

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN TUOZHU TECHNOLOGY CO., LTD.,
Petitioner,

v.

STRATASYS, INC.,
Patent Owner.

IPR2025-00438
Patent 10,569,466

Record of Oral Hearing
Held: July 13, 2026

BEFORE: HYUN J. JUNG, CHRISTOPHER L. OGDEN, and
LILAN REN, Administrative Patent Judges.

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The above-entitled matter came on for hearing on July 13, 2026,
commencing at 3:00 p.m.

P R O C E E D I N G S

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JUDGE JUNG: Please be seated. This is the oral argument for IPR2025-00438. In this proceeding, Petitioner Shenzhen Tuozhu Technology challenges Claims 1 through 5, 7 through 13, and 16 through 20 on U.S. Patent number 10,569,466, owned by Stratasys. Beginning with -- I am Judge Jung, and with me is Judge Ogden and Judge Ren.

Beginning with Petitioner's Counsel and followed by Patent Counsel, please state your names for the record.

MR. BISENIUS: For Petitioner, Patrick Bisenius. I'm joined by Michael Hawkins both of Fish & Richardson.

JUDGE JUNG: Thank you.

MR. OAKS: Good afternoon, Your Honor. My name is Brian Oaks, I'm lead counsel for Stratasys Inc., Patent Owner. And with me today is Mr. Aashish Kapadia, who is backup counsel.

JUDGE JUNG: Thank you. Welcome. Each party has 60 minutes of total argument time, and each party may reserve time for rebuttal. Please refer to demonstratives, papers, and exhibits by slide or page number, and the public can listen to and view this proceeding as well.

Mr. Bisenius, whenever you're ready, you may proceed.

MR. BISENIUS: I'd like to reserve 10 minutes for rebuttal time.

JUDGE JUNG: 10 minutes. Okay. Please go ahead.

MR. BISENIUS: Good afternoon, Your Honors. May it please the board, I'd like to start at Petitioner's slide 4. This is figure 3 of the '466

1 Patent, the challenged patent. Figure 3 is showing a three-dimensional
2 printer that receives a supply of build material, having a data tag that
3 provides information on the material. That information about the material is
4 then used to determine operational parameters for controlling the three-
5 dimensional printer.

6 Now today, we're not going to be talking a whole lot about data
7 tags or even really the supplies of material or how that information is
8 exchanged. Because when it comes to Grounds 1A and 3A and the
9 application of those grounds to Independent Claim 1 and most of its
10 dependent claims, the only real dispute between the parties is where the
11 processing happens. Patent Owner does not dispute that it -- the prior art
12 demonstrates 3D printers that read material information from a data tag on
13 the material container. Patent Owner also does not dispute that the
14 combinations in Grounds 1A and 3A use the material information to
15 determine operational parameters for use in controlling operation of the 3D
16 printer during fabrication.

17 The only real dispute is where does that determination happen?
18 Where does the processing occur in the system? So that brings us to slide 5.
19 It says figure 2 of the '466 Patent shows a fairly generic network diagram,
20 some generic computing devices on the right and the top and bottom, but on
21 the left side, they've added in two 3D printers. So it essentially has taken a
22 3D printing system, connected it to a network. Patent Owner's assertion is
23 that determination of operating parameters in our invention happens over
24 here on the right side at one of these computers, 216. They assert that in the
25 prior art that determination of operational parameters happens at the printer,
26 that's it. They're basically relying their entire argument for Claim 1 on

1 network computing. The network computing was not new in 2012 and
2 network computing in three-dimensional printer systems was not new in
3 2012 as the prior art demonstrates.

4 So with that, I'd like to move on to Ground 1A. I'm on slide 8.
5 Ground 1A is a combination of Loughran with Dubois. Ground 1B adds in
6 the Jazayeri reference. We don't really need to talk about that, because
7 Patent Owner did not dispute that Loughran and Dubois disclosed the
8 receiving a request element. That's Element 1B and that's the only element
9 we relied on Jazayeri for. So I'm going to focus on Ground 1A, the
10 combination of Loughran and Dubois. The element --

11 JUDGE REN: Counsel, in Element 1F, the recitation is
12 receiving one or more operational parameters from the client selected for use
13 in controlling operation. What do you make of this selected for use? Who
14 selects it and how is it selected?

15 MR. BISENIUS: Here, we are interpreting selected for use
16 could be selected by the computing system. It's the client device itself that's
17 making the selection of these parameters, it's determination of the
18 parameters. Patent Owner has not argued that there's any narrow or specific
19 meaning to that. Patent Owner has not argued that it's required that a user
20 needs to make a selection using a user interface or anything along those
21 lines. And so we've been interpreting the selected -- sorry. From the client
22 selected for use, to mean the client devices selecting those parameters for the
23 fabrication job, determining what parameters are going to occur.

24 JUDGE REN: Thank you.

25 MR. BISENIUS: So moving to slide 9 of Petitioner's slides,
26 before I dive into the teachings of Loughran, I have to explain a typo in

1 figure 1. On the top right in green, we have an SFF system 102 and on the
2 bottom in red, we have an SFF system 104. The system in green is a client
3 device, the specification says that. The typo is that it refers to it in figure 1
4 as the second SFF System 102. And it refers to the printer side system as the
5 first SFF system 104. The specification switches this, the use of terms first
6 and second, but it's consistent with the use of the reference numerals 102 and
7 104. So with that, I'm going to try to avoid using the terms first and second.
8 When I'm reading the quotes, I'm going to refer to these as the client system
9 102 and the printer system or printer side system 104 and that's consistent
10 with the specification. So I'm going to use the reference numerals rather
11 than first and second.

12 Turning to slide 10, we have a zoom in of figure 1. I just want
13 to go through what Loughran discloses and the operational flow. We have a
14 printer side system 104 receives the supply of build material 110, it has a tag
15 114. That includes information about the building material, including a
16 material identifier. The system 104 sends that material identifier to the
17 client system 102. It then -- the client system 102 then uses the material
18 identifier to request material information from the material information
19 server 108. That information is returned back to the client system 102. The
20 client system 102 uses that material information in order to determine -- in
21 order -- in the generation of the fabrication job, in order to determine
22 parameters for the fabrication job. Loughran gives a few examples of what
23 those parameters are and in our proposed combination, we turn to Dubois,
24 which gives more examples of parameters that you determine for fabrication
25 at the time of generating the job.

26 Patent Owner argues that Loughran has additional teachings,

1 which is true, about dynamic adjustment of operational parameters at the
2 printer side by the printer side system 104, that happened during the printing
3 process, during the run. And it's true that Loughran teaches dynamic
4 adjustment of the parameters and that that dynamic adjustment is based on
5 material information. But that doesn't change the fact that Loughran says
6 the generation of the print job, the CAD design is all happening at the client
7 device. So we turn to Dubois for what sort of information would be
8 determined during that design -- that generation of the job. Not during
9 execution of the printing, but during the generation of the fabrication job.
10 We took those additional details from Dubois, added them into Loughran.
11 It's obvious that we meet all claim elements. We're not subtracting any
12 functionality from Loughran. Loughran still would have that ability to
13 dynamically adjust parameters at the printer side and so it's not a teaching
14 away as Patent Owner asserts.

15 So with that overview, I want to dive into the actual disclosures
16 of Loughran and Dubois. Turning to slide 11, on the upper left here, it refers
17 to SFF system 102, may be considered a client of SFF system 104. So
18 laying out that dynamic that it is a client system. Paragraph 38 says, "SFF
19 system 102 may further be sent to retrieve information regarding the
20 material 112. So that client system has the material information." Paragraph
21 28 states that, "SFF system 102," that's the client, "requests the information
22 regarding material 112 from the material information server 108 over the
23 network." And then that material information is provided.

24 Turn to slide 12. We see what the client system does with that
25 information. The upper left, it says, "System 102," that's the client, "has
26 CAD Software 610." And the next paragraph describes that CAD Software

1 610 generates SFF fabrication jobs for transmission to the second SFF
2 system 104 over the network 106. So the client system is generating the
3 fabrication job. In the upper right it describes that CAD software at the
4 client system determines -- sorry. Generates an SFF fabrication job for
5 fabrication from a specific material based on the information regarding that
6 material. So it's using material information in generating the fabrication job
7 and then it gives us some examples of how the client uses that material
8 information. In the lower right here, I'm going to go to the second sentence
9 here. It states, "For instance, build time estimation, feature orientation
10 suggestion, and part scaling based on expected shrinkage are determinations
11 that the CAD software may make based on the information regarding
12 material 112."

13 Now I'd argue that this disclosure of feature orientation and part
14 scaling itself are operational parameters for use in controlling operation of
15 the 3D printer when fabricating the object. When it's talking about part
16 scaling, it's saying, how much material do I need to use? How big do I need
17 to make the part to account for the material shrinkage? We would argue
18 that's an operational parameter, but we decided to also look to Dubois for
19 additional parameters that would be determined at the time of generating the
20 fabrication job.

21 And that takes us to slide 13. Dubois in Paragraph 57 discusses
22 the production of a component is preceded by a stage of computer-aided
23 design. So it's talking about that same CAD process, computer-aided design
24 process at -- that Loughran does at the client. It says, "As part of this design
25 process, it determines all the requirements of properties, including
26 determining a set of printing parameters." On the right, it gives some more

1 detail that this occurs at a data processing unit 104, that has a computation
2 unit 198, and it determines optimum values of printing parameters as a
3 function of the nature of the material.

4 Turning to slide 14. In the background section, it describes
5 why this is important. It says, "Computer-aided design, which does not
6 allow for the properties of the device and the properties of the materials,
7 does not allow optimum definition of the patterns to be printed." So the
8 improvement from Dubois is during the design process, you needed to take
9 into account the material properties and that -- and determine operating
10 parameters at the time of generating the fabrication job, not dynamically
11 during the printing process.

12 Paragraph 27 states, "Establishing a set of printing parameters
13 as a function of the nature of the materials deposited." And it's reiterating
14 that point. And then Paragraph 109, Dubois gives us some examples. It
15 says, "For each of the materials, a temperature, a pressure, and a state of
16 dispersion in the storage means as a function of its nature." So it's
17 determining operating parameters based on the material.

18 And I'm not going to make you turn to the petition, but on
19 Pages 25 and 26 of the petition, you listed other examples from Dubois,
20 including temperature of the environment, a radiation wavelength, and a
21 radiation power for each material. Ejection height, a speed of travel of the
22 ejection means in order to take into account drying times the materials.
23 These are all operating parameters determined based on the material and
24 they're determined based at the time of the fabrication job generation. One
25 of Patent Owners' arguments is -- yes, Your Honor.

26 JUDGE REN: Counsel, thank you for stopping. Well, as you

1 were saying, it seems like Loughran, in of itself, teaches this operation --
2 operational parameters from the client side. And so once these operational
3 parameters are sent over to the printer side, then the printer dynamically
4 adjusts it. So I wanted to see, you know, why would a skilled artisan want to
5 even look to Dubois to add these parameters to the client side? It seems
6 redundant to me.

