11 later in the same claim there was language around various elements being
12 configured to receive an outlet probe of the single-serve beverage brewer
13 configured to receive an inlet probe of the single-serve beverage brewer.

14 And so in this circumstance we have very similar claim language
15 where different elements are being defined by their relationship to the
16 single-serve beverage brewer, but that Federal Circuit decision confirmed
17 that single-serve beverage brewer is not part of the claims in this instance.
18 And that's directly analogous here, where the overflow tube is really just
19 there, as we say on Slide 25, to serve as a reference point to define the
20 purpose and structure of that first tube.

21 JUDGE SILVERMAN: Counsel, this is Judge Silverman, can you
22 hear me?

23 MS. ACHARYA: I can, Your Honor.

24 JUDGE SILVERMAN: Thank you. The *Eko Brands* case, on that
25 page 1377, says that there is nothing in the prosecution history suggesting

1 that “the beverage brewery itself is part of the claim.” Is that the case in the
2 patents before the Board today?

3 MS. ACHARYA: I believe that there were some instances where the
4 Examiner did point in the prior art to the presence of an overflow tube, but
5 the primary focus of the discussion in the prosecution history was always the
6 function and features of what I’ll term the bowl fill valve, later the bowl fill
7 restriction, and then the water flow regulator, but certainly when the
8 Examiner was examining the claims, they did look in the prior art and point
9 to an overflow tube in some instances, yes.

10 JUDGE SILVERMAN: So the Examiner did map the overflow tube
11 to some element in the prior art reference, is that right?

12 MS. ACHARYA: Yes Your Honor, but there were no substantive
13 arguments made, either by the Examiner or the Patent Owner on that point.

14 JUDGE SILVERMAN: Thank you.

15 MS. ACHARYA: And so you know, where the issue arises is
16 Guoxin, which is one of the primary prior art references, does not explicitly
17 disclose or show an overflow tube in its spheres. However, there is evidence
18 that the tube in Guoxin, which is the tube labeled 403 here, is in fact
19 configured to direct that water from the switching mechanism to an overflow
20 tube, and what the testimony of Dr. Cameron established is, that would be
21 conventional in the art.

22 And there’s two primary pieces of evidence that support that
23 testimony. One is that Guoxin at Exhibit 1016, page 2, lines 17 and 18,
24 describes the water in tube 403 being directed to supply water to the bowl,
25 and that is the purpose of the switching mechanism is Guoxin, is to control
26 the volume of water that’s entering the bowl. And secondary to that, at Slide

1 26 still, is that Dr. Cameron testified in her deposition, that water enters the
2 bowl conventionally in these toilet tank systems through the overflow tube.
3 So to the extent that Guoxin is saying, we are creating a switching
4 mechanism that controls the volume of water entering the bowl, the water
5 goes from the switching mechanism to a tube 403, it is conventional in the
6 art that that tube would then be directed to an overflow tube.

7 And the reason we know that it's conventional in the art is because the
8 prior art confirms this. So at Slide 27, we have pulled out a figure here from
9 the Brown reference. This is Exhibit 1021, and you can see here, there's
10 actually two figures in Brown. We looked at Figure 1 earlier that had a
11 different version of the flow restrictor. Here you see in Figure 4 another
12 embodiment, and there's a flow restrictor 31 that is connected again by a
13 first tube and into an overflow pipe, in this instance. And at Slide 28, we
14 have reproduced here another reference that was cited in the Petition and
15 also in Dr. Cameron's declarations. This is the patent to Horad, it forms part
16 of the technical background that's covered in the Petitions. And again, you
17 see Horad is directing water into the bowl and controlling the amount of
18 water that enters the bowl, and it does that through a secondary valve 20
19 connected to a first tube 22, directed to an overflow pipe 24.

20 So these, as I started at the beginning of my remarks, these are generic
21 toilet components. People have been trying to solve the problem of
22 controlling the amount of water that enters the bowl, to achieve that balance
23 between enough to get rid of the waste, but not so much that you're losing
24 gallons of water on every flush. That's been a problem that people have
25 been trying to solve for a long time, and the conventional configuration has

1 always been this idea of a valve mechanism affixed to the toilet fill valve,
2 directing that water to a tube that then goes into an overflow tube.

3 JUDGE SILVERMAN: All right Counsel, this is Judge Silverman
4 again, I've got another question. Can you hear me?

5 MS. ACHARYA: Yes I can, Your Honor.

6 JUDGE SILVERMAN: I see that in Brown and in Horad, the element
7 that corresponds to the overflow tube extends above the water level, whereas
8 in Guoxin, the tube number 403 that's being discussed is below the water
9 level, which I can see the float, and is going down, it's directed down. So
10 how would an overflow tube even fit into the Guoxin design?

11 MS. ACHARYA: That's a very good point, Your Honor, and what I
12 would say on Guoxin is, we don't see the terminus point of 403, and if you
13 look at that figure what you'll see is, initially it's horizontal, then it
14 descends, and then it's effectually shown with a bend. And Patent Owner's
15 expert also acknowledged in his deposition that it potentially starts to curve
16 back up. Now, without seeing the remaining components of the size of the
17 toilet tank and the size of the fill valve relative to the toilet tank, it's hard to
18 know whether there is or isn't additional room, but certainly the prior art
19 shows these tubes being bent and shaped in all sorts of ways to fit the
20 configuration.

21 I'm showing here Slide 27, this is a much narrower set up than what
22 you see even in the patent on left hand side, where the overflow tube and the
23 fill valve are spaced very close to one another, and so the overflow tube is
24 doing a very sharp ascent from the point of attachment down into the
25 overflow tube. So our position is, while Guoxin doesn't show the
26 connection point of tube 403 to an overflow tube, there's nothing to suggest

1 that it couldn't happen, and in fact that slight bend upwards tends to suggest
2 that it is going to go back up and into an overflow tube.

3 JUDGE SILVERMAN: Thank you.

4 MS. ACHARYA: If there are no other questions, I'd actually like to
5 move to the next issue, but I'll pause there.

6 JUDGE TARTAL: Counsel, if I could just follow up on the last
7 question, do you have a picture of Guoxin in your slides that shows the
8 image that was just being discussed?

9 MS. ACHARYA: This is at Slide 26, I'm not sure that I have a larger
10 version of Figure 2. Let me check.

11 JUDGE TARTAL: In Slide 26, in the Figure 2 of Guoxin, so the blue
12 is the tube and it indicates it is below the water level. Is it clear from
13 Guoxin how the retention basin, not the bowl, but the retention basin is
14 filled?

15 MS. ACHARYA: By retention basin you mean the toilet tank?

16 JUDGE TARTAL: The toilet tank, yes.

17 MS. ACHARYA: Yes, it does. So if you look at Figure 2, you'll see
18 a number of arrows -- and I'll walk over to the screen. I apologize, Judge
19 Silverman, but for those in the room, these arrows down here indicate where
20 the water comes in. And so the primary mechanism by which the toilet tank
21 fills in this system is very similar to what we saw in the patent. The water
22 comes in through the inlet pipe here and exits out these bottom arrows to
23 initially fill the toilet tank, and that moves the ball float up as the water level
24 rises.

25 JUDGE TARTAL: And so the fact that it indicates the fill tube 403 is
26 also below the water level, what purpose would it serve if all it does is, just

1 like the release valve at the bottom of the tank, if the only purpose it serves
2 is it to fill the tank?

3 MS. ACHARYA: The purpose of tube 403 is to fill the bowl, and so
4 it's directing a second portion of water to the bowl of the toilet, and the
5 arrows are where the water fills the toilet tank.

6 JUDGE TARTAL: So does it show how the tube gets water to the
7 bowl in that figure?

8 MS. ACHARYA: Not in the figure, no, it's in the Specification
9 where it says tube 403 directs the water to the bowl.

10 JUDGE TARTAL: So does that at least imply that there's necessarily
11 an overflow that tube 403 is directed to? Otherwise it would serve no
12 purpose but to fill the tank?

13 MS. ACHARYA: Correct, Your Honor.

14 JUDGE TARTAL: Thank you, Counsel.

15 MS. ACHARYA: I'm going to leave the flow rates discussion, which
16 really only addresses a few of the dependent claims of the '993, and the '698
17 Patent, I will reserve that during my rebuttal time if the Court has questions
18 on that. I'd like to just spend the last minute or so discussing the priority
19 date issue. I'm now on Slide 35. This issue relates to the '993 Patent and
20 the '105 Patent. We maintain that Claims 1 through 18, excluding 19 and 20
21 of the '993 Patent, and Claims 1 through 24 of the '105 Patent are not
22 entitled to that earlier filing date.

23 So just to orient the Board to this, on Slide 36, this is the timeline the
24 '993 and the '105 Patents claimed priority back to the '889 Patent. That
25 patent used the term bowl fill valve. I believe that the title of the patent was
26 in fact an adjustable bowl fill valve, and throughout the patent, the invention

1 of the bowl fill valve was described as adjustable. In 2014, when the '993
2 Patent was filed, the Patent Owner replaced that phrase with bowl fill
3 restriction, and then later with water flow regulator, and characterized that
4 change as a broadening of the claim.

5 At Slide 37, we've called out here the Specification of that '889
6 Patent makes it clear that what the inventors claim to have invented was an
7 adjustable bowl valve. In paragraphs 9 and 16, that's how the bowl fill
8 valve is described. In paragraph 12, examples are given. Each of these
9 examples is a type of valve, any other appropriate type of valve is how the
10 Patent Owner described it. And their expert has confirmed that the phrase
11 'valve' is typically an adjustable device that impacts the flow of fluid
12 through a system.

