

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN TUOZHU TECHNOLOGY CO., LTD.,
Petitioner

v.

STRATASYS, INC.,
Patent Owner.

IPR2025-00321
Patent 9,421,713 B2

Record of Oral Hearing
Held: April 15, 2026

Before MITCHELL G. WEATHERLY, CHRISTOPHER M. KAISER, and
LILAN REN, *Administrative Patent Judges*.

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The above-entitled matter came on for hearing Wednesday, April 15, 2026, commencing at 1:00 p.m. EDT, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

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

12:59 p.m.

JUDGE WEATHERLY: Everybody can be seated. I see my virtual colleagues are here. My understanding is that Judge Kaiser's going to set the scene for us. So, he can take it away.

JUDGE KAISER: Good afternoon, everyone. This is a hearing in IPR2025-00321. Caption, Shenzhen Tuo Zhu Technology Company, Limited, versus Stratasys, Incorporated, challenging Patent 9,421,713. I am Judge Kaiser, and the panel also includes Judges Weatherly and Ren.

Let's begin with appearances, starting with anyone who is here on behalf of Petitioner, please.

MR. BISENIUS: Patrick Bisenius on behalf of Petitioner. With me is Cameron Ubel and also LEAP practitioner Michael Hawkins, all from Fish & Richardson.

JUDGE KAISER: Thank you, Counsel. Anybody on behalf of Patent Owner?

MR. OAKS: Yes, Your Honors. Brian Oaks, McDermott, Will & Schulte. And, also, with me from McDermott on behalf of Stratasys are Mr. Christian Tatum and Mr. Aashish Kapadia.

JUDGE KAISER: Okay. Thank you. Welcome to all of you, as well. Each side will have 90 minutes total to present its arguments. Petitioner has the burden of proof and will present its arguments first, and may reserve some of its time for rebuttal. Patent Owner will present its arguments after Petitioner's initial presentation, and Patent Owner may also reserve some of its time for sur-rebuttal.

1 A couple of reminders today. First, as noted in the hearing order, this
2 hearing is open to the public, and members of the public might listen or view
3 the hearing, either in the room there or online. As far as I'm aware, there
4 isn't any confidential material on record in this proceeding, so I don't
5 anticipate any problems with that, but do keep that in mind.

6 Also, the panel has access to the demonstrative exhibits that both
7 parties have filed and to all papers and exhibits in the record. If you want to
8 refer us to anything, and to keep the record of the hearing clear for our future
9 deliberations, if you refer to a demonstrative exhibit or to anything in the
10 record, please state the number of the demonstrative slide or the exhibit, as
11 well as a page number or something similar that you're referring to, just so
12 we can find it, again, later. Finally, there are those of us who are attending
13 remotely. Please make sure that you speak into a microphone when you are
14 speaking today. I think with those preliminaries out of the way, we're ready
15 to get started. Petitioner, if you'd let us know how much time you'd like to
16 reserve for rebuttal, and then you can begin whenever you're ready.

17 MR. BISENIUS: Thank you, Your Honor. We'd like to reserve 25
18 minutes for rebuttal.

19 JUDGE KAISER: Okay. I'll just give Judge Weatherly a minute just
20 to get the clock set up there.

21 JUDGE WEATHERLY: All ready.

22 (Off-microphone comments.)

23 MR. BISENIUS: Oh, yeah that's -- sorry, that'd be 15. Sixty-five on
24 the clock, please.

25 JUDGE WEATHERLY: Sixty-five, sorry. I'm --

26 MR. BISENIUS: Thank you.

1 JUDGE WEATERLY: Whenever you're ready.

2 MR. BISENIUS: Good afternoon, Your Honors. May it please the
3 Board. I'd like to start at Petitioner's Slide 7. Here we have the challenged
4 independent claims, Claims 1 and 16. All challenged claims are method
5 claims. Beginning Claim 1, it requires printing layers of a three dimensional
6 part support structure from multiple print heads and deposition lines,
7 switching those multiple print heads and deposition lines from standby mode
8 to operating mode, and when switching from standby to operating mode,
9 performing a purge operation that includes printing at least one purge tower
10 in a layer-by-layer manner.

11 There are many issues in this case today. In addition to application of
12 the prior art to the challenged claims, there are also issues of an alleged
13 earlier date of invention, challenges regarding public availability of the prior
14 art, and claim construction issues. I'd like to start out by talking about
15 Patent Owner's alleged earlier date of invention. Would you please move to
16 Petitioner's Slide 18 with me?

17 Petitioner's Slide 18. In the second box here, we have from the sur-
18 reply -- or, sorry. Patent Owner is asserting in their sur-reply, the inventors
19 have implemented and successfully used the claimed purge tower process of
20 the Solo prototype by at least November 20th, 2011. The actual evidence of
21 record does not support this assertion. The only inventor of record, Mr.
22 Gary Larson, has never asserted that the method was performed. He
23 testified he has no personal recollection of ever executing the file that
24 performed the method on a solo printer, and he has no personal recollection
25 or knowledge of anyone else having performed the method.

1 The only statements on the record are non-inventor, Mr. Gary Leavitt
2 -- or sorry, Paul Leavitt, testifying that it was printed sometime before
3 November of 2011. And when we asked him what that was based on, it
4 wasn't because he personally witnessed it or personally executed it himself,
5 or even heard someone else tell him, which would have been hearsay. It's
6 because he found the file in a folder over a decade later. That's what his
7 knowledge was based off of.

8 Looking at the case law, the requirement here to establish earlier date
9 of invention for a method is that Patent Owner has to back up that the
10 inventors performed a process that met all the limitations, and determine that
11 the invention would work for its intended purpose. As I'm going to explain
12 over the next few minutes, neither of these requirements have been satisfied
13 based on the evidence submitted by the Patent Owner.

14 So, I'd like you to move to Slide 19 of Petitioner's slides. And here
15 we have Patent Owner's theory of the case for earlier date of invention. In
16 the POR, they allege all the inventors were creating these purge towers, they
17 were printing files that had purge towers in them, but the claims require
18 more than merely printing a purge tower. The claims have specific
19 structural requirements for the printer that prints the purge tower, and there
20 are specific steps that are required to be performed in order to provide
21 support that demonstrate earlier reduction to practice of the invention. At
22 this point, I'd like to point out that the Patent Owner is not alleging earlier
23 conception followed by diligence and constructive reduction to practice.
24 Patent Owner's only theory of the case was an actual reduction to practice,
25 all of these method claims were actually performed on a printer having the
26 structural requirements recited in the claims.

1 Looking at the second box here, statements from Mr. Larson, the
2 inventor on record. Patent Owner's theory of the case is that the Solo printer
3 had these physical requirements of the claims. No other printers alleged to
4 have those physical requirements, and he alleges that a specific CMB file
5 was last modified on July 5th, 2011, if executed, would have embodied all of
6 the method steps. So, we're looking at a single printer, the Solo printer, and
7 a single CMB file. All of the printing layers in the declarations of Mr.
8 Larson and Mr. Leavitt are from this one CMB file, and so therefore Patent
9 Owner had reduced evidence to demonstrate that this specific CMB file was
10 actually executed on a Solo printer sometime before the date they allege, in
11 order to show an actual reduction to practice. But Patent Owner has failed to
12 produce evidence that actually demonstrates that.

13 JUDGE WEATHERLY: So, in your view, writing the software to
14 carry out the method isn't reduction to practice, but if the object had been
15 printed, it would have been -- the method would have been reduced to
16 practice?

17 MR. BISENIUS: There's two requirements. And not only that if that
18 software was printed, that software had to be printed on a printer that had
19 two print heads, because their claims require two print heads.

20 JUDGE WEATHERLY: And that wouldn't be apparent from the
21 software?

22 MR. BISENIUS: No, it could have been printed on a --

23 JUDGE WEATHERLY: Do we know the answer to that question?

24 MR. BISENIUS: We don't necessarily know the answer to that
25 question.

26 JUDGE WEATHERLY: Okay.

1 MR. BISENIUS: The CMB file itself could have been --

2 JUDGE WEATHERLY: So, you don't know whether the CMB file,
3 part of its definition is how many printer heads to use?

4 MR. BISENIUS: So, the CMB file specifies two different types of
5 material, but it doesn't necessarily specify that it's two different printer
6 heads.

7 JUDGE WEATHERLY: Okay. You -- and how do you know that?

8 MR. BISENIUS: How do we know that it specifies two different
9 types of material or two different --

10 JUDGE WEATHERLY: But not two different printer heads? What's
11 the evidence of record on that one?

12 MR. BISENIUS: I would say the burden of production of that
13 evidence would be on the Patent Owner to show that --

14 JUDGE WEATHERLY: You're not answering my question. Is there
15 any evidence of record on that point?

16 MR. BISENIUS: So, there's evidence of record that the Solo printer
17 has two print heads, and we don't dispute that.

18 JUDGE WEATHERLY: My question is about the file.

19 MR. BISENIUS: The file. Our analysis of the file, we have not
20 identified anything that indicates that it cannot be used with two print heads,
21 but we've also not identified --

22 JUDGE WEATHERLY: My question specifically is, does the file
23 contain an instruction to use two different print heads? And --

24 MR. BISENIUS: It may --

25 JUDGE WEATHERLY: And I want you to be careful about the way
26 you answer it. I don't want you to answer it based on what you think, I want

1 you to answer based on evidence of record. If there is no evidence of record
2 on that point to answer the question, then simply tell me there's no evidence
3 on record.

4 MR. BISENIUS: I am unaware of evidence that that file step applies
5 to print heads.

6 JUDGE WEATHERLY: Or doesn't.

7 MR. BISENIUS: Or doesn't.

8 JUDGE WEATHERLY: Okay.

9 MR. BISENIUS: I am unaware of evidence in either direction.

10 JUDGE WEATHERLY: Okay, all right.

11 MR. BISENIUS: I'd like to move to Petitioner's Slide 20. So, here
12 we have the only statement in a declaration, there's other statements from
13 the deposition, but here we have the only statement in the declaration from
14 either of the witnesses that this CMB file was ever actually printed. He says,
15 the packed CMB file shown in Exhibit B was used to print the objects shown
16 here on a Solo printer in 2011. Later on, we asked him about that, so we
17 could get more details on how he had that knowledge. I'm going to get into
18 this, but in the Patent Owner's response, the Patent Owner said that's good
19 enough. This one statement from a non-inventor who, as we'll discuss later,
20 Mr. Larson, the actual inventor, said Mr. Leavitt had nothing to do with the
21 Solo project. This one statement they say is good enough. And --

22 JUDGE WEATHERLY: Why isn't it good enough?

23 MR. BISENIUS: Because we have no one with firsthand knowledge
24 that this was ever --

25 JUDGE WEATHERLY: So, it's not, the distinction isn't really -- the
26 magic isn't in being the inventor or not being the inventor. In --

1 MR. BISENIUS: Correct.

2 JUDGE WEATHERLY: -- your view, the magic is in having
3 personal knowledge?

4 MR. BISENIUS: Correct.

5 JUDGE WEATHERLY: All right.

6 Mr. BISENIUS: The fact that Mr. Leavitt is not the inventor I think is
7 irrelevant to this issue.

8 JUDGE WEATHERLY: Okay.

9 MR. BISENIUS: Correct.

10 JUDGE WEATHERLY: Well you keep talking about him as if that's
11 relevant, but I was trying to tease out what the basis for the argument is.

12 MR. BISENIUS: So, I want to quickly just distinguish the cases that
13 Patent Owner has cited. Patent Owner has cited a number of cases in the
14 sur-reply, and in every single one of them, there is firsthand knowledge. I
15 want to talk about just one of them. This is Price v. Semsek. This is at page
16 2 of the Patent Owner's sur-reply, and there the Federal Circuit said, quote,
17 an evaluation of all pertinent evidence must be made so that sound
18 determination of the credibility of the inventors' story may be reached, end
19 quote. And so, how that differentiates from here --

20 JUDGE WEATHERLY: Well, let me ask you. So, that's a statement
21 -- see, I call that soundbite advocacy. I don't know that there's magic to the
22 inventor being credible. In fact, in that case, I'm guessing it was the
23 inventor's testimony that was at issue.

24 MR. BISENIUS: Correct, and --

1 JUDGE WEATHERLY: But anybody can testify about whether this
2 file was printed, right? As long as they had firsthand knowledge of it having
3 been printed?

4 MR. BISENIUS: Correct.

5 JUDGE WEATHERLY: I mean, I could print it and said yeah, I
6 remember I printed it in 2008 or whenever.

7 MR. BISENIUS: Correct, and we would agree that if it were firsthand
8 knowledge or first-hand evidence of this file actually being executed, and
9 actually being executed on a Solo printer, even done by a non-inventor, that
10 would inure to the inventors. We're not disputing that.

11 JUDGE WEATHERLY: Okay.

12 MR. BISENIUS: What we don't have is -- and you're right, the word,
13 inventor, in this quote --

14 JUDGE WEATHERLY: It doesn't have to be the inventor's story, it
15 just needs to be a witness' story who has firsthand knowledge.

16 MR. BISENIUS: Someone who has firsthand knowledge. What we
17 don't have in the present case is firsthand knowledge. And so, there's no
18 firsthand knowledge to corroborate, because that's the piece that we're
19 missing.

20 JUDGE WEATHERLY: Okay. Well, I would think -- it sounds like
21 your argument is there's no firsthand testimony to establish, much less
22 corroborate. There's not even something to corroborate here.

23 MR. BISENIUS: Exactly. Our argument is that there is no actual
24 evidence --

25 JUDGE WEATHERLY: There's just no evidence that that file was
26 printed from a Solo.

1 MR. BISENIUS: So, statements of the --

2 JUDGE WEATHERLY: No probative evidence.

3 MR. BISENIUS: Yeah, no probative evidence, I would say, yeah.

4 JUDGE WEATHERLY: Okay, all right.

5 MR. BISENIUS: Turning to Petitioner's Slide 21. On the right side
6 here we have testimony from Mr. Larson. We ask him, did you personally
7 execute this? He says, I have no recollection. We asked him if he'd -- was
8 aware or witnessed somebody personally executing any of this. Do you
9 recall personally witnessing anyone execute the CMB file on a three-
10 dimensional printer? He said, no. So, we have no personal recollection
11 from the inventor, Mr. Larson.

12 Turning to Slide 22 of Petitioner's slides, we asked the same questions
13 to Mr. Leavitt. Did you ever personally execute the CMB file on a three-
14 dimensional printer? I do not recall. Did you ever personally witness
15 someone execute the CMB file on a three-dimensional printer? I do not
16 recall. I just know it was in a folder. So, now we have what he is basing his
17 personal knowledge on. That statement that he made in his declaration that
18 it was executed sometime before November of 2011, is that, I just know it
19 was in a folder. He doesn't say he put it in a folder. He doesn't say he's
20 aware of who put it in the folder. All he knows is he found it in a folder well
21 over a decade, after 2011. And we asked him, do you --

22 JUDGE WEATHERLY: And there was some metadata associated
23 with the folder that indicated something to him?

24 MR. BISENIUS: He just said --

25 JUDGE WEATHERLY: Like, how old is this file, kind of?

1 MR. BISENIUS: So, we have the last modified date from the file, and
2 we're not disputing the last modified date for the file. There's no evidence
3 on record of when that file might have been added to the folder. And we
4 asked him, how do you know it was executed? And he said -- how do you
5 know it was executed by November 2011? He said, because it was in the
6 folder, and that was the basis of his testimony.

7 JUDGE WEATHERLY: Okay.

8 MR. BISENIUS: We asked him if he recalled personally sending the
9 specific CMB file to a test engineer to test it, and he said no, he did not have
10 personal recollection of communicating it to the test engineer.

11 JUDGE WEATHERLY: Why would he have known anything at all
12 about this file? Like, was he the person in charge of keeping these records
13 or something?

14 MR. BISENIUS: So, if we look to Slide 25 of Petitioner's slide, we
15 ask Mr. Larson what Mr. Leavitt's role was on this project, and Mr. Larson
16 said, he wasn't involved in Solo at all at the time. And so, we didn't really
17 get any testimony. We asked Mr. Leavitt, what was your role in Solo? He
18 was like, well, I wasn't really working on Solo, but I worked with the test
19 engineers. And so, he was around the project, but we have no testimony that
20 he was actually a -- well, the testimony on record says he was not involved
21 with the project at all.

22 JUDGE WEATHERLY: Was he at least working for Patent Owner at
23 the relevant time?

24 MR. BISENIUS: He was working for Stratasys at the time, and still
25 works for Stratasys today.

26 JUDGE WEATHERLY: Okay. All right.

1 MR. BISENIUS: Turning to Slide 23 of Petitioner's slide. This is
2 more testimony from Mr. Leavitt under questioning. We said, we had a
3 folder with a list of parts. And the test engineer would print the parts in the
4 folder, and then they would repeat -- they would report if anything failed or
5 anything. So, I asked him, do you know who that test engineer was? And
6 he says, Amy Enga. So, what we would love to have on the record, and
7 what I'm sure Your Honors would love to see is testimony from Amy Enga.
8 We would have loved to have asked her, do you have recollection of printing
9 the CMB file? But even beyond that, do you have a recollection of a regular
10 practice of if files were placed in the folder, would you have printed them?
11 Was this done on a monthly basis, a bi-weekly basis? What machine did
12 you print them on? Because the CMB file itself says it's made for a Fortus
13 400 machine, and yet Patent Owner is alleging that was executed on a Solo
14 machine. We would have loved to have asked Amy Enga, did you execute
15 this on a Fortus 400, which is what the file says, or did you actually execute
16 it on a Solo? And if you executed it on a Solo machine, what schools were
17 on it? Was it part material and support material as recited in the claims?

18 JUDGE WEATHERLY: She didn't offer a declaration or --

19 MR. BISENIUS: She did not offer a declaration, so we were unable
20 to question her. But, what we're also missing, in addition to any direct
21 testimony from Ms. Enga, is any communications from her. We see here
22 that Mr. Leavitt said that her role was that she would report if anything
23 failed or anything after testing it. We don't have any of these reports. We
24 don't have any evidence that these reports were ever actually generated,
25 other than testimony or Mr. Leavitt. We have no communications. What
26 would have been great, yes, I executed the CMB file with this name. But

1 what could also be evidence is, I did this month's batch, and here's where
2 the problems are, here's what went right. Some sort of establishing, like
3 communication that July's execution happened. Communication that
4 August's execution happened. We have nothing like that on the record.
5 What we have is statements from Mr. Leavitt, I found this in a folder well
6 over a decade later, so I know it had to have been executed by November
7 2011.

8 Other evidence of record -- and I'm moving to Petitioner's Slide 24.
9 Other evidence of record casts doubt on the testimony of Mr. Leavitt. In his
10 declaration, he says the CMB file was last modified on July 5th, 2011.
11 When I asked him under questioning, when in 2011 was this specific CMB
12 file executed on a Solo printer, he confidently stated, Q1. These two dates
13 don't line up. Does this evidence --

14 (Simultaneous speaking.)

15 MR. BISENIUS: -- on the statements of Mr. Leavitt.

16 JUDGE WEATHERLY: Is confidently stated your recollection of his
17 testimony, his answer?

18 MR. BISENIUS: Yes.

19 JUDGE WEATHERLY: I don't see that in the transcript.

20 MR. BISENIUS: He stated Q1. Correction noted, thank you.

21 JUDGE WEATHERLY: You don't think he has reason for such
22 confidence, though, I take it?

23 MR. BISENIUS: I don't believe that he actually has the personal
24 knowledge or even the circumstantial knowledge that this was executed.
25 And that's because when we talked to Mr. Larson, in Slide 25, I'll show

1 again, what role did Paul Leavitt play? He wasn't involved in Solo at all at
2 that time.

3 JUDGE WEATHERLY: And who's testimony was that?

4 MR. BISENIUS: Oh, this is Mr. Larson. He's one of three inventors,
5 and he's the only inventor to submit a declaration in this proceeding.

6 JUDGE WEATHERLY: And he was an employee of Stratasys at the
7 relevant time? Paul --

8 MR. BISENIUS: Yes. Both Mr. Larson and Mr. Leavitt and the
9 other two inventors were all employees of Stratasys during the relevant time
10 frame.

11 JUDGE WEATHERLY: What's Mr. Larson's relationship to the so-
12 called Solo project? I'm trying to understand the --

13 MR. BISENIUS: I don't remember --

14 JUDEG WEATHERLY: -- extent to which he would know who was
15 or wasn't involved.

16 MR. BISENIUS: He stated that he and the two inventors, and he
17 named a few other names, too, of people that were working on the solo
18 project. I don't think we've actually cited those portions of the deposition in
19 any of the papers, but I recall him giving a list of names, and Mr. Leavitt's
20 name was not in that list, and that's why I asked him specifically.

21 JUDGE WEATHERLY: And based on his memory, Mr. Leavitt was
22 not involved --

23 MR. BISENIUS: Correct.

24 JUDGE WEATHERLY: -- in Solo? Okay.

25 MR. BISENIUS: Slide 26 of Petitioner's slides. Once again, the
26 word, inventor, here I think is not important, but inventor testimony of the

1 conception must be corroborated by other independent information. So here,
2 this statement from Mr. Leavitt, yes, I know it was executed because I found
3 it in this folder, we would need some sort of corroborating evidence.
4 Something, communication with Mr. Enga, communication with something
5 else, these reports that he spoke of. Those are all missing from the
6 evidentiary record.