7 MR. BISENIUS: So Dubois has -- or sorry. Loughran, when
8 it's describing dynamic adjustment, it's reacting to what's happening in the
9 actual building fabrication process during runtime and so, you know, the
10 situations can change and the one example it gives is temperature of the
11 environment. And that's the only example of dynamic adjustment. And so a
12 reason that you turn to Dubois is because there are a lot of other parameters
13 out there in addition to temperature of the chamber. I just read several of
14 them to you from Dubois and Dubois says that the best way to do this is
15 during part of the CAD process, during the computer-aided design process to
16 provide those parameters.

17 Loughran expressly says that it's a dynamic adjustment, it
18 doesn't say in a dynamic setting. So it's not saying that it's deriving those
19 parameters from whole cloth, it says it's adjusting those parameters. So in
20 order to have a parameter to adjust, that's where you would turn to Dubois'
21 teachings of this myriad parameters that can be determined at the design
22 phase of the fabrication job.

23 One of Patent Owner's arguments is that Dubois doesn't teach
24 this happens at a client device, they keep saying this happened on the printer
25 side. What they don't say is that it happens at the printer and the reason is
26 because Dubois also teaches you would do this at a separate computing

1 device. We turn to slide 15. Dubois' figure 5 shows there's a processing unit
2 105 that's separate from the printer and you can see it's in communication
3 with the printer. Now Dubois doesn't include details about how they
4 communicate, it doesn't say anything about a network. We'll admit that, but
5 it does say it's a separate device.

6 We see that in Paragraph 170, where it's talking about the data
7 processing unit 105. It includes these computation units, including the
8 Computation unit 198, which determines all those parameters I discussed
9 earlier. And it says, "It can be implemented by means of software in a
10 personal computer, software in a PC." So when we're applying Dubois'
11 teachings to Loughran of these additional parameters that could be
12 determined at the time of fabrication job generation, we're already taking it
13 from a reference that says you do this at a separate computer. In Loughran,
14 that separate computer just happens to be on the other side of the network.
15 It's the client device, because Loughran says, this is where you're going to do
16 your fabrication job generation.

17 Oh, sorry. Some additional arguments from the Patent Owner
18 is they argue that a POSITA would never determine operational parameters
19 at the client device, because Dubois mentions that it uses information about
20 the printer when determining those printing parameters, but there's two flaws
21 in this argument. The first flaw is that, as we can see on slide 15, Dubois
22 also does this as a separate computer, it's not doing it at the printer. So in
23 the combination, Loughran's client device would get that information the
24 same way that Dubois' processing unit 105 gets it, by communicating with
25 the printer, but Loughran actually makes that express.

26 If we go to slide 19, Loughran discusses that it receives

1 information -- sorry. The client system 102 receives information from the
2 system 104. It says, "As well as optionally other information," and lists that
3 information as information regarding the SFF system 104, information about
4 itself. So Loughran already has that information about the printer, it can use
5 it the same way Dubois does. Patent Owner further argues that a POSITA
6 would've been dissuaded from applying Dubois to Loughran in the proposed
7 manner, because Loughran's client system would have -- would not have the
8 most current material database as compared to the printer side system.

9 But if we go back to slide 10, we see that the printer side
10 system 104 and the client side system 102, they're drawing their material
11 information from the same material information database. So this argument
12 about stale material information holds no water. The information is coming
13 from the same place, both the client system when it's generating the
14 fabrication job and the printer side system when it's dynamically adjusting to
15 those parameters.

16 If there are no further questions on this ground, I'd like to move
17 to talk about Claim 5. I'm going to skip all the way ahead to slide 74 of
18 Petitioner's slides. So slide 74, we're addressing Claim 5. This is in
19 Grounds 1C, 1D, 3G, and 3H. These all involve addition of the KISSlicer
20 reference to various other combinations in the petition. The Patent Owner's
21 response addressed all four of these grounds at once. So we did the same
22 thing in the Petitioner's reply and that's what I'm doing today.

23 Going to slide 75, Claim 5 depends on Claim 4, which depends
24 on Claim 3. With respect to Ground 1A, Patent Owner has not offered any
25 separate arguments regarding Claims 3 or Claim 4. They essentially just
26 recite, "There's a second material container as a second data tag and you get

1 information about that material to the client device." Claim 5 recites,
2 "Further comprising, receiving a selection of one of the first build material
3 and the second build material from the client, for use in fabricating the
4 object using the three-dimensional printer."

5 If we turn to slide 76, that's what we're relying on KISSlicer for.
6 KISSlicer says, hey, you've got this three-dimensional printing system,
7 you've got multiple materials. Wouldn't it be great if we have this user
8 interface where we allow the user to select the materials for each of the
9 depositions? Now, Patent Owner argues that KISSlicer is fundamentally
10 incompatible with Loughran, because Loughran uses an inkjet SFF system
11 and KISSlicer is an extrusion-based FFF printing system. So first off, this
12 ignores the fact that there are other types of deposition systems in addition to
13 inkjet, described in Loughran.

14 But more importantly, this isn't a bodily incorporation
15 argument. We're not saying you have to take all of KISSlicer and put it into
16 Loughran. We're just saying you're going to take the suggestion of you've
17 got multiple materials. Let's give the user a user interface so they can select
18 the -- from the materials available. A POSITA is not an automaton, they
19 wouldn't be confused by the term extruder. Patent Owner argues, KISSlicer
20 talks about extruders, Loughran talks about inkjets. An inkjet is an extruder,
21 it's extruding material. A POSITA would not be confused by that.

22 Patent Owner also argues that KISSlicer does not teach, "A
23 network exchange where the printer receives a client-provided selection
24 between two tagged build materials in response to tag data provided over the
25 network." And it's true, KISSlicer doesn't say anything about networks, but
26 we're not relying on KISSlicer for that. We already have our Loughran

1 Dubois combination where there's a network. The client device has all this
2 information about the available materials at the printer. We're simply adding
3 KISSlicer in to say, hey, let's let the user select from these multiple materials
4 that are already available at the client device, and that's the combination.

5 If there are no questions on Claim 5, I'd like to move on to
6 Ground 2. So I'm going to go all the way back to slide 29 of Petitioner's
7 slides. Slide -- so Ground 2 is based on Devos. It's an obviousness ground
8 based on Devos alone and the only element in dispute is this determining the
9 operational parameter, Element 19E. And we argue that Devos discloses,
10 determining operational parameter of a support structure requirement.

11 Moving to slide 30, we see that here. Devos says, "The system
12 can also use the data encoded in or on the memory mechanism to determine
13 certain operating parameters." The information it's referring to here is
14 material information. Patent Owner does not dispute that. Goes on and
15 describes what some of those operating parameters could be and one of them
16 is, "Powder settling coefficients, e.g., to determine whether powder supports
17 need to be included. And if so, how much support." Patent Owner has
18 argued that this aside is not sufficient to show determination of a support
19 requirement in the system. But even though this is an aside, it's saying that
20 that determination is made.

21 Claim 19 does not have any requirement for where that
22 determination is made. Claim 19 recites a controller, but -- and it says
23 certain functions have to be performed by that controller, but the
24 determination step is not required to be done by the controller. So even if
25 we read Devos, to say, okay, the system determines the powder settling
26 coefficient, it at least gives that suggestion that a human could make that

1 determination of the power -- powder supports needed and how much
2 support is needed and that would still render Claim 19 obvious. But we
3 don't even need to go that far, because right here, it's telling us that the
4 systems -- is suggesting that the system would use that powder settling
5 coefficient to determine whether powder supports need to be included and if
6 so, how much support. We argue it'd be obvious to make that determination
7 at the computing system.

8 Now, another one of the arguments that Patent Owner makes is
9 that three-dimensional printing involving powder-based printing, which is
10 what happens in Devos, does not require support material. We make a pretty
11 lengthy argument here. But that ignores this express disclosure in Devos,
12 that you would determine powder supports and how much support to use.
13 So Devos is directly contradicting this assertion that you would never ever
14 use powder -- supporting materials in powder deposition. But when they
15 made that argument, we found some additional corroborating evidence,
16 which we cited in the Petitioner's reply.

17 That's at slide 31. On the left, we have a reference here
18 discussing powder deposition. It says, "Near horizontal overhanging
19 surfaces, figure 2D, are not directly possible for processes with metal
20 melting as binding mechanism. Support structures are necessary." And
21 another corroborating reference on the right side here, it says, "In some
22 cases, would require a supporting of overhanging part areas during the
23 powder solidification." So we have Devos' express disclosure. Back on
24 slide 30, we have two corroborating references that all say you -- in some
25 scenarios, you're going to need support structure.

26 Patent Owner makes another argument, that when Devos refers

1 to these powder supports and how much support, it's not talking about
2 supports during the deposition process. They argue that this is thermal post-
3 process support requirements that could take place after printing. The Patent
4 Owner offers no support for this assertion, either in Devos or any other
5 corroborating reference. There is nothing on the record that describes this
6 alleged thermal post-processing support requirement other than the
7 testimony of Patent Owner's expert. And his testimony basically just repeats
8 the arguments from the Patent Owner's response. And so here we have
9 Devos telling you, you need a support requirement. And they're saying,
10 well, no, that would actually happen later during this thermal post-
11 processing. Even though there's no description of thermal post-processing in
12 Devos, there's no description of thermal post-processing in any reference in
13 the record when -- with respect to powder deposition. This also ignores the
14 fact that even if --

15 JUDGE OGDEN: Counsel.

16 MR. BISENIUS: Yes.

17 JUDGE OGDEN: That's a good question. Now, the claim
18 language says, of Claim 19, Limitation E. Well, it says a support structure
19 requirement. And Devos says -- refers specifically to powder settling
20 coefficients. And then it does mention that -- how that would relate to
21 whether powder support needs to be included and if so, how much support.
22 But is it your position that the powder settling coefficients themselves are a
23 support structure requirement and if so, why is that?

24 MR. BISENIUS: That's not quite our argument. We're arguing
25 that the powder settling coefficients are used to determine a support structure
26 requirement and here it --

1 JUDGE OGDEN: Okay. So -- but are you saying that Devos
2 discloses that or are you saying that it would've been obvious to -- even
3 though Devos is disclosing something that relates to a support structure
4 requirement, it would've been obvious to go from a powder settling
5 coefficient to actually disclosing something that you would regard as a
6 support structure requirement?

7 MR. BISENIUS: Well, here we think it's more expressed than
8 that. Devos says that here's how you would use that powder settling
9 coefficient to determine whether a support structure is needed and how
10 much. And so, that determination is at least suggested by Devos. And that's
11 why we made this an obviousness ground. Devos did not expressly say that
12 its computing system makes that determination. And so, we argue it's
13 obvious, hey, Devos knows that there are situations where you would need
14 to make this determination, and merely determining that the support
15 structure is required would satisfy Claim 19.