13 And you might hear Patent Owner say in their presentation that of
14 course at the time in 2004 there were multiple kinds of fluid flow regulators
15 and restrictors also known in the prior art, but Lockwood makes it very clear
16 that you have to expressly disclose the subject matter in the patent itself and
17 have support for it. The question of whether it would have been obvious
18 variant of what was known in the prior art is not the right question here, it's
19 what did the inventors do when they were describing the invention? And as
20 we saw, the repeated reference was to the bowl fill valve being adjustable.

21 At Slide 40, we have shown here that when the '993 was filed, the
22 application leading to the '993 was filed, the Patent Owner expressly told the
23 Patent Office that bowl fill restriction is broader than bowl fill valve. So for
24 the first time, they told the Patent Office, here we have something that is a
25 restriction, and that is broader than a fill valve. And again, at Slide 41, we
26 know that from Patent Owner's own expert that the term restriction includes

1 both adjustable devices and static devices. So wherein 2004, the description
2 of the invention was solely directed to a valve that was adjustable at a
3 specific species, now in 2014 the claims have broadened out to a genus. In
4 Slide 42, we just make the point that where bowl fill restriction was later
5 replaced with water flow regulator, that's been characterized as a stylistics
6 replacement by the Patent Owner in these proceedings.

7 And so our position is, Patent Owner has not shown that its restriction
8 and regulator claims are entitled to the 2004 priority date, because what they
9 told the Patent Office repeatedly was that they had invented something that
10 was adjustable, not fixed or adjustable. And therefore our position is that
11 Exhibit 1010, which is the '104, '105 Patent, therefore anticipates Claims 1
12 through 18 of the '993 Patent, and Claims 1 through 24 of the '105 Patent.
13 And I'll pause there for my rebuttal.

14 JUDGE PETRAVICK: Thank you.

15 JUDGE TARTAL: Counsel, can I just ask, does the priority issue
16 affect any of the other grounds that are asserted by Petitioner?

17 MS. ACHARYA: Yes Your Honor, we have asserted one ground of
18 anticipation, which is summarized here on Slide 43, the relevant paragraphs
19 and pages of the Petition, and that is the, I believe, it's Ground 4.

20 JUDGE TARTAL: Is that the only ground, though?

21 MS. ACHARYA: Yes.

22 JUDGE TARTAL: Is that the only ground that is relevant to the
23 priority date?

24 MS. ACHARYA: Yes, Your Honor.

25 JUDGE TARTAL: Thank you.

26 MS. ACHARYA: Thank you.

1 JUDGE PETRAVICK: Thank you. You can begin when you're
2 ready.

3 MR. FINCH: Good morning, Your Honors. Again, my name is
4 Thomas Finch on behalf of the Patent Owner Danco, and my colleague
5 Jason Perilla is with me as well. Petitioner highlighted several issues today
6 with respect to each of the challenged patents, the issue of the integrally
7 molding limitation, the issue of whether or not the prior art discloses the
8 tube that is configured to direct water to an overflow tube, opposing counsel
9 also briefly touched on the flow rate restrictions, and we'll walk through
10 each of those in order today. There is also a few other points I'd like to
11 make as well, and then I'm going to turn it over to my colleague Mr. Perilla
12 to address the priority issue.

13 Now, what I want to focus on today is not just the questions that
14 Petitioner raised, but also whether there is sufficient evidence in the Petition
15 to support points that were made, and there were several points today where
16 Petitioner argued that Dr. Cameron had testimony to support various claims,
17 and that testimony in many cases was not present in the Petition. So we'll
18 begin with the integrally molding limitations. The independent claims to the
19 '993 and '105 Patents recite limitations of body comprising extended portion
20 where the extended portion is integrally molded with the fill valve.

21 JUDGE PETRAVICK: Counsel, could you speak up a little bit?

22 MR. FINCH: Yes Your Honor, thank you. And as Petitioner
23 mentioned, the Board construes the term integrally molded with to mean
24 molded together as a single structure. Patent Owner's position is that this
25 construction has two different components to it. It requires that the fill valve

1 and the extended portion be a single structure, and it also requires that the
2 fill valve and the extended portion be a molded structure.

3 Now, in the Petition, Petitioner argues that each of its main references
4 disclose the integrally molded with limitation. I'm going to focus on the Ho
5 reference today, because I believe that's where the primary dispute between
6 the parties is, but I'm also happy to answer any questions related to the
7 Guoxin and Brown references. And with respect to the Ho reference,
8 Petitioner argues that the operative question here is whether the claim
9 requires a plastic structure. And in Patent Owner's view that isn't quite
10 correct, the operative question really is whether the Petition contains
11 sufficient evidence to show that Ho discloses a toilet fill valve where the
12 body of the fill valve is integrally molded with the extended portion.

13 Slide 29 here has an excerpt from the Petition, and this is what the
14 Petition states specifically about the Ho reference. It states that Ho most
15 clearly discloses an integrally molded extended portion, and it identifies two
16 figures. It identifies Figure 3 and Figure 5. And the cited portion of Dr.
17 Cameron's declaration here, which is Exhibit 1004, just repeats the same
18 language from the Petition, it doesn't add any additional analysis. Petitioner
19 doesn't identify any evidence from the Specification that explains what these
20 figures show, and that's because there's nothing in Ho that explains the
21 connection point here. And neither the Petitioner nor Dr. Cameron explain
22 what it is about these figures that make them believe that this discloses an
23 integrally molded structure. The only explanation is the little text box on the
24 page that says that the protrusion in blue snap fits into the recess in the
25 extended portion in orange.

1 JUDGE PETRAVICK: Counsel, sorry, you're taller in stature, and
2 we're having trouble with the microphone. If you could maybe pull it up
3 and set it up at the tallest part of the podium as possible?

4 MR. FINCH: Apologies, Your Honor, is this better?

5 JUDGE PETRAVICK: Thank you very much.

6 MR. FINCH: Thank you. So again, the evidence in the Petition is
7 Petitioner's argument that the protrusion blue snap fits into the recess in the
8 extended portion of orange, and this is the protrusion of the diverter valve of
9 Ho, and the orange portion is the identified extended portion of the toilet fill
10 valve. Now this isn't the connection that the integrally molded with claim is
11 talking about. The integrally molded with claim is talking about the
12 connection between the extended portion highlighted in orange and the body
13 of the fill valve. There's nothing here in the Petition that says anything
14 about that connection.

15 Patent Owner pointed this out in its Response, that cited figures of Ho
16 don't disclose this. And in its Reply, Petitioner doubled down and said the
17 same thing again, which is that a POSITA would have understood that the
18 protrusion in blue slots into the extended portion. But what we're really
19 talking about is the connection between this extended portion, I've
20 reproduced Petitioner's annotations in orange here, and the body of the fill
21 valve in green. And there's no evidence that the extended portion in orange
22 and the body of the fill valve in green are a simple structure. If you zoom in,
23 you can see that there's actually a solid line between this extended portion
24 which is highlighted in orange, and the body of the fill valve in green.

25 Now Figure 3 here shows a cross section of Ho's diverter valve, and
26 that cross section extends into the body. If Ho intended to depict that the

1 orange extended portion and the green body were the same structure, then
2 the patentee could have extended the cross hatching of its orange portion
3 onto that green section. There was no need to have a separate distinction
4 there. And again, the Petition doesn't have any explanation of what it is that
5 these figures show, what this cross hatching means, or how this figure
6 should be interpreted. So instead, this figure explicitly shows that there is an
7 orange extended portion and then a separate green fill valve, and the
8 remainder of Ho's figures are consistent with that.

9 JUDGE TARTEL: Counsel, just to interrupt, isn't that not Petitioner's
10 argument, though? Isn't Petitioner pointing to the blue portion as the
11 extended portion?

12 MR. FINCH: My understanding is that Petitioner is pointing to the
13 blue portion as the connection point on the diverter valve, which they're
14 claiming is the claimed bowl fill valve or water flow regulator. So my
15 understand, and again we can -- is that the orange portion here is what the
16 Petitioner is pointing to as the extended portion of the bowl fill valve, or of
17 the toilet fill valve.

18 And so that is Patent Owner's argument for why the extended portion
19 and the body are not a single structure, there's also the separate requirement
20 here that the extended portion and the body of the fill valve be a molded
21 structure. Now both the claim language and the Board's construction used
22 the term molded, and Patent Owner asserts that molded is a structural term.
23 As an example of that, the term molded excludes certain materials. There
24 are materials that just simply can't be molded, for example, a person of
25 ordinary skill in the art wouldn't refer to a wooden structure as a molded
26 structure. The Petition doesn't --

1 JUDGE PETRAVICK: Counsel, you're not saying that a molded
2 structure has to be plastic? We know that metal can be molded.

3 MR. FINCH: So I'm not sure that I would agree with that question. I
4 think in the context of the challenged patents, a person of ordinary skill in
5 the art would have understood the term molded to refer to metal, as a person
6 of ordinary skill in the art would have used different terms such as cast to
7 refer to --

8 JUDGE PETRAVICK: So you're telling me that you can't have
9 molded metal?

10 MR. FINCH: I don't think that you can't have molded metal, I think
11 that as a person of ordinary skill in the --

12 JUDGE PETRAVICK: So you can mold metal?

13 MR. FINCH: Yes, Your Honor.

14 JUDGE PETRAVICK: And does the word plastic appear anywhere
15 in the Specification?

16 MR. FINCH: No Your Honor, it does not.

17 JUDGE PETRAVICK: It does not. Does the Specification tell us
18 what the material is at all?

19 MR. FINCH: No Your Honor, it does not.

20 JUDGE PETRAVICK: And we do know that some parts of toilets are
21 metal, there is metal in the toilet tank in prior art toilets, correct?

