NO. 20-1438

IN THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

APPLE INC.,

Appellant

v.

COREPHOTONICS, LTD.,

Appellee.

COMBINED PETITION FOR PANEL REHEARING AND REHEARING EN BANC OF APPELLANT

From the U.S. Patent Trial and Appeal Board, No. IPR2018-01146, Marc S. Hoff, Bryan F. Moore, and Monica S. Ullagaddi, Administrative Patent Judges

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CERTIFICATE OF INTEREST

Case Number	20-1438
Short Case Caption	Apple Inc. v. Corephotonics, Ltd.
Filing Party/Entity	Apple Inc. / Appellant

Instructions: Complete each section of the form. In answering items 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance. **Please enter only one item per box; attach additional pages as needed and check the relevant box**. Counsel must immediately file an amended Certificate of Interest if information changes. Fed. Cir. R. 47.4(b).

I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date: August 6, 2021

Signature: */s/ Debra J. McComas*

Name: Debra J. McComas

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	**2. Real Party in Interest.** Fed. Cir. R. 47.4(a)(2).	**3. Parent Corporations and Stockholders.** Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities.	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities.
__ None/Not Applicable	X None/Not Applicable	X None/Not Applicable
Apple Inc.		

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

__ None/Not Applicable __ Additional pages attached

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5. Related Cases. Provide the case titles and numbers of any case known to be pending in this court or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. Do not include the originating case number(s) for this case. Fed. Cir. R. 47.4(a)(5). See also Fed. Cir. R. 47.5(b).

__ None/Not Applicable __ Additional pages attached

Corephotonics, Ltd. v. Apple Inc., 5:18-cv-2555 (N.D. Cal.)	Corephotonics, Ltd. v. Apple Inc., 5:17-cv-6457 (N.D. Cal.)	

6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

X None/Not Applicable __ Additional pages attached

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STATEMENT SUPPORTING EN BANC REHEARING

Based on my professional judgment, I believe this appeal requires an answer to the following precedent-setting question of exceptional importance:

1. Does anticipation require a showing both that a prior art reference itself is "operative" and that the prior art enables the challenged claims?

I further believe the panel decision imposes a showing both of operability and enablement to prove anticipation in response to the question above, yet disregards the evidence showing that the prior art reference would be operable to one skilled in the art. The panel's decision misapprehends or overlooks the holding of the very case upon which it relies: *In re Dowty*, 118 F.2d 363, 366 (CCPA 1941), and is contrary to the following decision of the Supreme Court of the United States and precedents of this court:

2. *Pickering v. McCullough*, 104 U.S. 310 (1881);
3. *Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374 (Fed. Cir. 2021);
4. *In re Dowty*, 118 F.2d 363 (CCPA 1941).

Significantly, this Court has never cited *Dowty* prior to the panel decision in this case and has never cited *Pickering*. This case is ripe for the Court to address these precedents and bring clarity to an important area of the anticipation analysis.

/s/ Debra J. McComas
Debra J. McComas
Attorney for Appellant Apple Inc.

STATEMENT SUPPORTING PANEL REHEARING: POINTS OF LAW OR FACT OVERLOOKED OR MISAPPREHENDED BY THE COURT

Citing *In re Dowty*, 118 F.2d 363, 366 (CCPA 1941), the panel decision concludes that "Konno's *inoperative* telephoto lens EX2-LN2 cannot anticipate the challenged claims." Op. at 12 (emphasis added). As stated above, this misunderstands *Dowty* as requiring an operability analysis separate and apart from the enabling-disclosure analysis. Moreover, this conclusion misapprehends *Dowty* and overlooks that decision's full holding. Specifically, *Dowty* rests on the principle that a facially inoperative prior art reference *may nonetheless anticipate where one skilled in the art can cure the defect*. *See Dowty*, 118 F.2d at 366. The panel decision applies the general rule that an inoperative prior art reference cannot anticipate without regard to whether one skilled in the art could cure the defect. This, despite acknowledging in the decision that the burden fell to the patentee to show lack of enablement and that the Board erred in failing to consider the evidence showing that the defect would easily be corrected by one skilled in the art. This error should be corrected on panel rehearing and the case remanded to the Board for consideration of the evidence showing that any defect in the prior art reference (Konno) could have been cured by one skilled in the art.

PRELIMINARY STATEMENT

The panel opinion relies on CCPA case law from the 1940s that neither the parties nor the Board cited to hold that the "inoperative embodiment of Konno relied upon by Apple does not anticipate" the challenged claims because "[u]nder our precedent, such inoperative embodiments cannot be anticipatory." *See* Op. at 12–13 (citing *In re Dowty*, 118 F.2d 363, 366 (CCPA 1941), and *In re Kehl*, 101 F.2d 193, 195 (CCPA 1939)). Because the panel decision misapplies the very authorities it cites and highlights confusion between these early authorities and the more recent precedent governing enablement by an anticipating reference, Apple urges the Court to grant this petition for rehearing, clarify the governing law, and correct the panel's misapplication of law.

This appeal arises from an *inter partes* review petition asserting that certain claims of U.S. Patent No. 9,568,712 were anticipated by an embodiment from a Japanese Patent Publication by Konno ("Konno"), referred to as the EX2-LN2 embodiment. The challenged claims provide numerical parameters for lenses in cell phone cameras (similar to a lens prescription). As the panel found, "the EX2-LN2 embodiment meets the numerical requirements of the claims absent modification." Op. at 12. The issue addressed by the Board and by the parties on appeal was whether Konno failed to satisfy the enablement requirement of the anticipation analysis due to a minor error in the prior art's disclosure—two of Konno's lenses would overlap

in space to a miniscule degree when the described device is actually constructed. *See* Appx0972–0974 (Corephotonics' Resp.); Appx2160–2161 (Oral Hr'g Tr.). The panel held that the burden rested with the patent owner (Corephotonics) to show that Konno was *not* enabling and that the Board erred in failing to consider Apple's Reply evidence showing how one skilled in the art would know to correct the error in Konno. Op. at 10–11. Yet, the panel never analyzed whether Konno provides an enabling disclosure. It never applied the *Wands* factors nor considered any of Apple's Reply evidence. Instead, the panel relied on *Dowty* and *Kehl*—two CCPA cases from the 1940s—for the general proposition that "inoperative embodiments cannot be anticipatory." Op. at 12 (citing *Dowty*, 118 F.2d at 366, which quotes *Kehl*, 101 F.2d at 195).