16 JUDGE OGDEN: Okay. So you -- you're acknowledging that
17 there is a little bit of an indirect relationship to a support structure
18 requirement, but you're saying that that's why it's an obviousness grounds --
19 ground. And you want us to take into consideration what Devos teaches
20 about how a powder settling coefficient relates to support requirements?

21 MR. BISENIUS: Yeah. We would argue that it, at least,
22 suggests that you would use this to determine if you need a support
23 structure. And I'd say that it actually does it in more detail than the '466
24 Patent itself. If we turn to slide 32, Patent Owner has argued that, "Devos
25 provides no algorithm, working example, or explanation of how a settling
26 coefficient becomes a determination whether supports are needed, or where

1 they should go, or how much should be printed." But there's no requirement
2 for that in Claim 19. And actually, there's no discussion of anything like that
3 in the '466 Patent. The '466 Patent only refers to support structure twice in
4 the entire specification. And in both places, this is at Column 15, Lines 11
5 to 24, and Column 21, Lines 50 to 65, those are paragraphs that pretty much
6 word-for-word match up with this claim recitation. They just say, you can
7 use material information to determine a support structure requirement. So
8 the inventors of the '466 Patent are already telling you a POSITA knows
9 how to do this. They -- we don't have to give you any other details because
10 this is enabled. A POSITA knows how to do this using that material
11 information.

12 Devos gives you even more information than that. Devos says,
13 here's the information you need. You need that powder settlement
14 coefficient and that's how you determine if a support structure is needed.
15 And Devos goes one step further and says, you could also use it to determine
16 the amount of the support structure. So Devos is actually slightly more
17 detailed than the '466 Patent specification itself. For Patent Owner to now
18 argue that Devos has to have a much more detailed description than the '466
19 Patent and that they should have patent protection for that is frankly
20 unwarranted.

21 If there are no further questions on Ground 2, I'd like to move
22 on to discussing Claim 17. So I'm going to jump ahead to slide 68 of
23 Petitioner's slides. So similar to Claim 5 that we discussed earlier, Patent
24 Owner's response addressed Grounds 1E, 1F, 3E, and 3F together. So we
25 did the same with the Petitioner's Reply and I'm doing that here. Grounds E
26 -- 1E and 1F involve adding both the Menchik and Dahlin references to the

1 Loughran Dubois-based grounds. And Grounds 3E and 3F involve adding
2 Dahlin to the Menchik-based grounds. Patent Owner does not make any
3 motivation to combine or non-combinability arguments here. So really their
4 argument for all four of these grounds, with respect to Claim 17, are the
5 same and rise and fall together.

6 If we move to slide 69, Claim 17 depends from Claim 1. As we
7 discussed earlier, Claim 1 recites receiving one or more operational
8 parameters. Claim 17 adds in performing a diagnostic test to determine
9 whether the one or more operational parameters is suitable for the three-
10 dimensional printer. The '466 Patent has a limited discussion of this. It talks
11 about, "a determination of operational parameters may include preliminary
12 diagnostic tests." It says, "Any other appropriate preliminary diagnostic
13 build material test used to determine, as a threshold matter, whether a
14 desired fabrication can be performed with the supply 302." In the petition,
15 we argue that Menchik disclosed this operating parameter of the amount of
16 build material -- sorry, the amount of support material required to fabricate
17 the objects. And then, it performed a diagnostic test to determine is there a
18 sufficient amount of material available to perform this printing process
19 based on the amount of material that would be needed?

20 If we turn to slide 70, Paragraph 27 says, "The controller 105" -
21 - I'm starting the unhighlighted portion. "Controller 105 may receive data
22 from one or more material supply sources and control the supply of building
23 material for printing apparatus 140, for example, by controlling the
24 extraction or flow of materials from the printing material source, such as
25 printing cartridges." So here it's talking about using that information to
26 control the printing process. "For example, controller 105 may use software

1 code 120 to process data related to the status of building material in one or
2 more supply sources to compute material parameters for building materials,
3 such as material required to construct one or more objects and supply
4 parameters for materials in one or more cartridges." It then also makes us
5 express that this relates to support structure. In Paragraph 48, it says,
6 "Printer controller may compute, for example, the amount of modeling
7 material, support liquid, or combination of modeling and support materials
8 required."

9 Patent Owner has argued that these disclosures, and similar
10 disclosures in Menchik, are not an operating parameter. They say it's just a
11 calculation of how much material is going to be used. And the controller
12 just keeps that information to itself and doesn't really use it in controlling
13 operation of the printer. But here we see in Paragraphs 27 and 28 that it's
14 using it to determine how it's going to control the supply parameters for
15 supplying that material from the cartridges.

16 And actually, if we look at Paragraph 48, it's saying that this is
17 block 615. So I'd like to turn to Exhibit 1009, which is the Menchik
18 reference, specifically figure 6. I'll give you a few seconds to find Exhibit
19 1009. And I'm at figure 6, which is on Page 6 of the PDF for Exhibit 1009.
20 So here we see in context that block 615 says, "Computing material required
21 for object building." And then, it goes on to say, "it's computing supply
22 parameters and material for each cartridge, controlling transfer of materials
23 from the cartridges." So this is an operating parameter. It's a support
24 structure operating parameter because it's using that information to control
25 the supplies of material during the fabrication process.

26 Going back to Petitioner's slides, if we go to slide 71, we see

1 that Menchik and Dahlin both also disclosed the diagnostic test. Paragraph
2 49 of Menchik says, "The controller may determine whether the amount of
3 modeling and/or support material in the available cartridges is sufficient to
4 complete a three-dimensional object." So it's making this determination.
5 We added in Dahlin because it also has this notification function. Dahlin
6 says, "The CPU 92 will calculate whether a spool 42 or 56 contains enough
7 filament to complete the job. Operator notification is then provided."

8 If we go to slide 72, in the Patent Owner's sur-reply, Patent
9 Owner admitted that, "Menchik discloses computing required material in
10 determining whether available cartridges are sufficient." As we can see on
11 the right side here, Dr. Hickner, who's the expert for Petitioner, testified that,
12 "the amount of support material required (indicating how much material to
13 extract)," how much to control that supply of material, "is an operational
14 parameter." So that meets the first step. And then, this determining of
15 whether available cartridges are sufficient, that's a determination. That's a
16 diagnostic test to see if the printer is -- can sufficiently process that operating
17 parameter in its current state. And if it can't, then steps need to be taken.
18 More material, a different material cartridge, needed to be put in. But that's
19 a diagnostic test for an operating parameter.

20 Turning to slide 73, Patent Owner also argues that the board
21 denied institution in a similar patent, the '464 Patent, based on -- that has
22 similar diagnostic test functionality. There's a significant difference between
23 the claim language in the '464 Patent and the claim language here in the '466
24 Patent. If we look at Claim 1 for the '464 Patent, element B, 1B, it says,
25 "Determining an operational parameter of a fabrication process using the
26 three-dimensional printer based upon the data." That data is the material

1 data received from the data tag. And we pointed out in the Petitioner's reply
2 that "based upon the data" recitation, does not appear in Claim 1. That
3 recitation happens in Claim 19, but Claim 17 depends from Claim 1. And
4 Claim 1 says, "Receiving one or more operational parameters from the client
5 selected for use in controlling operation of the three-dimensional printer
6 when fabricating the object with the build material having the at least one
7 property stored in the tag."

8 The material just has to have the property. There's no recitation
9 here that that property is used in determining the operational parameter.
10 And that's the difference between the '466 Patent and the '464. The denial --
11 the determination of the '464 Patent is that the operating parameter we had
12 pointed to wasn't based on material information. Now, I argue that in the
13 more fulsome record in this proceeding, we have demonstrated that Menchik
14 shows that the amount of material needed is based on the material
15 information. I believe Paragraph 27 demonstrates that. So that it's not
16 needed because the claim language is different here between the '464 and the
17 '466 Patent.

18 If there are no questions on Claim 17, I'd like to move on to
19 Ground 3A. I'm going to go all the way back to slide 34 of Petitioner's
20 slides. So Ground 3A is anticipation or obviousness when we made both a
21 102 and a 103 argument based on Menchik alone. Here's figure 1 of
22 Menchik. It shows the printer on the right side. It's got a controller 105. It
23 is in communication with multiple cartridge apparatuses. They have sensors
24 for reading material data from the data tags. It's also got a cartridge array.
25 Similar to Ground 1A, there's no dispute that there are data tags that have
26 information about the material on the cartridges. Patent Owner doesn't make

1 any arguments that that material information is then used to determine
2 printing parameters. Their only argument is, look at this figure, the
3 controller's part of the printer. It's not a client device.

4 But as I'm going to get into in a minute, Menchik has expressed
5 that the controller can be part of -- integrated into the printer, or portions of
6 it are -- can be external to the printer, or the entire thing can be external to
7 the printer and in communication with the printer. So just as in Ground 1A,
8 the only real dispute is where does the determination of operational
9 parameters happen? In Menchik, it happens in the controller and the
10 controller can be a client device communicating over a network.

11 If we go to slide 35, here we've got the cartridge housing.
12 We've got the cartridge. It's got the tag. There's a tag sensor in the cartridge
13 housing. It receives the material data. No dispute about that.

14 Slide 36, we're showing Claim 1. The dispute here is, is there a
15 client? Is there a request from a client? Is there operational parameters from
16 a client?

17 Turn to slide 37, here it's describing the controller 105 and it
18 has a communication unit 125. And it says, "Communications unit 125 may,
19 for example, enable transfer of data and instructions between the controller
20 105 and printing (sic) apparatus 140." So the controller can be separate
21 from the printing apparatus and it communicates instructions to it. That's the
22 request for a print job.

23 On the right side, it says, "Controller 105 may be located
24 outside of printing system 100 and may communicate with printing system
25 100, for example, over a wire and/or using wireless communications." And
26 it includes a CAD system. So it's tiptoeing up to talking about a network. It

1 hasn't said a network yet. But then later it says controller 105 can be, "a
2 computing device such as a personal computer, a desktop computer, a
3 mobile computer, a laptop computer, a server computer." It says it could be
4 a server, indicating it would be part of the network. And then, later it says
5 the controller can be connected to a communications network.

6 The only express disclosure missing from Menchik is it doesn't
7 say the controller 105 communicates with the printer over that network. It
8 says it can be separate. It says it can communicate with it wired or
9 wirelessly. If it's a wireless connection and there's one other device
10 involved, that would be a network. It says it can be a server computer and it
11 says it's connected to a network. So we argue, it'd be obvious that Menchik's
12 controller, in this implementation, would communicate with the remote
13 printing device over a network. And so, that request for the print job, that --
14 the instructions for the print job, that would come over to the network. The
15 material that's provided from the printer to the controller, that would happen
16 over the network. And the printing parameters determined by the controller,
17 that communication would happen over the network.

