

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN TUOZHU TECHNOLOGY CO., LTD.,

Petitioner

v.

STRATASYS, INC.

Patent Owner.

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,562,324

Case No. IPR2025-00311

PATENT OWNER'S SUR-REPLY

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Statutes

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Other Authorities

37 C.F.R. § 42.23	1
84 Fed. Reg. 64,280 (Nov. 21, 2019)	2, 4

Exhibit List

Exhibit No.	Description
2001	Docket Navigator – Judge Rodney Gilstrap Motion Success for Stay Pending IPR and Time to Milestones
2002	United States District Courts — Judicial Caseload Profiles for Eastern District of Texas (Sept. 30, 2024 and Dec. 31, 2024), available at https://www.uscourts.gov/data-news/reports/statistical-reports/federal-court-management-statistics
2003	Minute Entry for proceedings held before District Judge Gilstrap on Nov. 7, 2024, <i>Stratasys, Inc. v. Shenzhen TuoZhu Technology Co. Ltd.</i> , No. 2:24-cv-00644-JRG (E.D. Tex. Nov. 14, 2024)
2004	Discovery Order, <i>Stratasys, Inc. v. Shenzhen TuoZhu Technology Co. Ltd.</i> , No. 2:24-cv-00644-JRG, Dkt No. 35 (E.D. Tex. Dec. 2, 2024)
2005	Protective Order, <i>Stratasys, Inc. v. Shenzhen TuoZhu Technology Co. Ltd.</i> , No. 2:24-cv-00644-JRG, Dkt No. 36 (E.D. Tex. Dec. 3, 2024)
2006	e-Discovery Order, <i>Stratasys, Inc. v. Shenzhen TuoZhu Technology Co. Ltd.</i> , No. 2:24-cv-00644-JRG, Dkt No. 41 (E.D. Tex. Dec. 19, 2024)
2007	Invalidity and Ineligibility Contentions, <i>Stratasys, Inc. v. Shenzhen TuoZhu Technology Co. Ltd.</i> , No. 2:24-cv-00644-JRG, (E.D. Tex. Jan. 30, 2025)
2008	Transcript of Hearing on the Nomination of Howard Lutnick, of New York, to be Secretary of Commerce (Jan. 29, 2025)
2009	Declaration of Dr. Denis Cormier
2010	Transcript of Deposition of Dr. Andrew Wolfe
2011	Abdul-Ameer, H. et al., Towards Computer Vision Feedback for Enhanced CNC Machining, IEEE (2011)
2012	U.S. Patent No. 7,168,935 to Taminger et al
2013	Uriarte, O., What Type of CNC Coolant Should I Use? (Oct. 2022), https://web.archive.org/web/20221020050138/https://www.cncmasters.com/cool-down-with-the-right-coolant/

I. INTRODUCTION

Pursuant to 35 U.S.C. § 316 and 37 C.F.R. § 42.23, Stratasys, Inc. (“Stratasys” or “Patent Owner”) hereby submits this Sur-Reply to Petitioner’s Reply (“Reply”) to Patent Owner’s Response (“Response” or “POR”) to the Petition for *inter partes* review (“Petition” or “Pet”) filed by Shenzhen Tuozhu Technology Co., Ltd. (“Petitioner”).

Petitioner alleges that the challenged claims are invalid based on 14 different grounds (1A through 2G), and the Reply presents arguments regarding Grounds 1A, 1C, 2A, 2C, and 2G. These arguments specifically address independent claims 1 and 19, alongside dependent claims 3, 5, 6, and 8. However, Petitioner still fails to carry its burden to show unpatentability of any challenged claim. Petitioner’s attempts to inject wholly new theories at this late stage of briefing should be rejected, and, regardless, those arguments fail on the merits as well. Petitioner has not and cannot rebut Patent Owner’s showings that (i) *Mori* and *Henke* are not analogous art and (ii) even if those references were to be treated as analogous art, the Grounds fail to render the challenged claims obvious.