On that general principle alone, without any consideration of whether one skilled in the art would know to correct the error or whether the error would have actually prohibited Konno from enabling the challenged claims, the panel wholesale rejected Apple's anticipation challenge due to the minor error in Konno. Specifically, the panel concluded:

> Although Apple is correct that the EX2-LN2 embodiment meets the numerical requirements of the claims absent modification, ***the problem is that the relied upon embodiment is inoperative*** unless the overlap between lenses L4 and L5 is fixed. ***Under our precedent, such inoperative embodiments cannot be anticipatory.*** *See In re Dowty*, 118 F.2d 363, 366 (C.C.P.A. 1941) ("'[A]n inoperative prior art device may not be relied upon as an anticipation.'" (quoting *In re Kehl*, 101 F.2d 193, 195 (C.C.P.A. 1939))). We therefore conclude that Konno's inoperative telephoto lens EX2-LN2 cannot anticipate the challenged claims.

Op. at 12 (emphases added).

The panel never considered the rest of *Dowty*, which explains that "an inoperative device may be a valid reference if the defect *may be cured* merely by mechanical skill not requiring invention." 118 F.2d at 366 (emphasis added); *see also Pickering v. McCullough*, 104 U.S. 310, 319 (1881) (affirming anticipation rejections over arguments that the prior art was "not capable of successful practical working" where the purported defects "could be removed by mere mechanical skill, without the exercise of the faculty of invention"). And the panel overlooked the same evidence it faulted the Board for failing to consider, evidence reflecting that this error in Konno could and would have been easily fixed by a person of ordinary skill in the art without substantively changing the disclosure. *E.g.*, Appx1656–1662 (Petitioner's Reply, collecting evidence), Appx1654–1655 (Petitioner's Reply, citing, *e.g.*, Appx1740, 109:5–9, testimony of Apple's expert, agreeing that one of skill would be able to make an actual lens system using Konno). The panel overlooked the consideration in *Dowty, Kehl,* and *Pickering* of whether the "defect"

in the prior art might be cured without further invention. At the very least, rehearing is appropriate to take into account the evidence supporting such a cure for Konno.

But the panel's reliance on *Dowty* highlights confusion in this Court's jurisprudence that beckons for further clarification at least by the panel but more appropriately by the Court en banc. There is a reason neither *Dowty* nor the Supreme Court's decision in *Pickering* have ever been cited by this Court. Indeed, the most harmonious reading of these century-old cases is that the cited principle articulated then as operability has been subsumed by this Court's more recent jurisprudence pertaining to the enabling-disclosure requirement. To the extent however, that *Dowty* creates an independent operability requirement separate from enabling disclosure (as the panel opinion finds), that case stands in conflict with this Court's recent decision in *Raytheon Technologies Corp. v. General Electric Co.*, which explains how even a *hypothetical* prior art disclosure may support a single-reference obviousness challenge (which applies the same enabling-disclosure standard as in anticipation), so long as the disclosure, coupled with the knowledge of one of skill in the art, sufficiently enables the challenged claims. *See* 993 F.3d 1374 (Fed. Cir. 2021).

The enabling-disclosure inquiry requires that "[t]o serve as an anticipating reference, the reference must enable that which it is asserted to anticipate." *Elan Pharms., Inc. v. Mayo Found. for Med. Educ. & Rsch.*, 346 F.3d 1051, 1054 (Fed. Cir. 2003). This requirement makes sense: it ensures that a prior art reference that

teaches each and every limitation of the challenged claims also sufficiently places the public in possession of the subject matter of those claims. *See id.* at 1055.

As interpreted by the panel, operability of the prior art asks a fundamentally different question—one limited to the functionality of the prior art reference in isolation and completely untethered from the challenged claims. Following *Raytheon*, inoperability is, at most, the starting point of the inquiry. It may be relevant to the question of whether a prior art reference enables the challenged claims. But the inquiry does not stop there. Read consistently with *Raytheon* and the other wealth of recent authority on this issue, at a minimum, *Dowty* and *Pickering* require a remand for consideration of the *Wands* factors to determine whether the prior art enables the challenged claims. Here, the panel did not even mention *Wands*, much less consider the evidence showing that the error in Konno could be cured (and the challenged claims fully enabled) through a simple fix one skilled in the art would have known to implement.

Accordingly, the Court should use this opportunity to clarify that operability of the prior art is not a standalone requirement to show anticipation but is instead subsumed within the enabling-disclosure inquiry. To the extent operability is an independent requirement, the Court should clarify that operability does not demand facial operability, but instead asks whether any defects rendering a reference inoperative could be cured by mechanical skill not requiring invention. *See*

Pickering, 104 U.S. at 319 (affirming use of inoperative prior art for anticipation where the purported defects "could be removed by mere mechanical skill, without the exercise of the faculty of invention"). Under that standard, this case should, at a minimum, be remanded to the Board to analyze Apple's evidence, which amply demonstrates that a person of ordinary skill in the art would have easily corrected the minor error in the prior art reference here.

ARGUMENT

I. This Court's precedents have created confusion as to whether operability of the prior art is an independent element of the anticipation analysis.

The panel opinion highlights confusion within this Court's precedents regarding a fundamental question: whether an anticipating prior art reference must both *itself* be operative and enable the challenged claims. The Court should take this opportunity to resolve this important question.

Apple respectfully contends that the panel erred in imposing an additional operability standard that is not consistent with current precedent. Operability of the prior art has no place as an independent element of the anticipation analysis. Instead, operability may be a relevant consideration within the modern enabling-disclosure analysis, but nothing more.

A. An independent operability requirement conflicts with *Raytheon* and earlier precedents.

As noted above, the panel's ability to address Apple's anticipation challenge on the merits appears to have been constrained by the broad statement in *Dowty* that

an "inoperative prior art device may not be relied upon as an anticipation." *See* Op. at 12 (quoting *Dowty*, 118 F.2d at 366). The panel decided this case entirely on that statement, without analyzing enablement. But, to the extent precedents such as *Dowty* and *Kehl* are viewed as establishing an independent requirement that the prior art be operative (as the panel viewed those precedents), those cases stand in direct conflict with this Court's most recent precedential decision on the enabling-disclosure requirement in *Raytheon*. *See* 993 F.3d at 1380–82.

