NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

MEDIVIS, INC.,
Appellant

v.

NOVARAD CORP.,
Appellee

2024-1794

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2023-00042.

Decided: March 3, 2026

ADAM STEINMETZ, Desmarais LLP, Washington, DC, argued for appellant. Also represented by TAEG SANG CHO, JOHN M. DESMARAIS, New York, NY; BETTY H. CHEN, San Francisco, CA.

JED H. HANSEN, Thorpe North & Western, LLP, Salt Lake City, UT, argued for appellee. Also represented by JOSEPH HARMER.

Before PROST, CLEVENGER, and TARANTO, *Circuit Judges*.

PROST, *Circuit Judge*.

Medivis, Inc. ("Medivis") appeals a final written decision of the Patent Trial and Appeal Board ("Board") in an inter partes review challenging claims 1–6 and 11–20 of U.S. Patent No. 11,004,271 ("the '271 patent") owned by Novarad Corp. ("Novarad"). *Medivis, Inc. v. Novarad Corp.*, No. IPR2023-00042, Paper 35, 2024 WL 967381 (P.T.A.B. Mar. 6, 2024) ("*Decision*"). The Board found that Medivis failed to show that (1) claims 1, 5, and 6 were unpatentable as anticipated; and (2) claims 1–6 and 11–20 were unpatentable as obvious. We affirm as to anticipation and reverse and remand as to obviousness.

BACKGROUND

The '271 patent relates to augmenting real-time views of a patient with three-dimensional ("3D") data. '271 patent Abstract. It describes an augmented reality ("AR") environment in which a surgeon views, through an AR headset, virtual elements projected onto real-time views of the patient. The patent aims to address issues with conventional medical imaging systems, which provide 3D data on computer display screens separately disposed from the patient. *Id.* at col. 2 ll. 49–55. Specifically, it describes the problem of a surgeon operating on a patient's internal anatomy having to shift her view from the patient to a computer display and back to the patient. Accurately tracking a location while constantly switching one's gaze back and forth is difficult and error-prone. *Id.* at col. 2 ll. 56–63. For example, the surgeon might accidentally identify the wrong location and make unnecessary incisions.

To avoid such errors, the '271 patent describes methods of automatically aligning or registering the 3D data "with a real-time view of the actual patient" so that "images derived from the 3D data may be projected onto the real-time view of the patient." *Id.* at col. 3 ll. 21–27. In one

embodiment, an AR headset augments a real-time view of the patient with a virtual box, within which one or more inner layers, such as bones, are contained. *Id.* at col. 4 ll. 42–46 & Fig. 1. Claim 1 is illustrative:

> 1. A method for augmenting real-time, non-image actual views of a patient with three-dimensional (3D) data, the method comprising:
>
> identifying 3D data for the patient, the 3D data including an outer layer of the patient and multiple inner layers of the patient; and
>
> displaying, in an augmented reality (AR) headset, one of the inner layers of the patient from the 3D data projected onto real-time, non-image actual views of the outer layer of the patient, the projected inner layer of the patient from the 3D data being confined within a volume of a virtual 3D shape.

Id. at claim 1.

Medivis filed a petition for inter partes review of the '271 patent, challenging claims 1–6 and 11–20. Relevant here are two of Medivis's grounds: (1) anticipation of claims 1, 5, and 6 by prior-art reference Doo;[1] and (2) obviousness over Doo in view of Amira.[2] In its final written decision, the Board determined that none of the challenged claims were shown to be unpatentable. *Decision*, 2024 WL 967381, at *13.

Medivis timely appealed, and we have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

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[1] International Publication No. WO 2015/164402.

[2] Amira 5 User's Guide (Visage Imaging 2009) (excerpted at J.A. 1205–1321).

DISCUSSION

Medivis argues two grounds on appeal—that it presented sufficient evidence showing: (1) Doo anticipates claims 1, 5, and 6 of the '271 patent; and (2) claims 1–6 and 11–20 would have been obvious over the teachings of Doo and Amira.

I

Anticipation is a question of fact reviewed for substantial evidence, *Synopsys, Inc. v. Mentor Graphics Corp.*, 814 F.3d 1309, 1317 (Fed. Cir. 2016), which is "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion," *Novartis AG v. Torrent Pharms. Ltd.*, 853 F.3d 1316, 1324 (Fed. Cir. 2017) (citation omitted). We review the Board's claim constructions, whether implicit or explicit, de novo. *Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1057–59 (Fed. Cir. 2024).