7 Slide 27, similar case. In contrast to contemporaneous documentary
8 evidence, however, post-inventor oral testimony is more suspect, as there is
9 more of a risk that the witness may have a litigation inspired motive to
10 corroborate the inventor's testimony. And there's a recent precedential
11 Federal Circuit case that's not in the papers, because it came out after all the
12 papers were submitted, but this was *Implicit LLC v. Sonos, Inc.*, Federal
13 Circuit March 9th, 2026, precedential. It's docket numbers 2020-1173 and
14 2020-1174, and here, the Federal Circuit affirmed, a PTAB decision by the
15 Board, that determined that there was insufficient evidence in the record to
16 establish that two inventors had effectively communicated their invention to
17 a third non-inventor to establish that the non-inventor's activity reduced the
18 invention to practice such that it would inure to the inventors. Very similar
19 affect that to what we have here. There's evidence of at least conception of
20 some of the invention.

21 JUDGE WEATHERLY: What's the nature of that Federal Circuit
22 case? I didn't -- I don't recall the citation off the top of my head, but was it
23 an opinion from the Federal Circuit, a rule 36 affirmance, what was it?

24 MR. BISENIUS: This was a precedential opinion.

25 JUDGE WEATHERLY: Okay. All right. And you're reading from
26 the Board decision? Or from the --

1 MR. BISENIUS: I'm reading from the Federal Circuit's precedential
2 decision. And what I've just said was paraphrased, I was not quoting the
3 case.

4 JUDGE WEATHERLY: Okay, okay.

5 MR. BISENIUS: I would like to move to Slide 29 of Petitioner's
6 slides. Here's a case that was cited by Patent Owner in their sur-reply as --
7 to establish what is required for corroborating evidence. This case can be
8 easily distinguished, because here in *Motorola Mobility v. Intellectual*
9 *Ventures II*, we had the actual inventor testifying, yes, I reduced it to
10 practice on this day. I drove around the car and did a road test of my
11 wireless hotspot, and here's some dated pictures to corroborate that. So,
12 here we had a firsthand account. We actually had firsthand knowledge. We
13 weren't relying on someone findings something in a folder 12 years later.
14 We had a firsthand account. That's what's absent from the present case.

15 JUDGE WEATHERLY: And corroborating evidence.

16 MR. BISENIUS: Correct. It was firsthand account in addition to the
17 -- and the corroborating evidence had something to corroborate, the
18 firsthand account from the inventor. I'd like to turn to Slide 31. Another
19 question in the evidence is, was this file even compatible with the Solo
20 printer? So, in the declarations, we see that the machine type for this file
21 was a Fortus 400mc Large, but the witnesses, both Mr. Larson and Mr.
22 Leavitt, testified that they would often repurpose these CMB files for the
23 Fortus 400, and execute them on a Solo printer. After the Patent Owner
24 submitted their Patent Owner's response, we went to Patent Owner's
25 counsel, and we said, can you give us any documentation, any user guides,
26 anything, about how the Solo printer operated? They said, we already gave

1 you everything we have in the district court litigation, go look over there.
2 So, we dug through everything we could find over there. We could not find
3 any documentation about a Solo printer. What we did find was
4 documentation for a printer called the Mojo printer.

5 If you turn to Petitioner's Slide 32 with me, both Mr. Larson and Mr.
6 Leavitt testified that the Solo printer was later renamed Mojo 3D printer for
7 its commercial release. So, we asked Patent Owner, do you have any
8 documentation of how the Solo printer worked? They couldn't provide it.
9 We didn't find any in the district court discovery. What we have is a
10 publicly available user manual for the Mojo printer. And the Mojo printer
11 user manual says it operates on a different type of file. It doesn't execute
12 CMB files, it executes STL files. These are two very different types of files.
13 An STL file is what you would think of as a traditional CAD file. It's the
14 actual object, possibly with a support structure. If it has support structure,
15 you can turn it around and look at it from different angles, it's showing you
16 the thing you designed that you want to print.

17 A CMB file is a file that's created by taking that STL file, slicing it
18 into different layers, and each layer is printed by the printer. The STL -- the
19 CMB file is telling the printer hey, here's what each individual layer is going
20 to look like, whereas the STL file says here's what the completed object
21 looks like. There is testimony from Mr. Leavitt and Mr. Larson that when
22 they're working on the Solo, allegedly they would use some software to slice
23 the STL into CMB files. But when we look at the Mojo user manual --

24 JUDGE WEATHERLY: I thought Mr. Larson testified that Mr.
25 Leavitt didn't work on the Solo?

1 MR. BISENIUS: But they did -- he did testify that he had not worked
2 on the Solo, sorry. They testified that with respect to the Solo project, these
3 CMB -- these STL files would be sliced into CMB files.

4 JUDGE WEATHERLY: Okay.

5 MR. BISENIUS: Mr. Leavitt's declaration is framed as he's giving
6 personal accounts of the Solo project, even though later Mr. Larson said he
7 was not involved with it at all. So, the only evidence of record we have is
8 this Mojo user guide, and the Mojo user guide expressly says, we sent CAD
9 STL files from the host computer to the printer, through a USB cable. And
10 we can see in this figure, the host computer is directly connected to the
11 printer through a USB cable. What's being sent to the printer is not a CMB
12 file, it's an STL file. So, once again, casting doubt on the story from the
13 Patent Owner that a CMB file could even be executed on a Solo printer.

14 JUDGE WEATHERLY: Well, this statement about this system builds
15 models from CAD STL files, is that another way of saying the system makes
16 a CMB file out of the STL file?

17 MR. BISENIUS: The CM -- but the CM -- in this case, that file that
18 has the slices, which may or may not be a CMB file, it's created in the
19 printer. You're not providing the file to the printer. Whereas, the story from
20 Patent Owner is that the CMB file was created outside of the printer, they
21 had it in a folder --

22 JUDGE WEATHERLY: I'm not, like, a, even a hobbyist in this area,
23 so -- but my understanding of the concept of, quote, unquote, model, is that
24 that's a much more closely linked concept to the layers that actually come
25 out of the printer head than the STL file would be.

26 MR. BISENIUS: Well, the -- I think here when it uses the term --

1 JUDGE WEATHERLY: Or does model would refer to both different
2 kinds of files?

3 MR. BISENIUS: Right. I believe here when it says model, it's
4 saying the actual physical model. It's building the part. And that certainly
5 is going to require printing layers.

6 JUDGE WEATHERLY: Okay. I'd always thought of model as
7 referring to the virtualized description of the part, rather than the part itself,
8 but I speak out loud to be corrected.

9 MR. BISENIUS: Sorry. Turning to Petitioner's Slide 33, Patent
10 Owner in their sur-reply points out that there is a mention of CMB files in
11 the Mojo user guide, but it's way at the end. It's in the customer support
12 section. It just says hey, if you've got questions about these different kinds
13 of files, you can call us. It doesn't actually say we use these files with the
14 Mojo printer. Seems like copy and paste from other user manuals that
15 actually did operate on CMB files. If there are no additional questions on
16 earlier date of invention, I can talk about public availability in the prior art.

17 All right. I'd like to move to Petitioner's Slide 43. So, I'm going to
18 start out, there are three exhibits that Patent Owner alleges we did not
19 establish were publicly available. This is the RepRap video, Exhibit 1006,
20 the RepRap article, Exhibit 1005, and the KISSlicer user guide, which is
21 Exhibit 1010. I'm going to start off by talking about the RepRap video,
22 Exhibit 1006. The RepRap video is a video that was posted to YouTube
23 October 29th, 2012. And we have testimony from the creator of that video
24 that he personally posted it on that date.

25 JUDGE WEATHERLY: From the creator?

26 MR. BISENIUS: Yes. The person that actually created the video.

1 JUDGE WEATHERLY: Which exhibit is that evidence?

2 MR. BISNIEUS: I'll have to get back to you with the exhibit number,
3 but we have a declaration from -- and I have it in my slides in a few more
4 slides.

5 JUDGE WEATHERLY: What's his name?

6 MR. BISENIUS: His name is Bakin. Mr. Bakin. Before I get into
7 that, I want to talk about the case law, establishing why YouTube is different
8 from generic search engines, and different from personal web pages. So,
9 here we have -- it's Exhibit 1016 is the declaration from Mr. Bakin. So, here
10 we have a district court explaining to the plaintiff that YouTube, once a
11 video is on YouTube, it's searchable. It's not like the cases like *Blue*
12 *Calypso*, where there's a personal website, and maybe it was indexed by
13 Google, but there's no proof it was indexed by Google. With YouTube, as
14 soon you post a video, you can search for that video by the description, and
15 by the name. And here, we have a district court recognizing that it's within
16 reasonable diligence to put in a search strain, scroll through a few pages to
17 find a video.

18 Going to Slide 44, this has, also been recognized by the PTAB. In
19 *Mission Integrated Tech v. Joshua Clemente* in 2024 -- this is IPR2023-
20 01285 -- the PTAB found that the ARES 6 video was uploaded to YouTube
21 and publicly accessible on October 11th, 2017. See also a YouTube
22 screenshot containing the date October 11th, 2017. Now, digging into the
23 record of that case, the only evidence of public availability was the actual
24 screenshot of the YouTube video, and testimony from the expert that he
25 would frequently search for videos during the relevant timeframe, and a
26 POSITA would have known to search for the video. No firsthand

1 knowledge. And yet, the PTAB recognized YouTube is a reputable
2 publisher, a reputable collector of these videos, this is public available.

3 JUDGE WEATHERLY: Be careful about overextending what we
4 said in the DI about this evidence.

5 MR. BISENIUS: Correct. The Board didn't, in that case, not use the
6 term --

7 JUDGE WEATHERLY: I am very skeptical about your showing on
8 whether this was available sufficiently to constitute a printed publication.

9 MR. BISENIUS: So, in the *Mission Integrated* case, the only
10 evidence was the screenshot, testimony from the expert that he would have
11 searched for videos like that. In this case, we have the screenshot, but we
12 also have testimony from the person that actually crated the video, that he
13 created it on that date, that he linked to it from his webpage, that it was
14 searchable based on the terms in --

15 JUDGE WEATHERLY: And his YouTube channel has 18
16 subscribers, and the video has been viewed about 1,000 times.

17 MR. BISENIUS: But we also have testimony from -- in order to be
18 publicly available, a publication does not have to be popular. I would --

19 JUDGE WEATHERLY: No, but it has to be findable.

20 MR. BISENIUS: And we have --

21 JUDGE WEATHERLY: By a person of skill.

22 MR. BISENIUS: Correct, and we have testimony from a digital
23 media expert on how YouTube works.

24 JUDGE WEATHERLY: Yeah, I'm not impressed.

25 MR. BISENIUS: That these videos are searchable --

1 JUDGE WEATHERLY: I've got to tell you, I'm not impressed by
2 that. That's a person -- your critique of Patent Owner is showing on
3 reduction to practice about offering a witness who doesn't have any personal
4 knowledge is exactly the critique --

5 MR. BISENIUS: So, that's corroborating evidence --

6 JUDGE WEATHERLY: You've got to let me finish my question.
7 That's exactly the criticism I would levy at your declaration from a so-called
8 media expert about YouTube, and how do people find things on YouTube?
9 Do you have other evidence besides -- what is the witness' name? I forget
10 her name.

11 MR. BISENIUS: Ms. Talbot.

12 JUDGE WEATHERLY: Yeah. Any evidence besides Ms. Talbot's
13 declaration about how a skilled artisan in this field would have been able to
14 find these videos -- video, which in my view comes off as being a very
15 obscure video in a tiny little, hard to find corner of the internet?

16 MR. BISENIUS: So, we also have testimony from the creator himself
17 saying that --

18 JUDGE WEATHERLY: That he posted it.

19 MR. BISENIUS: That he posted it, and that it was searchable based
20 on the title and the description.

21 JUDGE KAISER: Do we have anything that connects that, either that
22 title or that description, whatever words appear therein, to things that a
23 POSITA would have been looking for at the time?

24 MR. BISENIUS: Yes, so the title is an x2, which, that's pretty
25 generic, but it's a dual-color print. And it talks about printing, and it talks
26 about utilizing materials, temperature changes, printing a parking space for

1 an object, and to fighting against the plastic leaking. So, these are all terms
2 that are in the description for the video.

3 JUDGE REN: I know it's not my --

4 (Simultaneous speaking.)

5 JUDGE KAISER: I'm sorry. Is there a witness who -- or any -- a
6 declaration or anything else that sort of says these are the sorts of thing that a
7 person who is interested in sorts of problems that are being involved in this
8 challenged patent would have been looking for?

9 MR. BISENIUS: We have more broad testimony on that. We have
10 testimony from the poster saying that persons interested in 3D printing
11 would have been able to find it by searching. But we also have a link -- we
12 also have evidence with a link to this YouTube video from Mr. Bakin's web
13 page. So, if we go to Petitioner's slide --

14 JUDGE WEATHERLY: What's the evidence of record about how
15 easily one could have found Mr. Bakin's web page?

16 MR. BISENIUS: So, he testified --

17 JUDGE WEATHERLY: His blog, is what I mean.

18 MR. BISENIUS: His blog. And as Patent Owner pointed out, it's not
19 solely indicated 3D printing. He talks about a lot of things in his blog, but
20 he personally testified that he posted this article that people interested in 3D
21 printing technology would often communicate with each other on various
22 different forums. He was active on those forums, and one of those was the
23 forum on his web page, and to refresh his memory, his personal recollection
24 of that, he went back and he looked at discussions on the forum, on his web
25 page --

26 JUDGE WEATHERLY: So, he administered a forum discussion?

1 MR. BISENIUS: Correct. He had forums on that same web page
2 where the RepRap article, Exhibit 1005, was posted.

3 JUDGE WEATHERLY: Okay.

4 MR. BISENIUS: And he testified that there was active discussions of
5 3D printing on the forums during the relevant timeframe, and he also
6 testified -- I'd like to actually switch to Exhibit 1005 very quickly. He
7 testified this, he explained that there was a guide on the right side, a menu,
8 where you could find articles by topic. And as we see, categories, 3D
9 printing is the top category. He also testified that you could search for
10 articles, and he had a search function built right into his website. So, these
11 people that were already at his website, talking about 3D printing with each
12 other, had a category selection on the right side, and we can see that on the
13 left, this is filed under 3D printing. So, if you click on 3D printing, this
14 article is going to be linked there. And they can also search for it. And there
15 are certainly many more words here than there are in the brief description of
16 the YouTube video that would allow those users to search for this article.
17 And as we see, he also links to the YouTube video in the article. So, those
18 users would have been able to look at his menu on the right side, they would
19 have been able to search for 3D printing or other key words in this article,
20 find the article, read the article, and see, oh, I can see this full video on
21 YouTube by clicking this link.

22 So, once again, we have personal knowledge, and that personal
23 knowledge is corroborated by this additional evidence in the record. If there
24 are no more questions about the RepRap video and RepRap article, I'd like
25 to talk about the KISSlicer article.

1 So, for the KISSlicer article, we have the software creator, Jonathan
2 Dummer, testifying that he not only created the software and the user
3 manual. He also maintained the website where it is located. And as we can
4 see here, there's a link to download the user manual, which he testified is
5 Exhibit 1010, it's the true and correct copy. And we can see up top that
6 there is a menu where downloads is the second link in the menu. And he
7 testified, once again, many active users on my forum discussing 3D printing,
8 and he also stated that he had personal knowledge not only that it was
9 accessible, but people had actually downloaded it in February of 2012.

10 Looking at Petitioner's Slide 50 --

11 JUDGE WEATHERLY: The concept of personal knowledge can be
12 very slippery. I don't think you mean that he actually had personal
13 knowledge of people downloading it. I think what you mean is that he saw
14 statistics on his web page that people had accessed it and downloaded it.

15 MR. BISENIUS: Had accessed it, correct, yes.

16 JUDGE WEATHERLY: But he doesn't know who they are
17 necessarily.

18 MR. BISENIUS: He does not know who those people -- he did not
19 testify to who those people were.

20 JUDGE WEATHERLY: Right. So, I don't know if that's -- okay.

21 MR. BISENIUS: He did testify --

22 JUDGE WEATHERLY: The way you said it just, sort of --

23 MR. BISENIUS: Okay.

24 JUDGE WEATHERLY: -- that was a little bit of a stretch, but I could
25 see how he could have some knowledge that someone has downloaded it,

1 whether it's personal knowledge, I'd have to think a little bit deeper about
2 that, but --

3 MR. BISENIUS: Fair --

4 JUDGE WEATHERLY: -- he has to trust the record on the website,
5 somebody downloaded it.

6 MR. BISENIUS: Correct. I assume that his statement there would be
7 based off of statistics he saw from wherever the web hosting was.

8 JUDGE WEATHERLY: Yeah.

9 MR. BISENIUS: But he did also testify that KISSlicer was known
10 through word of mouth in the 3D printing community, and that his forum
11 had -- the KISSlicer.com forum had many active members.

12 JUDGE WEATHERLY: Known through word of mouth, meaning
13 people spoke to him and said I know about your KISSlicer?

14 MR. BISENIUS: That people spoke about KISSlicer on forums. And
15 we submitted evidence of this. So --

16 JUDGE WEATHERLY: Okay.

17 MR. BISENIUS: -- that's what Exhibit 1029, 1032, 1031 are. Those
18 are people discussing -- they're not saying, the KISSlicer user guide, I went
19 and downloaded it, but they are talking about KISSlicer and the software.
20 So, people knew about this software on this website. And even one of these
21 quotes is talking about the actual author, Jonathan Dummer, himself on these
22 discussion threads. On different, unrelated 3D printing forums. And so,
23 other 3D printing forums, people interested in 3D printing were talking
24 about KISSlicer, and we have the author of the user guide, who maintained
25 the website, saying, and people were talking about it on my forum, on my
26 website.

1 JUDGE WEATHERLY: And people were talking to me?

2 MR. BISENIUS: Yes, correct.

3 JUDGE WEATHERLY: Okay.

4 MR. BISENIUS: When he says word of mouth, I guess I would
5 assume that's probably word of mouth on forums.

6 JUDGE WEATHERLY: Hearing words out of someone's mouth.

7 MR. BISENIUS: So --

8 JUDGE WEATHEY: I would hope that's what you mean by word
9 of mouth.

10 MR. BISENIUS: -- Slide 51, this is just another example that we
11 submitted with the petition, of discussion of KISSlicer on an unrelated
12 forum. This is on a RepRap forum. Slide 52, I talked about this already,
13 that the -- he testified the Quick-Start Guide was publicly accessed in
14 February of 2012. If there are no further questions on public availability of
15 those three references, I'd like to talk about claim construction.

16 So, I'm going to go way back to Petitioner's Slide 7. And so, once
17 again we're looking at, the independent claims. Both recite printing at least
18 one purge tower in some form. What they do not state, and what's not
19 recited in the claims, is that the purge tower must have no physical contact
20 with the object or the support structure. Patent Owner is asking you to read
21 this limitation into the claims, this unrecited limitation. If we turn to Slide
22 13, the best evidence that this should not be read into the claims is that the
23 specification does not require this either.

24 Turning -- on Slide 13 of Petitioner's slides, we see the '713 Patent
25 specification itself saying that purge tower 24 may be printed at any suitable
26 free location on the build substrate 44, i.e., any location in the x-y build

1 plane not occupied by 3D part 20 or support structure 22. No requirement
2 that there has to be some sort of space or no physical contact whatsoever
3 between the purge tower and the object of the support structure, just that it
4 has to be in a different x-y location. Patent Owner should not be permitted
5 to read this additional limitation into the claims.

6 JUDGE WEATHERLY: So, for some kind of examples, the question
7 ends up becoming, is the location of the purge tower occupied by the 3D
8 part? Like, you get into a line-drawing exercise about where does the part
9 begin and where does the purge tower begin? If it's like a continuous
10 structure, for example.

11 MR. BISENIUS: We believe yes, there could be a line drawing like
12 that, that would be difficult. We don't believe it's difficult in these grounds,
13 because the purge tower, it's given different names in the various different
14 references, but in RepRap, for example, it's called a parking space, and it's
15 clearly identified as being a separate structure from the object and meant to
16 be discarded afterwards. And so, even though the video shows some strings
17 between the parking space and the part being manufactured, it's clearly a
18 purge tower because it's separate from. There's some residual connection of
19 a little bit of material.

20 JUDGE WEATHERLY: What about Boyer? Tell me about Boyer.

21 MR. BISENIUS: Boyer, it says that that's sacrificial material. So,
22 it's not a part of the part. It's not part of the support structure. And it says it
23 can be interior to or external to the part itself. And it calls it sacrificial
24 material.

1 JUDGE WEATHERLY: How does material get printed internal to
2 the part and correctly be described as sacrificial material? What does it mean
3 to be sacrificial material in that example?

4 MR. BISENIUS: So, in that example, I think it would be sacrificial
5 material in that it's not necessary for what you want your end object to look
6 like, but there's no requirement that the purge tower needs to be some sort of
7 detachable part. Even if there were a requirement, Boyer discloses that,
8 because it says that it could be printed external to the part, and clearly, if it's
9 sacrificial material that's being printed external to the part, that's something
10 that you're going to throw away.

11 JUDGE WEATHERLY: I'm thinking in the context of this language
12 in the specification that a purge tower would be printed at any location in the
13 x-y build plane not occupied by 2D part 20. So, internally located, even if
14 the material is, quote, unquote, sacrificial, but if it's internal to the structure,
15 is that a location that is not occupied by the 3D part?

16 MR. BISENIUS: You know, I think I would agree that's not a
17 location occupied by the 3D parts. I would think that this language is also
18 not recited in the claims.