In *Raytheon*, the Court properly focused on whether the prior art *enables* the *challenged claims*—not whether the prior art embodiment itself was operative. There, the Court clarified that the same enabling-disclosure standard used in the anticipation context applies to the single-reference obviousness context, in some circumstances. *Raytheon*, 993 F.3d at 1381. The Court explained that, without evidence to enable a skilled artisan to make the claimed invention, "a standalone § 103 reference must enable the portions of its disclosure being relied upon," and "the reference must necessarily enable the relied-upon portion of its own disclosure—*the same standard applied to anticipatory references*." *Id.* (emphasis added).

The prior art reference in *Raytheon* was an "imagined" turbofan engine, designed using "revolutionary" materials, that was "undisputedly unattainable." *See id.* at 1378. In other words, the prior art in *Raytheon* was hypothetical and, therefore,

not operative. If an "operability" inquiry as to the prior art had been enough to dispose of the analysis, the Court in *Raytheon* could have stopped there. It did not. Instead, the Court analyzed the evidentiary record to determine whether the prior art reference enabled the challenged claims. *See id.* at 1381–82. Ultimately, the Court held that the prior art was not enabling based on the one-sided evidentiary record, in which the patent challenger had set forth no evidence to establish enablement, other than the prior art reference itself. *See id.* at 1377, 1381–82. Accordingly, *Raytheon* confirms that a hypothetical, futuristic prior art reference (that is necessarily inoperative) may nonetheless serve as an anticipating reference or a standalone obviousness reference, so long as the reference enables the challenged claims by the critical time period. *See id.* at 1380–82. *Dowty*, as applied by the panel, cannot be reconciled with this reasoning in *Raytheon*.

Dowty's broad statement also conflicts with pre-*Raytheon* precedents explaining that it is not necessary for a prior art disclosure to "have actually been made in order to satisfy the enablement requirement." *See In re Donohue*, 766 F.2d 531, 533 (Fed. Cir. 1985); *see also Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1380 (Fed. Cir. 2003) ("Anticipation does not require the actual creation or reduction to practice of the prior art subject matter; anticipation requires only an enabling disclosure.").

Accordingly, the en banc Court (or at least the panel) should take this opportunity to reconcile *Dowty* (and other precedents discussing operability, such as the Supreme Court's decision in *Pickering*) with the more developed enabling-disclosure requirement. As explained below, operability is most appropriately considered as part of the modern enabling-disclosure inquiry.

B. The Court should clarify its precedents to explain that operability (or lack thereof) should be considered only as part of the enabling-disclosure requirement.

The enabling-disclosure inquiry exists to ensure that a prior art reference that discloses each and every claim limitation sufficiently places that claim in the public's possession by the claim's critical date. *See, e.g.*, *In re Donohue*, 766 F.2d 531, 533 (Fed. Cir. 1985). Thus, this Court's precedents have permitted reliance on the knowledge of one of skill in the art to demonstrate enablement of the challenged claims, including through reliance on additional references that *post-date* the anticipating prior art reference. *See Bristol-Myers Squibb Co. v. Ben Venue Lab'ys, Inc.*, 246 F.3d 1368, 1379 (Fed. Cir. 2001) ("Enablement of an anticipatory reference may be demonstrated by a later reference."); *Donohue*, 766 F.2d at 533–34 (permitting use of "additional references" to "show that the claimed subject matter, as disclosed in [the anticipating reference], was in the public's possession" and stating that "[s]uch possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his own

knowledge to make the claimed invention"); *In re Samour*, 571 F.2d 559, 562 (CCPA 1978) (permitting reliance on evidence that post-dated the anticipating reference); *see also Raytheon*, 993 F.3d at 1380.

The CCPA's anticipation analysis in *Samour* illustrates this well. There, the Court found that the "mere recitation" in the prior art reference of a chemical compound's structural formula "would clearly not have been sufficient to place [the compound] in possession of the public." 571 F.2d at 562. But, the Court held that the prior art's disclosure must be "considered together with the knowledge of one of ordinary skill in the pertinent art," including additional evidence that post-dated the prior art reference. *Id.* at 562–63. The Court specifically focused on whether the challenged claims were "in possession of the public" by the critical time period. *Id.* For this reason, the Court allowed consideration of additional evidence beyond the prior art reference to establish such public possession. *See id.* As explained in *Samour*, refusing to consider the knowledge of one of skill in the art "would sanction the granting of patents for inventions which do not meet the basic requirement of novelty." *Id.*

"[S]anction[ing] the granting of patents for inventions which do not meet the basic requirement of novelty" is precisely what an independent operability requirement would do. *See id.* Asking whether a prior art reference that discloses each and every claim limitation is operative in isolation does not answer the question

of whether that reference placed the public in possession of the challenged claims by the priority date of the challenged claims. At most, operability is one piece of the larger enabling-disclosure inquiry. In fact, this understanding of the operability requirement is most consistent with *Dowty* and other early cases rejecting inoperability arguments, which explained that "an inoperative device may be a valid reference if the defect *may be cured merely by mechanical skill not requiring invention*"—a standard that somewhat previews the ultimate *Wands* factors adopted by this Court. *See Dowty*, 118 F.2d at 366 (emphasis added) (quoting *Kehl*, 101 F.2d at 195); *see also In re Wands*, 858 F.2d 731 (Fed. Cir. 1988). In short, prior-art operability (or lack thereof) may be considered as evidence in the enabling-disclosure analysis under *Wands*, but it cannot be used to wholly reject an anticipation ground, which is what the panel did here.

The Court should clarify its case law to explain that prior-art operability is not an independent requirement for anticipation but is instead relevant only as part of the enabling-disclosure inquiry.

II. Even if an independent operability requirement exists, the panel's opinion is inconsistent with *Dowty* and *Pickering* because it did not consider whether a POSITA would have been able to make the prior art embodiment operative—as *Dowty* and *Pickering* instruct.

Even if the anticipation analysis includes an additional requirement beyond the enabling-disclosure inquiry that would require the prior art embodiment to itself be operative, the operability inquiry still requires analyzing whether a POSITA could

have "cured" the defect in the prior art and made the prior art embodiment operative. *See Dowty*, 118 F.2d at 366; *see also Pickering*, 104 U.S. at 319. If so, the prior art may still be used in an anticipation challenge.