II. MORI AND HENKE ARE NOT ANALOGOUS ART TO THE ’324 PATENT

To rely on a reference in an obviousness ground, Petitioner must establish that the reference is analogous art. *In re Clay*, 966 F.2d. 656, 658 (Fed. Cir. 1992). The reference must be either within the field of endeavor of the challenged patent

or reasonably pertinent to the particular problem the inventor was trying to solve.

Clay, 966 F.2d. at 658-659. “To determine the applicable field of endeavor, the factfinder must consider ‘explanations of the invention’s subject matter in the patent application, including the embodiments, function, and structure of the claimed invention.’” *Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1380-81 (Fed. Cir. 2019) (quoting *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004)).

Further, “an IPR petitioner is the ‘master of its own petition,’” including the theories presented for analogous art. *See Qualcomm Inc. v. Apple Inc.*, 134 F.4th 1355, 1367 (2025); *see also SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1357 (2018) (“the petitioner’s contentions, not the Director’s discretion, define the scope of the litigation all the way from institution through to conclusion”); Consolidated Trial Practice Guide (84 Fed. Reg. 64,280 (Nov. 21, 2019)) (“Practice Guide”) at 74 (cannot proceed “with a new approach as compared to [prior] positions”).

The field of endeavor inquiry is not satisfied simply because references exist relate to the same industry. *Clay*, 966 F.2d at 659. Similarly, while it is true that the “reasonably pertinent” test may be satisfied for references outside the field of endeavor of an invention, its scope is not infinite. While Petitioner notes that “the ‘particular problem with which the inventor is involved’ cannot be so narrowly defined that only references from the same field of endeavor as the invention would qualify as prior art” (*see Reply*, 7) Petitioner ignores that the reference must

be “reasonably pertinent to the *particular problem* with which the inventor is involved” (emphasis added) and therefore “problems to which both relate must be identified and compared.” *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1359 (Fed. Cir. 2020). Petitioner cannot genericize the particular problem addressed by the ’324 Patent, or by the prior art references, to fit its needs. Furthermore, for a reference to be “reasonably pertinent” to the problem, it must “logically [] have commended itself to an inventor’s attention in considering his problem.” *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379-80 (Fed. Cir. 2007) (quoting *Clay*, 966 F.2d at 659).

A. Mori is not Analogous Art

Petitioner relies on *Mori* for Grounds 1A through 1G. Pet, 1. In its response, Patent Owner explained why *Mori* is not analogous art. POR, 29-33. Patent Owner additionally explained why Petitioner should not now be permitted to introduce new arguments to salvage its position that *Mori* is analogous art. POR, 30-31. In particular, Patent Owner distinguished the facts at issue from the case Petitioner now cites, *Corephotonics, Ltd. v. Apple Inc. Id*; Reply, 6; see *Corephotonics, Ltd. v. Apple Inc*, 84 F.4th 990, 1004-05 (Fed.Cir. 2023). Petitioner nonetheless, while not addressing Patent Owner’s position at all, cites to that case. Patent Owner’s explanation thus stands unopposed, and consideration of whether *Mori* is analogous art should be limited to the sole theory advanced in the Petition: that

Mori is in the same field of “three-dimensional fabrication” systems that the ’324 Patent lies in. Patent Owner’s Response explains why this is inaccurate. POR 31-33. Petitioner clearly and unambiguously chose its sole theory for why *Mori* is analogous art in its Petition. Pet., 12. These “contentions, not the Director’s discretion, define the scope of the litigation all the way from institution through to conclusion.” *SAS Inst.*, 138 S. Ct. at 1357 (2018). Petitioner’s attempt to proceed “with a new approach” on analogous art “as compared to [prior] positions” is expressly prohibited by the Trial Practice Guide. Practice Guide at 74 (cannot proceed “with a new approach as compared to [prior] positions”).