18 If we turn -- oh, to slide 38, I accidentally blocked out the page
19 number here. One of Patent Owner's arguments is, well, the controller can't
20 be both the controller and the client at the same time. It has to be one or the
21 other. But no claim requires both a client and a controller. And so, with
22 Claim 1, we've argued it's the client. That's the embodiment where it's
23 remote from the printer. And for Claim 19, we've argued Menchik teaches
24 you other embodiments where the controller is integrated into the printer and
25 there it's acting as the controller of the printer for Claim 19. You see the
26 highlighted portions of Claim 1 and Claim 19 here. Claim 1 discusses a

1 client. There's no mention of a controller. Claim 19 discusses a controller.
2 There's no mention of a client. And so, Menchik's controller 105 can satisfy
3 both of these recitations in completely separate, independent claims because
4 of the different embodiments disclosed in Menchik.

5 JUDGE REN: Well, while we're on this slide comparing Claim
6 1 to Claim 19, I find it curious that you highlighted operational parameters
7 in Claim 1, but you didn't highlight the recitation in Claim 19 determining an
8 operational parameter based upon some of these properties. And I
9 understand that your position is that Menchik -- or your ground for Claim 1,
10 based on Menchik, would render this recitation in Claim 19 obvious.

11 So I'm curious to hear your argument as to how can Claim 1
12 render a claim limitation that's not recited in Claim 1 obvious? Or rather,
13 how can your ground for Claim 1 render obvious Claim 19, which recites a
14 different claim limitation?

15 MR. BISENIUS: So as I mentioned earlier, when I was
16 comparing the '464 Patent to the '466 Patent, similarly here, the difference is
17 -- well, one main difference is Claim 19 doesn't recite where the determining
18 occurs, so that it can happen anywhere in the system. It doesn't say the
19 controller has to do it. But the main difference here is that Claim 19, once
20 again, says, "for a fabrication process using the build material based upon at
21 least one property of the build material and the data." That's the recitation
22 missing from Claim 1. But when we addressed Claim 1, simply for
23 efficiency in the petition, we put that analysis into both Claim 1 and Claim
24 10, which we cited to, cross-referenced later from Claim 19, where we
25 analyzed Menchik isn't just determining an operational parameter. We
26 pointed out specifically where it's determining an operational parameter and

1 using the material data to do that, including the discussion of Paragraph 27.

2 So while it's true that the recitations -- the -- in the two claims
3 are not identical, our analysis of how that's disclosed by Menchik is identical
4 because we gave additional details when we were discussing Element 1F of
5 Claim 1, where we didn't just say Menchik determines operational
6 parameters. We discussed how Menchik used the material information from
7 the data tag to determine those operational parameters. So the analysis is all
8 in there and we didn't feel that we needed to repeat that same analysis that
9 already was happening in Claim 1.

10 So I agree with you and I understand why it's a bit confusing.
11 We're up against word limits. And so, we decided rather than to repeat all of
12 that analysis, we would put the more detailed analysis that is not required by
13 Claim 1, and we put it into the Claim 1 analysis so that would be available
14 for us to cross reference.

15 Just very quickly, slide 39, it says here that the controller 105 is
16 going to "convert such data," this CAD data, "into instructions for the
17 various units within the 3D printer system 100 to print a 3D object." So
18 those instructions are the request for the job. As I said, the controller 105
19 could be a client device. It states here in Paragraph 24, it can be, "an
20 external controller or processing unit."

21 Paragraph 25 talks about how it's a printing file, it's sending a
22 printing file. Patent Owners argued Paragraph 25 is talking about something
23 else. It's talking about a computing platform and that's not the controller.
24 But in Paragraph 24 on the left here, we can see that it calls controller 105 a
25 computing platform. And we don't even really need the analysis in
26 Paragraph 25 because Paragraph 24 tells us it's the controller that sends the

1 instructions to the 3D printer. So those instructions would include the
2 printing parameters.

3 Turning to slide 40, once again, it says it communicates -- the
4 controller communicates with the printer system over a wire or using a
5 wireless communication. Paragraph 30 says it transfers data to the
6 controller. That's the data about the materials. We see block 605 in the
7 right, see here, "transmitting data to printer controller." That's the data read
8 from the tag about the material. So we have Element 1E, we have material
9 information being transmitted to the controller, which is the client device in
10 this scenario.

11 Paragraph 35, I'm not going to read it, but it talks about the
12 material coming from the memory chip on the cartridge.

13 Turning to slide 41, you know, as we discussed, there's
14 instructions that come from the controller. And that includes a printing file,
15 which has these parameters in it.

16 Turning to slide 42, we have Element 1F. Menchik discloses
17 determining these supply parameters. Paragraph 7 says it's going to
18 determine parameters, including supply parameters. Paragraph 37 says it's
19 the controller 105 that does this. It computes printing parameters.
20 Paragraph 27 states that control -- controller 105 will, "control the supply of
21 build material to the printing apparatus, which includes computing material
22 parameters for building material(s), including the material required to
23 construct one or more objects, and supply parameters for those materials."
24 That goes back to what we discussed with regard to Claim 17, its operational
25 parameters based on the material information.

26 Finally, with my limited time left, I'd like to move ahead to

1 Claim 3 at slide 51. So Claim 3 really just requires there's a second material
2 container and it also has a data tag of -- with information about that material.
3 Patent Owner's argument with respect to Claim 3 is really just faulting us for
4 cross-citing to the analysis of Element 1A because Element 1A only requires
5 one container. And they say, well, how can this satisfy two containers? But
6 once again, as with the analysis in comparing Claim 19 to Claim 1, we put in
7 a more detailed analysis at Element 1A to demonstrate that there are
8 multiple material supplies, each one having its own tag.

9 If we go to slide 52, all of these citations come from the
10 analysis of Element 1A in the petition. We have on the right side, the
11 printing system. It has multiple cartridge apparatuses. It's got a cartridge
12 array. Paragraph 23, which we both cited and quoted, discusses a cartridge
13 apparatus and cartridge arrays. It says it has one or more cartridge
14 apparatuses 180, so it has multiple.

15 We turn to slide 53. The cartridge apparatus is shown here.
16 We see it has a data tag and a tag sensor. This is the case for every cartridge
17 apparatus.

18 In a different embodiment, figure 4 Menchik, once again,
19 discusses that there's an array 400 of cartridges 410 that contain building
20 material. "A plurality of cartridges 410 may be located within array 400." It
21 has these data tags, which -- sorry. It may contain building material and
22 then has information about the building material on the data tag. On the
23 right, it says, "Each cartridge 410 may be associated with a memory or
24 storage device such as memory chip 260."

25 So our analysis of 1A just talked about having multiple
26 cartridges throughout the whole thing. The fact that Claim 3 requires that

1 and all we did was cite back to 1A is not some got you moment. We have
2 this analysis in the petition. Patent Owner did not make any separate
3 arguments with respect to Claim 4 and Claim 5. And so, Claims 3, 4, and 5
4 are disclosed for the reasons discussed in the petition.

5 With the limited time remaining, I'm going to save the rest of
6 my time for rebuttal.

7 JUDGE JUNG: Thank you. Eleven minutes.

8 Mr. Oaks, how much time would you like us to reserve for
9 rebuttal?

10 MR. OAKS: Let's shoot for 10 minutes. Thank you, Your
11 Honors. Brian Oaks for Patent Owners Stratasys, Inc.

12 I'd like to go straight to slide 9 and address Patent Owner's
13 arguments with respect to Ground 1A, which of course is the combination of
14 Loughran and Dubois. So first, let's look at the combination. I'm on slide
15 10. And so, as you heard from Petitioner, what this combination does is it
16 takes Loughran's SFS (sic) system and it modifies it. And how does it
17 modify it? Well, it takes Loughran's system and it changes it with what they
18 allege to be Dubois' suggestion, which is sending a fabrication job from a
19 client that includes printing parameters. And these printing parameters are
20 what they allege to be the claimed operational parameters. So it's changing
21 the system to do -- to be a client-focused system.

22 Now, our -- as you heard from Petitioner, our argument, our
23 rationale that this is wrong and improper hindsight is that it's changing the
24 very principle of operation of Loughran's system, which is a printer-side
25 system, a printer-side adjustment of operational parameters based on
26 material information. You can see that several places in Loughran. I have

1 one of them here on slide 11 that talks about how the SFS -- SFF System
2 104, which is the printer, I'll call it printer 104, as Petitioner's Counsel did.
3 It obtains material information about the material that's going to be used for
4 printing. And then, it dynamic -- it automatically and dynamically adjusts
5 itself for utilization with that material. It doesn't get any information from a
6 client to do that. It's creating its own operational parameters based on
7 material information.

8 Moving to slide --

9 JUDGE REN: Why isn't this arguing the references
10 individually? I mean, it's clear that Loughran is teaching this system 104 to
11 automatically and dynamically adjust certain parameters. But that doesn't
12 necessarily prevent --

13 MR. OAKS: I think she froze up.

14 JUDGE JUNG: Yeah. Let me just pause your clock until she
15 gets back.

16 JUDGE REN: Can everyone hear me?

17 MR. OAKS: We can hear you now. Yes, Your Honor.

18 JUDGE REN: Okay. Thank you. Yeah. Okay. Okay. So
19 okay, let me restate my question. My question to you, Mr. Oaks, is that why
20 isn't your argument an argument of arguing the references individually? The
21 Loughran reference does teach, and there's no dispute, that system 104
22 automatically and dynamically adjusts parameters for utilization with the
23 material. So why can't a POSITA have this idea of adding the Dubois
24 teaching of having some parameters sent over to -- from 102 to 104, and
25 then 104 can take it and decide what to do with it? 104 can adjust it or 104
26 can decide not to adjust it. I don't see how it changes the operation principle

1 of the system.

2 MR. OAKS: Yes, Your Honor. Well, I mean, as we know
3 from the Federal Circuit, the question is not could this modification be
4 made, right? Because that's using improper hindsight. The question is:
5 Would it have been made? Would a POSITA, with the references in front of
6 them, the knowledge of POSITA, made this change? So that's what we're
7 addressing is, would you have made this modification, not could you have
8 made this modification. And so -- and I want to -- I'll get to Dubois, but the
9 starting part of this argument is that Loughran has its own system for
10 creating operation -- operational parameters at the printer based on material
11 information. Would you have changed that? Why?

12 So we're trying to guard against improper hindsight, right? It's
13 easy enough with the claim of the patent that you're trying to invalidate to go
14 cobble together a combination that you say provides all that information.
15 But the question is would -- is that using hindsight or would a POSITA
16 actually have been motivated to do that? And so, part of the --

17 JUDGE REN: Is your argument one of improper hindsight or
18 rendering the prior art unoperational or both?

19 MR. OAKS: It's both, Your Honor.

20 JUDGE REN: Okay. Then my question is: Why would it
21 render Loughran's system inoperable? Just because you add some
22 parameters in the System 102 and you send it over, it seems just -- it seems
23 like, okay, there's more information sent over and 104 could -- it seems like
24 it would know what to do with it, just dynamically adjust it.