Dowty itself confirms this. *Dowty* involved an appeal from the Board of Appeals of the Patent Office that affirmed an examiner's rejection of claims covering aircraft landing gear as anticipated by the prior art. 118 F.2d at 364. As relevant here, claim 17 of the challenged patent was rejected as being "fully met" by a prior art reference referred to as Martin. *Id.* at 365. Claim 17 "merely provide[d] for two independent means for the operation of a retractable landing gear on an aircraft," i.e., having a back-up system to operate the landing gear if the first system were to fail. *Id.* at 364–65 (showing language of claim 17). The prior art reference, Martin, "clearly disclose[d]" claim 17 through the use of a second, independent means for operating retractable landing gear in case the first means failed. *Id.* at 365.

The patent applicant attempted to evade the anticipating reference by arguing that the Martin reference was "practically inoperative" and "therefore could have taught the art nothing and is no value as a reference." *Id.* at 366. The Court recognized that the reference "probably [] may have been as defective as [the patent applicant] claims," but concluded that this did not matter because the defects could be "cured" through "the exercise of mechanical skill." *Id.* at 366. The Court noted the "general rule" that "an inoperative prior art device may not be relied upon as an

anticipation," but then immediately thereafter qualified that general rule by explaining that "it is also quite well settled that an inoperative device may be a valid reference if the defect may be cured merely by mechanical skill not requiring invention." *Id.* at 366 (quoting *Kehl*, 101 F.2d at 195). The Court found that exception to the general rule applicable in that case and, thus, affirmed the anticipation rejection over the inoperative prior art. *Id.* at 365–66.

The panel's opinion in this case relied only on the "general rule" discussed in *Dowty* but failed to acknowledge or apply the "well settled" clarification to that rule that "an inoperative device may be a valid reference if the defect may be cured merely by mechanical skill not requiring invention." *Id.* at 366. That was precisely the reasoning that supported the ultimate holding in *Dowty*. And that reasoning supports Apple's position here.

The Supreme Court's decision in *Pickering* confirms that references are valid for anticipation purposes regardless of whether they are inoperative. 104 U.S. at 319. In *Pickering*, a patent challenger raised multiple anticipation grounds, including based on two references referred to as Wise and Smith. *Id.* at 315. The Court affirmed the finding that each of those references anticipated the challenged claims, even though the patent owner argued that those prior art references were "mere paper machines, not capable of successful practical working." *Id.* at 318–19. The Supreme Court rejected that operability argument, explaining that the patent owner's

arguments involved only "minor matters of detail in construction, not affecting the substance of the invention claimed" that "could be removed by mere mechanical skill, without the exercise of the faculty of invention." *Id.* at 319. Thus, the Court concluded that the two anticipating references were "not rendered inefficient as defen[s]es in [the] suit, by reason of the alleged imperfections of the machines described in them" and, accordingly, affirmed the anticipation findings. *Id.* at 319. This is precisely the reasoning used in *Dowty* and the reasoning that should have been applied by the panel opinion in this case.

The panel's opinion simply stopped short. It did not analyze whether "the defect may be cured merely by mechanical skill not requiring invention." *See Dowty*, 118 F.2d at 366; *see also Pickering*, 104 U.S. at 319. Apple presented ample evidence showing that a person of ordinary skill in the art would have adjusted the distance between lenses four and five in Konno ever so slightly to prevent them from overlapping—and nothing about that adjustment would have altered the fact that Konno discloses each and every element of the challenged claims. *See, e.g.*, Appx0499–0500 (Decl. of Apple's expert, *e.g.*, describing the correction as a "routine adjustment"). The panel concluded that the Board erred in not considering this very evidence. Yet, the panel also failed to consider this evidence or its significance to the question of operability under *Dowty*. This error calls for correction on rehearing.

Accordingly, even if *Dowty* requires that operability of the prior art embodiment is necessary for anticipation, the panel erred by failing to apply the remainder of the rule in *Dowty* and *Pickering*. As it stands, the panel's opinion cannot be reconciled with the holdings or reasoning in those cases. At a minimum, the panel's application of *Dowty* requires a remand to determine, based on the evidence, whether the minor error in Konno could have been "cured merely by mechanical skill not requiring invention." *See Dowty*, 118 F.2d at 366; *see also Pickering*, 104 U.S. at 319. Apple respectfully requests that the panel or the en banc Court correct this error of law.

CONCLUSION

This case presents an important opportunity to clarify a fundamental question regarding what is required to establish anticipation: whether, in addition to enabling the challenged claims, a prior art reference must *itself* be "operative." This Court's precedents, in conjunction with Supreme Court and CCPA case law, have created confusion as to how the concept of operability fits within the anticipation analysis and interacts with the well-established enabling-disclosure inquiry. The Court should therefore consider this case en banc to resolve this important question.

At a minimum, the panel opinion conflicts with the Supreme Court's decision in *Pickering* and the CCPA's decision in *Dowty*, both of which expressly allow for any defects in an anticipating prior art reference to be cured through the exercise of

mechanical skill. The Court should, at the very least, remand this case to the Board for a factual determination as to whether the defect in the prior art could be cured—which Apple thoroughly demonstrated through its evidence presented before the Board.

Respectfully Submitted,

HAYNES AND BOONE, LLP

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Attorneys for Appellant Apple Inc.

ADDENDUM

NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

APPLE INC.,
Appellant

v.

COREPHOTONICS, LTD.,
Appellee

2020-1438

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2018-01146.

Decided: June 23, 2021

DEBRA JANECE MCCOMAS, Haynes & Boone, LLP, Dallas, TX, argued for appellant. Also represented by ANDREW S. EHMKE; ANGELA OLIVER, Washington, DC; MICHAEL SCOTT PARSONS, Plano, TX.

MARC AARON FENSTER, Russ August & Kabat, Los Angeles, CA, argued for appellee. Also represented by BRIAN DAVID LEDAHL, NEIL RUBIN.

Before TARANTO, HUGHES, and STOLL, *Circuit Judges*.

STOLL, *Circuit Judge*.

This is an appeal from the final decision of the Patent Trial and Appeal Board in an *inter partes* review of U.S. Patent No. 9,568,712. Petitioner Apple Inc. appeals, asking this court to consider a dispute regarding anticipation by an inoperative embodiment, as well as a factual issue regarding motivation to combine. Because we determine that the Board's finding of no anticipation is correct as a matter of law, we affirm that finding. We also determine that the Board's finding of no motivation to combine is premised on a clear mathematical error that appears to have tainted its analysis. Thus, we vacate the Board's determination of nonobviousness and remand for reconsideration.