Regarding anticipation, Medivis argues: (a) the Board erred by not construing "3D virtual shape," and that Doo meets claim 1 under its preferred construction; (b) the Board erred in its implicit construction of "projected inner layer"; and (c) notwithstanding the Board's constructions, Doo's Figure 11 also meets claim 1. We address each issue in turn.

A

Medivis argues the Board erred by not construing "3D virtual shape" to encompass the outer layer of the patient, as allegedly disclosed in Doo's figures. We disagree. The Board is required to expressly construe claims only to the extent necessary to resolve the parties' controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). The Board explained that the parties' different proposed constructions did not affect the Board's finding that Doo failed to disclose "the projected inner layer of the patient from the 3D data being confined within a volume of a virtual 3D shape." *Decision*,

2024 WL 967381, at *4. Thus, the Board proceeded as our law prescribes—deciding only the claim-construction issues necessary to resolve the dispute before it.

Even under Medivis's broader construction of "3D virtual shape," substantial evidence supports the Board's finding that Doo does not anticipate claim 1. In its petition, Medivis's anticipation argument relied on Doo's Figure 7, which illustrates a "false 3D" or "2.5D" modality "in which a two-dimensional image can be wrapped around a three dimensional structure, namely the body surface of the patient," Doo at ¶ 75, and Figures 8 and 9, which further "illustrate the concept of image wrapping as introduced in . . . Figure 7," *id.* at ¶ 76. The Board rejected this argument, finding that Doo's technique "avoids rendering a 3D shape . . . (hence calling these '*false* 3D shapes')." *Decision*, 2024 WL 967381, at *5 (emphasis in original). Substantial evidence supports the Board's finding that Doo's self-described "false 3D" or "2.5D" images are not 3D virtual shapes. Even if the claim "encompasses virtual 3D shapes as simple as a box and as complex as the outer layer of a patient," J.A. 145, Medivis has not shown how the "false 3D" images of Doo constitute the claimed "virtual 3D shape." Doo explains they are *not* 3D shapes.

B

We turn next to Medivis's argument that the Board implicitly—and incorrectly—construed "projected inner layer of the patient" to import a "volume" requirement. We see no error in the Board's analysis. The Board rejected Medivis's argument that the image in Doo's Figure 7, allegedly confined within the volume of Doo's false 3D shape (or "curved plane") shown in Figure 9, could meet the claimed "projected inner layer of the patient from the 3D data being confined within a volume of a virtual 3D shape." J.A. 168; *Decision*, 2024 WL 967381, at *4–6. In so doing, the Board found that "Doo's curved plane does not, in fact, have a volume." *Decision*, 2024 WL 967381, at *5. Thus, there could

be no "projected inner layer" that is "confined within a volume of a virtual 3D shape," as the claim requires. The Board did not require the claimed "projected inner layer" to have a volume, and indeed, did not need to reach that issue.

C

Medivis's final argument on anticipation is that Doo's Figure 11 also discloses a "projected inner layer of the patient from the 3D data being confined within a volume of a virtual 3D shape." We hold that substantial evidence supports the Board's finding that Doo's Figure 11 does not disclose this element.

The Board found that rather than depicting a virtual box (i.e., a 3D shape), Figure 11 instead discloses that 2D images may be "sequentially exhibited," thereby producing a "fly through 3D" modality. *Decision*, 2024 WL 967381, at *7. Again, this is not a "virtual 3D shape" having a "volume," as the claims require. Substantial evidence thus supports the conclusion that Doo does not anticipate claims 1, 5, and 6.

In all, substantial evidence supports the Board's determination that Doo does not anticipate the claims. Medivis's claim-construction arguments discussed above are, at heart, disagreements with the Board's factual determinations, for which we hold there is substantial evidence support. Medivis does not otherwise demonstrate error in the Board's anticipation analysis.

II

We turn next to obviousness, which is a question of law based on underlying factual determinations. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015). Whether a person of ordinary skill in the art ("POSA") would have been motivated to combine prior-art references with a reasonable expectation of success is one such fact question, which we review for substantial evidence. *PAR*

Pharm., Inc. v. TWI Pharms., Inc., 773 F.3d 1186, 1193 (Fed. Cir. 2014).

Medivis argues that the Board's finding of no motivation should be reversed because it is predicated on the wrong legal standard and is not supported by substantial evidence. Medivis also argues that the Board erred by failing to consider the full record of relevant evidence. We agree with Medivis on former, and therefore, do not reach the latter.