Even considering the positions newly advanced by Petitioner, *Mori* is still not analogous art. The full extent to which Petitioner engages with Patent Owner’s argument is to affirm that the ’324 Patent and *Mori* relate generally to three-dimensional fabrication. Reply, 8. But Petitioner does not provide any reason to distinguish the “three-dimensional fabrication” industry (which it itself identifies as a “broad field”) from the “petroleum industry” generally at issue in *Clay*. Reply, 7-8; *Clay*, 966 F.2d at 659. The court in *Clay* rejected the prior art reference as being in the same field of endeavor “merely because both [the reference and challenged patent] relate to the petroleum industry.” *Id.* Here, *Mori* “cannot be considered to be within the [’324 Patent]’s field of endeavor merely because both relate to [three-dimensional fabrication industry].” *See Clay*, 966 F.2d, 959.

While, as Petitioner now identifies, the '324 Patent notes that “the principles of the invention may be *adapted* to a wide variety of three-dimensional fabrication processes,” the rest of the sentence clarifies that this refers to “particular additive fabrication processes.” EX1001, 2:1-4. Relatedly, the paragraph in question goes on to state that “any reference herein to a fabrication process such as printing or three-dimensional printing is intended to refer to any and all such *additive fabrication* process unless a different meaning is explicitly stated or otherwise clear from the context.” EX1001, 2:9-13. Additive manufacturing is thus not just “one example of a three dimensional process toward which the '324 Patent is directed” as Petitioner maintains, it is the sole focus of the '324 Patent. *See id.*; *see also* Reply at 7. Nor does the '324 Patent's discussion of “fabrication resources” accompany any suggestion that the scope of the '324 Patent includes subtractive manufacturing or, somehow, all rapid prototyping or fabrication.

On the other hand, *Mori* teaches the opposite of additive manufacturing, a destructive machining tool. POR, 31-33; EX1005, at Fig. 10 (T cutting groove Wa into W), ¶[0069]; *see also id.*, Title, Abstract, [0085] (sectional image generation when tool is hidden from view such as when cutting a groove); EX2009, ¶111. Petitioner's unsupported conclusion that “[d]ifferences in processing methods do not affect field identity” cannot rescue the deficiencies of its argument. Reply, 8.

Mori and the '324 Patent are not in the same field, and thus their fields cannot be used to establish that *Mori* is analogous art.

As discussed, Petitioner should not be permitted to introduce new theories for analogous art where the petition clearly and unambiguously sets forth the Petitioner's theory. However, even if the Board were to consider Petitioner's untimely theory, Petitioner's argument that *Mori* is reasonably pertinent to the problem of the '324 Patent is facially insufficient. POR, 30-31; Reply, 8. Petitioner does not identify (or, therefore, compare to the problem of the '324 Patent) the problem solved by *Mori*, as it is required to do to show reasonable pertinence. Instead, Petitioner simply notes that *Mori* "describes a 'machining status monitoring apparatus.'" Reply, 8. Without identification and comparison, Petitioner cannot fulfill its burden. Petitioner also fails to even facially address reasonable pertinence because Petitioner presents no argument that *Mori* would have commended would have "commended itself to [the] inventor's attention in considering his problem." See *In re ICON*, 496 F.3d at 1379-80.

Even if Petitioner had identified the problem of *Mori* and presented an argument that *Mori* would have commended itself to the inventor, the problem addressed by the '324 Patent is not, as Petitioner asserts, simply and generically "monitoring an automated process." Reply, 8. The '324 Patent, and the portions cited by Petitioner, relate particularly to monitoring networked three-dimensional

printers and three-dimensional prints. Petitioner improperly seeks to abstract this problem to the point that *Mori* could perhaps be considered reasonably pertinent. But it should not be permitted to do so, because the '324 Patent is directed to a specific technological issue. *See Netflix, Inc. v. DivX, LLC*, 80 F.4th 1352, 1361-1362 (Fed. Cir., 2023).