BACKGROUND

I

The '712 patent is assigned to Corephotonics Ltd. and relates to a miniature telephoto lens assembly that can be used in portable electronic devices, such as a cell phone. '712 patent col. 1 ll. 18–22. Cell phone cameras "in particular require a compact imaging lens system for good quality imaging and with a small total track length (TTL)." *Id.* at col 1 ll. 29–32. TTL is measured from the first lens to "an electronic sensor, film, [or] an image plane corresponding to either the electronic sensor or a film sensor[.]" *Apple Inc. v. Corephotonics Ltd.*, No. IPR2018-01146, 2019 WL 6999883, at *6 (P.T.A.B. Dec. 4, 2019) (*Final Decision*). Given the high demand for digital cameras in cell phones, the design for the optical lens assemblies for use in cell phone cameras has evolved. According to the '712 patent, "[c]onventional lens assemblies comprising four lens elements are no longer sufficient for good quality imaging," and the latest five-lens-element assemblies "suffer[] from at least the fact that the TTL/EFL (effective focal length)

ratio is too large." '712 patent col. 1 ll. 32–38. Thus, the '712 patent is directed to a compact five lens assembly with a TTL that is smaller than the EFL, i.e., a TTL/EFL ratio that is less than one, providing "better image quality than existing lens assemblies." *Id.* at col. 1 ll. 39–41. Figure 1A illustrates an embodiment of the claimed five lens assembly, which "advantageously" has a TTL/EFL ratio of less than one:

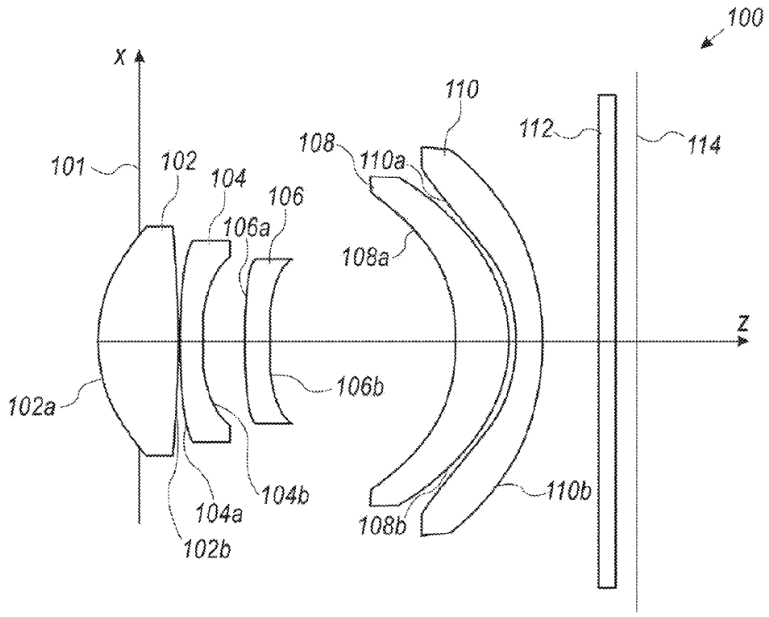

FIG. 1A

Id. Fig. 1A; *id.* at col. 2 ll. 58–59, col. 4 ll. 40–42.

Each of the embodiments described in the '712 patent also has "an F number" less than 3.2. *See id.* at col. 2 ll. 2–3. The F number refers to the amount of light that enters the lens assembly: A lower F number represents a wider camera aperture, which allows more light to enter the lens system, and a higher F number represents a smaller camera aperture, which means less light enters the lens system. *See* Appellant's Br. 10 (first citing J.A. 1734

(Moore Dep. 83:4–11); and then citing J.A. 1464 (Moore Decl. ¶ 36)).

Claims 1 and 6 are representative of the claims on appeal:

> 1. A lens assembly, comprising: a plurality of refractive lens elements arranged along an optical axis, wherein at least one surface of at least one of the plurality of lens elements is aspheric, wherein the lens assembly has an effective focal length (EFL), a total track length (TTL) of 6.5 millimeters or less and a ratio TTL/EFL of less than 1.0, and wherein the plurality of lens elements comprises, in order from an object side to an image side, a first lens element with a focal length f1 and positive refractive power, a second lens element with a focal length f2 and negative refractive power and a third lens element with a focal length f3, the focal length f1, the focal length f2 and the focal length f3 fulfilling the condition $1.2\times|f3|>|f2|>1.5\times f1$.
>
> . . .
>
> 6. The lens assembly of claim 2, wherein a lens assembly F# is smaller than 2.9.

'712 patent col. 7 ll. 55–67, col. 8 ll. 32–33.

II

A

Konno[1] is the primary prior art reference relied on by Apple for both anticipation and obviousness. Like the '712 patent, Konno is directed to a "thin and small-sized imaging apparatus capable of acquiring an image of high quality and high resolution[.]" J.A. 824 ¶ 6. Konno specifically discloses dual lens assemblies comprising both a

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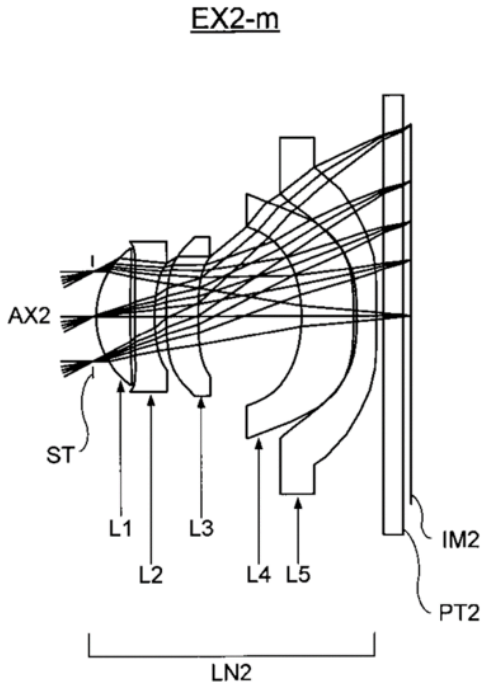
[1] Japanese Patent Publication JP 2013-106289.

wide-angle lens and a telephoto lens. Relevant here is Konno's telephoto lens from Example 2—referred to as "EX2-LN2"—the sole embodiment that Apple relies on:



J.A. 851 Fig. 16. As shown below, Konno discloses several parameters for its dual lens system:

Effective Focal Length (EFL)

[Table 1]