A

"The motivation-to-combine analysis is a flexible one. 'Any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.'" *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379 (Fed. Cir. 2023) (emphasis removed) (cleaned up) (quoting *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007)). The Board erred here by applying too rigid a standard in analyzing Medivis's proposed motivation to combine Doo and Amira.

Before the Board, Medivis argued that a POSA would have been motivated to combine the two references to "enable the intra-operative medical image viewing system and method disclosed in Doo to take advantage of the visualization technology disclosed in Amira." J.A. 172. The Board found that "[Medivis's] rationale is so vague and broad that it could be applied to combine any two references because it merely asserts that one reference would 'take advantage of the . . . technology disclosed in' another." *Decision*, 2024 WL 967381, at *9. The Board also rejected Medivis's argument that the reduction of "cognitive load" is a valid reason to take conventional imaging, which may be displayed on a

computer screen as in Amira, and integrate it in an AR environment.[3] *Id.*

The Board erred by requiring Medivis to provide a specific reason for a POSA to look to Amira, using Doo as the starting point. *KSR* explicitly eschews such a rigid approach to obviousness. 550 U.S. at 418 ("[T]he analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a [POSA] would employ."). As we have explained, "[t]here is a motivation to combine when a known technique 'has been used to improve one device, and a [POSA] would recognize that it would improve similar devices in the same way.'" *PACT*, 61 F.4th at 1380 (quoting *KSR*, 550 U.S. at 417).

Here, Medivis demonstrated that Doo recognized existing 3D imaging technologies faced problems with distraction and cognitive load, and Doo suggested its AR system as an improvement. J.A. 399. Amira is one such existing 3D imaging technology. Thus, the problems known to those in the field at the time would appear to suggest a motivation to combine the teachings of Doo and Amira. Medivis also provided an explicit reason in its original petition to combine these teachings—that Doo's AR system would "take advantage" of Amira's visualization technology. J.A. 172. In other words, it would be "advantage[ous]" to combine Doo and Amira, as it would enable Doo's intra-operative medical image viewing system to benefit from the functionality of Amira's medical imaging. In these circumstances, this is sufficient to demonstrate a motivation to combine. Rather than requiring a specific reason to modify a particular prior-art reference with another, in a certain order, "the question is whether there is something in the

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[3] Novarad does not argue that the Board erred in considering Medivis's arguments made in its reply to the Board.

prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *See In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (cleaned up).

The Board also erred in rejecting Medivis's argument that the combination of Doo and Amira would reduce cognitive load. The Board faulted Medivis for failing to explain why a POSA would use Amira's display to "further reduce cognitive load," when Doo itself already presents a solution for the cognitive load problem. *Decision*, 2024 WL 967381, at *9. This misunderstands Medivis's argument—that a POSA, starting with a conventional 3D imaging technology like Amira, would have been motivated to implement such 3D imaging in the AR system of Doo, which would be an "improvement." J.A. 399.

Doo describes the problems of distraction and compounding of cognitive load that result from a surgeon having to look away from the patient toward separate display screens. Doo at ¶¶ 3–5. Such problems would be encountered by a user of Amira's technology, where imaging is provided on a conventional computer screen. Thus, the AR system of Doo presents a solution by managing the "multitude of medical images needed to be viewed by a surgeon during an operation . . . so that a surgeon is not required to look away from the patient," and therefore "the surgeon does not have to sustain heavy cognitive loading." Doo at ¶ 10. Again, this is sufficient to show that the prior art as a whole "suggests the desirability" of the combination. *Fulton*, 391 F.3d at 1200.

Thus, substantial evidence does not support the Board's finding of no motivation to combine. To the contrary, the record requires finding that a POSA would have been motivated to combine Doo and Amira. We reverse the Board's no motivation-to-combine finding and remand for the Board to consider the full scope of Medivis's obviousness challenge based on Doo and Amira.

B

Medivis argues, in the alternative, that the Board erred in not considering other evidence Medivis included in its petition. Because we reverse the Board's determination of no motivation to combine, we need not separately reach this issue, but on remand, we expect the Board will be mindful of the need to consider all relevant evidence in completing its obviousness analysis, including Medivis's factual positions regarding the scope and content of the prior art.

CONCLUSION

For the foregoing reasons, we affirm the Board's determination that claims 1, 5, and 6 were not shown to be unpatentable for anticipation. As for obviousness of claims 1–6 and 11–20, we reverse the Board's determination of no motivation to combine Doo and Amira. We remand for further proceedings consistent with this opinion.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED

COSTS

No costs.