22 MR. FINCH: Certainly in some embodiments of pieces of prior art
23 there are metal toilet valves.

24 JUDGE PETRAVICK: So there are metal toilet valves. So this
25 molded with limitation, in terms of patentability, is a product by process

1 limitation, which requires a -- says that there's certain structure. And what
2 you're saying is that the structure has to be plastic, is that correct?

3 MR. FINCH: The argument we made in the papers is that a person of
4 ordinary skill in the art would have understood that the term molded in the
5 context of these patents would refer to a plastic structure.

6 JUDGE PETRAVICK: But plastic is not disclosed in the
7 Specification at all?

8 MR. FINCH: No Your Honor, it is not.

9 JUDGE PETRAVICK: Thank you.

10 MR. FINCH: In addition to what the term molded actually means,
11 Patent Owner asserts that there is no evidence in Ho's figures that the
12 extended portion is in fact a molded structure. Now again, Patent Owner
13 maintains that that refers to a plastic structure, but even if the term molded is
14 broader than that, there's no evidence of the structure of the extended
15 portion at all here. The cross hatching indicates that there is one piece that
16 comprises a molded structure, but it doesn't tell you anything other than that.

17 JUDGE PETRAVICK: Counsel? So putting aside the plastic and
18 metal issue, what would be the structure of a molded -- what is required of
19 the structure of a molded item, that it's a single piece?

20 MR. FINCH: I think it requires that it's a single piece, it also implies
21 some degree of consistency throughout the composition of the structure. So
22 I would contrast a molded plastic piece with a friction welded piece, which
23 is going to have a seam that was near at some point, and a connection point -
24 -

25 JUDGE PETRAVICK: So no seams?

26 MR. FINCH: No seams.

1 JUDGE PETRAVICK: So that's what we're looking for, is an
2 extended portion that has no seams with the body?

3 MR. FINCH: I think that is one component of it, yes.

4 JUDGE PETRAVICK: What are the other components that are
5 required, in your view?

6 MR. FINCH: I think no seams is the primary component.

7 JUDGE PETRAVICK: So if we see something that has cross
8 hatching in a drawing, across the drawing, showing that it's one piece with
9 no seams, would that indicate something is molded?

10 MR. FINCH: Again, I think the material comes into play here. I
11 think if --

12 JUDGE PETRAVICK: I'm sorry, we put that aside. So the question
13 is, if we look at a drawing and it has cross hatching between the two pieces,
14 that indicates there's no seams, and that would be molded together?

15 MR. FINCH: Your Honor, I think that's right, again, assuming that
16 the material in question can in fact be a molded material.

17 JUDGE PETRAVICK: What materials can be molded materials?
18 Metals, plastics?

19 MR. FINCH: I believe those are examples. I think rubber also
20 probably can be molded, but I don't believe that every material is necessarily
21 moldable.

22 JUDGE PETRAVICK: But we're not really sitting here saying that
23 wood is being used in toilet tanks.

24 MR. FINCH: No, Your Honor. In addition to the molded issue,
25 again, I want to discuss what a POSITA would have understood from Ho's
26 figures. Dr. Cameron was asked during her deposition whether Figure 3

1 would look the same if it were a metal figure or if it were a plastic figure,
2 and she testified that the figure would be the same regardless of whether it
3 was metal or plastic. And now I understand that the Board is not focused on
4 the composition of the material, but Dr. Cameron was also asked during her
5 deposition how Ho's figures would look different if it was a welded metal
6 structure, so if it were two pieces of metal that had a seam between them.
7 And her testimony was that the welded metal structure, the figures of Ho
8 would look exactly the same if that's what Ho was intending to disclose.
9 And this speaks to the fact that Ho does not disclose a body and an extended
10 portion that are single structures, since welded metal components would be
11 two separate structures joined together.

12 Dr. Cameron was also asked during her deposition how she knows
13 that Ho from -- what it is about the figures and the description of Ho that
14 specifically leads her to understand that Ho discloses a molded structure, and
15 she responds that that's typically how these are made, and there's nothing in
16 here that indicate that this is anything other than normal.

17 JUDGE TARTAL: Counsel, I'm sorry, but I'm just a little curious. I
18 think you're suggesting that a person of ordinary skill in the art would have
19 just known that in the challenged patents the molded features are made of
20 plastic, but then you're suggesting that in the asserted prior art you have no
21 idea what it's made of because, presumably, a person of ordinary skill in the
22 art would have no idea if it was metal or plastic. Are those two arguments
23 consistent with one another? Or would the same person of ordinary skill in
24 the art, who, looking at the challenged patents, would have understood it
25 was made of plastic also look at the prior art and understood that where
26 there's no contrary disclosure, they are also made of plastic?

1 MR. FINCH: So I don't think those arguments are inconsistent. I
2 think with respect to the challenged patents, the person of ordinary skill in
3 the art is also looking at the claims and the description of it being an
4 integrally molded structure, and there's no description of molding
5 whatsoever in the prior art. So it's the use of the term molding that would
6 lead a person of ordinary skill in the art to believe that it was referring to a
7 plastic structure.

8 JUDGE TARTAL: And the absence of the term molding in the prior
9 art, that would lead a person of ordinary skill in the art to think plastic was
10 an obvious choice? Or have no idea what it would be made of?

11 MR. FINCH: So our position, particularly with respect to the Ho
12 reference, is that there's just not enough information in the reference to
13 know what it was made of or how it was constructed, whether there are
14 multiple pieces that are fit together or not.

15 JUDGE TARTAL: Because it doesn't use the word molded?

16 MR. FINCH: It doesn't use the word molded and it doesn't use any
17 other words to describe the construction or the material.

18 JUDGE TARTAL: Thank you, Counsel.

19 MR. FINCH: Yes. The last point I'd like to make on the integrally
20 molded term is that it is, at the end of the day, Petitioner's burden to prove
21 that Ho discloses the integrally molded structure and as I just stated, the
22 figures in Ho do not contain enough information to know how the material
23 was constructed or how those pieces fit together. So there's no disclosure of
24 what the material composition is, and there's no disclosure of how those two
25 pieces, the extended portion and the fill valve, are put together. Ho doesn't

1 describe or explain whether or not those are an integrally molded structure
2 or two separate pieces that are attached together after the fact.

3 Now, Petitioner also originally argued that the Brown reference
4 disclosed the integrally molded extended portion. Brown's extended portion
5 is attached via a threaded opening, so this argument was foreclosed by the
6 Board's construction. And Petitioner also argued that the Guoxin reference
7 discloses an integrally molded structure, and again, Patent Owner would
8 argue that there's just not enough information here to know whether the
9 extended portion, which Petitioner highlights in orange, is integrally molded
10 with the body of the fill valve, which is located to the left of the extended
11 portion.

12 JUDGE TARTAL: Counsel, which slide are you on?

13 MR. FINCH: This is Slide 28, and I apologize, I'm jumping around a
14 little bit to try and mirror Petitioner's arguments. Are there any more
15 questions on integrally molding? I'm going to move onto the overflow tube
16 issue that Petitioner previewed.

17 Now, each of the independent claims of the '993 and '105 Patents,
18 and two of the independent claims of the '698 Patent refer to the concept of
19 either an overflow tube or an over fill tube. Now, the challenged patents use
20 those terms synonymously. Claim 1 of the '993 Patent recites a tube that is
21 configured to attach directly to the water flow regulator, wherein the tube is
22 configured to direct the second portion of the water from the water flow
23 regulator directly to a toilet fill valve. So there's two separate requirements
24 here, the tube has to be attached to the water flow regular, and it has to be
25 configured to direct water to a toilet tank overflow tube. Now that
26 configured to language isn't present in all of the claims. Claim 8, for

1 example, argues, or states, providing via the tube the second portion of the
2 water to a toilet tank over fill tube. So with respect to Claim 8, the water
3 actually has to be provided to the over fill tube.

4 And I want to -- this is Slide 5, and I do want to highlight one typo.
5 The '698 Patent refers to Claim 8, not Claim 18 here. I'm going to move
6 onto Slide 8 of the filed demonstratives. Now, Petitioner explained the
7 purpose of an overflow tube fairly accurately. I want to use this time to
8 highlight a few points about it. The first is that, again, as the Board has
9 recognized, the overflow tube has to be located above the surface of the
10 water line, and if it's not, water will just continuously drain into the toilet
11 tank. The second point is that there needs to be some sort of an air break
12 between the first tube, here tube 146, and the overflow tube. And the reason
13 for that is to prevent siphoning into the water system. So if there's a change
14 in the water system in the -- or change in water pressure in the water system,
15 it can cause water to siphon out of the toilet and back into the water system.

16 JUDGE PETRAVICK: Is that described in the patents at issue?

17 MR. FINCH: Yes, it is.

18 JUDGE PETRAVICK: Can you tell them where?

19 MR. FINCH: I do not have the citation, I will get that for you shortly.

20 JUDGE PETRAVICK: Thank you.

21 MR. FINCH: Jason, can you put the slides back up?

22 JUDGE TARTAL: We also have the slides in front of us.

23 JUDGE PETRAVICK: Yes, we do.

24 MR. FINCH: Working off of Slide 10, and we'll get them back up on
25 the screen shortly. The next point I want to make is that the Petition does
26 not explicitly identify an overflow tube. So the Petition --

1 JUDGE PETRAVICK: Counsel, before we move on to the
2 prior art, can we talk about what is actually disclosed in the patents at issue
3 with respect to the overflow tube and the tube 146?

4 MR. FINCH: Yes, Your Honor.

5 JUDGE PETRAVICK: What's the structure of tube 146 in the
6 patents?

7 MR. FINCH: It's just a tube, Your Honor, there's nothing unique
8 disclosed about that tube in the patents

9 JUDGE PETRAVICK: And the claims require it to be attached to the
10 overflow tube, what attachment mechanism is disclosed in the patent at
11 issue?