19 JUDGE WEATHERLY: No, I get that. I'm just trying to understand,
20 because you know, I mean, we're supposed to read this language and
21 consider it while trying to tease out what is the claim language itself actually
22 mean.

23 MR. BISENIUS: Correct.

24 JUDGE WEATHERLY: And you began your discussion on this issue
25 with this discussion in the specification as if you were thinking it was great
26 stuff and that we should take it into account. And so, I'm just playing with

1 you on how to apply that language in the context of the prior art that is in
2 front of us, and the Boyer structure with so-called sacrificial material inside
3 the part, just trying to understand that case.

4 MR. BISENIUS: I think we wouldn't even need to parse the language
5 that closely, because Boyer isn't -- it's not speculating that Boyer also has
6 sacrificial material on the outside, it expressly tells us that. And so, I think
7 in that example, that's a clear-cut example that it's occupying a different x-y
8 location than the part itself because it's exterior to.

9 JUDGE WEATHERLY: At least in the example --

10 MR. BISENIUS: At least in that example, yeah.

11 JUDGE WEATHERLY: -- where it says the sacrificial material is
12 outside --

13 MR. BISENIUS: Correct.

14 JUDGE WEATHERLY: -- the part.

15 MR. BISENIUS: Yes.

16 JUDGE WEATHERLY: Okay.

17 MR. BISENIUS: I believe that the sacrificial material being inside
18 the part would also read on for the claim language as it's stated, but if the
19 claim is going to be read --

20 JUDGE WEATHERLY: You mean the claim would read on that
21 prior art?

22 MR. BISENIUS: Yes, but if we're going to read in this limitation that
23 it has to be an x-y location not occupied by the object, Boyer still discloses
24 that with its external transition segments that are sacrificial.

1 JUDGE WEATHERLY: Well, really what we're trying to understand
2 and figure out is how can you tell a purge tower from a not purge tower in
3 the context of the claim?

4 MR. BISENIUS: I think when we look at the prior art, RepRap,
5 KISSlicer, and Boyer, they're all performing this function for the same
6 reason. You're getting that next tip, that's going from inactive to active
7 mode, ready to print the thing you really want to print. And in Boyer's case,
8 it's okay, because we don't want to have a mix of -- in its primary
9 embodiment, colors, but it also says hey, this would be part and support
10 structure. We don't have a mix of materials partially parts and partially
11 supports. We're going to purge. It doesn't say purge, but it says we're
12 going to need to do some printing that's not part of the object, we'll just do
13 this extra little printing over here to make sure this nozzle is now ready with
14 that material we just switched to. KISSlicer is saying the same thing. We're
15 warming up from a keep-warm temperature to the active temperature, and
16 we need to print part of this wipe pillar over here before we print the next
17 layer, so that this material is good quality and ready to go. RepRap is saying
18 the same thing. We're going to prevent oozing by making sure we prime
19 this nozzle, print before we print the next layer of the thing we really care
20 about so that we have a piece that's in flow. They're all achieving the same
21 end goal of what a purge tower is generally trying to do. You're getting
22 your machine ready so you've got good material to print the thing you really
23 care about, the object of the support structure.

24 JUDGE WEATHERLY: So, in your view, does purge tower mean a
25 structure that you don't care about?

1 MR. BISENIUS: I think sacrificial might be a good term, or
2 ancillary. Like, in their invention story, the inventors talked about how they
3 would -- or the inventor, Mr. Larson, talked about how he would design
4 these purge towers, and then they would just combine them with a file of a
5 part as a separate location on the substrate, because it really was just, like, a
6 separate thing that they didn't care about, and it was closer to the object than
7 the purge bucket.

8 JUDGE WEATHERLY: Okay.

9 MR. BISENIUS: And if there are no additional questions on claim
10 construction, I'd like to talk about Ground 2a, this is Priedeman in view of
11 KISSlicer.

12 JUDGE KAISER: Let me stop you.

13 MR. BISENIUS: Yeah.

14 JUDGE KAISER: I'm sorry, I have a question about claim
15 construction. So, inevitably the construction issue here is this issue of, there
16 are multiple, alternative claim constructions in the petition. I'm sorry, two
17 alternative claim construction positions in the petition for the multiple print
18 head and deposition lines limitation.

19 MR. BISENIUS: Yes. Okay, go ahead.

20 JUDGE KAISEER: Yeah, and so, there are a couple of issues there.
21 So, one is the one that I think Patent Owner brings up, which is, you know,
22 is that an acceptable way to proceed in the petition. Let's put that aside for a
23 moment. The other issue is, can you -- given that, you know, some of your
24 grounds use one of your constructions, and some grounds use the other, is
25 there a range for us to find that you omit, let's say, like Ground 3 and also
26 one or more of the other grounds? Or do we need to pick one claim

1 construction, because, you know, we need to figure out what the claim
2 actually means?

3 MR. BISENIUS: So, the Board would not necessarily need to pick
4 one claim construction. As we identified in the petition, both Ground 1 and
5 Ground 2A and Ground 2B would all meet both constructions of the claim,
6 because both of them demonstrate that there are separate extrusion nozzles
7 used in those devices. And so, the debate was, does the separate deposition
8 line require there to be separate nozzles, or is it okay for one nozzle to
9 switch between two different supplies? That's the debate between the two
10 different constructions. At the time we filed the petition, Patent Owner had
11 not taken a position on that in the district court, and so therefore we offered
12 up prior art that we thought would read under both constructions. That's
13 Ground 1, 2A, 2B. But we also offered up Boyer as prior art that would read
14 under that narrower construction. And just to be clear, under the narrower
15 construction, Grounds 1, Ground 2A, and Ground 2B, still meet the claim
16 language. This isn't an either-or. It's, is there a broader one, or is there a
17 narrower one? And that narrower one would fit under the broader
18 construction.

19 JUDGE KAISER: Okay. I understand. Thank you.

20 MR. BISENIUS: All right. I'd like to proceed to Ground 2A. This is
21 the Priedeman-KISSlicer combination. And I'm going to move to
22 Petitioner's Slide 87. So, here we have Priedeman. Priedeman is printed in
23 a layer-by-layer manner. We see this white material on the right, that's the
24 part material. We have support structure around it labeled with the numeral
25 -- oh, sorry. The letter B on the left side, there. There's no dispute that
26 Priedeman teaches support structure and part material. And even though --

1 branching off of what we discussed, even though it's only one nozzle
2 depicted in Figure 1, it's very clear that there are multiple extrusion heads.

3 We have this paragraph 18, the second highlighted part. So, it's the
4 extrusion apparatus, 10, then we accommodate the dispensing of two
5 different materials by one, providing two extrusion heads, 12, one supplied
6 with modeling material A and one supplied with support material B. So,
7 even though the figure only shows one nozzle, we have disclosure that
8 there's two nozzles, and Patent Owner has not disputed this disclosure.

9 Turning to Petitioner's Slide 89, we added KISSlicer to Priedeman to
10 demonstrate that you would also include a purge tower. Patent Owner has
11 argued that KISSlicer is not prior art. Patent Owner has not disputed the
12 motivations to combine apply KISSlicer's suggestions to Priedeman. They
13 just argue that if you did add KISSlicer to Priedeman, it would not meet all
14 of the claim language. So, way at the beginning of my time today, I talked
15 about Claim 1 and how its pertinent operation requires printing the purge
16 tower prior to printing the actual parts. So, you print the part material in the
17 purge tower, then you go print your layer of the actual part. Then you print
18 with support material at the purge tower, then you print your actual part. So,
19 you're printing the purge tower beforehand. And that's exactly what
20 KISSlicer says. It describes a wipe pillar. The wipe pillar is a cylinder
21 printed before every layer to clean the extruder tip.

22 Now, Patent Owner raises a number of arguments as to why this is not
23 really a purge tower, their first being that well, it uses the term wipe, we use
24 the term purge, and a wipe is different from a purge. And it is true that the
25 '713 describes some differences between wipe operations and purge
26 operations, but it does also say that a purge tower can be used to achieve a

1 wipe operation. We discuss that in the Petitioner's reply. But beyond the
2 nomenclature, we know that this wipe pillar is a purge tower because of how
3 it's described. It says it's cylinder that's printed. So, this isn't wiping the tip
4 on a brush or another object or another part of the device, it's actually
5 printing a separate object in order to clean the tip. It says it's printed before
6 every layer. And it calls it a pillar. It calls it a cylinder. Those seem like
7 two very clear synonyms for a tower to me. A pillar, a cylinder.

8 Now, another argument from the Patent Owner is, don't believe what
9 KISSlicer says here. Even though it says it's printed before every layer, our
10 expert said it's really printed after the layer. You print the layer of the part
11 first, then you print your cylinder. Now, we would argue, hey, KISSlicer
12 could not be any more clear, it's saying it's printed before every layer. And
13 that is the testimony -- that's the evidence of record. We have our expert
14 testifying yes, you would print it before the layer, and that would clean the
15 tip. And it says it's before every layer. So, even before the first layer,
16 you're going to print part of the cylinder before you print that layer. Clearly
17 it's doing it before printing part of the part, or part of the support structure,
18 or whatever other materials.

19 There's additional disclosure in KISSlicer that indicates this is done
20 before printing the actual part. And that's the wipe setting here. And it
21 describes the wipe setting as millimeters. After a warmup of the printer it
22 will push -- prime this amount of filament to ensure the printer is ready.
23 Now, Patent Owner has argued this is unrelated to wipe pillar. Just because
24 they both say wipe, just ignore that. This is really just talking about boot-up
25 of the machine in the very beginning. That's what warm-up means. It

1 means boot-up. And you only do this at the very beginning. You're not
2 doing this between every layer.

3 But we know that's not true, because of the other disclosures of
4 KISSlicer. And this is on the same page, a couple more lines down. It
5 describes settings for keep-warm and temperature. Keep-warm, this is the
6 temperature of the inactive nozzle, and that's when printing with multiple
7 materials, that sets the idle temperature of the idle nozzle. And then,
8 temperature is the actual printing temperature. It sets the temperature of the
9 material for the main part. So, when -- this wipe setting is saying, after a
10 warm-up, you're going to prime that nozzle. That's the warm up it's talking
11 about. You're warming up from keep-warm temperature to the actual
12 printing temperature.

13 And KISSlicer, also, expressly tells us that the keep-warm
14 temperature is lower than the active temperature. We see that on Slide 90.
15 This is very small print, but on the lower left, this is in the petition on page
16 50, we see a labeled menu that was labeled by Dr. Hickner, of the
17 temperature on the left, I believe it says 250 degrees, and the keep-warm
18 temperature on the right, 160 degrees. So, when KISSlicer says the wipe is a
19 warm-up, it means it's warming up, because I'm switching material, I'm
20 going from keep-warm temperature, 160, I'm warming up. I'm going to
21 have this active temperature, 250. And it says, after that warm-up, I'm going
22 to prime my nozzle to make sure that it's ready to print. And that matches
23 perfectly with what it says about the wipe pillar. It uses the term wipe for
24 both of them, and it says I am going to print -- printing before every layer is
25 another way of saying priming that nozzle. So, what we see here is, when a
26 nozzle switches from inactive, keep-warm temperature, to active mode, it's

1 printing a layer of purge tower, the wipe pillar, before it prints the actual
2 part. And that is exactly what's stated in the claim language.

3 Oh, Patent Owner also makes an argument -- sorry. If I go back to
4 Slide 90. Patent Owner makes an argument that, well, it says that it's
5 printing an entire cylinder before every layer, because right here it says the
6 wipe pillar is a cylinder printed before every layer. So, that's not a purge
7 tower. It's printing an entire cylinder every time you print it.

8 We have testimony from Dr. Hickner saying that's not how a POSITA
9 would have understood this. They realized it's printing a layer of the
10 cylinder before every layer. But another issue is that this still falls within the
11 claim language. Because Claim 1 itself says that the purge operation
12 includes printing at least one purge tower. So even if there were multiple
13 purge towers, that would still fall within the claim language.

14 But I believe that what KISSlicer is actually saying is it's one wipe
15 pillar, and the reason we know that is on Slide 91. Once again, very small
16 print on the left side here. It's another menu from KISSlicer, and that is the
17 wipe pillar setting. And what that is an x-y location for where you're going
18 to print the wipe pillar. It doesn't ask you for a whole bunch of different
19 locations for a whole bunch of different wipe pillars. It's got one location
20 for the wipe pillar for a given print.

21 If there are no questions on how the Priedeman-KISSlicer
22 combination discloses the independent claims, I'd like to talk about Claim 6.
23 I'm going to go to Petitioner's Slide 101. So Claim 6 requires wherein, the at
24 least one purge tower is stopped at a highest layer, at which there is a
25 material change for the printed layers of the three-dimensional part and
26 support structure.

1 And Patent Owner attacks KISSlicer in isolation when addressing
2 Claim 6. But when we look at the actual combination, and the actual
3 example in Priedeman, we see that Priedeman is switching every layer.
4 Because there's support structure and there's part material in every layer.
5 And so therefore, the last place there is a switch is the top layer. So
6 therefore, when KISSlicer says, print before every layer, it's stopping before
7 the last layer. And the last layer is part material here, and it switched right
8 after it got done printing the support material below it.

9 So in this specific example, if we applied KISSlicer to Priedeman, it
10 would stop at the top layer, because there's a switch every layer.

11 There's also testimony, if we go to Slide 100, from Dr. Hickner, of the
12 difference between the word layer and the word roads. And so a layer would
13 be considered multiple roads of material together. And therefore, under a
14 broader interpretation of the term layer, any switch would be -- even if
15 multiple roads were stacked on top of each other, that would be considered
16 one layer in some nomenclatures in 3D printing. This was in Dr. Hickner's
17 reply testimony. And Patent Owner elected not to question Dr. Hickner after
18 he submitted this testimony.

19 Turning to Ground 2A, I'd like to talk about Petitioner's Slide 103. So
20 Ground 1A, we've added the teachings of RepRap. And this is showing both
21 the RepRap video and in the RepRap article. This purge tower structure
22 over on the right here. And Patent Owner has a few arguments about
23 motivation to combine. They say, you wouldn't import this teaching from
24 RepRap onto the Priedeman-KISSlicer combination, because RepRap says,
25 hey, switching between these nozzles is going to slow things down, because
26 you've got to adjust the temperature.

1 This ignores the fact that KISSlicer already is adjusting the
2 temperature between its different depositions. And so this is already built
3 into the Priedeman-KISSlicer combination. And so adding in RepRap's
4 teaching about a specific shape for the purge tower would not actually slow
5 down the resulting combination at all. It's just giving a specific shape
6 different from that cylinder described in KISSlicer. And Dr. Hickner
7 testified, having this shape where it's got a wider base and then has the
8 narrower part in the middle would add extra stability.

9 Patent Owner also argues that this shape here shown at the bottom of
10 Slide 103 does not meet the claim language, because it starts out wide, gets
11 narrower, and then increases in surface area again, it gets wider. And we
12 don't dispute that this shape starts out wide, gets narrower, and then the last
13 layer is a wider layer.

14 This still meets the claim language. The claim language simply
15 requires wherein the at least one purge tower has a cross-sectional area that
16 reduces in height along an axis that is perpendicular to a build plane. It has
17 that cross-sectional area. When it reduces in cross-sectional area from that
18 base layer to the next layer, that's a reduction in cross-sectional area as the
19 height increases. And therefore, it meets the claim language.

20 There's no requirement in the claim that there can never be any
21 increase in cross-sectional area. All it requires is a first cross-sectional area,
22 then a decrease in that cross-sectional area as the height increases. And
23 that's exactly what's shown here in RepRap. And this is shown in both the
24 RepRap video and in the RepRap article.

25 I have a few more minutes left. And so very briefly, there were some
26 questions about the Boyer ground. This is Ground 3. I'm going to go to

1 Petitioner's Slide 107. And so here, we see an example where Patent Owner
2 -- and Patent Owner has really focused on this example from Figure 4. And
3 Dr. Hickner testified that a POSITA recognized this is merely just an
4 example of the capabilities, and that the actual knowledge that a POSITA
5 would gain from this is everything that Boyer teaches.

6 So we're not proposing combining different embodiments. We're not
7 proposing an obviousness argument framed as an anticipation argument.
8 This is an actual anticipation argument. And Figure 4 is just an example.
9 And as we discussed earlier, Figure 4 appears to be showing an internal
10 structure. But again, we're not seeing the full part.

11 So it's very possible that in the example in Figure 4, there could be
12 another turn in another direction. This box here is not the substrate. This is
13 just showing some direction. So it could be a turn that goes up, and then
14 left, and around again. Those could possibly be external structures.

15 And the way we know they could be external structures is because
16 Boyer tells us that. In paragraph 34, it says, the tool path may include any
17 number of excursions from the exterior surfaces, including excursions into
18 the interior, and then later on, or outside the exterior of the material. This is
19 also in paragraph 43. And in 43, it talks about that the sacrificial material
20 could be outside of the object being printed. So it's very clear this could be
21 external material.

22 Patent Owner says that we've shifted our argument, and now we're
23 relying on 34 in our Petitioner's reply, but we hadn't before. Paragraph 34 is
24 cited extensively throughout the declaration, including almost every
25 limitation of Independent Claim 1 when we're describing what this transition

1 segment, which is the term that Boyer uses, describing how it actually would
2 be a purge tower.

3 I have about four and a half minutes left in my initial time. If there's
4 no questions on that, I'd like to move very quickly to Ground 1.

5 All right. Turning to Petitioner's Slide 68. So here, RepRap uses the
6 term a parking space. But we know this is a purge tower, because it says
7 that it's actually printed. It's not just material that is leaking from the nozzle
8 or dumped into an area. It says it's printed on the top line here. The
9 technique being used with the current generation is to print a parking space.
10 And it says this is done to prime the extruders, establish the consistent flow
11 of plastic, before printing the actual object after the temperature change.

12 Now, Patent Owner has said that there's a teaching away from using
13 RepRap with Leavitt, because RepRap, in another portion, says that the
14 switching between materials can slow down the deposition process. And
15 that's true. But first off, Leavitt already discloses switching between
16 materials.

17 Actually, there's examples that we discuss in the petition and the
18 Petitioner's reply, where it's switching between support structure and part
19 structure every layer. And so this switching is already occurring in Leavitt.
20 And so that slowdown is already there. Because the slowdown is not
21 because of the purge tower, the slowdown is because of the switching of
22 materials.

23 But even if there were some additional slowing down that we could
24 pin on the purge tower, the parking space, rather than materials, that's simply
25 a trade-off. And Dr. Hickner said that a POSITA would recognize the

1 benefits. And it would be a fair trade-off. And those benefits would be that
2 you have the nozzle ready to print. You've got the material ready.

3 And that would be a benefit over other purge options such as a purge
4 bucket, because the purge bucket is off the substrate, further away. The
5 print head has to move further. So by printing this parking space, it's saving
6 that movement time, reducing the amount of time required to print the part.

7 I see I have about two minutes left. Unless there are questions for me
8 right now, I'll reserve the rest of my time for rebuttal.

9 JUDGE WEATHERLY: I don't have any further questions right now.

10 JUDGE REN: Nothing further from me.

11 MR. BISENIUS: Thank you, Your Honors.

12 JUDGE KAISER: Okay. Thank you very much.

13 JUDGE WEATHERLY: So I've got you at 27 minutes remaining
14 then for rebuttal. Patent Owner, how much time would you like to reserve
15 for rebuttal?

16 MR. OAKS: Let's reserve ten minutes.

17 JUDGE WEATHERLY: Okay. Just so my math is correct, that
18 means you get 80 minutes, right?

19 MR. OAKS: Yes, sir.

20 JUDGE WEATHERLY: Okay. Whenever you're ready.

21 MR. OAKS: I'm ready. Good afternoon, Your Honors. I'm Brian
22 Oaks, counsel for Stratasys. And just as a housekeeping matter, I'm going to
23 be splitting the argument today with my colleague, Mr. Christian Tatum.
24 I'm going to be talking about the swear-behind reduction to practice issue,
25 and also about the printed publication issue. And Mr. Tatum's going to be
26 talking with you today about the merits of the grounds.

1 I think it's important on the swear-behind issue -- before I get into our
2 slides, I want to clear up what I believe is some confusion or
3 misrepresentation about Mr. Leavitt's participation in the development of the
4 Solo printer. So Mr. Leavitt is a non-inventor, a corroborating witness. And
5 Petitioner has used some testimony from Mr. Larson, who was one of the
6 inventors. What Mr. Larson said, and this is on Petitioner's Slide 25, and
7 this is coming from Mr. Larson's deposition testimony, which is Exhibit
8 1029 at page 45.

9 And what Mr. Leavitt said was that -- sorry. What Mr. Larson said
10 was that Mr. Leavitt was not involved in the Solo development at that time.
11 And Petitioner wants to ignore the at that time. And if you look at page 45
12 of Exhibit 1029, you'll see what that time was. That time was the
13 development of the purge tower invention, the conception, right? Mr.
14 Leavitt was not an inventor. So it makes total sense that he was not involved
15 in the conception of the purge tower.

16 And he testified as such. Mr. Leavitt confirmed that -- this is his
17 deposition transcript, 1030 at page 43, lines 17 through 19. He confirmed
18 that he didn't develop the purge tower concept, the purge tower feature that
19 was the invention of the '713 Patent. So that is completely consistent.

20 Mr. Leavitt then, in his deposition, went on to explain what his role
21 was. He was a systems engineer in the skunkworks, which is their R&D
22 development center at Stratasy, working with Mr. Larson and the other
23 inventors. That's at Exhibit 1030, page 7, line 25 through page 8, line 2.
24 And importantly, he was responsible for testing the Solo printer. That's
25 Exhibit 1030, page 14, line 23, through page 15, line 13.