B. Henke is not Analogous Art

Petitioner relies upon *Henke* for Grounds 2A-2G. Pet, 1-2. In its Response, Patent Owner explained that *Henke*, like *Mori*, is not analogous art to the '324 Patent, as it is neither in the same field as or reasonable pertinent to the particular problem of the '324 Patent. POR 60-66. As described, the '324 Patent's field relates to three-dimensional printing. *Henke*, on the other hand, is not directed to three-dimensional printing, or even, as Petitioner suggests *Mori* may be, other three-dimensional fabrication. POR, 61-63. Petitioner elects not to engage with this argument, instead presenting two conclusory statements: that "*Henke* falls within the same general field of endeavor of the '324 Patent of 'rapid prototyping from computer models'" and that "*Henke* is directed towards the same field of endeavor of 'Web-based access to control electro-mechanical prototyping devices.'" Reply, 9.

However, as discussed, the '324 Patent's field of endeavor is narrower than simply "rapid prototyping from computer models." Reply, 9. *Henke* does not

discuss three-dimensional printing or three-dimensional fabrication at all. *See, e.g.*, EX1014, Abstract. Petitioner also elects to not address Patent Owner's argument that there is no "explanation in Henke of why a three-dimensional printer, which fabricates new 3-D hardware objects and is not for designing and testing new control algorithms on existing hardware, would need to test a control algorithm." POR, 63 (citing EX1014, Abstract; EX2009, ¶¶169-170). Nor does Petitioner respond with any evidence that "the '324 Patent indicates a concern with remotely testing the control algorithms of the three-dimensional printer." *Id.* (citing EX2009, ¶¶167-171).

Like with *Mori*, Petitioner has also not identified, let alone identified and compared to the problem of the '324 Patent, the problem addressed by *Henke*. Reply, 9-10. For that reason, Petitioner fails to show that *Henke* is reasonably pertinent to the '324 Patent. Petitioner also fails, because like with *Mori*, Petitioner does not present an argument that *Henke* would have commended itself to the inventor of the '324 Patent. *Id.*

Even if Petitioner had presented the required arguments, Petitioner would fail because *Henke* is not reasonably pertinent to the '324 Patent. As Patent Owner explained in its Response, *Henke*'s concerns were reducing travel and improving education by removing the "obstacles of cost, time-inefficient use of facilities, inadequate technical support and limited access to laboratories." POR, 64 (citing

EX1014, 1). These stand in stark contrast to the problems addressed by the '324 Patent: enabling remote users to control and monitor three-dimensional printers fabricating three-dimensional objects. *See, e.g.*, EX1001, Abstract; POR, 64.

Petitioner provides no response to this argument. Reply, 9-10. There is no reason why the simulation and use of existing hardware in *Henke* would have commended itself to the '324 Patent's inventor, and *Henke* is thus not reasonably pertinent to the '324 Patent.

Altogether, Petitioner has failed to show that *Henke* is either in the same field of or reasonably pertinent to the '324 Patent, and thus *Henke* is not analogous art. Petitioner has not established and cannot establish that *Mori* or *Henke* are analogous art. Therefore, each reference is an improper basis for an obviousness ground. For at least that reason, Grounds 1A-1G (including *Mori*) and Grounds 2A-2G (including *Henke*), representing *every* ground offered by the Petition, fail to demonstrate unpatentability of the '324 Patent.

III. THE '324 PATENT REQUIRES DISPLAY OF CAMERA IMAGE AND TWO-DIMENSIONAL PROJECTION AT THE SAME TIME

Patent Owner expressly demonstrated that the '324 Patent's independent claims each require display of camera imagery and a two-dimensional projection of the three-dimensional model at the same time. POR, 12-18. In its Reply, Petitioner does not thoroughly engage with the arguments presented by Patent Owner in its

Response. Petitioner instead heavily leans on the fact that Patent Owner and Applicant did not amend the claims. Reply, 2-3. But electing not to amend claims does not alter the plain and ordinary meaning that the presentation of the image and projection is at the same time. In its Response, Patent Owner explained that broadening the claims of the '324 Patent to permit display of the image and projection at different times is *contrary to* the plain and ordinary meaning of the claims—it is Petitioner who seeks to alter the meaning of the claims, not Patent Owner. *See* POR, 12-13.