25 MR. OAKS: Well, I think the issue is, and what our argument
26 was based on rendering inoperable for an intended purpose, is that

1 Loughran's system is having the printer do this dynamic adjustment because
2 the printer knows the printer itself, right? It knows all of its parameters and
3 characteristics. And so, it can take the material information and properly
4 adjust itself. There's not a disclosure that a client receiving just the build file
5 and material information would then know how to adjust that for the printer.
6 There's no disclosure of Loughran that the client has the printer information.
7 The information about the printer they would need to develop those
8 operational parameters.

9 So again, is it possible is not the relevant question. It's does the
10 art teach it? And we've seen within our position is it doesn't because the
11 printer already has that information that already does that. I would also -- let
12 me move to Dubois because we also think it's a basically -- it's a
13 fundamental -- fundamentally fall premise -- flawed premise that in Dubois,
14 a client is determining these operational parameters.

15 We believe that Dubois, you know, the argument basically that
16 it's a client is because it can be separate from the printer, but that doesn't
17 mean it's a client. It's talked about in figure 5. You see, figure 5 is a
18 diagram of the printer. And then -- that's at Paragraph 130. And by the way,
19 I'm on slide 16.

20 Paragraph 130 of Dubois talks -- introduces figure 5. It says,
21 this is the diagram of the printer. And then, later at Paragraph 147, it talks
22 about the data processing unit 105 in figure 5. It's part of the printer. It's not
23 the client. And so, we don't believe that Dubois is even suggesting that a
24 client device does this determination. And the fact that it can be potentially
25 separate from the printing apparatus, like the printer head and the heaters
26 and the build material supply and being run on a computer doesn't mean it's

1 not part of the printing system. It doesn't mean it's a client. It never says it's
2 a client. So we also think that's a reason that a POSITA wouldn't take these
3 two references and go, aha, I'm going to move all this determination of
4 operational parameters to Loughran's client, because neither reference says
5 to do that. That's hindsight.

6 Again, and kind of supporting that, I'm on slide 17. We asked
7 Dr. Hickner, Petitioner's expert about, well, where does Dubois even talk
8 about clients and networks? I mean, he agreed that Dubois doesn't really
9 talk about clients and networks and things like that. So Dubois doesn't have
10 this teaching that they allege of client side determination of operational
11 parameters. That, again, is something they've created in hindsight looking at
12 the claims.

13 Also, one of the rationales -- sorry, I'm going to back up to slide
14 18. One of the rationales they gave for this motivation to combine, again,
15 we're trying to test these based on hindsight is, well, it was predictable
16 results, right? But what is the argument for that? Well, the argument
17 ultimately here on slide 18 is just, well, all these systems are related to 3D
18 printing. That's not enough motivation to make changes to Loughran's
19 architecture just because they're related -- system is all related to 3D
20 printing. That's maybe whether they're analogous art, but it's not a
21 motivation to combine.

22 Also, Dr. Hickner has this routine modification proposal. And
23 again, he just says, well, this is routine. It's easy to do. Again, could you do
24 it is not the question. It's would you have done it? And he didn't explain
25 why you would have done it or how you would even do it. And our
26 contention is that an architectural level change, a significant change to

1 Loughran to move this determination from the printer to a client is not
2 supported by the art or what has been shown to be the knowledge of a
3 POSITA.

4 Slide 20, I just -- here's the case I refer to. There's many cases
5 from the Federal Circuit that talk about this, about the question not being,
6 would you -- could you do it, but would you have done it? That's the
7 important question. And we've covered slide 22. So I'm going to move on
8 to slide -- if there are not any more questions on motivation to combine, I'm
9 going to move to the Claim Element 1F. And this can be quick because it's
10 actually similar. The argument is similar to what I already presented just a
11 minute ago with respect to motivation to combine.

12 So this limitation requires, and we've talked about this already,
13 receiving one or more operational parameters from the client, right? So we
14 know that's what we're talking about. And we already know -- I'm going to
15 skip these slides because this just shows that Loughran doesn't disclose
16 receiving operational parameters from the client and we've already discussed
17 that. So really the question is: Does Dubois? So I'm going to jump to slide
18 27. And again, I'll repeat myself, but Dubois doesn't say that Data
19 Processing Unit 105 is a client. And it talks about it in figure 5 as the
20 printer. Now, yes, it is separate or can be separate, but that doesn't mean it's
21 a client device as required by the claim.

22 Okay. If there aren't any more questions about Claim 1 under
23 Ground 1A, I'm going to move to Claim 5. So I'm at slide 29. So and
24 Petitioner's Counsel talked about this, but I'm just going to review it really
25 quickly. So Claim 5 depends on Claim 4, which depends on Claim 3, which
26 depends on Claim 1. So there's a lot of material in this claim and that

1 context is necessary to understand Claim 5. So Claim 3 has set up the idea
2 that not only do you have one build material -- supply of build material with
3 a tag as you do in Claim 1, you actually have two. They each have a tag.
4 Claim 3 says you send both of the tag information for both of the materials
5 to the client. And Claim 5 says, well, then the client chooses one of those
6 build materials so that's the context of Claim 5.

7 And our position is that Petitioner just hasn't shown that the
8 client device in this combination, which would be Loughran's SFS (sic)
9 system 102, that -- hasn't shown that it actually selects one of two tag build
10 materials. The client -- the information that or the passages that the
11 Petitioner cites from Loughran just say that the client system, which is
12 System 102, receives the material information and then it sends back -- it
13 uses that information then it sends back a fabrication job to the printer 104.
14 Doesn't say there's any selection of build material. So all that inference that
15 it does is just hindsight additions by the Petitioner.

16 I'm on slide 32. And with respect to that kind of hindsight
17 addition, so there's no teaching Loughran. It's just the say so of their expert.
18 And that's not appropriate, right? They -- you need to show a teaching in the
19 art and an IPR from a printed publication of selecting between two tag build
20 materials. And that's just not disclosed in the references. And the Arendi
21 case says that you can't just fill that in with the say so of an expert. Even if
22 the expert says it's common sense, it needs to be disclosed in the printed
23 publications and it's not. Also, in that combination, Dubois doesn't disclose
24 those -- the selection between the two tag build material supplies.

25 So here, the Petitioner talks about the fact that Dubois' device
26 has these slices in the -- in the print job that it sends to the -- that is sent to

1 the printer. But Dubois doesn't say anything about the well, those slices
2 somehow select between two materials, two tag build material supplies.
3 They just again, the -- Dr. Hickner just argues, well, that would be obvious
4 that the slice would specify that information. But Dubois doesn't say that.
5 And because it doesn't say that, they have to point to Dr. Hickner's say so
6 again, which is filling in the blank. And also to this other reference,
7 Napadensky, which also isn't clearly disclosing it, but also isn't part of the
8 combination. So again, all this is trying to improperly fill in gaps that the
9 references that are actually in the combination Loughran and Dubois have.
10 And that they don't disclose this -- the limitations of Claim 5.

11 Are there any more questions with respect to Ground 1? Okay.
12 Then I'm going to move to Ground 2, which is the Devos ground with
13 respect to Claim 19. So I'm going to be talking about -- on slide 35, I'm
14 going to be talking about Element 19E. So again, Petitioner has already
15 discussed this at length. The -- and the operative portion of that is that you
16 determine an operational parameter for configuring a three-dimensional
17 printer using the build material based on at least one property of the build
18 material that's in that data. And the data, of course, is the data from the tag
19 that's on the build material supply. And it also requires that that operational
20 parameter be one of the specifically listed types of operational parameters.
21 And it's the support structure requirement that the Petitioner points to.

22 So looking at Devos, their -- the whole disclosure that they rely
23 upon for this element is this one portion that's highlighted here. And we --
24 we've talked about it already today. And it does say that this system collects
25 information about these -- the powder material. And it says that you can use
26 that material, the information from memory mechanism 146 to determine

1 operating parameters. I give them that. So the question is: Well, does it
2 disclose one of those operation parameters being a support structure
3 requirement? What it says, and you can see here highlighted, and Petitioner
4 already pointed this out, is that it determines powder settling coefficients.
5 So we agree that it determines powder settling coefficients, but those aren't
6 an operating parameter. I think Petitioner agreed that they're not arguing
7 that that's an operating parameter. Instead, what they do is say, well, Devos
8 has this parenthetical that says, for example, you could use those determined
9 powder settling coefficients to determine whether powder supports are
10 needed, right?

11 Our contention is that that is not a disclosure that Devos system
12 actually determines whether the powder supports are needed. It just says it
13 determines the powder settling coefficients. Oh, and by the way, you could
14 use these to determine whether powder supports are needed. And I'll explain
15 why we believe that it doesn't actually disclose teaching determining the
16 powder supports.

17 So I'm going to jump to slide 38. So the first thing that's
18 important to understand in this process is what is Devos talking -- what kind
19 of system is it talking about? And this is powder binding process system.
20 And in that process -- and I'm actually going to jump to slide 39 because we
21 have an example here. This is not from Devos, but this is from a similar
22 type of powder bed binding reference. And you have this printer here that
23 prints in a powder bin -- or powder bed, which is that square-ish portion to
24 the right on slide 39.

25 And in this case, it's building a -- so far at least it's built a half
26 of a hollow sphere. And so, you can see every layer of that powder that's put

1 down is filling that entire square bin. And then, after it's put down a layer of
2 powder, there is an adhesive that is printed and a binding agent that prints
3 over certain portions of that powder and that's forming the part. And so,
4 like, in this top layer that is being printed, it's putting that adhesive in the
5 circular shape to form the top layer there of that hollow sphere. So in this,
6 as you can see, this whole sphere is being supported by the powder that's in
7 the bed, the unbound powder. And this is what our expert talked about, that
8 in this the Devos type powder bed system, you don't need support structures
9 like you do in the '466 Patent, which is an FDM process.

10 It's printing out plastic. And if that plastic is -- has an
11 overhang, then you do need to put something under it because it's just air.
12 That's not the case in Devos. You have this powder that's supporting -- the
13 unbound powder supports the object that's being printed. So what Dr.
14 Cormier testified about, I'm going to jump to slide 42. What he talked about
15 is the support structure that Devos was talking about in that parenthetical
16 that you might use the powder settling coefficient for. Because of the type
17 of system that Devos is, it's not a support structure like in the '466 Patent
18 that's supporting the actual part that's being built. It's a support structure
19 that's used in a post -- post-print process, a sintering process. So first of all,
20 that's a reason it's not the type of support structure operating parameter as
21 recited in the claim.