12 MR. FINCH: So there's no specific attachment mechanism to attach
13 it to the overflow tube in the patents?

14 JUDGE PETRAVICK: And does attaching it require it to be, have
15 some sort of structure like a clip, or can it just get laid in the overflow tube?

16 MR. FINCH: So it doesn't require a specific structure such as a clip,
17 what it does require is some mechanism to prevent that siphoning effect, and
18 that mechanism could be a clip to hold it above the water line, or it could be
19 --

20 JUDGE PETRAVICK: But there's no clip, just, there's nothing, the
21 tube is just a tube?

22 MR. FINCH: Yes.

23 JUDGE PETRAVICK: And so the siphoning really has to do with the
24 fact that it's laid in the overflow tube?

25 MR. FINCH: Yes, there needs to be some sort of an air gap between
26 the tube 146 and between the overflow tube itself.

1 JUDGE PETRAVICK: So that's actually not a result of the tube, but
2 the way the tube is laid into the overflow tube?

3 MR. FINCH: Yes.

4 JUDGE PETRAVICK: Of the structure of the tube, that siphoning
5 function?

6 MR. FINCH: Yes, that's correct.

7 JUDGE PETRAVICK: It's just a tube attached at one point to the
8 regulator and in the configuration of the tube at the end that has to do with
9 the overflow tube is just an end of a tube?

10 MR. FINCH: The tube itself is just an end of tube. The claim
11 language requires that it direct water to the overflow tube --

12 JUDGE PETRAVICK: And it does that by being a tube?

13 MR. FINCH: A tube where the second end of it is located near or
14 attached to an overflow tube.

15 JUDGE PETRAVICK: It has to be located near --

16 MR. FINCH: It has to be positioned in such a way that it can direct
17 water to the overflow tube.

18 JUDGE PETRAVICK: Thank you.

19 MR. FINCH: Jason, could you go to Slide 10? The Petition doesn't
20 explicitly identify an overflow tube. It states that the Guoxin discloses tube
21 403 that is configured to provide water supply to the toilet bowl. Now,
22 providing water to the toilet bowl doesn't necessarily imply that the water
23 first goes through an overflow tube. A toilet tank also has a flush valve or a
24 flapper in the bottom of it, which is how the vast majority of the water
25 leaves the tank and enters the bowl of the valve. Certain other prior art
26 references, for example the Ho reference, discloses a rim flushing conduit,

1 which water is directed through a tube to the rim of the bowl and enters the
2 bowl that way. So, I want to foreclose the argument that an overflow tube is
3 the only way that water can enter a bowl.

4 The Petition just references Guoxin's figures, and the figures, again,
5 as we've discussed don't disclose an overflow tube. And then the Petition
6 recites that the claim configuration is conventional in the art. Now, Patent
7 Owner's position is that merely stating it's conventional in the art is not
8 sufficient to render this claim limitation obvious. There's no evidence in the
9 Petition that supports that this is conventional in the art, there's no citations
10 to other references, and as I mentioned previously, there are other potential
11 configurations such as the rim flushing conduit disclosed in the Ho
12 reference. The question isn't just whether an overflow tube itself is
13 conventional, but whether a tube attached to a regulator conventionally goes
14 to an overflow tube, and that just isn't the case. There are plenty of other
15 options disclosed within the art as well.

16 JUDGE TARTAL: I'm sorry Counsel, what were the other
17 options? You mentioned the flapper, but that's not one of the options. So, is
18 it -- the flapper empties the tank, so you're not suggesting that the tube
19 would circumvent the flapper? And then you mentioned the rim flush
20 feature, is there anything other than the rim flush feature that you were
21 referring to?

22 MR. FINCH: So yes, the Ho reference contains a rim flushing
23 conduit, and so it contains a tube directed from the diverter valve to the rim
24 of the bowl. There's also other, in the papers we discussed, I believe it's
25 Exhibit 1014, it's another Schuster patent which contains a tube that is used
26 to provide water to the sides of the tank itself to prevent sediment build-up.

1 And so that's another example of a tube that's not directed to an overflow
2 tube.

3 JUDGE TARTAL: But that wouldn't be directed to the bowl, that
4 would be directed to the sides of the tank, I believe you're saying?

5 MR. FINCH: Yes, Your Honor.

6 JUDGE TARTAL: So there's only one alternative to provide water to
7 the bowl through the tube, and that would be the rim flush and the overflow
8 tube, as being the two options in the art being discussed, is that correct?

9 MR. FINCH: So I think the rim flush conduit of Ho has been
10 discussed, Guoxin itself also states that it provides water directly to the bowl
11 and there's nothing foreclosing that to being directed through some -- just
12 directly to the bowl without an intermediate structure.

13 JUDGE TARTAL: There has to be some structure that directs it to
14 the bowl, or there would be no flushing of the toilet. It has to be something
15 separate from the main mechanism for water to leave the tank, to flush the
16 toilet, and that allows the tube to provide water to the bowl.

17 MR. FINCH: Yes Your Honor, so the disclosed purpose of the
18 Guoxin reference is to increase the flush volume during a -- with respect to a
19 low volume toilet tank. So the problem faced by Guoxin is there's not
20 enough water in the tank to allow the flush to happen properly. Guoxin
21 doesn't specifically show where tube 403 enters the bowl, but --

22 JUDGE TARTAL: I was just trying to -- just to get the context, I was
23 trying to get some sense from you how many options or possibilities were
24 there, where tube 403 goes in Guoxin. There's two opportunities for where
25 it might go, or multiple different features that one would expect it to --

1 MR. FINCH: Yes Your Honor, and I don't think that there's anything
2 in Guoxin that would foreclose the tube from having its own entrance point
3 to the bowl.

4 JUDGE TARTAL: Thank you, Counsel.

5 MR. FINCH: Now turning to Slide 11 from the presentation.
6 Guoxin's Figure 2 explicitly discloses that tube 403 is located below the
7 water line. The Board has discussed this already. Patent Owner asserts that
8 because it is located below the water line, this figure indicates that it's not
9 directed to an overflow tube. If it were directed to an overflow tube, it
10 would have to be terminating above the water line.

11 JUDGE TARTAL: Counsel, can I just ask, does that make any sense
12 that 403 terminates in the tank of water? What purpose would it serve if it's
13 truly just the end of the tube in a tank of water, below the water level?

14 MR. FINCH: Your Honor, I agree with Petitioner that I don't believe
15 that Guoxin discloses the terminus point of the end of 403, but nothing in
16 Guoxin precludes that terminus point from being a separate entrance point to
17 the bowl, other than a toilet overflow tube. A direct connection to the bowl
18 itself.

19 JUDGE TARTAL: Okay, thank you.

20 MR. FINCH: On Slide 12, we have an excerpt from Dr. Cameron's
21 supplemental declaration. It notes that Guoxin does not explicitly disclose
22 where its tube terminates. And I think the fact that Guoxin does not
23 explicitly disclose where that tube terminates is the key point here. Guoxin
24 doesn't tell you where tube 403 goes, other than to say it goes to the bowl.
25 And there's not any evidence in the record, or certainly not enough evidence
26 in the record to show that it necessarily passes through an overflow tube.

1 So, while you could design a reference similar to Guoxin which included an
2 overflow tube, there's no evidence in Guoxin that that actually exists.

3 JUDGE TARTAL: Sorry, Counsel, to keep asking questions. If you
4 need more time, you can let us know, but so it's an obviousness argument,
5 not an anticipation argument. Correct me if I'm wrong on that.

6 MR. FINCH: You're correct.

7 JUDGE TARTAL: On the obviousness, correct?

8 MR. FINCH: Yes sir.

9 JUDGE TARTAL: So the fact that it doesn't explicitly disclose
10 where 403 goes isn't really the issue. Isn't the issue, what a person of
11 ordinary skill in the art would have understood from Figure 2, and how they
12 would interpret it to 403, and whether or not that person of ordinary skill in
13 the art would have understood it entering into an overflow tube was an
14 obvious configuration?

15 MR. FINCH: I think you framed the issue exactly correct, Your
16 Honor, however I don't think that there's anything in the Petition itself
17 which makes that argument. So the Petition itself just says that this is
18 conventional in the art, it doesn't explain what it is about the figures that
19 would lead a person of ordinary skill in the art to believe that, and there are
20 certainly other interpretations that a person of ordinary skill in the art could
21 take from those figures as well.

22 JUDGE TARTAL: So your argument is essentially that the Petition
23 fails to provide sufficient evidence to support either the argument or the
24 conclusion that 403 is directed to or configured to extend to an overflow
25 tube?

26 MR. FINCH: That's correct, Your Honor.

1 JUDGE TARTAL: Thank you, Counsel.

2 MR. FINCH: Can we turn to Slide 69 of the presentation? We're
3 going to turn now to the issue of the adjustable flow rate. And one more
4 please, Jason. And Claims 19 and 20 of the '993 Patent recite that the water
5 flow regulator is configured to adjust the flow rate of the second portion of
6 the water. And the parties have a dispute over how the relevant flow rate is
7 determined. Now Claim 19 specifically recites and refers to the flow rate of
8 the second portion of the water. Jason, I don't think these are the right
9 slides.

10 JUDGE TARTAL: We have it on our screens, so it would be maybe
11 easier just to give us the number and we'll know in the record that you're
12 referring to that particular side.

13 MR. FINCH: Yes, we're referring to Slide 69 now. So Claim 19 and
14 20 of the '993 Patent recite that the water flow regulator is configured to
15 adjust the flow rate of the second portion of the water. Now, Claim 19, the
16 term 'the' flow rate has its antecedent basis in Claim 1, and Claim 1 recites
17 that a flow rate of the second portion of the water that flows through the
18 water flow regulator. So when you look at Claim 19 here, it's referring to
19 the flow rate of water that flows through the water flow regulator. Claim 20
20 has its antecedent basis in Claim 14, and the flow rate again there refers to
21 water flowing through the water flow regulator.