1 This is why Mr. Leavitt is important. That's why he knows about the
2 testing of the Solo printer. The Petitioner would have you believe he was
3 some random engineer that just comes and gives testimony, but that's not the
4 case. He was the one that was, at least in part, responsible for testing that
5 printer in its development to become eventually a commercialized feature --
6 commercialized product. Sorry.

7 So moving to Slide 9, I want to take you fairly quickly through the
8 evidence that we have. And we have more than just these two --

9 JUDGE WEATHERLY: What's your best response to Petitioner's
10 argument that Mr. Leavitt didn't have any personal knowledge of the file
11 being printed on any printer, much less the Solo printer?

12 MR. OAKS: So what Mr. Leavitt testified about, well, first of all,
13 both inventors -- if you look here at Slide 16, both inventors said --

14 JUDGE WEATHERLY: Your Slide 16?

15 MR. OAKS: Yes, sorry. Patent Owner's Slide 16. This is Exhibit
16 2019. So both inventors testified that they do remember successfully
17 printing purge parts, purge towers, on the Solo printer. That's their
18 testimony. And so we provided, in addition to that testimony, a very
19 specific example, the CMB file, that, if executed undeniably, indisputably
20 performs the method of the claim. So we could have just provided the
21 testimony and the photographs. But we provided this file that actually did
22 print a specific purge tower.

23 And what Mr. Leavitt testified was, he was involved in the testing of
24 that printer. Let me go to his testimony. This is on our Slide 21, and this is
25 his testimony about that. So first of all, backing up to Slide 20, he says, he
26 knows it was printed. So there is testimony. They ask him, okay, you didn't

1 personally do this. He didn't recall. This is 15 or so years ago. So he
2 doesn't remember the one file out of many that they were printing for testing.

3 But he knows it was printed. That's what he says, there on Slide 20.
4 And why does he know? He explained there was this process, right? They
5 have a test folder that they put these CMB files in --

6 JUDGE WEATHERLY: We know because our process at the time
7 would have been to print it.

8 MR. OAKS: Right. And in 2025 or whenever it was when we were
9 discussing this with him, he goes back to that folder, finds all the files that
10 were in the folder. He remembers that the files in that folder were printed
11 for testing. And --

12 JUDGE WEATHERLY: Let me stop you there.

13 MR. OAKS: Yes.

14 JUDGE WEATHERLY: He doesn't remember that the files were
15 printed, does he? He remembers that the process that was normal for the
16 time would have been to print the files in the folder.

17 MR. OAKS: Right.

18 JUDGE WEATHERLY: Right?

19 MR. OAKS: Right.

20 JUDGE WEATHERLY: That's what he remembers.

21 MR. OAKS: That's what he remembers.

22 JUDGE WEATHERLY: And I see that here in his testimony. Then
23 the test engineer would, dash, would print the parts in the folder. That
24 sounds like testimony about what the practice at the time would have been --

25 MR. OAKS: That's right.

1 JUDGE WEATHERLY: -- not testimony about what he remembered
2 specifically, other than here's what I remember about the process.

3 MR. OAKS: Right. There is not testimony of a person that said, I
4 remember this exact file was printed.

5 JUDGE WEATHERLY: Or who printed it.

6 MR. OAKS: That's correct. But there was the memory that it was
7 printed. And I would just suggest to you that --

8 JUDGE WEATHERLY: That it would have been printed.

9 MR. OAKS: That it was. That because it's in that folder, it would
10 have been printed, yes.

11 JUDGE WEATHERLY: Okay.

12 MR. OAKS: Yes, Your Honor.

13 JUDGE WEATHERLY: If we'd been doing the things that we were
14 supposed to be doing at the time following our processes.

15 MR. OAKS: Right. And I would point out that -- and I'm jumping
16 around a little bit. But this is, I'm on Slide 18. So this is one of the seminal
17 cases on reduction to practice, *Cooper v. Goldfarb*. And it specifically says,
18 you don't need a specific eyewitness, an over-the-shoulder observer. And it
19 says rather, sufficient circumstantial evidence of an independent nature can
20 satisfy the corroboration requirement.

21 The file itself, with the date that's undisputed, that undisputably
22 performed the method of the claim of executed on that printer, is
23 circumstantial evidence itself, right? The fact that it was in that folder is the
24 circumstantial evidence as well. We also have the pictures --

25 JUDGE WEATHERLY: Who testified that the file, printing the file,
26 would have, quote unquote, indisputably practiced the method?

1 MR. OAKS: That's in the declarations and the --

2 JUDGE WEATHERLY: Which declaration?

3 MR. OAKS: Both declarations. Mr. Larson's declaration and Mr.
4 Leavitt's declaration. They go through in detail that it would.

5 JUDGE WEATHERLY: Okay.

6 MR. OAKS: And I would say, I say indisputably, there's one small
7 issue that, on Claim 16, for one example that we gave, Petitioner disputes
8 that there was reduction to practice using that file. But other than that,
9 there's not a dispute that, oh, no, if you actually printed this file, it wouldn't
10 actually perform the claim.

11 JUDGE WEATHERLY: Okay.

12 MR. OAKS: And that file was provided, again, for dependent claims
13 and for the much more specific Claim 16, which requires a certain order of
14 things. But all that Claim 1 requires is that you print a purge tower out of
15 these two materials, right? And so, just backing up, it's undisputed that the
16 Solo printer existed. It's undisputed that it had two print heads, a part print
17 head and a -- sorry. A part print head and a support structure print head,
18 undisputed that those print heads switched between an operating and a
19 standby mode.

20 And like I said, it's undisputed that if you had put that, executed that
21 CMB file on the printer, it would have performed the method of all the
22 claims except for they had this one dispute over Claim 16. That's a lot of
23 evidence, right? And we provided this, you know, normally, I gave this
24 example of the Motorola case where they had the photographs of these guys
25 smiling in the back of this van, that they actually reduced this to practice.

1 But they had to rely on testimony to explain what they did because
2 they didn't have like the evidence of the thing that was actually reduced to
3 practice. We have the file that's very, very specific, showing every single
4 layer of how it instructs the printer to print. Because the printers, they just
5 do what they're told by these files. The files go layer-by-layer, material by
6 material, telling it exactly what to print. So you know what happened. All
7 we don't know with direct evidence, direct testimony, is that that file was
8 actually printed. But we know through the circumstantial evidence that it
9 was.

10 JUDGE WEATHERLY: What's your position on the concept of,
11 would it have even been necessary to have proven that the file was printed?
12 Does the file, the existence of the file itself constitute a reduction to
13 practice?

14 MR. OAKS: I mean, I think at least for Claim 1 and the claims that
15 don't require specific ordering of the layers, that it's not required. Because
16 we do have testimony in the declaration that the Solo printer was used to
17 print purge towers out of part material and support material. And that's
18 enough for Claim 1. Claim 1 doesn't require a particular order of how
19 they're laid down.

20 JUDGE WEATHERLY: The question I'm trying to get at is whether
21 the file itself, the existence of the file, is an instantiated version of the
22 method. Do you understand what I mean by that?

23 MR. OAKS: I do, Your Honor. I guess I don't -- I'm not sure of the
24 answer to that.

25 JUDGE WEATHERLY: Okay.

1 MR. OAKS: I do want to also -- one particular point that was made,
2 I'm on Slide 15. You asked Mr. Bisenius whether the file has evidence or
3 proof that there are two extruders being used, and it does. This is just one
4 example, one screenshot. You see near the bottom it says extruder index.

5 JUDGE WEATHERLY: Which one are we --

6 MR. OAKS: This is Slide 15.

7 JUDGE WEATHERLY: Okay.

8 MR. OAKS: Exhibit 2019. And if you go, I think it's about four
9 categories up from the bottom, you see extruder index, it's between vertex
10 number and part index. That, if you look at the declaration where we show
11 multiple different screenshots, you'll see that extruder index is changing
12 between one and two, and that identifies which of those print heads, which
13 of those extruders are printing that particular -- at that particular time. So it
14 does specifically define that there are two extruders.

15 Let me skip ahead, because we've covered this. I'm on Slide 23 now.
16 So there's this argument that, despite all the evidence to the contrary, that the
17 CMB file that we provided wasn't actually compatible with the Solo printer.
18 And the Petitioner takes this one statement without providing any context,
19 and that statement, their argument is Larson -- I'm on Slide 23 by the way.
20 Sorry. Larson and Leavitt stated the CMB file was designed for use with the
21 Fortus 400mc large printer.

22 That's true, but it ignores the rest of the testimony which they said
23 they then took that file that was originally designed for the Fortus printer and
24 they converted it for use on printing -- for printing on the Solo printer during
25 the development of the Solo printer. And they explained very specifically
26 what that conversion was, and it actually wasn't that big a deal. The Fortus

1 printer was a larger printer, it had a larger area in which it could build parts.
2 And they had to change that area that was defined in the file because the
3 Solo printer was a smaller printer. It had a 5-by-5-by-5 inch build space.

4 So that was the change they made to convert this file from a Fortus
5 file to a Solo file. And they explained that in their declaration. Again, here
6 I'm on Slide 24. Both witnesses were asked about this at their declaration --
7 I'm sorry, at their deposition. They explained again, like I just said, that you
8 just had to change the size of this bounding box.

9 Moving to Slide 25, indeed, the fact that this file has a bounding box,
10 or a build envelope of 5-by-5-by-5, indicates that it in fact was solely,
11 uniquely for the Solo printer, because that was the only Stratasys printer at
12 the time that had that build area. So we know for sure it's compatible and
13 was used for the Solo printer. It certainly couldn't have been used in the
14 Fortus printer with that different area. So the fact that it has that build
15 envelope that was changed indicates it was.

16 And again, both witnesses said that these CMB files were printed on
17 the Solo printer. There's really no evidence to the contrary. So it's just kind
18 of speculation where they take a statement in the file that says it's for Fortus,
19 which we explained in the declaration why does it say that? And they just
20 kind of ignore the whole explanation to raise this controversy that it isn't
21 actually a controversy.

22 I'm going to move to Slide 27. So there was also this argument that
23 there was no determination that the invention worked for its intended
24 purpose, which is the second part of reduction to practice. But the two
25 arguments that were made with respect to this was, the one thing was said
26 that there was further research and development that occurred on the Solo

1 printer and on printing purge towers after this printing of the CMB file in
2 2011.

3 But further research and development doesn't mean that you didn't
4 have successful reduction to practice. The *Scott v. Finney* case says that
5 certainly you can, you don't have to have a commercially satisfactory
6 product to have reduced the invention to practice. So we know ultimately
7 what was being developed as the Solo printer in-house was eventually
8 released a year or two later as the Mojo printer. But that doesn't mean there
9 wasn't reduction to practice in 2011.

10 And the other reason is they -- we provided this picture of a purge
11 tower that was printed later in 2012. And it was a different type of purge
12 tower implementation. The one that was printed by the CMB file that we
13 provided is just a single purge tower that has different alternating layers of
14 both part material and support material. The picture from 2012 was a
15 different embodiment that had two separate purge towers. They were
16 printed entirely -- one was printed entirely of part material and one was
17 printed entirely of support material. So that was a different implementation.

18 And that, they found out, if you look at the deposition testimony that
19 we have here on Slide 28, explains that that ended up being a problem
20 because the support material had a hard time by itself adhering to the build
21 plate. And so, in fact, they eventually decided not to go with that and went
22 with the design that you see in the CMB file that we provided for that
23 reason. But it certainly doesn't show that there wasn't a reduction to practice
24 of the CMB file that we provided.

25 Also, I mentioned there was this one issue on Claim 16. And so,
26 Petitioner looks at a couple of layers of the evidence we provided from the

1 CMB file and said aha, there's no implementation or embodiment of Claim
2 16. But they ignore there was actually four layers that the declaration points
3 to. And the other layers do indeed complete the picture and show reduction
4 to practice of Claim 16. And even setting that aside, we provided a whole
5 other example, layers 148 through 152, and they didn't even rebut that. So
6 it's kind of irrelevant what happens at layers 207 through 210.

7 And finally, I'm on Slide 30, I don't think Counsel mentioned this
8 today, but they make this complaint and say you should disregard these
9 declarations because they were typed up by counsel. But the fact that they
10 were typed by counsel doesn't change that both these witnesses, one
11 inventor, one non-inventor, read this and signed it and testified that it was,
12 under penalty of perjury, that it was true and accurate.

13 And in fact, they asked Mr. Leavitt about what was the process, and
14 he said, well, the first thing I did was I talked to counsel and I went and
15 looked for these documents, right? He was the one that found the
16 photographs and the CMB file. He still works at Stratasys, so he has access
17 to that. And then after that, he said, you know, had discussions with
18 counsel. They typed up the subject matter that the witnesses told the
19 counsel, and then the witnesses reviewed it, made corrections multiple times.
20 And then only after agreeing it was a hundred percent true and accurate did
21 they sign it. There's nothing wrong with that process.

22 I would also point out, they kind of make a deal about these two
23 witnesses didn't ever talk to each other about these declarations. Well, that
24 proves their accuracy. We have two separate people that, without talking to
25 one another, agreed on very similar testimony about what happened back in

1 2011. If there aren't any other questions about reduction to practice and the
2 swearing-behind, I'm going to move to the printed publication issue.

3 Okay. Sorry. Let me just wrap up on the reduction to practice. This
4 is just to show you, I'm sure you're -- quite obvious to Your Honors, but if
5 you agree with me that there was a swear-behind, a successful reduction to
6 practice in 2011, that would eliminate RepRap article and RepRap video as
7 well as Boyer as prior art references, thus eliminating Grounds 1, 2B, and 3.

8 So now moving to the printed publication issue, this wasn't discussed
9 in the Petitioner's presentation, but we do think it's fundamentally unfair and
10 improper that the petition does not provide any legal standard or analysis
11 about why the RepRap article and video and the KISSlicer reference were
12 indeed printed publications that were publicly accessible.

13 This on Slide 35 is the entirety of the argument, so to speak, in the
14 petition. It simply makes the bald conclusory statement that these references
15 had a certain date and they were publicly accessible to persons in the field,
16 period. And then they cite to evidence. This is improper.

17 You know, moving to Slide 36, first of all there's a prohibition against
18 incorporating arguments or other items, information by reference, right?
19 And that's effectively what they've done. So as I'll talk about in a minute,
20 the declarations themselves also don't provide legal standards or legal
21 analysis. But the information in them is --

22 JUDGE WEATHERLY: Nor should they.

23 MR. OAKS: Hmm?

24 JUDGE WEATHERLY: Nor should they.

25 MR. OAKS: Exactly. But that's --

1 JUDGE WEATHERLY: No, the declarations shouldn't contain legal
2 analysis.

3 MR. OAKS: Exactly, right.

4 JUDGE WEATHERLY: I don't want to hear about legal analysis
5 from a declarant who's telling me what they know.

6 MR. OAKS: Right. And that's our point. Ultimately, there is no
7 legal analysis.

8 JUDGE WEATHERLY: There doesn't have to be. That's my point. I
9 don't want to hear about legal analysis from a witness.

10 MR. OAKS: So effectively what you're saying is like they can make a
11 conclusory statement --

12 JUDGE WEATHERLY: No, they can offer a witness who has
13 memory and tells me what they remember. And you can cross-examine the
14 witness.

15 MR. OAKS: Right. But then no one has made -- so in our Patent
16 Owner Response, we have to take pages to rebut what we think might be
17 their legal argument about why these are publicly available.

18 JUDGE WEATHERLY: I'm not -- maybe I'm not understanding what
19 you mean by legal argument. I mean, this issue of whether something was a
20 printed publication is a factual issue.

21 MR. OAKS: Well, it's an application of facts to law. There's law,
22 which I'll talk about, as to when is something actually publicly available.

23 JUDGE WEATHERLY: Yeah.

24 MR. OAKS: They didn't make any of that analysis.

25 JUDGE WEATHERLY: But ultimately, it's a factual determination.
26 So it seemed to me that if somebody put something on the internet, it would

1 be probative to hear from the person who did it and what they remember
2 about it.

3 MR. OAKS: I'm not saying there's any problem with providing the
4 evidence. The problem is not providing an analysis of why that evidence
5 shows there was actually public availability. Because it causes them to
6 exceed their word count, right? Because they come back and they reply and
7 explain why. And yet we've had to -- they cram three different unique
8 grounds in a petition, three different primary references.

9 And they don't put any argument at all about public availability. We
10 have to then, in our Patent Owner response, rebut all three of those grounds
11 and have to basically rebut what was un-argued, right? About why these
12 references actually aren't publicly available. But if it's not convincing to
13 you, that's our position. But I'm going to move on to the substance. I'm
14 happy to answer any questions.

15 JUDGE WEATHERLY: Yeah, I'd rather hear about the substance
16 than the incorporation by reference argument anyway.

17 MR. OAKS: Yeah. So moving on to Slide 37. Oh, I'm going to skip
18 that one too. So here, 38, this is just the standard. Again, if they had
19 described the law, this would be the law that you have to show that a person
20 of skill in the art or another person in the public that's interested in the
21 subject matter could have located the reference exercising reasonable
22 diligence. And our position is that they haven't shown that.

23 Another part of the law in Slide 39 is simply because it's technically
24 possible in some way to find the reference doesn't mean that a person could
25 have found it with reasonable diligence. And effectively, that's what their

1 kind of unsupported statements are making, that things are technically
2 accessible, it just isn't sufficient under the law.

3 Starting with the -- this is on Slide 40, starting with the RepRap video,
4 their argument -- you discussed this with Petitioner's counsel earlier, but
5 their argument about the video is simply using YouTube, you can search for
6 titles and descriptions of videos. Okay. Well, at best, that's technical
7 accessibility. They didn't explain what in the title or the description would
8 have caused -- would have -- a POSITA would have looked for, right? Why
9 would they even be searching these terms to find it, right?

10 So at best, they could point out words and they didn't, you know, you
11 can type those words into a search box and maybe find it, but there's no
12 explanation of why a person would actually have typed in those words.
13 Why would they be on YouTube at all looking for 3D printing information?

14 JUDGE REN: What about Petitioner's argument or their position, that
15 Mr. Bakin is the moderator of this forum dedicated to 3D printing, and so
16 there are enthusiasts that would go to his blog and then would follow the
17 link to view the video?

18 MR. OAKS: Yes, Your Honor. So I'm on Slide 43. So this is the
19 entirety of his statement about that. He said that archived forum discussions
20 on okob.net, including discussion threads regarding 3D printing,
21 demonstrate that members of the public were able to access and identify
22 subject matter of interest on the website. He does not identify what forum
23 discussions they're talking about. He doesn't provide evidence of what those
24 are. And if you go to the website, at least as it's still archived today, those
25 discussions are later than the patent, than the '713 Patent.

1 So there certainly isn't evidence that in the prior art time period that
2 there were forums that were discussing 3D printing. And again, like, that's
3 only trying to reconstruct an argument they didn't make. They didn't
4 explain, like, here is a forum discussion that's relevant at the time, and it
5 looks to me that that's not the case. There weren't any forum discussions in
6 the prior art time period.

7 JUDGE KAISER: Is that the issue, though? I mean, it seems like it
8 doesn't -- the Petitioner doesn't need to show that somebody actually did find
9 the video in that way through the article. They just need to show that they
10 could have, right?

11 MR. OAKS: Well, could have is just technical accessibility. So they
12 had to show that -- like, that there was something about the website that --
13 like, with respect to the website, they have to show that -- and I'll show you
14 the -- where is that case. Basically that persons in the field would have
15 known of that website, would have had reason to go to that website. Here it
16 is. It's Slide 45, the *Blue Calypso* case.

17 In that case, they said there was no testimonial evidence that a person
18 interested in the field, in this case 3D printing, would be independently
19 aware of the web address of this personal web page. It's the same thing for
20 Mr. Bakin. I'm not sure that's how you pronounce it, his web page. It was --
21 it wasn't, you know, it had 3D content in it, again, most of which was after
22 the date of the patent, but it also had all kinds of other information about,
23 you know, peaches and other technical topics.

24 And so what's relevant is in the prior art time period, before the '713
25 Patent, did people know about that site? Would they have accessed it?

1 Would there have -- be any reason they would be searching for it? And I
2 submit that there isn't any evidence of that.

3 Finally, on Slide 46, with respect to KISSlicer, again, there's no theory
4 of accessibility in the petition. There was additional arguments in the reply.
5 Again, we think that's improper, that the Petitioner has an obligation to bring
6 their evidence in the petition, and so late filed evidence in the reply isn't
7 proper.

8 And finally, on Slide 47, again, we kind of have this conclusory
9 testimony about, you know, the site being -- this is Mr. Dummer, who was
10 the, I guess conceived the KISSlicer software, just said, you know, kind of
11 generically, the site was popular and users could find it via search engines,
12 blog posts, and word of mouth. But there's no examples of that. There's no
13 examples that these were persons of skill in the art, who they were, how
14 many people, how you could find it. These are just conclusory statements.

15 And we believe that isn't sufficient for Petitioner to meet their burden
16 to show that these references were publicly available.

17 And just as a conclusion on that section here on Slide 48, again, I've
18 highlighted the grounds that include these articles. Obviously, Your Honors
19 can do this for yourself, but if you were to agree with us that the Petitioner
20 has not met its burden of showing public availability, that would eliminate
21 Grounds 1, 2A, and 2B. As I mentioned before, with respect to the
22 reduction to practice, that also eliminated Ground 3 amongst other grounds.