Petitioner misrepresents the prosecution history as granting allowance of the '324 Patent claims because *Taminger* did not present a “two dimensional rendering of a model *from the point of view of the camera*” (emphasis Petitioner's). The prosecution history makes no such suggestion. Without same-time display, side-by-side comparison is not possible. The applicant explicitly referred to this side-by-side comparison, and in allowing the claims of the '324 Patent, the examiner approvingly cited to that discussion. EX1002, 160-161, 174. Additionally, the camera image and projection are distinct, or comparison would be pointless: there would be no differences to identify. There was no need for the patentee to amend the claims during prosecution, because the Examiner clearly understood the meaning of the claims and allowed them for that reason. Similarly, Patent Owner is under no mandate to amend the claims to further describe the plain and ordinary

meaning of the existing language, which already requires same-time display of the image and projection.

The specification further supports this meaning, as it describes how the image and projection enables “comparing actual to expected two-dimensional” results. POR 16 (citing EX1001, 22:35-38, 25:45-49). Petitioner does not discuss these excerpts at all, let alone provide a response to Patent Owner's argument. Reply 2-4.

The portions of the specification identified by Petitioner as supposedly permitting display at different times use “also or instead” and “and/or” language not present in the claims and are only general suggestions of what the interface may display. For example, Petitioner cites to specification disclosure that the interface may be “any other suitable interface for conveying visual information such as a video image *and/or* model projection” (Reply, 3), but Claim 1 states unambiguously that the user interface presents “an image of the build volume from the video camera *and* a two dimensional projection of the three-dimensional model from the point of view of the video camera.” EX1001, cl. 1. Similarly, Petitioner states the following:

Rather, the specification states that the “visualization area 510 may display a current tool path...may also **or instead** show a simulated print object...[or] may also **or instead** show an image of a working volume of a three-dimensional printer.” EX1001, 22:43-53.

Reply, 2-3. Neither of those portions referred to by Petitioner contemplate displaying the image and projection at the same or different times. Instead, the specification is discussing embodiments where the projection or image may or may not be displayed at all.

Petitioner also refers to disclosure of the user interface being “dynamically updated with new information.” Reply, 3 (citing EX1001, FIG. 7, 24:47-52, 25:6-10, cls. 20-21). But this has no bearing on the plain requirement to display the image and projection at the same time. The status information may be presented in the user interface after other elements of the interface are displayed, but that has no bearing on whether, when it is presented, so too is other information. Further, as Patent Owner identified in its Response, and Petitioner ignores in its Reply, the ’324 Patent demonstrates that the patentee was able to describe sequential operation and presentation and chose not to do so for the display of the image and projection. POR, 16-17 (citing EX1001, 9:17-22, 15:19-22, 15:59-63). Thus, the disclosure on dynamic updates is simply another example.

IV. CLAIMS 1, 3, 5-7, 9-10, AND 19-22 ARE PATENTABLE UNDER GROUND 1A

Petitioner fails to demonstrate that Ground 1A (Mazumder-Mori) renders obvious *any* claim of the ’324 Patent. As already discussed, Petitioner fails at the analogous art threshold question, as *Mori* is not analogous art. But, even if Ground 1A were further considered, Petitioner’s arguments fail on the merits.

A. Ground 1A Does Not Render Independent Claim 1 or 19 Obvious

As established above, the claims of the '324 Patent require display of image and projection at the same time. Petitioner identifies examples of the Mazumder-Mori combination supposedly providing this functionality, but each argument is flawed, relying on improper hindsight and failing to address the arguments made in Patent Owner's Response.