22 Second, the other reason he says that there's no disclosure is
23 that this is a really complicated process. The fact that you can just say, oh,
24 by the way, you can use a powder settling coefficient to determine the
25 support structure requirement is not enough information to tell somebody
26 how you would actually do that. It's actually quite complicated. It's above

1 the ordinary level of skill in the art. And so, because of that, Devos isn't
2 actually disclosing to one, a skill in the art, that you would actually -- that
3 the system itself would actually create this powder -- this support structure
4 requirement after determining a powder settling coefficient. It just says, oh,
5 by the way, you could do this. And it doesn't disclose how and it certainly --
6 and it wouldn't be needed in Devos' system in the actual printing of the part
7 because, like I said, the part is already supported by the powder itself.

8 JUDGE REN: Are you asking us to construe this claim
9 requirement, of the support structure requirement to be limited to some kind
10 of pre-print situation? Because based on what you have on slide 42, you're
11 saying the prior art is distinguished because the prior art is only relevant to
12 this post-print sintering?

13 MR. OAKS: Right. It's not -- it needs to be relevant to the
14 printing, not pre-printing. And the -- I don't know if I have claim -- yeah.
15 So claim -- here's -- on slide 35, I have Claim 19. And this is an operational
16 parameter for configuring the three-dimensional printer for a fabrication
17 process using that build material. So it's an operational parameter for the
18 fabrication process. And then, you can see 19F says, we control the
19 operation of the 3D printer according to that parameter to fabricate the
20 object. So it's for the printing of the object, the operational parameter. It's
21 not for some post-printing operation.

22 Okay. If there aren't any other questions -- sorry.

23 JUDGE JUNG: Go back to your slide 36, please.

24 MR. OAKS: Uh-huh.

25 JUDGE JUNG: At the last highlight that you have at the
26 bottom. I followed your explanation about why that might not be needed,

1 but what was your explanation about what does that last parenthetical really
2 refer to? What does that really mean? It sounds like a part of a post-
3 processing support for the part that's after it's been printed, but can you
4 explain that a little bit further?

5 MR. OAKS: Yeah. I mean, that's what we asked. We asked
6 Dr. Cormier, well, what is this talking about, right? Because it is -- it isn't
7 something that's well known in the art. And that's what he explained to us is
8 that in this kind of process, you have this is called sintering, which is done at
9 -- you already print -- you print the parts with the powder, and then you have
10 the sintering process. And during that process, you might need to support
11 the part that you already printed.

12 JUDGE JUNG: So the process -- sorry. So the part is pulled
13 out of the powder and then it's centered; is that --

14 MR. OAKS: Right.

15 JUDGE JUNG: Okay.

16 MR. OAKS: That's my understanding. Yes, Your Honor.

17 JUDGE JUNG: Is that in the deposition testimony somewhere
18 or --

19 MR. OAKS: I think that's in his --

20 JUDGE JUNG: Do you have a secondary -- another reference
21 that explains that with the printer?

22 MR. OAKS: -- I think that it's in his declaration. I don't know.

23 JUDGE JUNG: Do you have the citation? I don't need an
24 exact citation. I just, you know, need a place to start from.

25 MR. OAKS: Yeah. I mean, part of it, he's explaining it. I don't
26 -- this is not the full explanation, but here, Exhibit 2013, Paragraph 139, is

1 the one that I had excerpted on 140. That's where he's talking about this
2 post-processing that's done after the printing.

3 JUDGE JUNG: Oh, thank you.

4 MR. OAKS: Okay. So if there aren't any other questions on
5 Ground 2, I'm going to move to Ground 3. Okay. So Ground -- there's --
6 well, there's lots of ground in Ground 3, 3A through 3H, but I'm going to --
7 I'm going to start with 3A, which is the ground with respect to Menchik by
8 itself. So there's a few limitations here that we've argued are not disclosed
9 by Menchik alone or even in combination with the other references. The
10 first is Claim Element 1B.

11 And so, this claim element, and I'm on slide 48, requires
12 receiving a request from a client over a network to fabricate an object on the
13 3D printer. So there's two elements of this that we believe aren't disclosed.
14 The first is receiving from a client. So for a disclosure of receiving a request
15 from a client, the Petitioner points to controller 105 of Menchik. The
16 problem with this is that controller 105 is not a client. Controller 105 is
17 exactly what it says it is. It's a controller. And it specifically says in
18 Paragraph 24 that controller 105 provides "some or all the printing system
19 control capability" so it's aptly named.

20 Moving to slide 49, Dr. Cormier explained that in 3D printing,
21 a controller of a printer is different than the client in a system. A client is a
22 separate computing device that submits a job or a request over a network to
23 the printer for printing a 3D object. A controller is the thing that actually
24 controls the printer. It's like the brains of the printer. It actuates the motors,
25 the heaters, dispensers, other subsystems of the printer. And this is -- so this
26 is what a POSITA would understand a controller to be as opposed to a client.

1 And even if the controller is partially or entirely external to the printing
2 apparatus, it's still controlling the printer. It still would send the control
3 signals to move the motors or change the heating temperature, whatever it is.
4 It's a controller. That's not a client.

5 JUDGE JUNG: Mr. Oaks, can --

6 JUDGE REN: So we're construing -- oh.

7 JUDGE JUNG: -- I was just going to ask, can the controller be
8 part of the client?

9 MR. OAKS: I don't think so. They're two separate things.

10 JUDGE JUNG: Like, for example, I think Petitioner's position
11 is the client, I think we all agree it would be a separate computer on a
12 network, right?

13 MR. OAKS: Correct.

14 JUDGE JUNG: And then controller could -- according to the
15 reference, could be anywhere in the network. And if it happens to be on that
16 separate computer, it still wouldn't be considered a client. Is that Patent
17 Owner's position?

18 MR. OAKS: Just because it's on a separate computer? No, that
19 doesn't turn into a client because you're looking at -- this is the functionality.
20 A client is not controlling things, right? It's a receiver of things and it's not
21 the main actor in the situation, right, whereas the controller is. It's the
22 brains. It's telling the printer what to do.

23 JUDGE REN: I don't know why you have any basis to say that
24 because, you know, we're not -- we agreed that no express claim
25 construction is necessary. And I don't see any reason to construe a client to
26 be some idle part that doesn't control the printer.

1 MR. OAKS: Well, I mean, the -- we've given you the reason
2 for that, which is the testimony of a person that's skilled in the art, very
3 skilled in the art, a professor in this area that says this is what the plain and
4 ordinary meaning of these terms are. So we didn't, you know -- well, first of
5 all, it's not our position to construe terms, that's Petitioner's duty. But we
6 believe that that term has enough meaning by itself. That it's not -- it's
7 different than a controller. Those are two different terms. And Menchik
8 never says that it's a client.

9 So I guess the question would be, well, why should we say --
10 change what's -- what Menchik says is a controller to be a client just because
11 Petitioner says it's a client without supporting that. I mean, it's their burden
12 to show it's a client and they haven't done that and they can't do that because
13 it's a controller, it's not a client is our position.

14 JUDGE REN: Does Dr. Cormier cite any corroborating
15 evidence to distinguish these two terms?

16 MR. OAKS: You know, Your Honor, I'm not sure. I know that
17 the discussion there is centered around here, Paragraph 148 of his
18 declaration, which is Exhibit 2013. So we can check on that. But I don't
19 know right off the top of my head if he has any outside references that he's
20 providing. But I would note that, you know, compared to Dr. Cormier, we --
21 and I'm on slide 50. We asked Dr. Hickner about that. Well, did you
22 consider whether these things are actually the same, could be the same?
23 And he said, no, he didn't even consider whether a client could be a
24 controller or a controller could be a client.

25 So we have one expert that hadn't even really done the work.
26 And another one is telling you this is just wrong. He's explaining how these

1 terms are known in the art and it's not how Petitioner is interpreting it.

2 JUDGE OGDEN: So if, for example, some controller software
3 functionality happens to reside on the same device that you call a client,
4 does that mean that it's not happening on a client or is it going to be -- would
5 it be both a client and a controller, a client that has controlling functionality?

6 MR. OAKS: I mean, I don't think there's a disclosure of that.
7 If -- I mean, there's some cases where the -- there is no client ever, right?
8 The printer has -- even has, like, the CAD software or has, like, slicing
9 software. So it's all self-contained, right? But in that case, you don't have a
10 client at all. You have a controller, but then you wouldn't have a client. So I
11 don't -- there isn't a disclosure of a separate device that has all this -- all
12 those capabilities.

13 JUDGE OGDEN: Well, I'm just getting to the construction of
14 the terms. Is what you're saying that they have to -- that the client -- a client
15 and a controller are two completely different things that you wouldn't be
16 able to mix and match, you know, functionality of a client and a controller
17 together?

18 MR. OAKS: Well, I think it's like I said, Your Honor, that if it
19 is -- there are systems where the printer is all in one, that you don't have -- so
20 in some systems, you have printer with the controller and then you have a
21 client and it's separate, right? And that client typically would have, like, the
22 slicing software. It sends the job to the printer. The printer prints that.

23 In some systems, you don't have a client at all. You just have
24 the printer and it has that slicer software on it. It's capable of doing itself.
25 But in that case, there's no client at all. So if those property -- if those -- if
26 the functionality -- if you say the functionality of the client is the slicer and

1 you put the slicer on the printer and you only have one device, there's no
2 client in that system either.

3 JUDGE OGDEN: Thank you.

4 MR. OAKS: So moving to slide 51, the other aspect of this is,
5 you know, that the client sends a request. And for this limitation, just
6 briefly, the Petitioner says -- well, the request is the printing file or
7 collection of print data, but there is no explanation in Menchik that the
8 printing file or print data is a request to print something. It may define how
9 you print something, but it isn't said to be a request. So that has also failed
10 for that reason.

11 Moving on within Claim 1, just briefly, the Claim Elements 1E
12 and F also refer to this client. So for the very same reasons we were talking
13 about, they fail because of this conflation of controller and client by
14 Petitioner. Also, in Claim 1F, there's also a failure to disclose receiving one
15 or more operational parameters. So the question is: You know, are there
16 operational parameters received?

17 We contend there are not. The Petitioner has relied on the print
18 file as being -- as containing -- allegedly containing operational parameters.
19 We believe that they haven't -- not -- have not shown that that print file
20 contains operational parameters. What we do know -- so they argue that,
21 well, Menchik's controller, it computes material parameters, right? That's on
22 -- this is on slide 54, Paragraph 27. And then, on the next slide at Paragraph
23 37, they say, well, it also computes printing parameters, right? And those
24 are operational parameters.

25 The problem is, again, this is the controller. It's not a client. So
26 it doesn't send operational parameters to the printer. It is the printer. It is

1 controlling the printer. So it computes these printing parameters and
2 material parameters, but then it uses those things to control the printing
3 apparatus, to change the heat, to move the printing heads, whatever it is. So
4 it doesn't need to send those to the printer and there's no disclosure that
5 they're sent to the printer.