23 So if you agree with us to this point, you could stop the analysis. You
24 don't even need to reach the merits. But, of course, we're going to discuss
25 the merits. And for that, I will turn over the podium to my colleague, Mr.

1 Tatum. I should ask before I sit down, do you have any other questions on
2 public accessibility or reduction to practice?

3 JUDGE WEATHERLY: None for me.

4 MR. OAKS: All right. Thank you, Your Honors.

5 MR. TATUM: All right. Good afternoon, Your Honors. Christian
6 Tatum on behalf of the Patent Owner. I'm going to pick up where Mr. Oaks
7 left off and take up the issue of what does a purge tower mean in the context
8 of the '713 Patent.

9 We would assert, Your Honors, that both the claims as well as the
10 specification and even the expert testimony in this case all points in the same
11 direction, and that's towards a purge tower that is a distinct and separate
12 component from the three-dimensional part that's used as part of a purge
13 operation.

14 So we start first with the language from the claims. Here we can see
15 that, with the example of Claim 1, it lists separately a three-dimensional part,
16 a support structure for the three-dimensional part, as well as a purge tower.
17 Also note that it separately discusses printing layers of each of these
18 structures separately in the claim. Of course, we know from the Federal
19 Circuit in cases like *Regeneron* where the claim lists out elements
20 separately, the clear implication is that those elements are distinct
21 components of the invention.

22 And now turning to the specification, we see it's in line with that
23 understanding. We're looking here now at Slide 51. This is column 8, lines
24 27 to 34 from the specification. And turning to the second paragraph, we
25 see the patent tells you that the purge tower may be printed at any suitable
26 free location on the build substrate, and that is at any location in the x-y

1 build plane not occupied by the 3D part. So that tells you right there that
2 this can't be within the 3D part or part of the 3D part. It's a separate and
3 distinct structure.

4 And then if you just look up to the preceding paragraph, you also see
5 that the patent contemplates that the purge tower may be recycled or
6 otherwise discarded. Again, the patent is talking here about a separate
7 sacrificial structure. So it's not talking about a feature that's embedded
8 within a site or part. And I'll just flag --

9 JUDGE WEATHERLY: Even if that's a location that's not occupied
10 by the 3D part?

11 MR. TATUM: Yes, Your Honor. I would say that if it's with --
12 inside the part that that is located within the x-y coordinates of the 3D part.
13 So I would say on that basis, yes, and especially in the context that we see --

14 JUDGE WEATHERLY: But the spec doesn't talk about within. The
15 spec says any location in the x-y build plane not occupied by 3D part 20 or
16 support structure 22. As is so often the case, nobody wants to tell us what
17 claim terms mean. They only want to tell us what they don't mean. So I'll
18 stick to the context that's defined by reading the claims, the attempt to read
19 the claims on the prior art.

20 You're talking about structures within. I presume you're talking about
21 the Boyer structure?

22 MR. TATUM: Yes, Your Honor. That's an example of one where
23 they -- of course, we disagree it's a purge tower, but they point to something
24 within the part. And I would point out with Boyer specifically, that's not just
25 even within the part. It's part of the part. Boyer at least --

26 JUDGE WEATHERLY: Why is it part of the part?

1 MR. TATUM: Of course, Your Honor. So Boyer tells us -- I can get
2 to that later. Pull it up now if you'd like. But the portion they look at in
3 segment 404, for instance, when we're looking at Figure 4, Boyer says that it
4 turns and infills on that path. And we have testimony from Dr. Osswald and
5 also from another reference we have in this case that infill is actually part of
6 the structure of the part. It gives it part of its structural integrity. So a
7 POSITA looking at Boyer and hearing it talk about infilling inside the part is
8 going to understand that's part of your part. You take that and you go away
9 with it. You never discard it.

10 And I'll just briefly note, Your Honor, of course, their expert agreed
11 that a POSITA would understand a purge tower is a separate physical object.

12 JUDGE WEATHERLY: So a distinct structure. Now, tell me what
13 distinct structure means.

14 MR. TATUM: Yes, Your Honor. I think it would have to be separate
15 from the three-dimensional parts. I'm not sure if there's really a difference
16 between separate and distinct in this way. But not part of it, certainly, not
17 built into the structure of it. And I think it would have to be, in some way,
18 separable, at minimum, certainly with what the patent --

19 JUDGE WEATHERLY: So something could be separable, but not
20 separate?

21 MR. TATUM: Something could be separable and not separated.
22 That's true. And I wouldn't want to, I guess, lean too much on separable
23 because that could really -- there's no real hard line there to draw.

24 JUDGE WEATHERLY: Since I'm not going to get you to tell me
25 what the claim means, maybe we should just stick to the context about how
26 do the claims read on the prior art or not read on the prior art. But I'm not so

1 sure that just saying the word distinct structure gets you all the way there the
2 way you think it might, from my perspective as a decision-maker.

3 MR. TATUM: Understood, Your Honor. And this may be more
4 illustrative when I get into the weeds on Boyer and kind of walk through and
5 show that exact --

6 JUDGE WEATHERLY: Is it just Boyer where this is an issue?

7 MR. TATUM: I think it is principally Boyer. There is some -- I think
8 a little dispute with the RepRap ground on what's actually being shown
9 there. But certainly taking Your Honor's words into account, I think Boyer
10 is really where we see the biggest problem with their labeling things as
11 purge towers.

12 JUDGE WEATHERLY: What about this concept of sacrificial
13 material? Is that meaningful in this concept of a purge tower? In other
14 words, if material is intended to be, quote-unquote, sacrificed, does that
15 mean that that material can constitute a purge tower?

16 MR. TATUM: I don't think necessarily. I think we heard it even
17 from counsel for Petitioner --

18 JUDGE WEATHERLY: I'm not talking about necessarily. I'm
19 talking about can it cover.

20 MR. TATUM: Yes --

21 JUDGE WEATHERLY: Is that a type of purge tower?

22 MR. TATUM: A purge tower as contemplated by the '713 Patent
23 could be material you intend to sacrifice after the fact, I believe.

24 JUDGE WEATHERLY: That's still part or connected to the part.

25 MR. TATUM: I think --

1 JUDGE WEATHERLY: It's designed to be broken off. I mean, you
2 know, I --

3 MR. TATUM: Well, I think, Your Honor, we have kind of some
4 perhaps engineering issues with that, and Dr. Osswald gets to that a little bit.
5 But if you're purging with the material that you're making your part with, if
6 it's actually connected to the part, then it's not --

7 JUDGE WEATHERLY: Here's the problem I'm having with purge
8 tower. You're acting as if purge tower refers to like a specific location and
9 that you can just see that here's the purge tower, here's not purge tower. But
10 the word purge to my mind evokes a kind of functionality, frankly, like an
11 intended purpose. Like I'm printing material that is, for lack of a better
12 word, going to be purged. It's not part of -- I don't care about the material.
13 I'm going to sacrifice the material. I don't care the quality of the printing. I
14 don't care whether it's two colors mixed together. Whole number -- whole
15 series of things.

16 And the claim uses purge tower. It doesn't talk about -- it doesn't use
17 the kind of language of location like you're using. And so is purge tower
18 something that is to be understood based on the function of what the printer
19 is doing as it's extruding material, or is it only limited to locations?

20 MR. TATUM: Understood, Your Honor. No, it also takes into
21 account the function, and you're right, that is the purge aspect of this here.

22 JUDGE WEATHERLY: When you say it also takes into account the
23 function, that implies to me that it has to be physically distinct and separate
24 from the part and needs to be sacrificial material. And I'm trying to figure
25 out if the material is just sacrificial but it's physically connected to the part,
26 has a purge tower been printed?

1 MR. TATUM: Understood, Your Honor. I think our position on that
2 would be that a POSITA looking at that wouldn't view that as a purge tower.
3 And it's a little tough if you are talking about it being sacrificial. But in the
4 instance of the purge tower where it's the materials that you're otherwise
5 using to build your part, I don't think that a POSITA would intend to
6 sacrifice the materials that it's otherwise laying down and adjacent to the part
7 because you're going to have fusing issues and you're not going to be able to
8 easily separate that from the part if it is in contact.

9 So I think that's informing -- that functionality is informing the spatial
10 relationship that I'm trying to explain here.

11 JUDGE WEATHERLY: Okay. Like sometimes 3D printing is used
12 to print parts that have an interior, at the end of the day. But maybe you
13 don't care about what's on the interior. You just care about the external
14 shape. And so you do all the dirty work, for lack of a better word, all the
15 purging inside the part. That purged material, that material that I'm defining
16 based on the function of having material being purged from the print head,
17 but inside the part, is that necessarily not a purge tower because it's
18 connected to the part?

19 MR. TATUM: I think Your Honor, our position would be that if it is
20 inside the part and it's connected to the part, in that way, that that's still
21 within the boundary of the part on the language of the specification up here.
22 But that that would not be a purge tower. We, of course, don't see that in the
23 prior art before us.

24 JUDGE WEATHERLY: Okay.

25 MR. TATUM: I think that would be our answer on that, Your Honor.

1 JUDGE WEATHERLY: Well, it's hard to tell what Boyer actually
2 really disposes. I mean the figure in Boyer is very schematic. The language
3 in Boyer seems to describe more than what the figure shows. Okay.

4 MR. TATUM: All right. I'll go ahead and pick up with Ground 1.
5 And here is a few different issues I think you've been setting aside, whether
6 they're printed publications and prior reduction to practice. And the first of
7 which I'll discuss is this lack of motivation --

8 JUDGE WEATHERLY: Yeah, this title on this slide. Oh, no. Sorry.
9 I was on Slide 52. What slide are you on?

10 MR. TATUM: Excuse me. I'm on Slide 55. Apologies, Your Honor.

11 JUDGE WEATHERLY: Okay.

12 MR. TATUM: And turning to Slide 56. So first addressing the
13 Petitioner's motivation to combine the RepRap materials with Leavitt. They
14 have their first motivation to combine, which is essentially this theory that
15 Leavitt's idle nozzle would have material with some inconsistent texture, and
16 that a POSITA would want to prime it to a purge tower to get rid of that and
17 avoid uneven deposition or defects on the part.

18 Now, it sounds plausible only if one is assuming problems that Leavitt
19 itself doesn't identify. So on Slide 57 now, Your Honor. And like I just
20 mentioned, Leavitt never talks about issues with inconsistent texture or
21 uneven deposition. Leavitt doesn't say any of that. What it actually says is
22 something much narrower, and it's that there may be residual material that's
23 on the idle tip.

24 And that Leavitt solves that risk, as we see here on the slide from
25 Leavitt, by raising that inactive nozzle. And it says you raise that by an

1 offset, and that reduces the risk that the residual support material comes into
2 contact, the layer of the 3D part of a 3D object being formed.

3 So this shows that Leavitt already has a solution to the only contact or
4 oozing issue it discusses. So we assert, Your Honors, that Petitioner is not
5 filling a gap in Leavitt. It's using hindsight to add a second, different
6 solution to the problem that Leavitt itself already says it solves.

7 And now on Slide 58. And we saw in the reply that Petitioner kind of
8 shifted and he said, well, Leavitt's z-offset only reduces the risk, and
9 RepRap would reduce it even further. But we just have to be honest that the
10 question is not whether in the abstract two different risk reduction methods
11 can coexist. The question is whether the record identifies a recognized
12 problem in Leavitt that would have led a POSITA to adopt RepRap's
13 specific technique in the claim required manner.

14 And we would assert that it does not -- again, Leavitt doesn't mention
15 that its z-offset somehow fails and it doesn't suggest that additional printing
16 is necessary. And of course, RepRap is not presented as some universal
17 solution for residual material on the tip. So again, we'd assert this is
18 hindsight reasoning where you have the patent and you try to work
19 backwards to get to it.

20 And again, I'll just point out that Petitioner never identifies any
21 disclosure that RepRap's parking space would even remove this external
22 ooze any better than any other kind of purge operation or tip wipe operation.

23 All right. On Slide 59 now, and this is the second motivation to bind
24 that Petitioner asserts. And this one is about time savings. And Petitioner
25 tells us in the petition that, well, it's save you time if you combine it because
26 you can print your parking space right next to the park instead of going to

1 your purge bucket off the edge of the build platform. But that theory just
2 ignores what RepRap itself says about the time costs of this technique.

3 And here I'm on Slide 60. And, in fact, this gets to one of the clearest
4 teaching waypoints we have in the record. RepRap says right there I think
5 of, and this is from the one page of RepRap, Exhibit 1005, the article. It
6 says that its method works best for a few layers of color, but that it slows
7 down the print substantially when there are a lot of layers requiring extruder
8 switching. That's an express warning from RepRap against using these
9 teachings when you're going to have a lot of extruder switching.

10 And Leavitt is exactly the kind of system where extruder switching
11 matters and where it happens frequently. And as you can see here on the
12 slide, same slide, Leavitt paragraph 24 tells us that even a single 3D object
13 can support structure. Whenever you're printing an object, the extrusion
14 head toggles between the build state and the support state numerous times,
15 and that this number is multiplied when you're doing rapid manufacturing.

16 So RepRap warns against frequent temperature adjustment switching,
17 like its parking space, while Leavitt is a system that's defined, essentially, by
18 frequent switching.

19 Now, we heard Petitioner today say that any printer that switches its
20 extruders, it's going to exhibit the same slowness that's described by
21 RepRap. But that's just not the case. And RepRap certainly doesn't say that.
22 RepRap specifically ties the slowness to its method involving the parking
23 space in which it goes over there and it changes its temperatures and it
24 operates. So that's RepRap's issue.

25 And that's the very behavior that Petitioner seeks to import into
26 Leavitt. So I mean, it's a teaching away problem and I'll just also note, Your

1 Honors, it's also an issue for a reasonable expectation of success as well.
2 Lack thereof, we'd assert.

3 Now, Petitioner's third theory, and we're on Slide 61, Your Honors, is
4 that, well, you can improve Leavitt and prevent that ooze material from
5 leaking that we talked about by implementing RepRap's cooling idea. And
6 again, this theory just both overreads the problem at issue and their solution.

7 And I think the first thing, Your Honor, is that a POSITA would not
8 equate Leavitt's discussion of ooze with some sort of uncontrolled leakage or
9 dripping onto the part. And that's kind of what we heard from Petitioner in
10 the papers. And as Dr. Osswald explained in paragraph 92, and here I'm on
11 Slide 62, a POSITA would have understood that polymer melts would not
12 leak or drip from the extruder head onto the part because of their high
13 viscosity and surface tension.

14 In other words, your material will not simply drip and fall from the
15 extruder head onto your part if it's over it. That's not how these polymers
16 work and we hear that from Dr. Osswald who has substantial experience on
17 that front. And I would just point out that this point is reinforced by the '713
18 Patent itself when it describes performing purge operations and you have to
19 extrude enough material so that the lab should fall away when you're in a
20 bucket. So it's not a situation where it's like a leaky faucet and it's just
21 dripping. And that's the way they characterize it for their motivation to
22 combine.

23 And I also point out as we already discussed, Leavitt already has an
24 issue or rather a solution for its issue of oozing and it's that it raises that
25 inactive tip so that whenever the other extruder is going it doesn't contact
26 and do that and contact zero on the part. And if Leavitt was really facing

1 this idea of some sort of uncontrolled oozing, raising that tip up a few
2 millimeters wouldn't solve anything. I think that's further evidence that
3 Leavitt is not dealing with the sort of dripping, draining problem that they've
4 asserted.

5 So once again, this is not an actual issue in Leavitt that Petitioner has
6 identified. They're simply asking the Board to assume some further problem
7 in Leavitt that isn't stated there and is inconsistent with what is there, and
8 then to assume that implementing RepRap would fix that. But we'd assert,
9 Your Honors, that assumptions and speculation can't satisfy Petitioner's
10 burden here.

11 And then now we're on Slide 64, and this is the final motivation to
12 combine that Petitioner asserts. And this one's pretty simple. They say,
13 well, you put it together because if you do the parking space, that's going to
14 concentrate your waste material and that's great. We like that. But again,
15 that's really just another hindsight rationale. And now I'm on Slide 65.
16 Similar to the other ones, Petitioner identifies no deficiency in Leavitt
17 regarding the disposal of waste material. It never talks about well, if only
18 there was a better way that I could get rid of all this material. It would save
19 me a lot of time. It doesn't say that.

20 And then the second thing is that of course we know from the '713
21 Patent that purging into a purge bucket was conventional. And --

22 JUDGE WEATHERLY: Help me understand the claim and why the
23 claim doesn't cover purging into a purge bucket.

24 MR. TATUM: Yes, Your Honor. Because the claim describes
25 printing layers of the purge towers, so they're printed in a layer-by-layer
26 manner. And so that would be distinct from purging into a bucket where

1 you're just parking your head over it and purging into air and it falls into a
2 bucket.

3 JUDGE WEATHERLY: Well, isn't it still depositing layers?

4 MR. TATUM: No, Your Honor --

5 JUDGE WEATHERLY: Spaghetti. You know, disorganized layers,
6 but isn't it still?

7 MR. TATUM: I think we draw a distinction between spaghetti or
8 purging into air and its dropping into a mass, you know, in a bucket some
9 inches below from the layer-by-layer printing that we're talking about in this
10 technology.

11 JUDGE WEATHERLY: Yeah. I mean does the specification
12 distinguish layer-by-layer from purge bucket behavior?

13 MR. TATUM: So I don't know in those terms exactly I think it
14 distinguishes certainly the purge bucket as you know --

15 JUDGE WEATHERLY: You understand what I'm trying to tease out,
16 right? Like how can I tell the difference between layer-by-layer versus
17 spaghetti in a purge bucket?

18 MR. TATUM: It's probably not a helpful answer, but by looking at it,
19 you know, and seeing that it's actually --

20 JUDGE WEATHERLY: I'll know it when I see it?

21 MR. TATUM: I think you definitely would know when you see it,
22 but I think it needs to be controlled deposition, especially when we're talking
23 about building a tower layer-by-layer. This is not a comp of material.
24 Things are going here. Things are going there.

25 JUDGE WEATHERLY: That's what you mean by a tower.

26 MR. TATUM: Well, I think --

1 JUDGE WEATHERLY: I'm asking you about the spec. Does the
2 spec get into this distinction between layer-by-layer deposition and a purge
3 bucket?

4 MR. TATUM: I don't believe in the terms of contrasting the purge
5 bucket saying this is not layer-by-layer. I think certainly the context and all
6 the discussion gets to that. But I don't have a specific portion of the
7 specification to point you to Your Honor that that distinguishes that exact
8 aspect.

9 JUDGE WEATHERLY: All right. I mean --

10 JUDGE REN: Counsel, do you --

11 JUDGE WEATHERLY: Go ahead, Judge Ren.

12 JUDGE REN: Well, I was just going to ask Counsel about this no
13 deficiency in Leavitt argument. It seems to me that obviousness analysis
14 doesn't really specifically require that a prior reference specifically says,
15 okay, I need this, for example, disposal of waste material. That's where we
16 have the skilled artisan and their testimony.

17 MR. TATUM: Of course, Your Honor, and agreed on that. I think
18 what I would point to there is there's no evidence that there is otherwise a
19 need in the art. In fact, we know from --

20 JUDGE WEATHERLY: Well, there is a need to dispose of material
21 because Leavitt talks about a purge bucket, right?

22 MR. TATUM: Yes, Your Honor.

23 JUDGE WEATHERLY: And RepRap does show disposing of
24 material, I think, in the form of printing a separate structure that one could
25 maybe call a purge tower. It's not much of a leap to combine those two

1 things, two different ways of disposing of material that you don't -- they
2 want to sacrifice, isn't it?

3 MR. TATUM: Well, I would assert Your Honor that if you already
4 have the baseline that you can purge into a bucket, there's not really any
5 need to implement RepRap's teachings, right? Especially given the
6 teachings the way we've seen of implementing its method when you're going
7 to have frequent extruder switching.

8 JUDGE WEATHERLY: Yeah. Well, I mean, I think you understand
9 maybe a little bit better why I'm asking about the difference between the
10 structure that ends up in a purge bucket and the structure that you're calling a
11 purge tower, and whether there really is any difference between those two.
12 And which, specifically which claim language it is that excludes the concept
13 of just squeezing material into a bucket.

14 MR. TATUM: In terms of the claim language, I would point Your
15 Honor to purge tower, right? So the tower aspect of it. It's obviously not
16 defined further than that, but that in combination with the layer-by-layer
17 printing. So it obviously doesn't say there in the claim language, you know,
18 this excludes a purge operation -- sorry, rather purging into a bucket. It
19 doesn't have it explicit there in the claims, but I think the language of you
20 are printing a tower and it's layer-by-layer gets you that distinction between
21 simply purging into air in a bucket versus printing a tower on the build
22 substrate.

23 JUDGE WEATHERLY: Okay. Ultimately this is me trying to figure
24 out how to distinguish a purge tower from something else.

25 MR. TATUM: Understood, Your Honor. And that would be the way
26 I would distinguish it from purging into a purge bucket. And so that's

1 motivation to combine. We'd assert that Petitioner has failed to establish a
2 motivation to combine the RepRap references with Leavitt.

3 Now, moving on quickly to Slide 66 here. We also assert that the
4 combination does not teach claim element 1(c) of the '713 Patent. And here
5 we have that language we were just discussing. I want to focus on
6 specifically the limitation wherein at least one purge tower was printed,
7 where the layers of the at least one purge tower are printed from the print
8 head or deposition line switched to the operating mode.