Patent Owner's position is not that the references are incapable of displaying two different types of images, as Petitioner seems to suggest (Reply, 10-12), but that neither teaches or suggests the claimed user interface, which must present both the build-volume image and projection at the same time. Combining *Mazumder* and *Mori* in whatever way does not achieve this, because neither teaches such joint display of any images. A POSITA would have needed to make the leap to same-time display themselves. And further, Petitioner does not address Patent Owner's arguments regarding why *Mori* is particularly poorly suited for such a leap: *Mori* switches between actual and virtual images because those virtual images are needed when the actual image is obscured due to a destructive milling process. POR 42-43; EX2009, ¶¶136-140. In this way, *Mori* teaches away from the '324 Patent, providing reason to *not* display actual and virtual images at the same time, and cannot be considered to teach the claimed invention. It would be incorrect to "ignore[] the express disclosure in [*Mori*] that teaches away from the claimed

invention and rel[y] on teachings from other references that were not concerned with the particular problems [*Mori*] sought to solve.” *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1376-77 (Fed. Cir. 2021).

Further, Petitioner states that Patent Owner “did not acknowledge any flaws in [the] articulated benefits” of the Mazumder-Mori combination, but Patent Owner did precisely that in its Response, identifying that Petitioner’s argument regarding side-by-side comparison rests on impermissible hindsight. Reply, 11; POR, 44. Petitioner does not engage with this discussion.

Petitioner’s fallback theory that it would have obvious to display image and projection at the same time remains unsupported and hindsight-driven. Reply, 12–13. *Mori* teaches switching between a virtual image and an actual CCD image as alternate ways to monitor a machining process; Petitioner’s proposed modification would require redesigning *Mori*’s user interface and image-processing workflow to create a new combined display aligned in point of view and suitable for side-by-side comparison. POR 45–49; EX2009 ¶¶136–139. Petitioner’s invocation of general statements about considering references “as a whole” (Reply, 12) does not supply a reasoned rationale to make this particular redesign, nor does it identify any teaching in *Mazumder* or *Mori* that would lead a POSITA to do so absent hindsight. Petitioner points to the Petition as identifying “why it would have been obvious to modify *Mori*’s teachings of displaying camera images and virtual

images of the model at different times to display the actual images and virtual images at the same time.” Reply, 12. But all the Petition provides is the conclusion that “presentation of both image types would have beneficially aided the remote user to more easily visually compare the actual image and virtual image to quickly identify any defects or problems with the fabrication process.” Pet., 23-24 (citing EX1003, ¶113.). And Petitioner was only able to support such a statement with expert testimony, precisely because it is a hindsight-driven conclusion not supported by the disclosures of *Mori* and *Mazumder*. *Id.*

B. Ground 1A Does Not Render The Dependent Claims Obvious

Because Ground 1A does not render the independent claims of the '324 Patent (claims 1 and 19) obvious, it necessarily fails to render the dependent claims obvious. In its reply, however, Petitioner presents additional arguments regarding claims 5 and 6. These arguments necessarily do not resolve the deficiencies with respect to the independent claims and are further insufficient with respect to the claims 5 and 6.

1. Claim 5

As Patent Owner explained, there is would be no motivation or need to adapt the system of *Mazumder* to include a dynamically updating projection, because, unlike in *Mori*, the actual cameras provide an unobstructed view during three-dimension printing. POR, 46-48. Rather than address this point, Petitioner simply

concludes that “the record is clear that a POSITA would have the knowledge and ability to apply Mori’s suggestion to Mazumder’s system.” Reply, 15. But the sole support for this conclusion is provided by Petitioner’s improper attempt to pull another reference (*Anderson*) into this ground. Reply, 15. And even if Petitioner was permitted to introduce a new reference, *Anderson* does not teach dynamic updating in accordance with Claim 5. Claim 5 requires that the dynamic updating correspond “to a state of *physical completion* of the object,” not simply progress of the print job. The updates of Anderson are merely based on printhead passes. EX1012, [0018].