		Example 1		Example 2	
		LN1	LN2	LN1	LN2
Focal Length of Entire System (mm)	fw or fm	2.73	4.32	3.70	5.51
Fno	FNOw or FNOm	4.00	4.00	3.00	4.00
Lens Entire Length (at infinite) (mm)	TLw or TLm	3.04	3.65	4.45	4.91
Maximum Image Height (mm)	2Y"	5.12	5.12	5.80	5.80
Entire Viewing Angle (deg)	2ωw or 2ωm	86.32	61.28	76.18	55.52
L1 Focal Length (mm)	f1w or f1m	2.60	2.10	2.47	2.54
L2 Focal Length (mm)	f2w or f2m	-7.91	-5.51	-3.53	-4.02
L3 Focal Length (mm)	f3w or f3m	3.14	-13.70	13.47	22.96
L4 Focal Length (mm)	f4w or f4m	-1.68	-3.09	2.42	-5.99
L5 Focal Length (mm)	F5w or f5m	--	--	-1.84	-7.73
Composite Focal lengths of L1 and L2 (mm)	fFw or fFm	3.48	2.91	5.48	4.84
Focal Length of Lens LX (mm)	fXw or fXm	3.14	-13.70	2.47	-5.99
Number of Pixels of Sensor (MegaPixels)	PX	10.00	10.00	13.00	13.00
Segmented Minimum Number of Pixels (MegaPixels)		4.00	4.00	5.86	5.86
Segmented Maximum Focal Length (mm)		4.32	6.83	9.51	8.21
Electronic Zoom Ratio (Power)	ZR		2.50		2.22
Focal Length (135 Conversion) (mm)		23.07	36.52	27.60	41.10

Total Track Length (TTL)

J.A. 459 (as annotated by Apple's expert Dr. Sasián (citing J.A. 841 Tbl. 1)). As shown in Table 1, Konno's telephoto lens EX2-LN2 has an EFL of 5.51 mm and a TFL of 4.91 mm, resulting in a TTL/EFL ratio of 0.891, i.e., less than 1.0. It is undisputed, however, that the data provided in Table 1 for EX2-LN2 contains an error such that "lenses L4 and L5 overlap (i.e., occupy the same space)." J.A. 497–98 (Sasián Decl. ¶ 64).

Konno further explains that, for a dual lens assembly, it is desirable for the F-numbers of the wide-angle and telephoto lenses to be close to one another to reduce the "impression of blurring," which gives "an unnatural feeling to the user." J.A. 831 ¶ 38. Konno also explains that, "[t]o slim down the entire apparatus, it is advantageous to make the second imaging optical system darker than the first imaging optical system[,]" i.e., the F-number of the second imaging optical system would need to be higher than the first imaging optical system. *Id.* Thus, "it is preferred that the F-numbers of the first and second imaging optical systems

are close to each other so as to satisfy the conditional expression (5)." *Id.* Conditional expression (5) refers to the following "[d]esirabl[e]" relationship:

$$0.6 < FNOw/FNOm < 1.3$$

J.A. 831 ¶ 37. FNOw refers to the F number of the first lens, i.e., the wide-angle lens, and FNOm refers to the F number of the second lens, i.e., the telephoto lens. *See id.* As shown above in Table 1, Konno's telephoto lens EX2-LN2 has an F number (FNOm) of 4.00, and its wide-angle lens, EX2-LN1, has an F number (FNOw) of 3.00, thus satisfying conditional expression (5).

B

Bareau[2] is a secondary prior art reference relied on by Apple for obviousness. Bareau generally discusses the implications for designing and manufacturing digital camera lenses for cell phones as compared to conventional camera lenses. In discussing the specifications for a ¼″ CMOS image sensor for use in a cell phone camera, Bareau discloses that the F number is "2.8, fixed," J.A. 776, explaining that "most camera module customers specify" this F number, J.A. 777.

III

Apple filed an IPR petition challenging claims 1, 2, 6, 7, 12–17, and 19 of the '712 patent on three grounds. *Final Decision*, 2019 WL 6999883, at *1. Relevant here, ground 1 asserted that claims 1, 2, 7, 12–13, 15–16, and 19 were anticipated by Konno, and ground 2 asserted that claims 6 and 14 would have been obvious over Konno in view of

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[2] Jane Bareau & Peter P. Clark, *The Optics of Miniature Digital Camera Modules*, 6342 Proceedings of the Society of Photo-Optical Instrumentation Engineers, International Optical Design Conference (July 25, 2006), https://doi.org/10.1117/12.692291.

Bareau.[3] *Id.* at *2. The Board ultimately determined that Apple failed to demonstrate that claims 1, 2, 7, 12–13, 15–16, and 19 were anticipated by Konno or that claims 6 and 14 would have been obvious over Konno in view of Bareau. *Id.* at *16.

Apple appeals. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

On appeal, Apple argues that the Board erred in finding that Konno does not anticipate claims 1, 2, 7, 12–13, and 19[4] because it applied the wrong legal framework for enablement of an anticipatory prior art reference. Apple contends that, under the proper framework, Konno anticipates the claims. Apple also asserts that the Board erred in holding that that claims 6 and 14 would not have been obvious because its motivation to combine analysis is premised on a clear mathematical error. We address each issue in turn.

I

"A patent claim is invalid as anticipated only if each and every element of the claim is expressly or inherently disclosed in a single prior art reference." *Guangdong Alison Hi-Tech Co. v. Int'l Trade Comm'n*, 936 F.3d 1353, 1363–64 (Fed. Cir. 2019) (first citing 35 U.S.C. § 102 (2006); and then citing *SRI Int'l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1192 (Fed. Cir. 2008)). The ultimate question of anticipation is a finding of fact that we review

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[3] The Board's finding that claims 15–17 are unpatentable as anticipated by U.S. Patent No. 3,888,956 to Eggert (ground 3) is not at issue in this appeal.

[4] Because claims 15 and 16 were found unpatentable as anticipated by Eggert, Apple does not raise claims 15 and 16 in this appeal. Appellant's Br. 8 n.2.

for substantial evidence. *See id.* at 1364 (citing *Vizio, Inc. v. Int'l Trade Comm'n*, 605 F.3d 1330, 1342 (Fed. Cir. 2010)).

