NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

SLINGSHOT PRINTING LLC,
Appellant

v.

CANON U.S.A., INC., CANON INC.,
Appellees

2024-1956

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2022-01414.

Decided: April 23, 2026

RAYINER HASHEM, MoloLamken LLP, Washington, DC, argued for appellant. Also represented by KAYVON GHAYOUMI; CATHERINE MARTINEZ, New York, NY; MARK BORSOS, PAUL HENKELMANN, Fitch, Even, Tabin & Flannery LLP, Chicago, IL.

JULIE S. GOLDEMBERG, Morgan, Lewis & Bockius LLP, Philadelphia, PA, argued for appellees. Also represented by MARIA DOUKAS, AMANDA SCOTT WILLIAMSON, Chicago,

IL; JASON EVAN GETTLEMAN, Palo Alto, CA; JITSURO MORISHITA, Tokyo, Japan.

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

PROST, *Circuit Judge*.

Slingshot Printing LLC ("Slingshot") appeals from a final written decision of the Patent Trial and Appeal Board ("Board") determining that claims 1–5 and 8 of U.S. Patent No. 7,195,341 ("the '341 patent") are unpatentable. For the reasons below, we affirm.

BACKGROUND

The '341 patent relates to "[a] semiconductor substrate for a micro-fluid ejection device," like a printhead of an inkjet printer. '341 patent Abstract. According to the patent, there is a need "to provide higher quality images at increased printing rates" but also "a competing need to maintain or reduce the size of the substrates so as to minimize the cost of the ejection devices." *Id.* at col. 1 ll. 18–26. The '341 patent addresses the purported "need for improved substrate conductor routing and layouts that do not adversely affect the electrical properties of the circuits." *Id.* at col. 1 ll. 33–36. Claim 1 recites:

> A semiconductor substrate for a micro-fluid ejection device, the substrate comprising:
>
> a plurality of micro-fluid ejection actuators disposed in a columnar array adjacent a fluid supply slot in the semiconductor substrate;
>
> a plurality of power transistors disposed in a columnar array adjacent the ejection actuators and connected through a first metal conductor layer to the ejection actuators, the columnar array of power transistors occupying a power transistor active area of the substrate;

> a columnar array of *logic circuits* disposed adjacent the columnar array of power transistors and *connected through a polysilicon conductor layer to the power transistors*, the columnar array of logic circuits occupying a logic circuit area of the substrate;
>
> a power conductor for the ejection actuators routed in a second metal conductor layer disposed in overlapping relationship with at least a portion of the power transistor active area of the substrate; and
>
> *a ground conductor for the ejection actuators routed in the second metal conductor layer disposed in overlapping relationship with at least a portion of the logic circuit area of the substrate*.

Id. at claim 1 (emphasis added).

Canon U.S.A., Inc. and Canon Inc. (collectively, "Canon") filed a petition for inter partes review of claims 1–5 and 8 of the '341 patent. The Board instituted review of all of the challenged claims. In its final written decision, the Board determined that claims 1–5 and 8 of the '341 patent would have been obvious over U.S. Patent No. 6,412,917 ("Torgerson") and U.S. Patent No. 7,240,997 ("Bruce").

Relevant to this appeal, the Board concluded that Torgerson teaches its logic circuits are connected to power transistors through a polysilicon layer. As to the ground-conductor limitation, the Board agreed with Canon that while Torgerson does not teach "placing a ground conductor in the second metal layer in [an] overlapping relationship with at least a portion of the logic circuit area," a skilled artisan would have been motivated to implement Bruce's second-metal-layer ground conductor in Torgerson. J.A. 9; *see also* J.A. 11. The Board found a skilled artisan would have been motivated to combine Torgerson with Bruce, both of which "are from the same field of endeavor as the '341 patent." J.A. 10. For the remaining limitations in

claim 1 and dependent claims 2–5 and 8, the Board "reviewed [Canon's] arguments and evidence" and, based on that analysis, found that Canon "has shown by a preponderance of the evidence that [claims 1–5 and 8] would have been obvious over Torgerson and Bruce." J.A. 13–14.

Slingshot timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

Slingshot makes three main arguments on appeal: (1) that Torgerson does not disclose connecting power transistors to logic circuits through a polysilicon conductor layer; (2) that the Board erred in determining that a skilled artisan would have been motivated to combine Torgerson and Bruce; and (3) that the Board's analysis of the remaining limitations in claim 1 and dependent claims 2–5 and 8 are insufficient under the Administrative Procedure Act ("APA"). We address each argument in turn.

I

"Obviousness is a mixed question of fact and law." *Novartis AG v. Torrent Pharms. Ltd.*, 853 F.3d 1316, 1327 (Fed. Cir. 2017). We review the Board's legal conclusion of obviousness de novo and its factual findings for substantial evidence. *Id.*

Claim 1 requires "a columnar array of logic circuits . . . connected through a polysilicon conductor layer to the power transistors." The Board found that Torgerson's logic circuits are connected to power transistors through a polysilicon layer. In doing so, it rejected Slingshot's argument that the layer ends or changes at the polysilicon gate fingers and credited Canon's expert, who explained that "as a practical matter, a skilled artisan would understand that it's necessary that Torgerson's polysilicon gate fingers . . . extend to its logic circuits." J.A. 13 (cleaned up). The Board also pointed to the language in Torgerson that describes its "polysilicon gate fingers . . . as *interconnected at*

respective ends." J.A. 13 (emphasis in original). Slingshot has not demonstrated that these findings lack substantial evidence.