2. Claim 6

Petitioner does not address the actual requirement of Claim 6, instead, it suggests that Claim 6 may be met by showing images of the build volume from the same camera at different times, simply “displaying both video and still images from the camera,” or even “displaying a single video image.” Reply, 15, 20. But, Claim 6 requires showing an image of the build volume *and* a distinct video image from the video camera. POR, 48-50. And as Claim 6 depends upon Claim 1, this display is at the same time. Petitioner makes no suggestion that this is disclosed. Reply, 15-20.

V. CLAIM 8 IS PATENTABLE UNDER GROUND 1C

Petitioner again misrepresents Patent Owner's argument, which is straightforwardly that *Hull* does not require credential-based access to the local system, and thus provides no rationale for introducing such requirement into the Mazumder-Mori-Hull combination. POR 50-52.

While Petitioner suggests that “[t]he specific nature of the computer being accessed remotely in the networked system ‘is not a distinction on which validity turns,’” but makes no argument why this is established by *Smith & Nephew*. Reply, 21; *see also Smith & Nephew v. Rea*, 721 F.3d 1371, 1378 (Fed. Cir. 2013). A reference should be considered for “all that it teaches,” but *Hull* cannot be considered for that which it does not teach: requiring credentials to access the local fabrication system. Petitioner cannot simply decide that clear distinctions between the prior art and the challenged patent are not relevant to validity. And it certainly does not follow, as Petitioner suggests, that *Hull* allowing a user to “remotely operate the Slice Computer from the Control Computer” means that *Hull* is therefore “directly applicable to remote access of computers in a networked environment in general.”

Petitioner also makes *no* argument regarding Patent Owner's identification of the lack of rationale for requiring credential-based access for the remote user to access the user interface provided by the local system. And it could not have done

so without improperly relying on the hindsight provided by the '324 Patent, as no rationale is provided by the combination, which Patent Owner explained. POR, 50-52. While Petitioner argues that *Hull* teaches the concept of credential-based access, it does not. Reply, 21-22. What Petitioner identified as Patent Owner's "counterintuitive assertion" that *Hull*'s remote user is actually a local user in the context of the '324 Patent is not Patent Owner's "assertion" at all, that is what *Hull* discloses. POR, 51-52; EX2009, ¶¶159-162. *Hull*'s access of the remote slice computer from the local control computer cannot be used to disclose the opposite: credential-based access to a local processor controlling a printer. *Id.*

VI. THE PETITION DOES NOT SHOW THAT CLAIMS 1, 3, 5-7, 9-10, AND 19-22 ARE UNPATENTABLE UNDER GROUND 2A

Petitioner fails to demonstrate that Ground 2A renders *any* claim of the '324 Patent obvious. Like Ground 1A, Ground 2A fails at the analogous art threshold question. *Henke* is not analogous art. Even when further considered, Ground 2A does not render any claims of the '324 Patent obvious.

A. Ground 2A Does Not Render Independent Claim 1 or 19 Obvious

In its reply, Petitioner largely refers to the disclosure of *Tay*. Reply, 23-26. *Tay*'s "QuickSlice" and related views present slice- or layer-based visualization of a build process, rather than a projection aligned to a physical camera's point of

view for comparison against live camera imagery. POR 60–67; EX2009 ¶¶178–180.

Petitioner tacitly acknowledges that *Tay* does not teach the mandated same-time display by leaning on *Henke*'s disclosure of showing an image and simulation at the same time. Reply, 27. But the claims of the '324 Patent present a different requirement: that the image be “of the build volume” and the projection be “of the three-dimensional model.” EX1001, cl. 1, 19. Petitioner's attempt to stretch *Henke* to fulfill that requirement highlights why it is absurd to consider *Henke* as analogous art. *Henke* has no build volume to display an image of, and the image that is displayed is of the system as a whole, which also is not actually functional. POR, 70-71. EX1014, Fig. 8. *Henke* similarly has no three-dimensional model to display a projection of. *Id.* What is shown instead is a simulation of the system, simplified such that it is not even a projection of what is shown in *Henke*'s hardware view, and that simulation is needed because the hardware is not operating. *Id.*