A

We begin our anticipation analysis by addressing Apple's argument that the Board improperly shifted the burden to Apple to prove that Konno was an enabling prior art reference. "A prior art reference cannot anticipate a claimed invention 'if the allegedly anticipatory disclosures cited as prior art are not enabled,'" *In re Antor Media Corp.*, 689 F.3d 1282, 1287 (Fed. Cir. 2012) (quoting *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1354 (Fed. Cir. 2003)), that is, that the prior art reference "enable[s] the portions of its disclosure alleged to anticipate the claimed invention," *id.* at 1290. Whether a prior art reference is enabling is ultimately a question of law we review de novo, but is "based on underlying factual findings" that that we review for substantial evidence. *Id.* at 1287. In its decision, the Board found that Apple's "early identification of the error" in Konno overcame the presumption of enablement afforded to patents and printed publications. *Final Decision*, 2019 WL 6999883, at *10. The Board then determined that Apple's "failure to address the issue of enablement in connection with the challenge applying Konno alone prior to institution means that [Apple] has failed to carry its burden of establishing anticipation" by a preponderance of the evidence. *Id.* In other words, the Board shifted the burden to Apple to provide evidence before institution (i.e., in its petition) that Konno was enabling as part of its burden to prove anticipation. This was error. For the reasons discussed below, however, we conclude the Board's error was harmless.

It is well-established that prior art patents and printed publications like Konno, a Japanese patent publication, are presumed enabling. *See, e.g.*, *Impax Labs., Inc. v. Aventis Pharm., Inc.*, 545 F.3d 1312, 1316 (Fed. Cir. 2008); *Amgen*,

314 F.3d at 1354–55; *Antor*, 689 F.3d at 1288–89. We have held in the context of both district court litigation and patent prosecution that the burden of proving that a prior art reference is not enabling is on the patentee/applicant, and that it is error to shift that burden to the patent challenger/examiner. For example, in *Impax*, we explained that "when an accused infringer asserts that a prior art patent anticipates specific patent claims, the infringer enjoys a presumption that the anticipating disclosure also enables the claimed invention." 545 F.3d at 1316 (citation omitted). There, we relied on our earlier decision in *Amgen*—where we held that it was error to shift the burden of "proving the prior art reference's enablement of the claimed invention on the alleged infringer," *id.* (citing *Amgen*, 314 F.3d at 1355–56)—to conclude that "the district court correctly placed the burden of proving non-enablement on the patentee," *id.* Likewise, in *Antor*, we explained that, "during patent prosecution, an examiner is entitled to reject claims as anticipated by a prior art publication or patent without conducting an inquiry into whether or not that prior art reference is enabling." 689 F.3d at 1289. Once the examiner has made a prima facie case of anticipation, we held that "the burden shifts to the applicant to submit rebuttal evidence of nonenablement." *Id.*

The Board, citing *Antor* and *Amgen* (among others), acknowledged this in its decision, but reasoned that "none of these cases were in the context of AIA trial proceedings." *Final Decision*, 2019 WL 6999883, at *9. We disagree with the Board's reasoning. We do not see a principled distinction between our cases holding that this presumption and burden apply during patent examination and in district court litigation, and AIA trial proceedings. Thus, regardless of the forum, prior art patents and publications enjoy a presumption of enablement, and the patentee/applicant has the burden to prove nonenablement for such prior art. It was error for the Board to suggest otherwise.

As a result of its error, the Board refused to consider evidence that Apple introduced with its reply in support of enablement of Konno—which Apple reasonably introduced after Corephotonics raised the issue of nonenablement. *See* Appellant's Br. 50 (citing J.A. 1656–61); *see also* J.A. 1770–71 (Sasián Reply Decl. ¶ 2). The Board reasoned that Apple's failure to address enablement in its petition meant Apple "failed to carry its burden of establishing anticipation." *Final Decision*, 2019 WL 6999883, at *10; *see also id.* at *9. This too was error because the Board in effect shifted the burden to Apple to prove enablement before any assertion of nonenablement was raised.

B

Although the Board erroneously shifted the burden to Apple to prove that Konno was enabling, that error was harmless because, even affording Apple the presumption, we conclude that the Board correctly found that Konno cannot anticipate the challenged claims as a matter of law.

Here, Apple admits that Konno's telephoto lens EX2-LN2—the sole embodiment that it relies on for anticipation—contains an error, specifically that lens elements L4 and L5 overlap. The Board found that "lens L4 and L5 of Konno's lens assembly 'cannot be arranged' to provide '[a] lens assembly . . . [that] has an effective focal length (EFL), a total track length (TTL) of 6.5 millimeters or less' as claimed without removing the overlap between lens L4 and L5." *Final Decision*, 2019 WL 6999883, at *10 (alterations in original). As such, the Board found that Konno could not anticipate the challenged claims absent impermissible modification. *See id.* We discern no error with this conclusion. As the Board correctly noted, "[p]rior art that must be modified to meet the disputed claim limitation does not anticipate the claim." *Id.* at *9 (quoting *Enplas Display Device Corp. v. Seoul Semiconductor Co.*, 909 F.3d 398, 405 (Fed. Cir. 2008)). Such modifications are permissible only in an obviousness analysis.

Apple argues that there is no need to modify Konno's telephoto lens EX2-LN2 to meet the challenged claims because it literally meets the claim limitations regardless of whether there is overlap between lenses L4 and L5. As Apple's expert, Dr. Sasián, explained, Konno's telephoto lens EX2-LN2 has a 5.51 mm EFL, a 4.91 mm TTL, and the TTL/EFL ratio is 0.891, thus meeting the claim limitations of a TTL of 6.5 mm or less and a TTL/EFL ratio of less than 1.0. *See, e.g.*, J.A. 459 (Sasián Decl. (claim limitation [1.5])). Although Apple is correct that the EX2-LN2 embodiment meets the numerical requirements of the claims absent modification, the problem is that the relied upon embodiment is inoperative unless the overlap between lenses L4 and L5 is fixed. Under our precedent, such inoperative embodiments cannot be anticipatory. *See In re Dowty*, 118 F.2d 363, 366 (C.C.P.A. 1941) ("'[A]n inoperative prior art device may not be relied upon as an anticipation.'" (quoting *In re Kehl*, 101 F.2d 193, 195 (C.C.P.A. 1939))). We therefore conclude that Konno's inoperative telephoto lens EX2-LN2 cannot anticipate the challenged claims.