22 Referring to Slide 70 from the file demonstratives, there doesn't
23 appear to be a lot of dispute between the parties regarding how the Guoxin
24 reference operates. So Petitioner points to the Guoxin reference as
25 disclosing this adjustable water flow regulator that's configured to adjust the
26 flow rate, and Guoxin contains what it calls a T-shaped knot to adjust the

1 valve stem. And the way that this operates is that as a toilet is flushed, the
2 Guoxin contains a secondary float that drops to the bottom of the toilet, and
3 when that secondary float drops, it allows Guoxin's valve to open. As the
4 toilet starts to refill, that secondary flow rises and closes Guoxin's valve off,
5 and a person of ordinary skill in the art can adjust when it is specifically that
6 that valve opens and closes.

7 Now, Petitioner argues that -- or I guess, the parties dispute whether
8 Guoxin discloses adjusting the claimed flow rate. Now, as discussed, the
9 flow rate is the flow rate of the water flowing through the regulator.
10 Petitioner asserts that the correct way to calculate a flow rate here would be
11 the amount of water that flows through the regulator divided by the amount
12 of time that water is flowing through the regulator. Petitioner takes a
13 different approach. They argue that the flow rate here refers to the amount of
14 water that flows through the regulator divided by the entire amount of time
15 of the flush cycle itself. And so that includes both the time where Guoxin's
16 regulator is open, and when it is closed and there is no water passing through
17 it.

18 Now, Patent Owner's argument is that the denominator portion of
19 Petitioner's argument is incorrect, that the correct amount of time is the
20 amount of time that the valve itself is open, because we're referring to water
21 flowing through the regulator, and that changing the amount of time that the
22 valve is open doesn't have any impact on the rate the water is passing
23 through the regulator. In support of its position, Petitioner points to the
24 Specification of the challenged patents, and they point to the fact that
25 Specification states the amount of water supplied by the bowl fill valve and
26 the time it takes to refill the toilet tank should be approximately equal to the

1 amount of water needed to fill the toilet bowl. And this is Slide 72 from the
2 file demonstratives.

3 Now, the point of this statement in the Specification is to reduce water
4 waste. So we've talked about this at various points today, but the bowl fill
5 valve or water flow regulator should be configured such that the amount of
6 water that passes through it is sufficient to fill the bowl, not too much, not
7 too little. If the bowl fills up too soon and extra water is wasted, if the bowl
8 doesn't fill up quickly enough, then the bowl won't have enough water. So
9 the challenged patents disclose adjusting that flow rate in order to make sure
10 that the correct amount of water goes through the bowl.

11 Now, with respect to the challenged patents, the valve is open for the
12 entirety of the flush cycle. So when we're referring to the challenged
13 patents, the flow rate is the amount of water that passes through the valve
14 during the flush cycle divided by the time of the flush cycle. That valve
15 doesn't close until water stops coming in from the inlet valve. The Guoxin
16 reference works a little differently, though, it allows for that valve to close
17 part way through the flush cycle, and so when we're referring to the amount
18 of water that goes through -- sorry, when we're referring to the flow rate of
19 water passing through Guoxin's water flow regulator, we're referring to the
20 water passing through the regulator divided by the time that the regulator is
21 open. Are there any questions regarding the adjustable flow rate limitations?

22 JUDGE PETRAVICK: No questions.

23 MR. FINCH: So, moving on to Slide 83 from the file demonstratives,
24 the next argument relates to whether Brown discloses a tube attached
25 directly to the water flow regulator. So in each of the claims of the '993 and
26 '105 Patent, there's a requirement that this tube that we've discussed is

1 attached directly to the water flow regulator, or in contact with the water
2 flow regulator.

3 Now, the water flow regulator of Brown is this concept of set screw
4 26, it's highlighted in yellow on Slide 84. And there is a restricted opening
5 27 highlighted in green. The way that this regulator works is that a person
6 of ordinary skill, a user of the Brown system, can adjust the set screw by
7 either tightening it or loosening it, and that either increases or decreases the
8 size of restricted opening 27 and allows more water to pass through that
9 opening. Now, in the Petition, Petitioner points to flexible tube 28 as the
10 claimed tube, and Petitioner identifies adapter tube 23, which is in kind of a
11 peach brown color here, as the claimed extended portion of the water flow
12 regulator. It's very clear from Brown's Figure 3 that the tube 28 is attached
13 to the extended portion, it's not attached to the set screw 26 and it's not
14 attached to the restricted opening 27. And again, that's because 27 is empty
15 space. That water is passing through it, so there's no way for the tube to be
16 attached to it.

17 Now, in the Petition, Petitioner argued that this tube limitation was
18 also satisfied by the Ho reference, it said Brown alone or in view of Ho
19 satisfies this element. In response, Patent Owner pointed out that whether or
20 not Ho discloses a tube configured to attach to Ho's regulator is not relevant,
21 and that's because with respect to the 1D limitations here, Petitioner was
22 pointing to this set screw of Brown as the claimed water flow regulator.
23 And again, there's no way to attach a tube to Brown's set screw. So
24 although Ho has a separate and different water flow regulator, the regulator
25 that we're referring to here is the set screw of Brown.

1 JUDGE TARTAL: Counsel, can I just ask, and obviously it's
2 relevant as to how Petitioner describes what this is referring to, but is it your
3 contention that Petitioner only relies on the yellow set screw on Slide 84 as
4 the regulator, and that's the reason why there's no direct attachment?

5 MR. FINCH: So Petitioner has explained that they rely on the set
6 screw 26 in yellow and the restricted opening as the water flow regulator.
7 And so for that --

8 JUDGE TARTAL: Can we stop there for a second? Isn't -- and I'm
9 not asking in terms of exactly what Petitioner argues, but is the adapter tube
10 23 not part of the water flow regulator of Brown, or is it your argument that
11 Petitioner failed to say adapter tube 23 is part of the regulator flow of
12 Brown?

13 MR. FINCH: Yeah, so there's two answers to that question. The first
14 one is that Petitioner explained that 23 here, the adapter tube, is in fact the
15 extended portion of the toilet fill valve. So they've identified that as a
16 separate claim limitation. The second answer is that there are other claim
17 limitations in certain claims that require the water flow regulator to insert
18 into the extended portion, and again Petitioner pointed to this same figure
19 and pointed to the set screw inserting into adapter tube 23 as the regulator
20 inserting into the extended portion.

21 JUDGE TARTAL: Understood. Thank you, Counsel.

22 MR. FINCH: Are there any additional questions regarding this
23 attachment issue? The next issue I want to address today is Petitioner's
24 motivations to combine the various references, and we think there are few
25 points where those motivations to combine are deficient.

1 Now, the first argument Petitioner made that we're going to talk about
2 is the motivation to reverse Guoxin's male and female connectors based off
3 of the teachings of Ho. And so Guoxin, shown on the left here, and this is
4 Slide 51, discloses a toilet fill valve with a protrusion, a male extended
5 portion that fits into a receptacle on the switching device or the water flow
6 regulator. And Petitioner argues that a person of ordinary skill in the art
7 would have been motivated to reverse that in light of the teachings of Ho,
8 which disclose a female extended portion on the fill valve, and a male
9 protrusion on the water flow regulator.

10 Now, Petitioner makes three different arguments here. The first one,
11 at the bottom of the page, is that the toilet fill valve connectors here are
12 interchangeable. And in support of this position, Petitioner cites to the
13 challenged patents themselves. And as explained in the papers, our position
14 is that that is just hindsight, that there's no actual motivation there other than
15 the teachings of the challenged patents themselves. The second argument
16 that Petitioner makes is that these male and female connectors can be
17 reversed, that this arrangement can be flip flopped. And again, we're not
18 disputing that this can be done, but more that there's no evidence in the
19 record that a person of ordinary skill in the art would have been motivated to
20 do so. And the final argument that Petitioner makes here is that the selection
21 of a male or a female connector is merely just a matter of design preference.

22 Now, every selection that a person makes when designing a structure is just
23 a matter of design preference, and so merely stating that choosing a male or
24 a female connector is a matter of design preference isn't actually motivation
25 to choose one versus the other.

1 The next motivation to combine argument is with respect to the quick
2 connection art. And Petitioner explained earlier that they point to several
3 different references for containing various ways that two figures can be
4 connected, whether it's a snap lock or a twist lock, various different
5 mechanisms. And the Petition did not explain why a POSITA would have
6 been motivated to use those different connection mechanisms as opposed to
7 the ones that are already disclosed by either Guoxin or Brown or Ho
8 references. Instead, all the Petition says is a POSITA would have been
9 motivated to use any known method for connecting two flowing channels to
10 one another. And again, Patent Owner's argument that just referencing any
11 known method is not sufficient.

12 The third argument with respect to motivation to combine, as
13 Petitioner argues at various points that a POSITA would have been
14 motivated to replace Brown's set screw, and that's the water flow regulator
15 of Brown with Ho's diverter valve. And this is slide 75 from the filed
16 demonstratives. Now, there are several reasons a person of ordinary skill in
17 the art wouldn't have been motivated to do that, these are all made in the
18 papers. And the first one is that Brown's set screw 26 and Ho's diverter
19 valve 30 serve different flow control functions. So the purpose of the set
20 screw in Brown is to reduce the rate that water flows through that set screw,
21 and the purpose of the diverter valve 30 in Ho is to direct water to a different
22 location, and in Ho's case, it's directing water. Instead of going into the
23 toilet tank, it directs water to the rim flushing conduit. So they have
24 different purposes.