Patent Owner is not improperly treating the references individually, because it is Petitioner who still has not shown a non-hindsight driven rationale for adapting the hardware and simulation view of *Henke* to the combination with *Kritchman* and *Tay*, despite Patent Owner identifying this deficiency in its Response. POR, 72-73. And Patent Owner considered the combination of

references, as offered by Petitioner, in its Response. POR, 70-73 (“Henke has its own deficiencies that *fail to remedy Tay’s shortcomings...*”); *see also* EX2009, ¶181-183 (“*like Tay*, Henke does not teach presenting an image and projection from the same point of view at the same time.”); POR, 73 (“Thus, Henke as applied in the combination with Kritchman and Tay does not teach ...”).

B. Ground 2A Does Not Render the Dependent Claims Obvious

Because Ground 2A does not render the independent claims of the ’324 Patent (claims 1 and 19) obvious, it necessarily fails to render the dependent claims obvious. In its Reply, however, Petitioner presents additional arguments regarding claims 3, 5 and 6. These arguments necessarily do not resolve the deficiencies with respect to the independent claims and are further insufficient with respect to the dependent claims.

1. Claims 3 and 5

Ground 2A does not render Claim 3 obvious for at least the reasons described regarding claim 1. Ground 2A is additionally insufficient with respect to Claim 5. Petitioner suggests that “[s]imulation and visual prototyping help to find functional errors.” Reply, 28 (citing EX1014, 3). But this is because simulation and hardware results may differ from each other in the event of such an error, precisely due to the fact that the model is not updated to correspond to the status of the hardware. Rather, *Henke* is clear that the model is purely a simulation, and further,

the hardware is not operating or functional in the first place. POR 71-72; EX1014, 3, Fig. 8. Therefore, Ground 2A does not render Claim 5 obvious.

2. Claim 6

Like with Ground 1A, Petitioner does not address the actual requirement of Claim 6, and therefore fails to show that Ground 2A teaches or suggests that claim. Indeed, Petitioner's entire argument assumes that the '324 Patent does not require displaying still images and video images at the same time. Reply, 30. Because this assumption is incorrect, Ground 2A does not render Claim 6 obvious. POR, 74-75; EX2009, ¶¶117, 187-188.

VII. CLAIM 5 IS PATENTABLE UNDER GROUND 2G

Patent owner ignores that Claim 5 requires that the dynamic updating correspond "to a state of *physical completion* of the object," not simply progress of the print job. The updates of Anderson are merely based on printhead passes. EX1012, [0018]. Thus, if, for example, the printer were to fail to extrude, the projection would not correspond to the completion of the object. And the real-time or quasi-real time status information the dynamic updates provide (EX1001, 24:67-25:3) would not be needed if printing were proceeding as intended. POR 30-32; EX2009, ¶¶193-194.

VIII. CLAIM 8 IS PATENTABLE UNDER GROUND 2G

For similar reasons as in Ground 1C, Ground 2G, adding *Hull* to the Ground 2A combination, fails to render Claim 8 obvious. And just like it did when addressing Patent Owner's Ground 1C arguments, Petitioner simply and baselessly concludes that the distinctions between *Hull* and the '324 Patent are not relevant to patentability. Reply, 32-33.

IX. CONCLUSION

For the foregoing reasons, Patent Owner submits that all the challenged claims are patentable.

Respectfully submitted,

Dated: February 11, 2026

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Sur-Reply complies with the type-volume limits of 37 C.F.R. § 42.24(c)(4) because it contains 4909 words, excluding the parts that are exempted by 37 C.F.R. § 42.24(a), according to the word processing system used in preparation of this Sur-Reply.

Dated: February 11, 2026

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on February 11, 2026, a complete copy of the foregoing Patent Owner's Sur-Reply was served on Lead and Back-up Counsel for Petitioner at the service address provided in Petitioner's Mandatory Notices:

Email: IPR56224-0014IP1@fr.com

Dated: February 11, 2026

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