9 So I think that's the real issue for Petitioners here. They of course,
10 you know, point to discussion of switching and priming, and dual-head
11 printing in general, but it's this specific word operation here, that we're
12 looking at claim element 1(c), that needs to be met, and we assert that it is
13 not.

14 Turning to Slide 67 and starting with the RepRap article, we see that it
15 describes this as a dual-purpose parking space with two functions. It, one,
16 plugs the nozzles while they're conducting their temperature changes, and
17 then it primes the extruders before printing the actual object after the
18 temperature change.

19 JUDGE WEATHERLY: And so I understand your argument to be
20 that neither of those operations constitutes an operating mode?

21 MR. TATUM: I think it's a little different, Your Honor. I think our
22 point here would be that the purge tower layers, right? So the layer of the
23 purge tower needs to be printed by the deposition line or print head that's in
24 its operating mode.

25 JUDGE WEATHERLY: And that priming extruders is not part of the
26 operating mode?

1 MR. TATUM: I think priming extruders could be part of the
2 operating mode. The issue here is that we have this dual-purpose structure
3 that's both priming extruders, but it also has this other action where you're
4 plugging another extruder and perhaps moving material around that's
5 leaking. So I think that's the issue here because now you have the situation
6 where these layers comprise materials, both printed by the deposition line or
7 print head, switch the operating mode, and also this other one that's not in
8 operating mode.

9 JUDGE WEATHERLY: Well, isn't your claim an open-ended claim,
10 though? I mean --

11 MR. TATUM: It is a comprising claim, Your Honor.

12 JUDGE WEATHERLY: So even if RepRap does have two purposes
13 for the parking space, one of which is to plug the nozzles while the
14 temperature changes, so what? As long as priming is part of the operating
15 mode, then doesn't that meet the -- then doesn't the claim limitation read on
16 that?

17 MR. TATUM: Well, I think the question, Your Honor, would be
18 whether the layers in the purge tower are still printed by that. I mean, the
19 claim, you know, just says layers. It's a portion of the layers or part of then,
20 and it says the layers are printed by the print head or deposition line
21 switched to the operating mode.

22 JUDGE WEATHERLY: Maybe I'm conflating the article and the
23 video in this instance. I mean, the video itself does show what looks like a
24 separate structure being printed as purge tower, does it not?

1 MR. TATUM: It shows its parking space that's printed. There
2 appears to be perhaps a little connection between the -- take Your Honor's
3 point that it's separated to some extent from the whistle.

4 JUDGE WEATHERLY: It's at least functionally purged material. It's
5 not intended to be part of the main part, right? It's printing a whistle, and
6 then there's this other thing.

7 MR. TATUM: I agree with Your Honor that it's not intended to be
8 part of the whistle. Absolutely. It's intended to be its own separate object
9 over there.

10 JUDGE WEATHERLY: Yeah.

11 MR. TATUM: Yes, Your Honor. I think maybe it would be helpful
12 to jump here. And so we have the image here, this is on Slide 69, and this is
13 from that video you were talking about, Your Honor. So here I think we see,
14 we talked a little bit about the physical connection there, but we see these
15 strings of orange material and these clumps of other material right in the
16 video. And so I think this gets towards the layer-by-layer printing we were
17 talking about, because it's entirely unclear where these strings of orange
18 material that are hanging down, what point in the process they were printed
19 and with which line.

20 Is that part of your line that's cooled down and that's now leaking
21 across the top, but also the clumps of material up there. And I think just
22 fundamentally what this also shows is just a lot of ambiguity, and that's what
23 we have when we have the one page article and this video that's generally
24 blurry and disjointed and the like.

25 JUDGE WEATHERLY: The critique here about this, quote-unquote,
26 clumps of material being, quote, physically connected, end quote, to the

1 printed part, implies that purge towers can't be physically connected to the
2 part. Am I over reading your argument there?

3 MR. TATUM: No. I think I don't know that it precludes ever any
4 physical contact. I think --

5 JUDGE WEATHERLY: Then why do you point out that it's
6 physically connected?

7 MR. TATUM: Yes, Your Honor, I think in general, given how little
8 we have, it's unclear what's really happening, frankly, in this video. So the
9 physical connection, I don't know if it's dispositive, but I still contend
10 generally that a POSITA would not expect the purge tower to be connected,
11 so I don't think that by itself is dispositive. And --

12 JUDGE WEATHERLY: You've got to be really careful about saying
13 something like a POSITA would expect that the purge tower wouldn't be
14 connected. I mean, why would it? I mean, purge tower, isn't that something
15 that you guys made up, essentially? I mean, is that a term of art?

16 MR. TATUM: I'm not aware of its usage outside of this patent, that
17 may be just my own knowledge base. I don't want to speak too broadly on
18 that. But it certainly is not described with reference to anything else in the
19 patent. But I take Your Honor's point on the connection and the --

20 JUDGE WEATHERLY: The purge tower, the concept of a purge
21 tower, does that become a term of art after this patent?

22 MR. TATUM: I'm aware of other patents since that have used the
23 term purge tower. I can't speak to its evolvment generally within the
24 industry whether that exact term is used. I think I have seen at least one
25 instance of purge tower being used by a different company since this patent.
26 That's about all I think I can say on that.

1 JUDGE WEATHERLY: Is this the first place where this term purge
2 tower was used, as far as you know?

3 MR. TATUM: As far as I know, yes, Your Honor. Then I guess the
4 only other thing I would emphasize --

5 JUDGE WEATHERLY: So one thing we know for sure is that purge
6 tower can't constitute the clump of material that ends up in a purge bucket.

7 MR. TATUM: Well, I would say yes, Your Honor. And in addition,
8 what we discussed about previously being part of the object itself. I think
9 that amount is largely agreed to by the parties.

10 JUDGE WEATHERLY: Part of the object itself. That's too slippery
11 for someone who has to write a decision. You get that, right?

12 MR. TATUM: Understood, Your Honor. I would say contacting in
13 any way is perhaps a more definite line, but I also understand Your Honor's
14 reservations with that. So part of the structure of the part, if that's less
15 slippery for you?

16 JUDGE WEATHERLY: No, it's not less slippery, unfortunately. It's
17 the problem when a specification sort of, for lack of a better word, and
18 pardon the use of this phrase, invents a term, a phrase that nobody else has
19 used before to describe something. And then we're arguing here after the
20 fact about what that is or isn't with stakes on the table.

21 MR. TATUM: Understood, Your Honor.

22 JUDGE WEATHERLY: It makes it very difficult for us sitting on
23 this side of the bench.

24 MR. TATUM: I appreciate that, Your Honor. And hopefully the rest
25 of these arguments here will make it easier and perhaps you won't even have
26 to address it. I'll just go on very briefly to Claim 16 and 17. And not to

1 belabor the point as you saw in the briefing, the arguments for Claim 1
2 generally apply here. We also have, I will point out, as Mr. Oaks did, we're
3 talking now about this repeated alteration and the specific sequencing.

4 So even if Your Honor set aside the missing disclosure that we
5 discussed from RepRap, the POSITA seeing RepRap in combination with
6 Leavitt, wouldn't be motivated and wouldn't practice Claim 16 and 17 to do
7 that same slowdown with all the switching that we discussed? So discussed
8 that before, I won't belabor here, but that argument applies particularly
9 strongly to these claims that require that alteration.

10 Now turning to Claim 5, this claim requires the purge tower to have a
11 cross-sectional area that reduces in height along an axis that is perpendicular
12 to the build plane. So there we're saying as it goes up, its cross-sectional
13 area reduces. Now in reply we saw for the first time Petitioner makes this
14 argument that well, any reduction in cross-section at any point is enough to
15 satisfy this claim, respectfully that construction is one, belated, but two, it's
16 just not supported by the plain language of the claim.

17 And it's also not supported by the specification which describes, for
18 instance when you have a tall purge tower, it can be beneficial to print the
19 lower layers of the purge tower with the larger cross-sectional areas and with
20 walls that slope or taper to smaller cross-sectional areas at higher layers.
21 And you do that, it says, to prevent wobbling during the printing operation
22 which can otherwise impair the printing of subsequent layers. So it's not
23 describing a structure that narrows briefly at one point and expands back --

24 JUDGE WEATHERLY: I'm stuck on how to understand a cross-
25 sectional area that reduces in height.

1 MR. TATUM: Understood, Your Honor. I had the same reaction
2 originally, so I think what it's describing here, I don't think there's any
3 dispute amongst the parties, is that --

4 JUDGE WEATHERLY: I mean, cross-sectional area is a two-
5 dimensional concept, right? It doesn't have any height.

6 MR. TATUM: Exactly. And here we're talking about the change in
7 the cross-sectional area. So basically as you're printing up from the bottom,
8 you have a cross-sectional area for every layer. And what this is saying --

9 JUDGE WEATHERLY: That reduces in area --

10 MR. TATUM: As you go up.

11 JUDGE WEATHERLY: -- as the print head moves higher on the z-
12 axis.

13 MR. TATUM: Perhaps a better way to phrase it there.

14 JUDGE WEATHERLY: I wish that claim had said something like
15 that. I don't know if that's an issue that we can address in an IPR,
16 unfortunately. But, okay.

17 MR. TATUM: And just briefly here I'm on Slide 74. I just wanted to
18 point out that Petitioner's own evidence shows that this parking space is
19 unstable, it's partially collapsed at the upper portion. And this is exactly the
20 kind of issue that the '713 Patent was talking about, that its cross-sectional,
21 or rather reduced cross-sectional area approach avoids. So even Petitioner's
22 own evidence on Claim 5, I think, undercuts their argument here. In the
23 interest of time, I'll move on to --

24 JUDGE WEATHERLY: Where does this concept of falling apart
25 come from? Is that something that Petitioner described as being shown here,
26 or is it what you guys say is shown here?

1 MR. TATUM: I don't know if they would disagree with it, Your
2 Honor. I certainly --

3 JUDGE WEATHERLY: So where did it come from?

4 MR. TATUM: Where did it come from? So from the video right
5 here.

6 JUDGE WEATHERLY: Who says that's falling apart?

7 MR. TATUM: Well, I think Petitioner actually asserts that what we're
8 seeing here is the top layer is printed over air, and so that it started dripping
9 and drooping down the orange materials. So they assert that. And I don't
10 know that we disagree with them at least that it's falling apart.

11 JUDGE WEATHERLY: Okay.

12 MR. TATUM: Okay. Turning back to Ground 2A, it's the Priedeman
13 and KISSlicer combination. There's no dispute that Priedeman does not
14 disclose a purge tower. So unless KISSlicer's wipe pillar discloses or
15 otherwise teaches a purge tower, we assert that Ground 2A must fail.

16 And here I am on Slide 77. And I think this gets really to the heart of
17 the matter. And here we have KISSlicer describing its wipe pillar as a tip-
18 cleaning feature that reduces hairing. That is its stated function per
19 KISSlicer. It's not described as a purge tower that's printed layer-by-layer
20 based on the operating --

21 JUDGE WEATHERLY: Well, let's be honest. No one would have
22 described anything as a purge tower before you guys wrote that phrase in
23 this patent spec, because nobody talked about these things as purge towers.
24 We talked about purging, we talked about purge buckets, we talked about
25 wipe pillars, a bunch of different ways of disposing of material that's coming
26 out of the print head so that the material coming out was going to be the

1 right kind of material in the right conditions for the part that you want to
2 make.

3 MR. TATUM: I think Your Honor has it right there of what you said
4 there at the end. You were describing the purge operation. Even if we set
5 aside the language purge tower and even purging, we don't see any
6 discussion about writing the material in the nozzle such that it's going to be
7 ready. It talks about cleaning the tip, right? And so that's what the
8 disclosure in KISSlicer says about its wipe pillar. It's to clean the tip. And
9 it's not to do a purge operation, and even the '713 Patent understands, and
10 now we're on Slide 78 here. The differences between a tip-wide operation in
11 general and the purge operation is just like Your Honor -- Slide 78.

12 JUDGE WEATHERLY: Okay.

13 MR. TATUM: Just like Your Honor was discussing, in the purge
14 operation you're extruding material to prepare that print head, or deposition
15 line to actually go print your part. That's different, and the '713 Patent
16 recognizes that from just a tip-wipe operation where you're swiping the tip
17 of it, for instance. And so when they just equate the wipe pillar with the
18 purge tower, we'd argue that they're erasing the distinction that the '713
19 Patent itself recognizes.

20 And I guess I should simply point out, because I think they've
21 discussed that the function of the purge tower in the '713 Patent could be to
22 wipe, but just because the purge tower can be used for wiping, doesn't make
23 any structure that's used for wiping a purge tower. But even setting aside,
24 whether KISSlicer involves any purge operation at all, I think the timing
25 aspect here is also pretty critical.

1 So as we talked about, and as you heard from Petitioner, the claims
2 require a specific order of operations. And that's, for instance, Claim 1 that
3 upon the switch to the operating mode, the newly-activated print head, or
4 deposition line, performs that purge operation that involves printing layers of
5 the purge tower. But KISSlicer's wipe pillar would be used to reduce
6 hairing, as it describes. And that doesn't teach the order, and I'll just briefly
7 walk through why.

8 Dr. Osswald explains in paragraph 119 that hairing is a phenomenon
9 that occurs after an extruder has just printed and has moved away from that
10 location. And he says, and he explains, you know, cohesive forces cause
11 thin strands of material, i.e. hairs to form as the extruder is moved away
12 from the location of the print. So essentially, as material separates, it's kind
13 of like, I mean, he describes it as silly putty.

14 JUDGE WEATHERLY: Like taffy being stretched.

15 MR. TATUM: Exactly, like taffy being stretched. And sometimes
16 you get a little bit of that taffy or the hair stuck to the extruder tip. And so,
17 continuing on now to Slide 80. What that means in the context of the
18 combination that Petitioner has put forward, which is the dual head context,
19 it means that the wipe pillar is not associated with a newly activated head.
20 It's going to be associated with a head that has just finished printing and has
21 those hairs stuck to the tip.

22 And Dr. Osswald also explains you do that so that you remove the
23 hairs on the tip of the inactive extruder so they'll not contact the build while
24 the active extruder is going and doing its print. Because if you leave them
25 there, then you're going to have the hairs stuck right while you're doing your
26 print the whole time, going around you're going to contact your part. And so

1 that order of operations, however, printing the structure after, that's not the
2 claimed order of operations.

3 And then I'll just briefly address here before jumping to the Boyer
4 grounds, Your Honor. They just try to link this wipe millimeter setting to
5 the wipe pillar, because they need to. But the only connection here is the use
6 of the term wipe. They have different functional descriptions.

7 Wipe millimeter talks about after warm up, you'll push or prime this
8 amount of filament to ensure the print is ready. And wipe pillar talks about
9 printing the cylinder every layer to clean the extruder tip. That's different
10 descriptions, different stated purposes, different frequencies. And the only
11 argument is, well, they both use wipe.

12 And I'll just point out, I think standing alone is not enough, but
13 Petitioner also doesn't explain if their theory is correct, and the wipe
14 millimeter setting is related to the wipe pillar, what happens when the wipe
15 pillar isn't selected? Because KISSlicer tells us it's just an optional setting.

16 So if the wipe millimeter setting is how it's doing purging and
17 priming, and you don't select the wipe pillar, we've heard nothing about how
18 KISSlicer could possibly function. So it makes a little sense to me, but I just
19 wanted to point out that we've heard nothing from Petitioner on that.

20 And just briefly, I point out in a similar vein, there are other settings
21 in KISSlicer, like this destring or suck/prime setting that, by Petitioner's
22 rationale, could just as easily be ascribed to the wipe pillar. But, of course,
23 we hear nothing about those. We only hear the ones that both mention wipe.
24 And we argue that that's not enough to satisfy Petitioner's burden.

25 With that, Your Honors, I'll, I guess, briefly touch on actually Claim 6
26 here for the KISSlicer grounds, and I'm on Claim 83.

1 JUDGE WEATHERLY: Slide 83?

2 MR. TATUM: Thank you, Your Honor. Slide 83. Claim 6 on Slide
3 83. So even if Your Honors accept all the arguments for Claim 1 for
4 KISSlicer, Claim 1 still requires -- sorry. Claim 6 requires that the purge
5 tower be stopped at the highest layer at which there is a material change for
6 the printed layers of the three-dimensional part and support structure.
7 However, KISSlicer, by its own language, says that you print the wipe pillar
8 every layer. It doesn't say that the wipe pillar stops at the last material
9 change.

10 So, even if we accept everything Petitioner says about the wipe pillar
11 for Claim 1, for instance, that still doesn't teach Claim 6 stopping limitation.

12 And then, I'll briefly just have some discussion about this, what a
13 layer would mean. In their reply, they came out now and said, well, a
14 POSITA would understand a layer to be all of the material printed in an
15 online session for the extruder. That's the first we're hearing of it. I have
16 difficulty quite grasping that, I suppose. But KISSlicer itself talks about
17 layer in other contexts.

18 Here on the slide is pages 9 and 10 of KISSlicer, which Exhibit 1010,
19 it talks about layer thickness. And it describes that that's thickness along Z
20 of a single print layer. Talking about the thickness of a single layer that's
21 printed. And it also has stacked layers, where it describes what it means by
22 layers equals 2. So the rest of KISSlicer uses the term layers in the ordinary
23 additive-manufacturing sense of talking about a single Z height of a layer
24 that's printed, not in some sort of online session concept that came up for the
25 first time in reply.

1 And I think, briefly, addressing Ground 2B actually, which is asserted
2 against Claim 5, and so this is where they add RepRap back into KISSlicer.
3 We've already discussed how RepRap doesn't teach Claim 5, so this
4 additional ground fails on that basis. But, in addition to that, I'd just point
5 out that Petitioner's own proposed motivation here of adding RepRap, which
6 to provide this more stable, less top-heavy tower. Well, that's, one,
7 counteracts to their proposed construction that any reduction at any point
8 would be sufficient, and two, it's just contradicted by their own evidence that
9 doesn't show a less top-heavy, more stable tower.

10 And then lastly, we have Ground 3, in which Petitioner asserts Boyer
11 as anticipatory to Claims 1, 2, 6, 7, and 9. And as Your Honors are aware, to
12 anticipate, Boyer must disclose all the elements within the four corners of
13 the reference arranged as in the claim. And that's the key point here, and it
14 really is the fact that there is certain anticipation.

15 Petitioner cannot take a generic discussion of multi-material printing
16 and a separate discussion of sacrificial support structures, and one specific
17 figure on which they base their argument, and put it all together and ask the
18 Board to assemble the ingredients and find a claim. That's, at best, an
19 obviousness-style reasoning, it's not anticipation we'd assert.

20 And I also think it's important, because we've heard a lot about this in
21 reply and a little bit today, to remember -- and I'm on Slide 92 right now,
22 what Petitioner actually asserted in their petition. And Petitioner specifically
23 relied on Figure 4, annotated Figure 4 that we have here, and told the Board
24 that the tool paths in Figure 4, those teach Claim 1. So when Petitioner now
25 says that we're relying too much on this figure, we're just addressing what

1 was actually raised in the petition. And Figure 4 does not show what
2 Petitioner says it does.

3 Now, of course, I'm on the next slide, 93, Petitioner says that, well,
4 you could have similar layers, similar tool paths to Figure 4 of Boyer and
5 they could be stacked to practice Claim 1. And therefore, the transition
6 segments they point as 404, they'd be stacked up, and they'd make a purge
7 tower, built layer-by-layer. But Boyer never says you'd stack what's shown
8 in Figure 4, or stack the same layers on top of each other. That's not an
9 express disclosure. It's an inference that Petitioner layers on top of a single
10 illustrative figure.

11 And even if Petitioner recasts its argument as inherency, that still
12 fails. We know from the Federal Circuit that the mere fact that things may
13 result from a given set of circumstances is not sufficient. So they're
14 assertion that, well, similar layers can exist above or below. That can't be
15 enough to satisfy anticipation. And I'll just point out that their own expert --
16 and Petitioner, admits that Figure 4 is just an example. And that's on the left
17 side here is Slide 95 from his deposition.

18 And then also I would identify that on the right side here, he even
19 admits that if you're looking at Figure 4, those segments that they mapped to
20 the various portions of the claim, well, those are just examples and they can
21 be different in different examples.

22 JUDGE WEATHERLY: In other words, it could look like spaghetti.
23 Like on the next layer, is my understanding his testimony correctly that
24 there's no even statement that the path that's shown in Figure 4 is the path
25 that remains?

1 MR. TATUM: Yes, Your Honor, there's no statement there that you
2 would take Figure 4 and do it up again --

3 JUDGE WEATHERLY: Would you just lay another layer on top
4 exactly like it's shown in Figure 4?

5 MR. TATUM: Yeah, the patent does not say that. And I think
6 Petitioner and their expert also recognize that it's not really what it's
7 teaching. And I think we heard a lot today from Mr. Bisenius about what
8 could possibly be printed with Boyer. And I think that really gets to the
9 heart of it. This isn't anticipation. It's not what you could possibly print or
10 do. If the arrangement can vary from layer to layer, then Petitioner cannot
11 show that Boyer necessarily discloses a purge tower printed layer-by-layer
12 to satisfy the claims.

13 And so I think, frankly, I would assert, Your Honors, that you need to
14 go no further to finding that Ground 3 fails. I think briefly I can walk
15 through some of the other deficiencies here with the time remaining. And
16 the first I'd like to focus on is claim element 1(a) and specifically on the
17 support structure aspect of that claim. And as you can see here on Slide 96,
18 Petitioner maps that to segment 406 here.