25 The second reason that there is no motivation to combine is that
26 Brown explicitly teaches against employing a valve or flow regulator which

1 does not restrict flow rate. So the Brown reference teaches two different
2 concepts. It teaches the concepts of water silencing means, which uses a
3 multitude of smaller diameter pipes to reduce the noise and the turbulence
4 that flows through the system, and also teaches this set screw which reduces
5 the rate that water flows. And collectively, these are designed to reduce the
6 amount waste water and also to reduce the waste that a toilet makes when it
7 flushes. Brown explicitly teaches that its water silencing means should not
8 be used without a regulator that reduces flow rate, because without a reduced
9 flow rate there would be increased pressure, increased turbulence, backup,
10 that would completely obviate the point of the water silencing means.

11 The third argument is that Ho's diverter valve serves no purpose in the
12 Brown system. So the purpose of Ho's diverter valve is to divert water to
13 the rim flushing conduit, and there's no evidence that such a conduit would
14 exist in Brown's system. Patent Owner also argued that there is no
15 reasonable expectation of success in making this combination. The Ho
16 valve depends on gravity to function, it has to be installed in a horizontal
17 direction, and the Brown's set screw is not in a position where it could be
18 replaced with a horizontal valve. Now, if the Brown reference were
19 remodified or reconfigured to allow for a horizontal valve, it would
20 introduce additional sharp turns and ways to increase the turbulence and the
21 noise, which would be contrary to the stated purpose of Brown.

22 And the final point I want to talk about is that Petitioner argues that it
23 would be obvious to integrally mold the extended portion of Brown, which
24 is a screw in, twist in portion -- it would be obvious to integrally mold that
25 portion. Petitioner makes two arguments for that. The first one is that a
26 POSITA would use more recently developed molding techniques that were

1 not readily available in 1959 when Brown was first filed. Now, the problem
2 with that argument is that Petitioner is not actually explaining what those
3 techniques are or why a POSITA would have been motivated to use them.

4 The second argument is that Ho discloses an integrally molded
5 extended portion according to Petitioner. Petitioner argues that a POSITA
6 would have been motivated to integrally mold Brown's extended portion in
7 light of the teachings of Ho, but again they don't point to anything from Ho
8 itself other than the fact that it allegedly discloses an integrally molded
9 extended portion, which would support this motivation. And I'm going to
10 go ahead and turn it over to Jason to address the priority argument.

11 MR. PERILLA: Your Honors, thank you for your time today. Again,
12 my name is Jason Perilla for Patent Owner, Danco. I'm going to cover the
13 priority questions, and these are Grounds 5 in the 633 and 634 Petitions.
14 Looking at Slide 94 of the file demonstratives, here we can see the '993 and
15 '105 Patents in grey, those are the patents that are challenged under this
16 Ground 5. According to Petitioner, as of the time of their filing, they
17 included new terms that allegedly were not described and not possessed by
18 an inventor at the time of the grant of the '105 Schuster patent in yellow.
19 Petitioner is wrong about that. The 606 application which was filed in 2004
20 clearly describes both a bowl fill restriction and a water flow regulator.

21 Looking at Slide 95, we can take a closer look at the terms and the
22 claims of the '993 and the '105 Patent in which those terms are included. In
23 the '993 Patent we have a water flow regulator attached directly to the
24 extended portion other body. In Claim 1 of the '105 Patent we have a bowl
25 fill restriction attached directly to the extended portion of the body. Now in
26 the other patents in the family, we have the term bowl fill valve, but in the

1 '993 and '105 we have water flow regulator and bowl fill restriction,
2 irrespectively, in place of the bowl fill valve.

3 So turning to Slide 96, according to Petitioner, you know, Petitioner,
4 essentially their argument boiled down to essentially two prongs. First, the
5 exact phrases bowl fill restriction and water flow regulator were not present
6 in the detailed description of the Schuster Patent or the 606 or any earlier
7 application or patent. The question of whether or not that's the entire
8 inquiry -- and it's not, and we'll get into that in a moment. Their other point
9 is simply that the Patent Owner or Patentee identified that the term bowl fill
10 restriction is broader than bowl fill valve. Again, that's not the entire
11 inquiry.

12 Turning to our next slide, slide number is obscured there, but what we
13 want to talk about here is, what is the inquiry? The inquiry is whether or not
14 a person of ordinary skill in the art would have reasonably concluded that
15 the inventor had possession at the time of the filing. The way that we can
16 determine that is obviously through the original description of the 606
17 application, and it's also, the rest of the description is also in the other
18 applications and patents in the family. The way that we find that is not
19 necessarily, like, material, right? It's both in the text of the description, it
20 can be in the drawings, basically you have to look at the four corners of
21 those applications and patents to determine whether or not the inventors had
22 possession.

23 So let's first take a look at the 606 application for some direct support
24 for the terms bowl fill restriction and water flow regulator. Here at
25 paragraph 8 of the 606 application, looking at Slide 100 of file
26 demonstratives, we have, by virtue of the manual setting of the handle 119

1 of the bowl fill valve 109, the flow of water is regulated, and in that manner,
2 the flow of water is regulated so that enough water flows out of the bowl fill
3 valve to fill a toilet bowl without wasting any water down a drain. So we
4 may not have the exact words water flow regulator, but what we do describe
5 in the application is the flow of water being regulated by a device. With that
6 and other support, Mr. Jobin concluded that the 606 application clearly
7 discloses regulating an amount of water, or in other words, a water flow
8 regulator.

9 I think it's important to pause here and also understand a little bit
10 about what this bowl fill valve is doing, right? It is regulating a flow of
11 water so that we can fill a toilet bowl to the correct amount without
12 overfilling the trap, right? We want the toilet bowl to be filled enough so
13 that the trap is closed and we don't get the back up of sewage or fumes from
14 the sewage system, but we don't want to overfill the bowl, because if you
15 overfill it, then the trap is, you know, will push extra water through the trap
16 and down the drain and will waste the water. But the point is simply that it's
17 not necessarily the adjustable nature of the bowl fill valve that ensures that,
18 it's the fact that we can set the restriction. By virtue of setting the handle of
19 the valve, we have a restricted opening through which the flow of water is
20 regulated and we don't waste any water down the drain.

21 How else can we be sure? Looking at Slide 101, what we have here is
22 an inset of, I think this is Figure 1 of the 606 application. Here we can see
23 the bowl fill valve 109, there is the bowl fill inlet 113 and the bowl fill outlet
24 116, and they depict fixed restrictors, as Mr. Jobin concluded. Those
25 restrictors are what achieves the reduced flow rate. The small lines here that
26 you can see on that figure, the dashed lines, are illustrating or depicting the

1 restriction, and although the rest of the figure isn't shown here, at the bottom
2 of that figure you can see the main inlet 103 for that water coming in under
3 pressure. It's a much larger opening. This inlet 113 and the outlet 116 are
4 fixed restrictors.

5 JUDGE TARTAL: Counsel, just to clarify, what is 119?

6 MR. PERILLA: 119 is the handle for the valve, the bowl fill valve.

7 JUDGE TARTAL: So you're arguing that it shows both a regulator
8 and a restrictor?

9 MR. PERILLA: By virtue of setting the handle, you have like a
10 number of restrictions, right? When you -- and not only that, but even if it
11 was wide open, even if you adjusted it to be as open as it could be, it may
12 very well function as a restrictor. And in this case, I believe that it does, and
13 the illustrations, I believe, speak to a person of ordinary skill in the art both
14 understanding that and that the inventors have possession of it.

15 JUDGE TARTAL: So that it discloses both a restrictor and a
16 regulator --

17 MR. PERILLA: Yeah.

18 JUDGE TARTAL: In the same figure, because the elements can
19 function both as a regulator or as a restrictor.

20 MR. PERILLA: That's correct, yeah.

21 JUDGE TARTAL: Thank you, Counsel.

22 MR. PERILLA: There's also extensive description of course about
23 valves, the bowl fill valves. The application actually describes kind of a
24 laundry list of valves, right, that the bowl fill valve could be. There is, at
25 paragraph 12 of the 606 application, a ball valve, a gate valve, a globe valve,
26 and other appropriate valves that can be appreciated by those with an

1 ordinary skill in the art. You know, in that context, Mr. Jobin recognized
2 that some components in the field of plumbing are called valves, although
3 they're not necessarily adjustable. It's his opinion that the 606 application
4 discloses both adjustable and non-adjustable flow control structures.

5 So there's direct support for both the terms water flow regulator and
6 bowl fill restriction in the application. Beyond that, it's settled in patent law
7 that the description of a more particular species can also provide support for
8 a broader genus, with limits, with exceptions, of course. Petitioners really
9 kind of overlook that general rule, and they've gone straight to some of the
10 exceptions to the rule. So what are the exceptions? Exceptions fall into
11 categories where there's a significant difference among the different species
12 in a genus, or the different species in a genus behave in very different ways
13 as compared to each other, or they behave in unexpected ways, and also in
14 situations where the full group of species is maybe unknown to those of skill
15 in the art. We're not in the field of exceptions with this situation, but you
16 know, instead, the number of species in the genus of flow control regulators
17 or flow control structures is very small, and they're well known and
18 understood in the field, and in many cases, these things are understood to be
19 like, substantial, well, functionally equivalents of each other.

20 How large is the group of water flow regulators? Dr. Cameron
21 testified that she was aware of two devices that regulate the flow of water.
22 She testified that she was aware of two, either a fixed or an adjustable
23 device. That's also consistent with some of the other references that are at
24 issue in the application, including the Brown reference, so we'll get to that
25 one in a minute. She was not aware of a third category of these types of
26 devices. And then in terms of predictability, Mr. Jobin found that in this

1 mechanical world, we're in a little bit more of a predicable space. And I
2 think as it comes to bowl fill valves, or valves in general, and restrictions,
3 the function of a bowl fill valve to act as a restriction, these are predictable
4 types of things.