6 Also, I'm moving to slide 56. So even if you assume for a
7 minute that the client -- that the controller 105 is a client, and we've argued,
8 of course, that it's not, there's no disclosure that any parameters are actually
9 received from it, operating parameters. So again, they point to Paragraph 25
10 and say, well, there's this printing file that would have operational
11 parameters. Well, one, we disagree there's no disclosure that the printing
12 file has operational parameters. But also the other problem for them is that
13 there's no disclosure that the printing file is sent from the controller 105,
14 which they say is the client.

15 All Menchik's discloses, you can see it there in Paragraph 25, is
16 that a computing -- that computing platform connected to a 3D printer
17 system 100 provides the printing file. That's not the controller 105. There's
18 no disclosure that controller 105 sends a printing file to a printer. And
19 again, that would make no sense because it's controlling -- it is the printer.
20 It's controlling the printer. It wouldn't send a printing file to the printer.

21 Also, on Paragraph 57, the reply is -- you know, now says, after
22 our argument, that, well, it would've been obvious that the controller 105
23 would provide operational parameters and instructions as part of the printing
24 file. But again, there's no disclosure of that. So that's really just hindsight-
25 based filling in the gaps when it's not disclosed in the references.

26 If there's no questions about Claim 1 on Ground 3, I'm going to

1 move to Claim 19. Okay. So Claim 19, as we talked about -- as Petitioner
2 talked about, is different than Claim 1 in that it requires a determination of
3 the operational parameter. So determining an operational parameter for
4 configuring three-dimensional printer based upon at least one property of the
5 build material and the data. And then it goes on also to require that the
6 operational parameter be one of the enumerated types of operational
7 parameters.

8 So this is the -- I'm on slide 59. The petition's sole argument
9 for this claim element is right here on this slide. It's simply a cross reference
10 back to Element 1F and Claim 10. And I won't belabor the point because
11 Judge Ren pointed it out in Petitioner's presentation, but this Claim 1F and
12 Claim 10 don't have a requirement of determining an operational parameter
13 based on the property of the build material and the data. So that analysis
14 does not disclose that.

15 And what we know from the Federal Circuit and the PTAB
16 itself is that it's of utmost importance that the Petitioner provides with
17 particularity its arguments in the petition and explain them. And that is not
18 done here. Instead, what was done and Petitioner's counsel said, well, you
19 know, we've, kind of, ran into word space issues. Well, that's because they
20 have, what? 15 grounds with three different sets of grounds and all these
21 different, you know, references.

22 That's not our problem, right? They tried to cram all this stuff
23 in there, and they didn't do a proper job to analyze Claim 19. Instead, they
24 then used the reply. Four pages -- this one citation, one cross reference in
25 the petition turns into four pages in the reply, and that's just improper. It's an
26 improper expansion of the word limit and it's not following the requirement

1 of Wasica to identify with particularity why Claim 19 was unpatentable
2 under the references. So we believe that the reply argument shouldn't be
3 considered even. But even if we do consider it, we don't believe it's
4 sufficient.

5 Moving to slide 19. So the argument here that the operational
6 parameter, which is they claim is a support structure requirement that they
7 point to for Ground 3A is the quantity of support material to be extracted.
8 But as our -- Dr. Cormier explained, this isn't a support structure
9 requirement. The quantity that's used doesn't specify, for example, whether -
10 - where supports should be generated and printed and with what settings. It's
11 just a consequence of the job. It doesn't control the operation of the printer.
12 And therefore, it's not an operational parameter of the printer that's used for
13 controlling the printer and fabricating the print job.

14 Also, moving to slide 62, the reply points to, well, you know,
15 Menchik discloses these -- it says, "Optimal building parameters, e.g. for
16 building and support." But the problem is that that's -- those optimal
17 building parameters, it discloses being read from the chip of what it alleges
18 to be the tag. So they're not determined. They're read. But then it also
19 wants to use those as the basis for determining a support structure
20 requirement. And so that's just -- it's improper because they're pointing to
21 the same thing twice. If it's already on the chip, it's not being determined.

22 Also, on slide 63, this issue actually came up in a parallel
23 proceeding with respect to, kind of, a sibling patent, the '464 Patent in IPR
24 2025-00585. And in that institution decision, the board found, with the same
25 references being used, that the record before us lacks any teaching or
26 suggesting that the amount of modeling materials, support liquid, or

1 combination of modeling and support materials required for printing a three-
2 dimensional object are determined based on the build material data that's
3 read from the tag.

4 So again, the amount of modeling and material that is needed
5 isn't an operational parameter. But even if you were to assume that it is an
6 operational parameter, there's -- as the board has already preliminarily
7 found, at least in this other IPR, there isn't a disclosure that it's actually --
8 that the amount of build material is actually based on the material -- the
9 build material information that's read from the tag.

10 I'm going to move on to another claim if there aren't other
11 questions about Claim 19. Okay. So I'm on slide 64 now. So still under
12 Ground A, but now we're moving to Claim 10. And Claim 10 -- so Claim 1
13 didn't have an enumeration of the type of operational parameter that had to
14 be received from the client. So Claim 19, of course, does. Claim 10, kind
15 of, starts to move Claim 1 closer to what Claim 19 is by saying -- by
16 defining what the operational parameters must be in Claim 1. And the ones
17 that the Petitioner mapped are extruder temperature and support structure
18 requirement.

19 So for extruder temperature, there's a -- so Menchik is -- the
20 '466 Patent is about fuse deposition modeling. It's squirting out melted
21 plastic filament onto the build platform to create an object. Menchik is a
22 different kind of process. It's like an -- it's an inkjet type process.

23 And so when the Petitioner points to Menchik's recommended
24 jetting temperature, that's not an extruder temperature. It's a different
25 system. It doesn't use an extruder. It uses a jetting -- a jet, right? And so
26 they're -- and we pointed this out and the reply says, well, these are actually

1 analogous. Even though they're different printing techniques, these are
2 analogous terms. Well, that proves the point. It's not a disclosure of the
3 same thing. They argue that it was, and it -- it's not.

4 Moving to slide 66. So this is respect to their mapping with the
5 support structure requirement. They point to the same things that I just
6 discussed for Claim 19. So I'm not going to belabor their point -- that point
7 for the same reason that they're not disclosed for Claim 19. They're also not
8 disclosed for Claim 10.

9 Okay. I'm going to get a drink of water. I'm going to -- the
10 Patent Owner, kind of, skipped over Jazayeri, so I'm going to do that as well
11 and just rest on the briefing on that one. So moving to Grounds 1E, 1F, 3E,
12 and 3F with respect to Claim 17. Excuse me. So Claim 17 as a requirement
13 to Claim 1 -- so of course, as we've talked about at length, Claim 1 recites
14 receiving one -- and I'm on slide 76. Sorry.

15 Claim 1 recites receiving one or more operational parameters
16 from the client. And then 17 adds that you perform a diagnostic test to
17 determine whether those received operational parameters are suitable for the
18 three-dimensional printer. So for this claim under this -- these grounds, the
19 Petitioner's theory is that in Menchik, the amount of support material
20 required indicating how much material to extract is an operational
21 parameter, right?

22 So as we talked about already, the amount of material required
23 in print job is not an operational parameter that controls the operation of the
24 printer. So I've talked about that already. I'm going to not dig back into that
25 now. In addition, this Claim 17 brings in a limitation. The Petitioner
26 touched on this a bit, but it brings in a limitation that is similar to the

1 limitation that the board addressed with respect to the sibling '464 Patent in
2 IPR 2025-585.

3 And there, the board pointed out that there's two different
4 requirements, and specifically in that claim was determining the operational
5 parameters and performance diagnostic tests. Now, Petitioner's argument is,
6 well, Claim 1 doesn't require determining operational parameters, but it does
7 require that the operational parameters be received from the client.

8 And it says, and as Petitioner said, it's the client that selects
9 those operational parameters. So it does require the client selecting
10 operational parameters and then performing a diagnostic test. And as
11 pointed out in this parallel proceeding, there's no explanation of how both
12 these things are done. It just is not disclosed. They point to the same thing,
13 basically, for both of these elements, and that's improper.

14 Finally, I'm going to move to Claim 5. This is Grounds 1C, 1D,
15 3G, and 3H. So we talked about Claim 5 earlier -- I'm on slide 82. About
16 receiving these two different tag data from two different building material
17 supplies and the client selecting one of them. So I talked -- told you before
18 why we believe that the other references don't disclose that. And Petitioner
19 has indeed now added another reference and attempt to disclose that. And
20 that reference is KISSlicer.

21 So KISSlicer is -- it's a slicing program. And it does -- as you
22 can see here on slide 83, it does -- when you're creating a slice of a 3D
23 model, it does allow you to select materials. But these material selections,
24 this is just a laundry list of materials that are in the program. It's not a list of
25 materials that are on the printer. It isn't a list of materials that are populated
26 based on tag information or anything like that. It's just a list of all the

1 possible materials, I guess, that the programmer of this system thought might
2 be available.

3 So it use -- it selects the materials in that way for doing the
4 slice. But this isn't a selection based on having received tag information
5 from the printer of the types of materials available. And so we believe that
6 this is not a disclosure of Claim 5 for that reason.

7 So I'm going to reserve the rest of my time, if you will, Your
8 Honor, and turn it back over to Petitioner's counsel.

9 JUDGE REN: Before you go, I do have a question on your
10 argument on the Jazayeri grounds.

11 MR. OAKS: Yes, Your Honor.

12 JUDGE REN: So is your sole argument that Jazayeri shouldn't
13 be combined because it's non-analogous?

14 MR. OAKS: We have -- that's one of the arguments, yeah.
15 Yes. Another argument is, basically, they're using Jazayeri for receiving a
16 print request at the printer, right? And so another argument is that they're
17 basically bringing this additional network printing environment to try to get
18 there when their primary references already have a network printing
19 environment.

20 So again, this is like a hindsight-based combination to try to fill
21 in a blank. It's not something that a POSITA would've done because the
22 primary references already have a network printing environment. Also, in
23 Jazayeri, it discloses that it's the print server that receives the print job, not
24 the printer. And so that's also another deficiency of that -- of those grounds.

25 JUDGE REN: Okay. I understand. Thank you.

26 MR. BISENIUS: All right. I would like to -- I'm breaking

1 again. I would like to start with Patent Owner's last argument and, kind of,
2 work backwards. Just touching on KISSlicer very quickly, it appears that
3 their argument is that in KISSlicer alone, KISSlicer system is, kind of, just
4 guessing at what all the possible available materials could be. But in our
5 predictable combination, Loughran already knows what materials are
6 available to the printer. The printer has told it that from the tag data.

7 So that already exists in the system. The only thing we're
8 taking from KISSlicer is you know what materials are available. Let's have
9 this user interface to allow the user to select it. We believe that's a very
10 simple and straightforward modification. Renders Claim 5 obvious. I would
11 also like to point out that Patent Owner did not separately argue Claim 5 in
12 Ground 3A, the Menchik-based grounds. They separately argued Claim 3
13 from which Claim 5 depends, but did not make additional arguments about
14 Claim 5.