19 And there's two gauges with this right off the bat. The first is that's a
20 part of the main structure of the object Boyer tells us. And the second is that
21 even if you took their position that, well, you can just stack similar or the
22 same layer on top of each other, well, then you'd be left with a support
23 structure that serves no purpose. It doesn't support any part. So those are, I
24 think, the two key --

25 JUDGE WEATHERLY: Why is that?

26 MR. TATUM: You said why is that, Your Honor?

1 JUDGE WEATHERLY: Yeah.

2 MR. TATUM: So if you take their position and say you're going to
3 stack the same layer on top of this, you would just end up with another layer
4 of support structure right on top of that all the way up. And so the support
5 structure there wouldn't be performing any support function for part
6 material.

7 JUDGE WEATHERLY: Because it's not connected to segment 402
8 or the unnumbered segment at the top of Figure 4?

9 MR. TATUM: I don't think necessarily that it's not connected. I think
10 it's that it's not supporting any. So in this kind of 3D manufacturing, as the
11 patent tells us, you do the support structures. For instance, you're going to
12 have an overhang of your part to provide that, I guess Z direction support for
13 the part. And here, if you just stack these layers up, they wouldn't even be
14 performing that function at all. So that's just one additional reason why a
15 POSITA would not understand this to be a layer of support structure that
16 would be the argument there.

17 JUDGE WEATHERLY: Okay.

18 MR. TATUM: And just briefly, so I think I've covered that and I
19 think Boyer here in paragraph 32 makes clear that segment 406 is a portion
20 of the exterior part of the object.

21 And so with that, I will return to the next slide. So now I'm on 97.
22 And here, Boyer describes that the only support structures -- it's talking
23 about sacrificial support structures that break away easily.

24 And so as Dr. Osswald explains in paragraph 134, a POSITA would
25 understand is you don't make the exterior portion of your part with
26 something that's going to break away or be removed. One, for structural

1 integrity reasons, that's going to be a problem because you're removing part
2 of the exterior structure. And two, because especially as Boyer teaches, if
3 you have that internal infill, it's going to expose all of that.

4 So turning now -- and we've already discussed this, Your Honor, on
5 Slide 98. But if you apply Petitioner's theory and you stack all these up, this
6 support structure is not, in fact, going to support anything.

7 So with that, I'll move on now to Slide 99. And here, I want to talk
8 about limitation 1(c). So this is our purge tower limitation. And similar to
9 what we just discussed, there are some issues here. So Petitioner points to,
10 in their Figure 4, these purge tower layers. And this is what we talked about
11 at the start, Your Honor. You can see here in slide, or in paragraph 32, this
12 is described as infill, which is structurally part of the part. So this is a
13 portion of the object, not a purge tower operation. And we know that here --
14 I'll skip past this -- on Slide 100.

15 And now let's move to the second issue, which is, again, that these
16 would not be stacked on top of each other. Boyer teaches that you can place
17 the transition segments in a variety of different locations. And so you would
18 not necessarily stack them. And Dr. Osswald even explains with the
19 example of that blue and red, polka dot cube, that if you're doing these color
20 changes, your transition points are going to change. And so you're not going
21 to end up with the same transition at the same location in a print.

22 And we've discussed this as well already from their own expert.
23 Figure 4 is just an example. There's no teaching that you would just repeat
24 this a number of times to make a purge tower.

25 All right. And just now, with the time remaining, we learned a little
26 bit from Petitioner today, while we're not limited to Figure 4, there's

1 discussion of sacrificial materials also being used. And I would just say, I
2 guess, Petitioner's attempt to distance themselves from what they assert in
3 their petition I think confirms our point that they're not relying on a single
4 anticipatory disclosure. They're instead trying to cobble together bits and
5 pieces to meet the claims. Because we know from *Net MoneyIN*, that's not
6 what anticipation is.

7 Now, like I mentioned, Petitioner is pivoting -- I'm on Slide 106 now -
8 - is pivoting and trying to talk about disclosure of these sacrificial materials
9 deposited outside the object, right? Trying to get around that issue of it
10 being part and inside the object.

11 And I think the first thing I'd note, Your Honor, and this is, again,
12 what we've already discussed, but same thing for these. There's nothing in
13 Boyer that says that you would stack up these transitions just because they're
14 outside the object, right? It's the same issue as before. There's no teaching
15 that just because you transition, they're all going to align in the x-y plane
16 such that they would form a tower.

17 JUDGE WEATHERLY: And again, in your view, they have to be
18 stacked up to constitute a purge tower because of this, quote-unquote, layer-
19 by-layer manner?

20 MR. TATUM: I think the layer-by-layer is part of it and also the fact
21 that it talks about a purge tower. I don't think a purge tower would be a
22 portion over here and then five inches off to the other side there's another
23 portion at a different layer. I don't think that would constitute one purge
24 tower. So I think the claims are talking about a tower. But also the layer-
25 by-layer aspect, yes, Your Honor.

1 And then just the very last point I'll have with a few seconds
2 remaining. I'll just point out that even if Your Honor disagrees on Claim 1,
3 Petitioner -- excuse me. Boyer doesn't satisfy or disclose Claim 6, certainly
4 doesn't anticipate it. And we explained that in our briefing, that's in our
5 Patent Owner response. We got nothing from Petitioner in reply, and we
6 noted that in our surreply. I don't think I've heard anything today from
7 them on Claim 6 for Boyer. So even if Your Honor disagrees on Claim 1,
8 Claim 6 would still survive on Ground 3. With that, I'll reserve the last few
9 seconds for the rebuttal.

10 JUDGE WEATHERLY: No, there's nothing to reserve. Sorry, I'm
11 not going to give it to you.

12 MR. TATUM: Thank you, Your Honor.

13 MR. OAKS: Do we still have ten, or did we use that?

14 JUDGE WEATHERLY: You did not use the ten. So you do still
15 have ten remaining. But I'm not going to give you credit for ending five
16 seconds early.

17 MR. OAKS: Fair enough, Your Honor.

18 JUDGE WEATHERLY: Don't hold it against me. Unless, of course,
19 the opposing party goes five seconds over, and then I'll give you ten minutes
20 and five seconds on the rebuttal. So, Counselor, I've got you with 27
21 minutes remaining.

22 MR. BISENIUS: Thank you. All right. I'm ready when you're ready.

23 JUDGE WEATHERLY: Go for it.

24 MR. BISENIUS: I'd like to address the Patent Owner's arguments in
25 reverse order. So I'm going to start by talking about Boyer, which they left
26 off with. First off, Petitioner did not pivot our theory of the case. Paragraph

1 34, which talks extensively about, that the transition segment can be either
2 inside or on the exterior of the object, is cited several times in the analysis of
3 element 1(c) in the petition. So this was already part of the petition.

4 I also want to talk about their lack of support material argument.
5 Once again, Patent Owner is focusing only on Figure 4 and saying that's the
6 only part that can ever be printed by Boyer. And that's not what Boyer
7 discloses to a POSITA. That's an example of a transition. And that
8 transition is colors. Boyer is clear about that, transitioning from one color to
9 another.

10 But if we look at Petitioner's Slide 108, at the end -- I'll give you a
11 second to get there. Down here on the lower right, we've got paragraph 44,
12 cited extensively in the petition. It's clear. It's talking about colors or other
13 build materials. And it says, for example, sacrificial support structures may
14 be fabricated for materials that are lower in cost or that dissolve or break
15 away easily from the main structure of an object.

16 So what this is teaching to a POSITA is, hey, you've already got your
17 object. Everyone knows what support structures are. You're making an
18 object with support structures. Here's a great idea. When you're
19 transitioning your material, let's have this other sacrificial transition segment
20 that you can throw away or infill into the interior either. That way, you're
21 going to get a consistent flow material for your new material, whether that's
22 a new color or whether it's a support structure. This is applicable to all of
23 these things here.

24 And I want to point out here that Boyer uses the term sacrificial to
25 refer to both the support structure and to the transition segments. Paragraph
26 43, 34, and 40 all refer to a sacrificial material deposited outside the exterior

1 of the object. So clearly, it's a purge tower because it's a sacrificial material
2 meant to be discarded and printed outside of the object.

3 There was also an argument from Patent Owner about whether or not
4 there would be multiple layers of that sacrificial transition period. If we
5 look at Petitioner's Slide 10, in the lower left here, we have a quote from
6 paragraph 18 of Boyer. And we cited this also in the petition. It states, the
7 object 112 may be fabricated in three dimensions by depositing successive
8 layers of material in two-dimensional patterns derived, for example, from
9 cross-sections of a computer model.

10 Boyer didn't need to explain to a POSITA what a 3D printer is or how
11 you print 3D objects. He just gave this very quick overview. We all know
12 how objects are printed. You print them in layers. Here's a technique you
13 can use when you're printing those layers. You can print the sacrificial
14 transition segments. But Boyer does expressly say it's printing multiple
15 layers.

16 And we also know that by looking at Slide 111. Here's Figure 1 of
17 Boyer, and we see a side view. It's showing us here that this is a multi-
18 layered object. And you can't see sacrificial transition segments in this
19 picture. But it's showing you, hey, we're printing multiple layers. Everyone
20 knows how 3D printing works.

21 Going to Slide 112, here it says that Figure 4 depicts a -- on the lower
22 right hand side, Figure 4 depicts a cross-section of a multi-material build.
23 The cross-section clearly indicates this is just one layer of a three-
24 dimensional object. Everyone knows that, a POSITA would know, reading
25 Boyer, I'm not just printing one section of roads. I'm printing multiple layers
26 of this.

1 And there's no requirement in the claim that every layer has to be
2 identical to the preceding layer. And in fact, that's what Claim 5, the dispute
3 in Claim 5 is all about, is that it's got to change in size or shape as it's getting
4 taller. So there's no requirement that every layer of the purge tower has to
5 be exactly identical to the previous layer. Boyer is clear, it's printing
6 multiple layers. This example is a cross-section. This example shows what
7 it calls infill, but it could also be exterior sacrificial material.

8 If there's no questions on that, I'd like to move to Ground 2. And I'm
9 going to start at Slide 98 of Petitioner's slides. And so what is a purge
10 tower? Let's look at the claim language. Performing -- the highlighted
11 section, performing a purge operation for each print head or deposition line
12 switched to the operating mode -- now it tells us what the purge operation is
13 -- the purge operation comprising printing at least one purge tower. So it's
14 the act of printing.

15 And I would say that's what differentiates it from a purge bucket. A
16 purge bucket would be something like a soft serve ice cream machine. It's
17 just kind of dumping out. The purge tower is printed. And that is exactly
18 what KISSlicer tells us. If we go to Slide 93 of Petitioner's slides, on the
19 bottom here, it says the wipe pillar is a cylinder printed --

20 JUDGE WEATHERLY: So even in a soft serve bucket, I mean, at
21 the risk of maybe being a little bit pedantic, there is a structure that ends up
22 in that bucket. It's a disorganized structure. It may not be worth a damn to
23 anybody. I guess what I'm really, really struggling with is it seems that these
24 claims, that everybody recognized that while you're printing, 3D printing,
25 and you're changing materials, that there's an unstable extrusion material at

1 some point when there's a transition, whether it's changing color or changing
2 the material or whatever it is.

3 And so you don't want that unstable or unintended or impure material
4 to be part of your part. You've got to get rid of it somewhere. The
5 conventional method as described in the '713 is to use a purge bucket. It
6 feels to me as if the claim is -- the invention revolves around this notion of
7 just being more organized about the way you throw material away, for lack
8 of a better way of describing it, and making a structure out of the material
9 that you're throwing away. Something called purge tower, which nobody
10 else had ever called it before.

11 MR. BISENIUS: I would agree. And I believe that's why the
12 terminology, the nomenclature is unimportant here. It's talking about what
13 is actually happening in the '713 --

14 JUDGE WEATHERLY: And that's why I keep playing with this
15 concept of, is purge tower defined by the function of what's going on? Or is
16 it defined by the location, physical characteristics? I'm not really sure I
17 understand how we're going to end up having to define it, frankly.

18 MR. BISENIUS: I think it would be defined by both. I think it would
19 be defined by it has to be in an x-y location that's not part of the part. But
20 that doesn't preclude any physical contact. I think Boyer's exterior transition
21 segments would certainly qualify because they're intended to be sacrificial.
22 And then beyond that, I don't know necessarily that a purpose is recited, but
23 it says it's printed --

24 JUDGE WEATHERLY: For example, in the purge tower section of a
25 print, if you're putting the layers down in such a way that they're not, for
26 lack of a better word, they're not depositing or they're not sticking correctly

1 and the structure ends up sort of collapsing because it -- I think you can
2 imagine what I'm talking about.

3 MR. BISENIUS: Yes.

4 JUDGE WEATHERLY: Is that still a purge tower, even if it's ugly,
5 quote unquote?

6 MR. BISENIUS: I think we don't need -- I think an ugly purge tower
7 is still a purge tower as long -- and I don't think we need to parse that far
8 because all three of the prior art references that we're relying on for the
9 purge tower function, RepRap, KISSlicer, Boyer, they describe expressly
10 printing. And sure, we saw this figure from RepRap where that top layer's --
11 part of the top layer is printed over nothing. It's printed over air. And so it's
12 got those strands --

13 JUDGE WEATHERLY: I mean, that's kind of what I'm playing
14 around with. The RepRap video itself kind of shows the structure that's sort
15 of ugly.

16 MR. BISENIUS: It's ugly, but --

17 JUDGE WEATHERLY: But you're throwing that part away.

18 MR. BISENIUS: Exactly, we don't care. And if you combine that
19 with the RepRap article, it tells you what's happening. It's printing it. And
20 you can see in that image, I'll pull up the slide in a few minutes, but you can
21 see in that image part of that layer is printed over that eye shape of the white
22 material. So that part's flat on the top. And then there's some side parts of it
23 that have those, what Patent Owner refers to as strings that are drooping
24 down. But the key there is that RepRap says it printed that layer. And that's
25 what's required by the claims. All --

1 JUDGE WEATHERLY: Help me understand this distinction, your
2 emphasis of printing? When you say --

3 MR. BISENIUS: I think --

4 JUDGE WEATHERLY: Your emphasis implies to me that I'm
5 supposed to understand that as meaning something that maybe I'm not
6 understanding.

7 MR. BISENIUS: I think, you know, I shouldn't be giving claim
8 construction on the fly like this. But I would say that it's an intentional
9 deposition of material. And that's what's happening in the device. Like, the
10 file itself --

11 JUDGE WEATHERLY: I'm not just locating the print head over a
12 bucket and squeezing the material out.

13 MR. BISENIUS: Yeah, get rid of this many millimeters of material
14 right here.

15 JUDGE WEATHERLY: And put it exactly right here.

16 MR. BISENIUS: Yeah.

17 JUDGE WEATHERLY: That's printing in your case.

18 MR. BISENIUS: Yes. And I --

19 JUDGE WEATHERLY: Organized disposal.

20 MR. BISENIUS: -- and I don't think we need to distinguish between
21 the two because all of RepRap, KISSlicer, and Boyer are all disclosing that
22 precision of put the material right here at this x-y location on this other thing
23 that we're going to throw away.

24 JUDGE WEATHERLY: When you say distinguish between the two,
25 I think what I hear you say is that -- what I hear you saying is that, I don't
26 have to find out -- I don't have to define the line between the gobbledygook

1 that ends up in a purge bucket and a, quote unquote, organized kind of purge
2 tower structure. I don't have to find the theoretical line between those
3 because the prior art definitely shows disposing of material in an organized
4 way, intentionally, laying material down in a specific location that is
5 sacrificial material. That's not part of the intended part.

6 MR. BISENIUS: Correct. I don't believe we need to define the
7 precise line between a purge bucket and a purge tower because the prior art
8 is all so much closer to what's disclosed in the '713. I would say, identical to
9 what's disclosed in the '713, than it is to a purge bucket.

10 JUDGE WEATHERLY: Yeah.

11 MR. BISENIUS: And in the '713 Patent, all the purge towers are
12 shown as having no physical contact with the part. And so, there are ticky-
13 tacky distinctions we can make between the implementations. But I'd argue
14 that, whether you call it a parking space, a transition segment, or a wipe
15 pillar, they're all right in that same area as what's happening in the '713
16 Patent --

17 JUDGE WEATHERLY: So all the intentional deposition of material
18 that's intended to be sacrificed.

19 MR. BISENIUS: And not just intentional deposition of material, but
20 on the actual build substrate. So it's not happening over a bucket
21 somewhere.

22 JUDGE WEATHERLY: Yeah, yeah. On the build plane.

23 MR. BISENIUS: Correct. And in all three of Ground 1, Ground 2A,
24 and Ground 3, that extra material, transition segment, wipe pillar, parking
25 space, is meant to be thrown away.

1 JUDGE WEATHERLY: Okay. Yeah. I mean, ultimately, that's the
2 tricky part about these claims, is this use of this term purge tower that didn't
3 have a meaning beforehand. And now we're arguing after the fact, what is it
4 and what isn't it? Even if there is an invention, how far does it go? Does it
5 read on the prior art? This is why we get paid the big bucks.

6 MR. BISENIUS: But once again, I think that Your Honors don't have
7 to give a precise definition for what a purge tower is, in your opinion,
8 because the prior art is so close to the preferred embodiment of the '713, not
9 just the stated claims.

10 JUDGE WEATHERLY: I think you're safe on that front. I think
11 we're going to try to do what I've criticized you guys for not doing, which is
12 telling us what the claims mean instead of what they don't mean.

13 MR. BISENIUS: So briefly, let's talk about Ground 2's application to
14 Claim 6. I'm sure the Patent Owner --

15 JUDGE WEATHERLY: Which slide are you on?

16 MR. BISENIUS: I'm sorry. I'm on Slide 101 of Petitioner's slides.
17 I'm sure the Patent Owner would argue in the District Court that if an
18 accused product sometimes stopped at the top layer and other times didn't
19 stop this purge tower at the top layer of transition, that when it does actually
20 stop at the same layer as the top layer of transition, that would still infringe.
21 And that's the case for obviousness here.

22 We're talking about the actual combination of Priedeman with
23 KISSlicer. And Priedeman shows us we are transitioning every single layer.
24 I've got this support structure going all the way up the side of my object, and
25 there's a transition every layer. And so when you apply KISSlicer's teaching
26 to Priedeman, even if it operates in the way Patent Owner says, where it's

1 printing every single layer, not just a transition layer, it's still going to stop at
2 the last transition layer because the last transition layer is at the top.

3 It doesn't have to do it every time to establish obviousness. It just has
4 to have been something that would have resulted from the combination.
5 And we're talking about the Priedeman-KISSlicer combination here, not
6 KISSlicer in isolation.

7 I'd like to briefly move on to Ground 2A. This is Petitioner's Slide
8 103. And this discussion is relevant to Ground 2A and Ground 1 with
9 respect to Claim 5 because really we have the same dispute here. They said
10 we made a new argument regarding claim construction, like, oh, it's okay if
11 it gets wider at the top. This isn't a new argument. We identified the
12 transition at the bottom as satisfying the claims in the petition. We said
13 there's this wide base layer and then it narrows as it goes up. That satisfies
14 the claims.

15 Did we expressly say this is a claim construction in the petition? No,
16 but we haven't changed our theory of the case. We haven't made a new
17 argument. We expressly said it's this transition at the bottom that shows it
18 getting narrower. That transition right there satisfies the claims. We don't
19 have to think about anything else in this context.

20 Patent Owner also says you wouldn't apply RepRap to the Priedeman-
21 KISSlicer combination because it wouldn't result in a more stable structure.
22 And our argument is, is this necessarily the most stable structure? Yes,
23 there's some drooping here. But it is a more stable structure than just a pillar
24 that could possibly fall over or fall into the part and ruin your print job. And
25 that was the argument here, is it's more stable. Is it a perfect stability?
26 Maybe not. But that's not the requirement of the law.

1 All it is, is there is a suggestion to a POSITA that, hey, if I print this
2 wider part with the wider base and it gets narrow, it's going to have some
3 more stability than a cylinder, which, based on the word cylinder, would
4 indicate that every layer has the same size.

5 I would like to skip to -- back to earlier date of invention. And I'd
6 actually like to go to the Patent Owner's slides at Slide 15. So there was
7 questions to both parties about is there evidence in the file itself that this is
8 intended for a dual-head printer? Claim 1 recites, printing layers of a three-
9 dimensional part and of a support structure for the three-dimensional part
10 from multiple print heads or deposition lines. So Claim 1 can be satisfied by
11 only multiple deposition lines.

12 But in order to provide support for it to show earlier reduction to
13 practice, they need to demonstrate that it was also practiced using multiple
14 print heads. And so Patent Owner pointed to Slide 15 here, hey, we've got
15 two different extruders. There's extruder 1, extruder index 1, and then later
16 there's an extruder index 2. So that's two different extruders. But the term
17 extruder is not synonymous with the term head. This does not show
18 multiple print heads. And there's a reason we know this, and that's from
19 Leavitt. And so this is Exhibit 1004, the Leavitt reference. And I'm at
20 paragraph --

21 JUDGE WEATHERLY: Are you saying that there's evidence in
22 Leavitt that tells me how I should understand the word extruder on
23 Petitioner's Slide 15?

24 MR. BISENIUS: Correct. Because these are terms of art of how an
25 extruder is not synonymous with a print head.

26 JUDGE WEATHERLY: Okay.

1 MR. BISENIUS: And if you recognize this name, this is the same
2 Paul Leavitt that submitted a declaration in the case.