5 Turning to Slide 106, I think it's also important to be mindful of the
6 fact that all of this needs to be, you know, the entire analysis needs to be
7 conducted in the context of the written description, and what -- well, what a
8 context of a what a person of ordinary skill in the art understands in the field
9 of plumbing and these types of fixtures, and what they understand in the
10 field of valves.

11 Referring to the Brown patent, it's clear that these water saving
12 mechanisms are well known in the art, one of which is a valve, or basically
13 water saving mechanism or a restriction, water restriction, that can save
14 water, one of which being a valve, and the second mechanism being a
15 reduced diameter bowl fill tube, or a restriction. Then at Slide 108, and
16 directly at the Brown reference, and of course this was patented in 1959 and
17 filed in 1957, here Brown talks about the direct replacement of a metering
18 valve by a restricted opening to achieve substantially the same results.
19 Before I turn to a couple of other issues that are connected with this, I
20 wanted to see if the Board had any questions about these issues.

21 JUDGE PETRAVICK: No questions.

22 MR. PERILLA: Okay. So additionally, Claims 19 and 20 of the '993
23 Patent, looking at Slide 114, Claims 19 and 20 recite an adjustable water
24 flow regulator, and we don't believe that there is any real true or real issue
25 or question as to whether or not the inventors have possession of this feature,
26 and we don't believe that Claims 19 or 20 can actually be subject to the

1 Ground 5 challenge at all. And Petitioner has acknowledged that these
2 claims recite an adjustable water flow regulator.

3 And finally, turning to Slide 117, beyond all of those things, Petitioner
4 hasn't actually set forth a full case of anticipation in the Petition with
5 reference to the 105 Schuster patent. Here, we look at the Petition, and
6 where Petition has identified or failed to identify where Schuster discloses
7 this toilet fill valve having extended portion that is integrally molded with
8 the water toilet fill valve. They make the statement with reference to Figure
9 4 of the Schuster patent, and they also point to their expert's declaration, but
10 again, we've been talking about this kind of considerably, you can't see
11 from Figure 4 alone whether or not the pieces are integrally molded, whether
12 or not they're snap fitted together. And the record shows a lot of different
13 ways that these pieces can be fit together, but we can't tell from Figure 4
14 alone how these pieces are fit together.

15 Paragraph 336 in the Cameron declaration only points to Figure 4 as
16 well in the Petition. Of course, you know, after institution in their Reply,
17 Petitioners pointed to a lot of other places in the Schuster patent, but none of
18 those crossed out excerpts from the Schuster patent were pointed to when
19 the Petition was filed, and the Board we think should exclude that evidence
20 to the extent that it just simply wasn't in the Petition, and that it goes along
21 with a lot of the other -- feels to be consistent with our position over all --

22 JUDGE PETRAVICK: So Counsel, the law isn't that if it's not in the
23 Petition it can't be considered. The law is that the gist or theory in the
24 Petition can't be changed. They can cite new things in response to
25 arguments made by the Patent Owner. So why is this not in response to an
26 argument made by the Patent Owner?

1 MR. PERILLA: I'm sorry, why is it not --

2 JUDGE PETRAVICK: Yes, why is it not, these new citations, not in
3 response to something argued by the Patent Owner?

4 MR. PERILLA: Sure. Understood. And I think, of course the Board
5 may give weight to these types of things in response to our arguments. I
6 think that mostly in terms of the Petition and our case in chief, I think that,
7 you know, the Board has deference to do that, or in some cases not to do
8 that. And in this situation, I think it is one of those cases where the Board
9 could consider not picking up on all of these excerpts, and not just for this
10 issue but with other issues in the IPRs at whole. But I'm happy to answer
11 any other questions about the priority issue, I think it's a very interesting one
12 and I've never had the chance to take such a deep dive into it, so for me it
13 was good to look at. If you have any questions, I'd be happy to answer
14 them.

15 JUDGE PETRAVICK: I don't have any additional questions.

16 MR. PERILLA: All right, thank you.

17 MS. ACHARYA: Your Honors, while we work to bring up the slides,
18 I'd actually like to start with Patent Owner's Slide 32, if we could. I'll give
19 Your Honors a chance to get there, and there it is on the screen, thank you.
20 To start with, I believe there was a question from Judge Tartal about the
21 annotations here. So just to make sure the record is clear, our position is
22 indeed that the orange portion that you see here, that is the extended portion
23 that is integrally molded in the claim limitations. The blue is a protrusion
24 that is best seen in Figure 5, it's unlabeled in Figure 5 of Ho, but it is a
25 protrusion on the diverter valve that then slots into place on the fill valve
26 itself, with contact with the extended portion that we see here.

1 Now, with respect to the image shown in Slide 32, I will note that this
2 annotation that we see here with the green shading is new in Patent Owner's
3 Sur-reply. This is not a figure that appeared in the Patent Owner Response,
4 and so the preliminary position that we will take is that this is improper new
5 argument. However -- if we could bring back Slide 32 please, and let's stay
6 on that if we can, what we are seeing here in Figure 3 on Slide 32 of Patent
7 Owner's presentation is a cross section of the diverter valve mechanism
8 when it is locked into place on the fill valve. So when you take a three
9 dimensional object and you are working in two dimensions and you are
10 trying to show the cross sectional features of the device, the typical
11 convention is, if there is a void in the cross section, that is shown as a blank.
12 And here in the figure, there's a number of voids that are depicted.

13 So if you think of this as a vertical hollow cylinder, which is the fill
14 valve, with a horizontal hollow cylinder of the diverter valve that is locking
15 into place perpendicular to the vertical fill valve, there are going to be a
16 number of hollow cylindrical surfaces on the interiors of these elements.
17 And so one example that you can see is the horizontal surface that is
18 bounded by the blue shading. That is the inside of the horizontal pipe
19 through which water is flowing from the fill valve into the diverter valve.
20 As you move to the left, what you see next to that is, so with the top and
21 bottom of the orange shading there, is the back wall of the cylinder that's
22 behind the extended portion of the fill valve. And then you have a vertical
23 line, which signifies a change in curvature, so now we've stopped looking at
24 horizontal curve, and now we're moving into the vertical curve of the fill
25 valve itself, and that's the void that is depicted in what Patent Owner has
26 shaded in green.

1 So to be clear, if the green was a separate physical structure, we
2 would expect to see cross hatching here. It's blank, or void, because what
3 that is, is the back wall of the fill valve, and it's been depicted as blank with
4 the vertical line there to signify a change in the curvature as you move
5 across. And if Your Honors take a look at the underlying Exhibit 1022,
6 there are additional figures 7 thorough 9 which show the same cross section
7 of the -- to focus on the features of the diverter valve mechanism. But you
8 can see that the snap shot of the cross section moves left to right on the body
9 of the fill valve, and so you see more or less of that back wall as that cross
10 sectional, sort of the vignette, moves from left to right. And what that
11 confirms, as Dr. Cameron testified, is that the extended portion is a single
12 structure within the body of the fill valve. And that's why we contend that
13 that is integrally molded. It's not the case that it is physically attached to
14 some other component that Patent Owner has depicted in green, that's
15 actually just the back wall of the fill valve, and it's a really clear illustration
16 of the cylindrical portion coming out from the fill valve and being the point
17 at which the switching mechanism locks into place. It's difficult to visualize
18 that sometimes, because as I said, this is a 3D structure that we're trying to
19 represent in 2D and in cross section as well.

20 I'd now like to turn to the overflow issue, unless Your Honors have
21 any other questions on the integrally molded. With respect to the overflow
22 tube, this was in Patent Owner's presentation, we heard a little bit about
23 what evidence there is about where tube 403 terminates. And Patent Owner
24 made the point that they believe we have not provided the evidence of where
25 the tube terminates, and that's wrong. In the Petition and in Dr. Cameron's
26 supporting declaration to the Petition, we did explain that Guoxin discloses

1 tube 403 that is configured to provide water supply to the toilet bowl, and
2 the citation that was provided was the Guoxin reference, lines 17 and 18,
3 where the tube 403 is described as directing the water supply to the bowl.

4 Now, as Your Honors have seen through the presentations and
5 discussed with Patent Owner, there are only two ways in which water exits
6 the tank and enters the bowl that you see in sort of conventional
7 configurations. One is through the flapper mechanism, which only operates
8 when the flush handle is depressed, and then it closes and forms a seal. The
9 other is via the overflow tube, and Dr. Cameron confirmed that in her
10 declaration and in her deposition as well. And that's why if Guoxin
11 discloses the tube directing the water supply to the bowl, it would
12 conventionally be connected to an overflow tube.

13 JUDGE TARTAL: Counsel, can I just interrupt to ask, I thought
14 Patent Owner also directed us to the disclosure that would potentially
15 provide water to a rim --

16 MS. ACHARYA: A rim flushing conduit I think is the phrase that's
17 used. That's right, and that is in the Ho reference, but there is, if you look at
18 the figures of Ho, there is an overflow tube present there also. So if you are
19 talking about a specific invention, as Ho does, of directing water to a rim
20 flushing conduit, then there is an explicit disclosure of that and description
21 of that. Whereas, in Guoxin, the goal is to increase the volume of the water
22 and to have a mechanism by which you turn the switching mechanism on
23 and off, and Guoxin is saying we are directing that water to the bowl. Then
24 the prior art confirms conventionally that is connected to the overflow tube.