Slingshot argues that Canon's arguments on appeal "rewrite the Board's decision," and "even if the Board's decision could be read that way, Canon's [*p*]*etition* never articulated such a theory." Reply Br. 4 (emphasis in original). According to Slingshot, neither the Board's decision nor the petition explains that "Torgerson contains a 'polysilicon *layer*' with a 'polysilicon conductor' distinct from the 'gate fingers.'" *Id.* (emphasis in original). We are not persuaded by Slingshot's arguments. Canon's arguments do not rewrite the Board's decision, and those theories were articulated in Canon's petition. *See, e.g.*, J.A. 73.

Slingshot also argues that the Board implicitly relied on an inherency theory, which was not articulated in Canon's petition. But, we do not read Canon's argument as an inherency argument nor do we interpret the Board's decision to have applied an inherency standard. We thus reject Slingshot's inherency-related argument.

For these reasons, the Board's reading of Torgerson is supported by substantial evidence.

II

Whether a skilled artisan would have been motivated to combine prior-art references is a factual question that we review for substantial evidence. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1378 (Fed. Cir. 2023). "Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Novartis*, 853 F.3d at 1324 (cleaned up).

Slingshot argues that the Board's finding that a skilled artisan would have been motivated to combine Torgerson and Bruce "cannot be sustained." Appellant's Br. 49 (capitalization normalized). We disagree. The Board's finding that a skilled artisan would have been motivated to

combine those two prior-art references was proper and supported by substantial evidence.

Claim 1 requires "a ground conductor" to be "routed in the second metal conductor layer," with the ground conductor "overlapping . . . at least a portion of the logic circuit area of the substrate." The issue on appeal is whether the Board properly concluded that a skilled artisan would have been motivated to combine Torgerson with Bruce to teach that limitation.

Both prior-art references "are from the same field of endeavor as the '341 patent because they, like the ']341 patent, describe semiconductor substrates for ink-jet printheads." J.A. 10. The Board also credited Canon's arguments that Bruce's approach offers several advantages, including reducing the substrate size, reducing energy variation, avoiding costs associated with increased die sizes, and increasing the improvements in energy variation. J.A. 9–11. And "given the need to reduce [the] substrate size," the Board agreed with Canon that there are "two basic options for placing the ground bus: 1) Torgerson's approach of making the first metal layer thicker and placing the ground bus only in the first metal layer, or 2) Bruce's approach of placing the ground bus in a second metal layer." J.A. 9, 11; *see also* J.A. 11 ("We also agree with [Canon] that Bruce's approach would have been one of 'a finite number' of known, 'predictable solutions,' and therefore obvious."). Slingshot has not demonstrated that these findings lack substantial evidence.

To support its argument, Slingshot relies on *Virtek Vision International ULC v. Assembly Guidance Systems, Inc.*, 97 F.4th 882 (Fed. Cir. 2024), which it contends "is on all fours." Appellant's Br. 52. But, that case is inapposite. In *Virtek*, the petitioner had only presented evidence of "two alternative arrangements" as to its motivation-to-combine arguments with "no argument in the petition regarding why a skilled artisan would make this

substitution," "no evidence that there are a finite number of identified, predictable solutions," and "no evidence of a design need or market pressure." *Virtek*, 97 F.4th at 886–88. We thus concluded in *Virtek* that substantial evidence did not support the Board's motivation-to-combine findings. *Id.* at 888. Here, unlike in *Virtek*, the record is more developed. The Board found that Bruce's approach "would have been one of a finite number of known, predictable solutions," and it credited Canon's expert that there were known design needs and market pressures (e.g., the need to reduce substrate size). J.A. 11 (cleaned up); *see also* J.A. 9.

We thus conclude the Board's motivation-to-combine finding is supported by substantial evidence.

III

Next, Slingshot argues that the Board failed to adequately explain its rationale for finding the remaining limitations in claim 1 and dependent claims 2–5 and 8 of the '341 patent unpatentable. We disagree.

We may affirm an agency's ruling if we may reasonably discern that it followed a proper path, even if that path is less than perfectly clear. *See Bowman Transp., Inc. v. Ark.–Best Freight Sys., Inc.*, 419 U.S. 281, 285–86 (1974); *see also Medtronic, Inc. v. Teleflex Innovations S.a.r.l.*, 70 F.4th 1331, 1344 (Fed. Cir. 2023). The Board's path here is reasonably discernible. For those limitations and claims, the Board (1) explained that it reviewed Canon's arguments and evidence, (2) provided citations to the relevant portions of Canon's petition it reviewed, and (3) based on that analysis determined that claims 1–5 and 8 would have been obvious over Torgerson and Bruce. Thus, on this record, we reject Slingshot's argument that the Board violated the APA by failing to adequately explain its rationale for finding these claims unpatentable.

CONCLUSION

We have considered Slingshot's remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm the Board's determination that claims 1–5 and 8 of the '341 patent are unpatentable.

AFFIRMED