15 JUDGE JUNG: Can I clarify? Claim 5 requires receiving a
16 selection from the client. And you -- your position is that that selection is
17 made in Loughran; is that correct?

18 MR. BISENIUS: For Claim --

19 JUDGE JUNG: For Claim 5?

20 MR. BISENIUS: -- for the Loughran for Claim 5, the selection
21 is coming from -- so the way the combination works is there's a selection by
22 the user using that KISSlicer user interface.

23 JUDGE JUNG: Okay.

24 MR. BISENIUS: That becomes part of the print job. Loughran
25 is clear. It's sending the entire print job down to the printer so it can use it.
26 If there was a selection by the user at the client device of which materials to

1 use and then the client device never communicated that to the printer, it
2 would be completely useless. It would be pointless.

3 And so the selection is received because that selection becomes
4 part of the print job. It's allowing the user to specify, hey, there's these
5 different materials in the design. I want to use this specific material for that
6 -- you know, material A. I want to use this material for material B in the
7 design. It allows the user to select.

8 JUDGE JUNG: Okay. So it's the user at Loughran's client that
9 selects the material?

10 MR. BISENIUS: Correct. That's where the user interface
11 would be because it -- it's -- KISSlicer is doing this at the time of slicing.
12 Loughran itself doesn't talk about slicing, but Dubois does. And it says that
13 the slicing is part of the CAD design process, a part of generating the print
14 job. This all happens prior to fabrication. And Loughran says all of that
15 happens at the client.

16 JUDGE JUNG: Okay.

17 MR. BISENIUS: Claim 10, I just want to briefly start at slide
18 57. There was an argument that reading a -- reading an operating parameter
19 from the data tag is not a determining, but I would argue that it is. It's
20 determining it based on that information from the tag. It doesn't say it has to
21 calculate or do any processing to determine that operating parameter. Here,
22 it's determining the operating parameter because it's being told directly by
23 the data tag. And so we have a jetting temperature.

24 Their argument that a jetting temperature is different than an
25 extruder temperature is really just an *ipsis verbis* test. Jetting is extruding
26 material. They call it jetting and ink printing. They call it extruding in FFF

1 fabrication, but it's the same thing. It's the temperature of the nozzle of
2 whatever is extruding, whatever is jetting that material. So a jetting
3 temperature and extruder temperature are the same thing. It's just different
4 terms in these different devices.

5 Turning to slide 58, still on Claim 10. As I discussed earlier,
6 Paragraph 48 says, "The printer controller is going to compute support liquid
7 or combination of modeling and support materials required." And this is a
8 control parameter. This is an operating parameter. We get into that on the
9 right side here, Paragraph 43.

10 "Controller 105 may select which cartridges to use for object
11 printing based on, for example, data received from the sensors."

12 So it's using the data from these sensors above the material, and
13 it's going to select which cartridge to use. Then goes on to say, "Controller
14 105 may use the data received. For example, data from memory chip reader
15 225" -- this is the material information. "Data from load cell 230 and other
16 data to compute printing parameters, including, for example, guidelines for
17 which cartridges to use, how many to use, and if and when any replacements
18 are necessary."

19 I would argue that that is a support structure requirement
20 because if it determines it needs support structure, then it's going to control
21 which cartridge you use. It's going to use the support material cartridge.
22 That's an operating parameter. It's determining which cartridge to use based
23 on the supply -- on the data. So this relates not just to Claim 10, but also to
24 our analysis in Claim 17. Menchik is determining not just how much
25 support material is needed, but that there is support material needed and
26 controlling which cartridges to use based on that.

1 Turning to Patent Owner's arguments with respect to Ground
2 3A and Menchik, they argue that a controller is not a client. I believe this is,
3 sort of, a new argument. They hadn't previously really made a claim
4 construction argument. Our position was the controller does all the
5 functionality of a client recited in the claims. That makes it a client. It's a
6 computing device.

7 And so, I'm about to direct you to a portion of the record that I
8 admit we have not cited before, but this is in response to what I believe is a
9 new argument. I'm in Exhibit 1001. This is the '466 Patent, Column 5,
10 starting at Line 40. It describes what a client device is.

11 "Client devices 206 may be any devices within the Environment
12 200 operated by users to initiate, manage, monitor, or otherwise interact with
13 print jobs at three-dimensional printers 204. This may include desktop
14 computers, laptop computers, network computers, tablets, or any other
15 computing device that can participate in the Environment 200 as
16 contemplated herein."

17 Really, their only complaint is Menchik calls it a controller.
18 Once again, they're implementing an *ipsis verbis* test. The controller in
19 Menchik, in the implementations in which it's a remote device, meets
20 exactly this definition of a client device in the '466 Patent. There's no
21 distinction here.

22 JUDGE REN: What do you say to their expert's opinion on
23 that's -- what a skilled artisan would've -- would understand in the art, that
24 client versus controller, controller controls the actual mechanical parts, like
25 the actuator, whereas the client, it's something completely different and no
26 one in the field would confuse or mix the two?

1 MR. BISENIUS: Right here, that's contradicted by the '466
2 Patent in Column 5. It says, "It's any device operated by users to initiate,
3 manage, monitor, otherwise interact with the print jobs." So it says right
4 here, it's managing the print job. It's providing control functionality.

5 I would argue that he's really just saying they called it a
6 controller. It has control functionality, so it can't be a client. Our definition
7 of it is a client just means a separate device that's communicating over a
8 network. It's a client because it's not at the printer. It's not part of the
9 printer. So it's a separate client device.

10 JUDGE OGDEN: This passage does say operated by users. Is
11 that the case in Menchik?

12 MR. BISENIUS: I don't have the cite on top -- at the ready, but
13 in Menchik, the controller is the device. It says that it could be a generic
14 computer, a server computer, a laptop computer. It is the device that the
15 user is interacting with, I believe, in Menchik.

16 JUDGE OGDEN: Okay.

17 MR. BISENIUS: Turning to Ground 2, I want to go to slide 31
18 of Petitioner's slides. And there was a dispute about -- there's an argument
19 about whether that support structure requirement decide -- recited by Devos
20 would be during the manufacturing process or would be a post-processing
21 during some sintering process.

22 And as I mentioned earlier, Patent Owner has cited to no
23 evidence that that's -- this thermal post-processing is even something that
24 happens in powder deposition. They have no corroborating evidence for
25 that. But turning to the corroborating evidence that Petitioner has put into
26 the record in Petitioner's reply, we see that it's actually describing, this is

1 happening during the deposition process.

2 On the left side here, first corroborating references, "Near
3 horizontal overhanging surfaces are not directly possible for processes with
4 the metal melting as binding mechanism. Since the laser beam penetrates
5 deeply into the powder bed, bottom surfaces are not finished well and
6 support structures are needed to guarantee adequate process continuation."
7 This is talking about the deposition process. It says it needs those support
8 structures. The other corroborating reference is even more expressed.

9 Turning to the second box on the right side, it says, "First, our
10 figure 1 shows that support structures for product manufacturing by means
11 of metal and powder-based additive processes are used. These structures are
12 exhibiting, firstly, the function for heat dissipation from overhanging part
13 areas to the substrate and are secondly protecting these part structures from
14 displacing during manufacturing."

15 It is expressly saying you need to support structures during
16 manufacturing. So two corroborating references supporting Devos'
17 disclosure that this happens during manufacturing. Nothing on the record
18 that says this happens during a post-processing thermal sintering process.

19 With my one minute left, I want to move to slide 12,
20 Petitioner's slides. And I just want to point out that Patent Owner has not
21 addressed -- did not address any of these sections of Loughran in the Patent
22 Owner's response and didn't talk about them today at all. These are the
23 portions of Loughran that say you are going to use information about the
24 material at the client device in job generation -- the fabrication job
25 generation.

26 And on the lower right here, Paragraph 27 of Loughran, it gives

1 express examples, which I said, we believe those are operating parameters.
2 All we're doing is turning to Dubois for ideas for more operating parameters
3 that you would determine during the CAD process separate from during the
4 fabrication process. And it's about the timing, not about where it happens in
5 Dubois. Dubois says, "Do all of this during the CAD fabrication generation
6 process, not during operation."

7 And with that, I see I'm out of time. And so if there are no
8 more questions, I'll rest.

9 MR. OAKS: All right. I don't think I'm going to need 16
10 minutes, but let me first pause. Do you have any questions for me based on
11 what's been said so far?

12 JUDGE JUNG: No. Actually, more questions for Petitioner,
13 but not for you.

14 MR. OAKS: Okay. So I'm going to go back to the arguments
15 that were just -- that Petitioner just presented. So with respect to --
16 KISSlicer was the first one they talked about. So they say, well, the client
17 that is in the primary reference, well, they're going to -- they're getting the
18 data, right, about the materials? And oh, well, you could just put that into
19 the slicer and use it.

20 But again, that's hindsight recreation. KISSlicer doesn't say
21 that you obtain the material information and then use that to change the
22 software interface to change the list of materials that you might drop in that
23 dropdown box. That's not what KISSlicer discloses. That's a hindsight
24 recreation.

25 With respect to determining the operational parameter, it was
26 said that reading is determining. Reading from the tag is determining.

1 That's just clearly not the case. And this is related to Claim 19 because
2 Claim 19 has a separate step of reading the data from the tag. So reading the
3 data from the tag cannot be determining the operational data from the tag
4 material.

5 With respect to -- there's this argument about Menchik that
6 Menchik uses the information to select, like, which cartridge to use, that uses
7 the -- because this is related to the argument that -- the quantity of supply
8 material used is not an operational parameter. And they say, well, Menchik
9 uses that information to select which cartridge to use.

10 First, I would point out that this was not in the petition. They
11 didn't point to that as being the use of the operational parameter or use of the
12 quantity information that would make it an operational parameter. Also,
13 there's no disclosure that that selection of cartridges is based -- is related to
14 the fabrication of the object that's being printed based on the print file that's
15 being sent.

16 Let's see. And lastly, the last argument was with respect to
17 Petitioner's slide 31. This is related to Devos and the support -- supports that
18 it talks about. And I would just point out that, you know, they attacked Dr.
19 Cormier for not having corroborating evidence about what he says about
20 powder bed systems.

21 I know -- first of all, I assume that's true. I hadn't had a chance to
22 check, but they don't dispute what he says about powder bed systems and
23 how the powder supports the object being printed. And I want to note that
24 their corroborating evidence is different than what Devos is talking about.
25 It's talking about metal base printing with metal powder where the metal is
26 melted. So that's a different type of situation. And perhaps that type of

1 situation sometimes they support, but that's not what's disclosed in
2 Devos.

3 I think that's about it. If Your Honors have any questions for me,
4 if not, I'll give us back 13 minutes.

5 JUDGE JUNG: Very nice. Thank you both for your presentation.
6 It was very useful. Your case is submitted. We are adjourned.

7 (Whereupon, the above-entitled matter went off the record.)

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