25 JUDGE TARTAL: Thank you, Counsel.

1 MS. ACHARYA: We also discussed briefly, I think, in conjunction
2 with the rim flushing conduit, counsel also mentioned the other Schuster
3 reference that's been discussed in the briefs here. This is at Slide 22 of
4 Danco's presentation. I don't think we need to go there, but just to orient the
5 Court. That Exhibit 1014 shows a configuration where there are two tubes
6 from the fill valve, but the key thing to note here is that one of the tubes is
7 responsible for directing water to the bowl, and that goes via the overflow
8 tube. So yes, there is a second tube there. Guoxin doesn't have a second
9 tube, it's not directed to removing sediment from the tank, what it's directed
10 to is increasing the flush volume, and it's directed to the bowl. So with
11 respect to 1014, again, any time you're addressing the question of bowl
12 refill, the conventional configuration is to have it go to an overflow tube.

13 If we could please bring up Slide 30 from our presentation now? And
14 I apologize, I've left the clicker at the table. I do want to address briefly the
15 flow rate issue, which I didn't address in my opening remarks. So, the
16 phrase flow rate only appears in Claims 19 and 20 of the '993 Patent. As
17 counsel for Patent Owner pointed out, these are dependent claims, there is a
18 reference to it up above a flow rate in the independent claim of Claim 1 of
19 the '993 as well. The '698 Patent actually doesn't mention flow rate in the
20 claims at all. What it talks about is adjusting a flow of water, which Patent
21 Owner describes as flow limitations, and the arguments that they make in
22 our response there too is largely duplicative of the flow rate issue, and we're
23 treating it together. But we did want to note that that phrase 'flow rate'
24 doesn't actually appear in the '698 Patent.

25 Counsel for Patent Owner did touch on this, but to just make the
26 record clear here, the experts for both Patent Owner and Petitioner agree as

1 to the definition of flow rate and the measurement of volume in that
2 equation. So flow rate is volume per unit time, and volume is measured
3 either at the beginning or the end of the conduit through which the water is
4 flowing. And Patent Owner agrees that what Guoxin does, is it has a
5 mechanism by which there is a stem that extends downward from the bottom
6 of the switching mechanism, and you can lengthen or shorten that stem by
7 tightening or loosening the T-shaped nut. And that will impact the point at
8 which the float raises up and shuts off the switching mechanism, depending
9 on the length of the stem.

10 Now, everyone agrees that making that change impacts the amount of
11 water entering the bowl. Where the dispute arises is what is the
12 measurement of time in that equation? And what the Specification of these
13 patents makes abundantly clear is that the time we are talking about is the
14 entire length of the flush cycle. It just so happens that that is commensurate
15 in these patents with the time that the bowl fill valve is open, but really, the
16 measurement of time over and over is described as the amount of water that
17 in the time it takes to refill the toilet tank in the flush cycle. So if you do the
18 math, the flush cycle remains constant. Everyone agrees that the volume
19 changes, and therefore if flow rate is volume multiplied by time, and time is
20 being held constant, then Guoxin does indeed disclose a regulator that is
21 configured to adjust the flow rate. And at Slide 34, we've summarized for
22 you the evidence from Guoxin that establishes that.

23 Turning then to Slide 47 of our presentation, I want to very briefly
24 address the confusion around what is the device that is identified in the
25 Petition as the flow device of Brown? These are the images that you see on
26 Slide 47. We've pulled these images from Dr. Cameron's declaration, they

1 also appear in the Petition. And so just to be clear, the figures here make
2 clear that what we are describing as the bowl fill restriction and the water
3 flow regulator, the flow device in Brown, is the combination of the yellow
4 and the green on the right hand side here. It's the set screw plus the slotted
5 portion 24 of the adapter tube 23 together. And we explain that more in the
6 briefing, but I did want to just let the Court know that we have on Slide 47
7 pulled out the relevant figures here as well.

8 Turning briefly to the motivations to combine, we will largely rest on
9 our briefs on this point. we have outlined for the Board in the briefs the
10 prior decisions of the Board and the Federal Circuit that establishes that the
11 relevant legal question is not what one of ordinary skill in the art would have
12 done, when there is, as there is here, simple substitutions of male to female
13 connectors, of types of connections that are described as interchangeable.
14 When there are those simple substitutions that yield predictable results, then
15 the motivation to combine is established, and I'll rest on the papers unless
16 anybody has questions on that point forth.

17 Okay. Lastly, I want to just briefly touch on the priority date issue.
18 Again, we'll rest on the papers here for the most part, I did want to,
19 however, highlight two things for the Board to consider. One is, in Patent
20 Owner's presentation at Slide 100, they did call out some descriptions in the
21 Specification of the grandparent patent that talked about, you know, used the
22 word regulate. But if you look at that slide, you'll see that the title of the
23 application itself was an adjustable bowl fill valve. So to the extent that the
24 inventors were describing their invention, time and again they were telling
25 the Patent Office this is something that is adjustable. And then, in Slide 102
26 of Patent Owner's presentation, there was a reference to Mr. Jobin's

1 testimony, and the underlying declaration does mention two exhibits, Exhibit
2 2009, and I believe Exhibit 2010. In both of those exhibits were cited in
3 Patent Owner's papers as relating to the common understanding of valves
4 and regulators.

5 Now, I will point out, and I apologize I don't have the specific cites in
6 front of me, but in Mr. Jobin's deposition, he did testify that he did not know
7 the -- he had not sourced those documents himself, he did not know their
8 dates. I think he was familiar with one of the websites, but there is nothing
9 in the record certainly to show that that would have been the understanding
10 of one of ordinary skill in the art at the time of these patents. With respect to
11 the Schuster reference, again, I want to make sure that we are clear here,
12 Fluidmaster is not maintaining that Schuster anticipates Claims 19 and 20 of
13 the '993 Patent. As to the actual case of anticipation, we'll rest on the
14 papers there, but I note that Your Honor did ask, in terms of developing the
15 record for trial, the thrust of the argument could be changed as long as the
16 original grounds are not, and that's exactly what we've done here.

17 JUDGE PETRAVICK: No, I think I said the thrust could not be
18 changed from the Petition, but you could cite additional evidence.

19 MS. ACHARYA: That's right, I'm sorry, I misspoke. That's right.
20 So that's the position that we've taken in our Reply as well. We're not
21 raising any new arguments here. What we've done, for example, with
22 Schuster is, in the Petition we have cited to Figure 4. When Patent Owner
23 said that's not enough to explain why Figure 4 anticipates, we highlighted
24 the corresponding column and line citations from the Schuster reference that
25 discusses Figure 4. So although the clarifications were provided to give the
26 Board additional information of what Figure 4 means, certainly that was not

1 a change from our position in the original Petition. Other than that, I think
2 we will rest on the papers, again, unless there are any questions.

3 JUDGE PETRAVICK: Thank you.

4 MS. ACHARYA: Thank you, Your Honors.

5 JUDGE PETRAVICK: I think that Petitioner took a couple extra
6 minutes in their rebuttal, so I'll set your clock for a couple extra minutes too.

7 MR. FINCH: Thank you, Your Honor. And I just want to respond
8 briefly to a few of the points that Petitioner made in rebuttal. With respect
9 to the Ho reference and whether or not it discloses an extended portion and
10 fill valve that are one structure or two structures, Petitioner identified the
11 extended portion through its use of orange highlighting, and that orange
12 highlighted piece contains cross hatching that indicates that the extended
13 portion is one structure. In the Ho reference, that cross hatching does not
14 extend outside of the structure that Petitioner has identified as the extended
15 portion, and so Patent Owner's position is that the figure itself does not
16 disclose whether or not that extended portion is part of the fill valve, or
17 whether it is a separate structure that is attached to the fill valve. Dr.
18 Cameron testified that that figure wouldn't look any different if it were
19 intended to disclose a welded metal structure, two different pieces that are
20 attached together, and the Petition doesn't explain what it is about that figure
21 that allegedly shows an integrally molded structure.

22 The second point I wanted to make was with respect to Petitioner's
23 discussion of the flow rate. And Petitioner indicated that the flush cycle
24 remains constant and that the flush cycle is the correct time that should be
25 used for determining flow rate. Now, Petitioner's argument ties the flow
26 rate of water flowing through the regulator to the length of time that it takes

1 to refill the tank. And based off of that argument, if, for example the tank
2 had a leaky flapper or some other mechanism that caused it to fill slower,
3 Petitioner is saying that that would change the rate that water is flowing
4 through water flow regulator, and that in fact is just not correct. The rate
5 water flows through the regulator is determined by the diameter of the
6 regulator and by the pressure of the water, and that doesn't change based off
7 of how long it takes the tank to refill. I'm going to turn it over to my
8 colleague Mr. Perilla if there aren't any questions regarding those points.
9 Thank you, Your Honor.

10 MR. PERILLA: Your Honors, I just wanted to make one last point.
11 Insofar as adjustability, Petitioner obviously places large emphasis on the
12 word adjustability and points to the titles of some of their earlier patents. I
13 just think that it's important to bear in mind that the claims of these patents,
14 of course, have many features. And patentability can be found through a
15 number of different ways and combinations of different features. Of course,
16 adjustability of the bowl fill valve isn't the only inventive aspect that's
17 described in the application. Figures 5a and 5b show different ways of
18 connecting bowl fill valves to the extended portion of a toilet fill valve, for
19 example. There's also a lot of description and discussion about integrally
20 molding or not integrally molding, the different ways to put these pieces
21 together.

22 So, you know, the fact that we have the term adjustability, or if we
23 talk about the fact that bowl fill valve can be adjustable, doesn't mean to
24 say, and we shouldn't fall into this thought that it was the only thing
25 invented, or the only thing invented by the Patentee. That's all I had.

1 JUDGE PETRAVICK: Thank you. I want to thank you all for
2 coming here today and sharing this information to us which we will
3 definitely consider while making our decision. Thank you. We are
4 adjourned, but I ask that you stay after and answer any questions the court
5 reporter has as to spelling, particularly spelling of your names. Thank you.

6 (Whereupon, the above-entitled matter went off the record at
7 11:16 a.m.)

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

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