3 JUDGE WEATHERLY: All right. Fair enough.

4 MR. BISENIUS: If we turn to Exhibit 1004 at paragraph 22, it's
5 referring to a single extrusion head with multiple extruders. Extrusion head
6 18 is a dual extrusion head supported by gantry 16 for building -- dual-tip
7 extrusion head supported by gantry 16 for building 3D object 20. So this is
8 an extrusion head with multiple nozzles. It's got dual-tip extruders. So the
9 term extruder and the term head are not synonymous. That indication of
10 multiple extruders in the file is not an indication of multiple print heads
11 because a print head can have multiple extruders. It can have multiple
12 nozzles on that single print head.

13 JUDGE WEATHERLY: Does Exhibit 1004 use the term head?

14 MR. BISENIUS: Yes. In paragraph 22, it says extrusion head 18 is a
15 dual-tip extrusion head. So it's a single head. It says dual-tip extrusion head
16 in the first sentence of paragraph 22 of Exhibit 1004.

17 JUDGE WEATHERLY: Okay.

18 MR. BISENIUS: I'd like to switch back to Patent Owner's slides
19 again.

20 JUDGE WEATHERLY: And I apologize. The version I have of
21 Exhibit 1004 isn't OCR, so I can't search for the term. But does that exhibit
22 also ever use the term extruder or does it just refer to extrusion heads?

23 MR. BISENIUS: I'm going to ask my colleague to see if he can find
24 that in the time that we have left.

1 JUDGE WEATHERLY: Okay. In your view, extrusion -- Leavitt
2 uses the term extrusion head in the same way that extruder is used here on
3 this Slide 15 from the Patent Owner?

4 MR. BISENIUS: No. I think it uses --

5 JUDGE WEATHERLY: Extruder as used on Slide 15?

6 MR. BISENIUS: Yeah, dual-tip extrusion. So I think --

7 JUDGE WEATHERLY: Means an extrusion head.

8 MR. BISENIUS: I think the word tip means an extruder. Each tip is
9 an extruder.

10 JUDGE WEATHERLY: Oh.

11 MR. BISENIUS: I think it's referring to a single head that has a dual
12 tip, and each of those tips is an extruder.

13 JUDGE WEATHERLY: Okay.

14 MR. BISENIUS: And so let's take a look at -- it calls it head 18. So
15 let's --

16 JUDGE WEATHERLY: So there is no switching print heads?

17 MR. BISENIUS: It doesn't talk about switching print heads. It talks
18 about switching between the two different extruder tips.

19 JUDGE WEATHERLY: Okay.

20 MR. BISENIUS: And we can see that in Figure 3 of Exhibit 1004.
21 We've got 18 with the arrow pointing to the whole thing. This whole thing
22 is a head. And if we look --

23 JUDGE WEATHERLY: Is there any testimony, any cross-
24 examination testimony from Mr. Leavitt about what this reference, Exhibit
25 1004 shows or doesn't show on this point?

1 MR. BISENIUS: We did not ask Mr. Leavitt about this. But this is in
2 Exhibit 1004.

3 JUDGE WEATHERLY: Okay.

4 MR. BISENIUS: The reason I'm raising this now is because neither
5 party had ever argued that the file alone demonstrated use of multiple heads.
6 That was never argued by Patent Owner so it's something we never
7 addressed.

8 JUDGE WEATHERLY: Right.

9 MR. BISENIUS: That was raised here. And I'm just trying to give
10 Your Honor --

11 JUDGE WEATHERLY: Because I like to ask questions off the top of
12 my head.

13 MR. BISENIUS: So, but I just want to point out that in Figure 3, 18,
14 which is called the head, is pointing to the whole thing. And we have two
15 extruder tips here. That's 54 and 68. So this is dual. This is two extruders,
16 one head.

17 JUDGE WEATHERLY: Okay.

18 MR. BISENIUS: I'd like to move back to Patent Owner's slides at
19 Slide 16. And when addressing Slide 16, Patent Owner said, hey, Claim 1,
20 all it is, is print a purge tower. That's not what Claim 1 recites. And
21 actually, later on when they're talking about the prior art they're like, oh, but
22 you've got to switch to the active mode and print the layer of the purge tower
23 before you print the layer of the part. All that needs to be shown in the prior
24 art, which we did show in the prior art. That same support would need to be
25 shown in the evidence of earlier invention.

1 And there is discussion here where Mr. Larson said the named
2 inventors, including Bill Swanson, Ronald Schloesser, and myself, printed
3 purge towers. They were printing purge towers, but they weren't printing
4 purge towers that had the exact requirements of printing a purge tower,
5 printing a layer first, going back, printing a layer of the part, printing a layer
6 of support material, printing a layer of the support material.

7 The only file -- the only evidence of record that is alleged to have
8 done that is the one CMB file. There's no other discussion that oh yeah,
9 there were all these different CMB files that all support this claim language.
10 They've only identified one file, a file that says it's made for the Fortus 400.
11 And they say it was executed on a CMB. And there's a lot of discussion
12 about, is CMB compatible with the Mojo? It says Fortus 400. But really,
13 that's all just casting doubt on the testimony of Mr. Leavitt.

14 The real key part here is we have no one with firsthand knowledge.
15 And Mr. Leavitt's knowledge is based on finding a file in a folder over a
16 decade later and saying, well, that was definitely our business practice. This
17 is just how we did the testing. But there's no evidence to corroborate that
18 testimony from Mr. Leavitt. So we have speculative testimony from Mr.
19 Leavitt, nothing corroborating it, and no first-hand knowledge from anybody
20 that that file was ever actually executed, and certainly not that it was
21 executed on a Solo printer, the only printer identified by Patent Owner as
22 having that -- to those multiple print heads.

23 Leavitt talks about multiple print heads in paragraphs 26, 27, 28, 29,
24 and 30. Sorry, multiple extruders, multiple print tips on a single print head.

25 JUDGE WEATHERLY: My question really was, does it equate --
26 does it use the exact term extruder?

1 MR. BISENIUS: Oh.

2 JUDGE WEATHERLY: And does it use it in a way that you want me
3 to read it?

4 MR. BISENIUS: My apologies, Your Honor.

5 JUDGE WEATHERLY: No, that's okay.

6 MR. BISENIUS: I'd like to turn to Petitioner's Slide 36. And Patent
7 Owner had argued, hey, we have this earlier successful reduction to practice,
8 which, once again, the only evidence of that is Mr. Leavitt saying that he
9 found the file in a folder over a decade later. And so you can ignore all the
10 stuff that happened in October. But we asked Mr. Larson about these
11 pictures. So this picture on the right here, it's the only picture in -- it's the
12 only structure in evidence of an actual attempt to print a purge tower.

13 And Patent Owner does not allege that this satisfies all the other
14 requirements of Claim 1 and Claim 16. They're saying, hey, this is
15 additional corroborative evidence that they were printing purge towers at the
16 time. But this really demonstrates that it was not successful. It was not able
17 to be used for its intended purpose. Because we can see that there is purge
18 material clumped up on the part over here. So it's ruined the part.

19 Not only has this purge tower become detached up top, which, as you
20 mentioned, we don't care about the purge tower. We're throwing it away
21 anyway. But the fact that it became detached caused the material to build up
22 on the nozzle because the purge tower wasn't where this machine expected it
23 to be. And we see this clump of material here on the part. We asked Mr.
24 Larson about this. And so you don't have to take my word for it. He said
25 that, yeah, you can see it failed. You can see this clump of material built up
26 on the part.

1 And then the second box here, the highlighted part, he says, and
2 ultimately, this is a great example of why that failed. But on the support
3 side, we never could. We could not control the amount of ooze. And then
4 you need to purge more material. And it just didn't work out. So much after
5 the alleged date of successful execution of the identified CMB file, this is
6 October of 2012, we have evidence of failure. We asked the inventor about
7 it and he said yeah, we couldn't get this to work.

8 That could have been countered by evidence of successful reduction
9 to practice. Some sort of evidence that there was successful printing of
10 purge towers in general. But we have none of that evidence on record. All
11 we have is this failed attempt. We have testimony from the inventor saying,
12 yes, we never could get it to work out. And then we have Mr. Leavitt
13 saying, yeah, but I found this file in a folder a decade later. If there are no
14 questions on that, I'd like to move very briefly to our Ground 1.

15 JUDGE WEATHERLY: You've only got about a minute and a half
16 left.

17 MR. BISENIUS: Yeah. Our Slide 68. There's a question of if you
18 apply RepRap's teachings to Leavitt, are we printing this parking space in a
19 layer-by-layer manner? So first off, it does say that one of the purposes is to
20 plug a nozzle. But it doesn't say there's any material deposited from that
21 plugged nozzle or oozing. That's all speculation by Patent Owner. But it
22 does say that it's printing before the actual object after the temperature
23 change in order to establish the consistent flow. So that shows you that it's
24 printing layers.

25 But the other way that we know it's being printed in a layer-by-layer
26 manner is because we're applying it to Leavitt. Oh, sorry. It's on this slide.

1 Slide 68, paragraph 22 of Leavitt. It says that it's building a 3D object 20
2 and support structure 22 on the substrate 14 in a layer-by-layer manner. So
3 all of Leavitt's printing is happening in a layer-by-layer manner.

4 When we apply the suggestion from RepRap, hey, why don't you also
5 print this other thing over on the side, we're not completely changing how
6 Leavitt's system operates. We're saying, that's an additional thing you print.
7 Leavitt already tells us it's printing in a layer-by-layer manner. So that's how
8 we know the purge tower would also be printed in a layer-by-layer manner.
9 With that, I see that I'm out of time. Unless Your Honors have any
10 questions, I will rest.

11 JUDGE WEATHERLY: I don't have anything further. I don't see
12 anything --

13 JUDGE REN: Nothing further.

14 MR. BISENIUS: Thank you, Your Honors.

15 JUDGE WEATHERLY: Okay. You went two seconds over. That's a
16 seven second difference. I'm just going to call it even, if that's okay with
17 everybody.

18 MR. OAKS: We'll let it slide.

19 JUDGE WEATHERLY: Thank you. 10 minutes. Patent Owner's
20 counsel, whenever you're ready, Mr. Oaks.

21 MR. OAKS: Thank you, Your Honors. So I want to -- Mr. Tatum
22 will address the ground, the merits of the grounds after me. But I want to
23 address the reduction to practice rebuttal that we just heard. First of all, we
24 heard that -- it was alleged that Mr. Leavitt had no firsthand knowledge of
25 testing. I already went over this. He was in charge and part of testing the
26 purge parts. That was his job, or at least one of his jobs.

1 So what he didn't have firsthand knowledge, or at least what he
2 doesn't remember from 15 years ago, is that particular file being printed.
3 And we've talked about this. But he did have knowledge of the test
4 procedure and how that worked. And so it is important where that file was
5 found. Again, the law requires -- sorry. It doesn't require, it allows
6 circumstantial evidence, and that's what this is. It doesn't require a perfect
7 evidentiary story, right?

8 This is a rule of reason standard, and what you need to ask yourself is,
9 are what these people telling you true? Is it more likely than not that it's
10 true? That's the standard. So you would have to believe that Mr. Leavitt is
11 lying, and that's just not the case. They also testified that, you know --

12 JUDGE WEATHERLY: I wouldn't have to believe that he's lying.
13 I'm not going to go that far.

14 MR. OAKS: Well, he said he knows it was printed, you know,
15 because the process was every file in that folder was printed. So either he's
16 misremembering that or, you know, he's making that up or whatever. But
17 again, like, again, it's the rule of reason --

18 JUDGE WEATHERLY: Well, I mean, certainly, yeah. I hear what
19 you're saying. I mean, it's possible that his memory of the process that they
20 used at the time is perfectly clear. And I believe him. And at the same time
21 that that file didn't get printed. Now, I agree with you also that it's
22 circumstantial evidence. I mean, it's probative of whether the file was
23 printed or not.

24 I'm still playing in my own mind with whether I even -- you even need
25 to show that the file was printed or whether just the existence of the file at
26 the appropriate time is enough to show a reduction of the method to practice.

1 I'm not going to commit one way or the other to that. It's just an open
2 question in my own mind at this point.

3 MR. OAKS: Yeah, understood. And I --

4 JUDGE REN: And Counsel --

5 MR. OAKS: Yes.

6 JUDGE REN: -- do you consider Mr. Larson's testimony that
7 Petitioner pointed to on their Slide 36 conflicting evidence? So when they're
8 conflicting evidence from circumstantial or corroborating evidence, then
9 what should we do with it?

10 MR. OAKS: Can you let me know which -- I don't have their slides
11 up -- what testimony was that?

12 JUDGE REN: Oh, yes. It's Mr. Larson's testimony about failures,
13 that there's this -- everything failed, it pretty much said, you need to purge
14 more material and it just didn't work out.

15 MR. OAKS: Right. So that's referring to that 2012 photo which I
16 was talking about in my original presentation, which is a two-purge tower
17 embodiment where you have each purge tower is made entirely of one
18 material. So there's one made entirely of part material and one made entirely
19 of support material. That is what he was talking about, that it doesn't work
20 out to print the tower, they couldn't make it work out to print the tower of
21 entirely the support material because of the adhesion problem that you see in
22 that photo.

23 But that doesn't apply to the CMB file style tower where you have
24 alternating layers. So it's not contradictory that the CMB file that we
25 provided was actually tested. And both the witnesses said that they were
26 able in 2011 to print purge towers more generally. So there's no

1 contradictory evidence there. The question is, did they print the exact purge
2 tower configuration in that CMB file, right? But that's not needed for Claim
3 1. They did testify that they printed the purge towers.

4 And again, there's this argument also I wanted to address about the
5 extrusion index and the extrusion head. I mean, first of all, I would say what
6 Mr. Leavitt has in the patent that's about a totally different printer and a
7 different design is not relevant. He was talking about the term extrusion
8 head. So whether that means print head or not, I don't know. At the very
9 least, also the claim, and we showed how the Solo printer and the CMB file
10 also meet the requirement of the claim, which is or deposition lines. At the
11 very least, two extrusion nozzles or two deposition lines. So it would meet
12 the claim in that way.

13 JUDGE WEATHERLY: Well, does the entire scope of the claim
14 need to be reduced to practice to establish reduction to practice or just
15 aspects of it?

16 MR. OAKS: Perhaps. Perhaps. I'll take your point there. But I do
17 believe those are two print heads. And we have shown, and it's not been
18 disputed, the Solo printer had two print heads. Mr. Leavitt testified as such.
19 So that's what's relevant because that's what it was printed on, right? Let me
20 see if there's anything else. No, I think that's all I wanted to say on the
21 reduction to practice. Do Your Honors have any further questions on that
22 subject matter?

23 JUDGE WEATHERLY: I do not.

24 MR. OAKS: All right. I'll let Mr. Tatum --

25 JUDGE REN: Nothing further.

26 MR. OAKS: Thank you. I'll let Mr. Tatum use the rest of the time.

1 MR. TATUM: All right, Your Honors. I would like to start back
2 with the -- with Boyer. And we heard from Petitioner here in their rebuttal
3 that, well, they're not pivoting from Figure 4, right? They referenced
4 paragraph 34. But I would just direct Your Honors to pages 70 and 72 of the
5 petition, in which they cite Figure 4 I think nearly a dozen times and then
6 conclude in that portion, for that element, this is element 1(c), that to form a
7 three-dimensional part, two-dimensional layers such as the one depicted in
8 Figure 4 are stacked on top of one another so that the transition segments of
9 Figure 4 correspond to purge towers printed in a layer-by-layer manner.

10 So I would just assert again that that is the theory that they advanced
11 in their petition and that's what we were responding to. And they can't pivot
12 from that now to some other theory. Regardless, I still don't think that
13 discloses or anticipates the claims for the reasons we discussed, but just to
14 set the record straight on that.

15 JUDGE WEATHERLY: It's still a fairly close question in my view,
16 actually.

17 MR. TATUM: As to whether sacrificial material deposited --

18 JUDGE WEATHERLY: No, the nature of the disclosure in Boyer.
19 You want to emphasize the specific geometry that's shown in Figure 4.
20 Petitioner wants to emphasize the more general kind of textual disclosure
21 and against the background knowledge of a person of skill on how they
22 would read that text in light of that exemplary, sort of, you know, admittedly
23 schematic kind of depiction in Figure 4. It's a close call in my view.

24 MR. TATUM: Understood, Your Honor. And I guess I would just
25 point back to the fact that we're talking about anticipation here.

1 JUDGE WEATHERLY: Yeah, no, I know. It's a strict standard.
2 And that works in your favor, for sure.

3 MR. TATUM: Yes, Your Honor. And I suppose just to save time, I
4 understood your point there, we would still contend that the sacrificial
5 material, the discussion that that could be deposited outside of the object,
6 that does not show everything in the claims.

7 Moving on quickly to KISSlicer Claim 6, which they addressed here.
8 So I guess the first thing I would note is it now seems like Petitioner is
9 saying that well, a POSITA would have been motivated to take the wipe
10 pillar and use it expressly with Figure 1 of Priedeman, which shows the
11 support structure and the part material going to the same layer at the top.

12 Because the first thing I would note there is they didn't advance some
13 sort of Figure 1 from Priedeman bodily incorporation argument in their
14 petition. And the second thing I would note there is that --

15 JUDGE WEATHERLY: They don't have to show bodily
16 incorporation.

17 MR. TATUM: They certainly don't have to show bodily
18 incorporation, Your Honor. And our argument is not a bodily incorporation
19 one. What they said is well, they would look at KISSlicer's teaching that
20 you print the wipe pillar every layer to reduce hairing. And you put the
21 Priedeman -- and you would just stop at the last material change, because
22 why wouldn't you?

23 But KISSlicer tells you that its wipe pillar is to reduce hairing. And
24 so even if you stop the materials, you still have this hairing consideration to
25 take into account. And KISSlicer tells you that you would print at every

1 layer. So KISSlicer teaches away from stopping that at some portion of the
2 part just because, you know, it stopped changing the materials.

3 And also, I guess on Claim 5 for both Ground 1 and for Ground 2B,
4 they point to their parking space structure and they said that, well, obviously
5 this is a more stable structure than the cylinder. But I'm not aware of any
6 evidence in the record showing that. It certainly doesn't appear stable on the
7 video that we see here. It's falling down, or at least, you know, there appears
8 to be some drooping there at the top. I don't think there's any record
9 evidence to suggest --

10 JUDGE WEATHERLY: That doesn't eliminate it as a purge tower,
11 though, right?

12 MR. TATUM: That in and of itself, if there was some drooping I
13 wouldn't say it eliminates it as a purge tower, but specifically on their Claim
14 6 argument -- we'd still dispute it's not a purge tower, but on their Claim 6
15 argument -- rather Claim 5, Your Honor. There's no motivation for -- if you
16 even consider using the wipe pillar and you call that a purge tower, as they
17 do, to look at RepRap and say, yeah, that thing looks a whole lot more
18 stable. Let me go and take that and change my wipe pillar into this structure
19 that's got this drooping and falling down. And that's their motivation for
20 adding that reference onto Ground 2A. And so that would be the point on
21 that, Your Honor.

22 And then just one other point on that RepRap ground and whether the
23 parking space is a purge tower. I believe Counsel up here said that, well, we
24 consider the purge tower something when it's intentionally depositing the
25 material. That was part of, I suppose, their definition or proposed
26 construction on the fly. But as we see from RepRap, it talks about doing

1 some priming, yes, but it also talks about plugging the nozzle. It appears to
2 be depositing, accidentally, perhaps, some material from that inactive
3 nozzle, the one not in its operating mode as it's moving around, as appears in
4 the video with what we can see. So unless Your Honor has any --

5 JUDGE WEATHERLY: I'm back to just theoretically my initial
6 reaction to that kind of argument is that the claim is open-ended and it
7 allows for steps or actions that aren't recited in the claim to happen without
8 eliminating -- without affecting the analysis of whether the claim reads on
9 the prior art. Do you follow what I'm saying?

10 MR. TATUM: I follow what you're saying as to it being open-ended.
11 And just to respond to that, I guess the difference here is that RepRap
12 specifically teaches this dual-function nature of its purge tower or of its
13 parking space, rather. They call it purge tower. And the way that we
14 understand it is that one of those functions is that the inactive nozzle that we
15 call extruder is depositing some of that material that we see there. So our
16 position would be that's not the operating print head or deposition when the
17 operating --

18 JUDGE WEATHERLY: Fair enough.

19 MR. TATUM: Thank you, Your Honor.

20 JUDGE WEATHERLY: Thanks. I don't have anything further. My
21 colleagues? Just to make sure.

22 JUDGE REN: Nothing from me. Thank you.

23 JUDGE WEATHERLY: Okay.

24 JUDGE KAISER: Nothing further from me.

25 JUDGE WEATHERLY: Well, go ahead, Judge Kaiser.

1 JUDGE KAISER: Yeah. Well, let me thank all three of the counsel
2 who appeared today. The presentations I think were extremely helpful. And
3 we certainly really appreciate the candor and the skill with which they were
4 presented. And I hope that all of the attorneys who presented today will take
5 that thanks back and express it to the other members in their teams who
6 helped them prepare for this presentation, as well as those who prepared the
7 briefs in this case, which are also really useful.

8 I will, before we adjourn, just remind the parties to please stick around
9 for a moment just in case our court reporter has any questions for you. And
10 we'll express that we look forward to seeing everybody back here tomorrow
11 for the related case. I think with that, we're adjourned.

12 JUDGE WEATHERLY: Excellent.

13 (Whereupon, the above-entitled matter went off the record at 4:09
14 p.m.)

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