We are also not persuaded by Apple's argument that it is not relying on lenses L4 and L5 for purposes of anticipation because the challenged claims require only three lenses. As an initial matter, Apple's petition and supporting expert declaration from Dr. Sasián repeatedly refer to both lens L5 and Konno's telephoto lens EX2-LN2 as a whole, without any suggestion that Apple was not relying on lenses L4 and L5 from that embodiment. *See Final Decision*, 2019 WL 6999883, at *10; *see also* Appellee's Br. 15–18. We also agree with Corephotonics that the parameters of Konno's telephoto lens EX2-LN2 that Apple relies on to show anticipation—the EFL, TTL, and TTL/EFL ratio—are dimensions that are based on all five lens elements, not just three of the five. Appellee's Br. 16–18.

We therefore affirm the Board's finding that the inoperative embodiment of Konno relied upon by Apple does not anticipate claims 1, 2, 7, 12–13, and 19.

II

We turn next to the Board's determination that Apple failed to demonstrate that dependent claims 6 and 14 were unpatentable as obvious. Apple asserts that the Board's finding that Apple did not provide a sufficient rationale for combining Konno with Bareau is unsupported by substantial evidence because its finding is premised on a mathematical error. We agree.

A

Obviousness is a question of law based on underlying fact findings that we review for substantial evidence, including "whether a [person of ordinary skill in the art] would have been motivated to combine the prior art to achieve the claimed invention and whether there would have been a reasonable expectation of success in doing so." *TQ Delta, LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1357 (Fed. Cir. 2019) (quoting *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016)).

Our review of the Board's decision is under the standard set forth in the Administrative Procedure Act, which "requires us to set aside conclusions or findings that are 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,' or 'unsupported by substantial evidence.'" *Alacritech, Inc. v. Intel Corp.*, 966 F.3d 1367, 1370 (Fed. Cir. 2020) (quoting 5 U.S.C. §§ 706(2)(A), (E)). As a part of this review, "the Board is obligated to 'provide an administrative record showing the evidence on which the findings are based, accompanied by the agency's reasoning in reaching its conclusions.'" *TQ Delta*, 942 F.3d at 1358 (quoting *In re Lee*, 277 F.3d 1338, 1342 (Fed. Cir. 2002)). Where the Board's decision is based on multiple alternative grounds, "we will uphold a decision of less than

ideal clarity if the [Board's] path may reasonably be discerned," *Japanese Found. for Cancer Rsch. v. Lee*, 773 F.3d 1300, 1308 (Fed. Cir. 2014) (quoting *Bowman Transp., Inc. v. Ark-Best Freight Sys., Inc.*, 419 U.S. 281, 285–86 (1974)), for example, if "at least one of [the] multiple grounds is valid and the [Board] would have acted on that ground even if others were unavailable." *Japanese Found.*, 773 F.3d at 1308 (citing *Casino Airlines, Inc. v. Nat'l Transp. Safety Bd.*, 439 F.3d 715, 717 (D.C. Cir. 2006)).

B

We agree with Apple that the Board made a clear mathematical error in finding that there was not sufficient rationale for combining Konno's teachings with Bareau.

Apple presented evidence to the Board that a skilled artisan would have reduced the F number of Konno's telephoto lens EX2-LN2 from 4.0 to 2.8, as taught by Bareau, "'to conform to modern cellphone camera lens specifications.'" *Final Decision*, 2019 WL 6999883, at *11 (quoting J.A. 122). The Board rejected Apple's arguments, finding that Apple's "rationale for combining Konno and Bareau is not supported by sufficient rational underpinning." *Id.* at *12. Specifically, the Board found that, in the combination proposed by Apple, FNOm—from Konno's telephoto lens EX2-LN2—"is lowered to 2.8, based on the teachings of Bareau," which "fail[s] to satisfy Konno's conditional expression (5)." *Id.* This finding is incorrect. Konno's conditional expression (5) requires that the ratio of the F number for Konno's wide-angle lens to the telephoto lens be within a certain range, "[d]esirably" between 0.6 and 1.3. J.A. 831 ¶ 37. As Apple explained in its opening brief, if the F number of Konno's telephoto lens EX2-LN2 is decreased from 4.0 to 2.8, as taught by Bareau, the ratio of the F number for the wide-angle lens (3.0) to the telephoto lens in the modified Konno-Bareau lens assembly (2.8) would be 1.07, which, contrary to the Board's finding, satisfies Konno's conditional expression (5). Appellant's Br. 56.

Based on the decision before us, we are "unable to conclude that [the Board] would have reached the same decision absent its [mathematical] mistake[]." *Hermes Consol., LLC v. E.P.A.*, 787 F.3d 568, 571 (D.C. Cir. 2015). As an initial matter, this is not a situation where we can reasonably discern that the Board was relying on multiple, independent grounds to support its finding. For instance, the Board explained that it was "not persuaded that the ordinarily skilled artisan would have looked to lower the FNOm value of Konno's telephoto lens assembly based on Bareau's teachings of a general preference to lower the F number in cellphone cameras with wide-angle lens assemblies." *Final Decision*, 2019 WL 6999883, at *12. The Board also concluded that Apple failed to explain why a skilled artisan "would disregard Konno's own intrinsic teaching of a lower F number (i.e., for a wide-angle lens assembly) and look to another reference, Bareau, also concerning wide-angle lens assemblies, to lower the F number of Konno's telephoto lens assembly." *Id.* (emphasis omitted). Thus, it is not clear if the basis for the Board's decision is premised on the fact that Bareau's teachings are limited to wide-angle lens assemblies, whereas Apple sought to modify Konno's telephoto lens assembly, or its view that modifying Konno in view of Bareau would require disregarding Konno's own intrinsic teaching. Nor can we discern from the Board's decision whether the "intrinsic teaching" it was referring to was: (1) Konno's conditional expression; (2) Konno's statement that "'it is advantageous to make the second imaging optical system darker than the first imaging optical system,'" *id.* (quoting J.A. 831 ¶ 38 (emphasis omitted)), i.e., by increasing the F number of the second optical imaging system (here, the telephoto lens EX2-LN2) compared to the first; or (3) both.

We therefore vacate the Board's determination that claims 6 and 14 would not have been obvious in view of Konno and Bareau, and remand to the Board for reconsideration.

CONCLUSION

We have considered the parties' remaining arguments and do not find them persuasive. For the foregoing reasons, we affirm the Board's anticipation finding, vacate the Board's determination of nonobviousness, and remand for further proceedings consistent with this opinion.

AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED

COSTS

No costs.

CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Fed. R. App. P. 35(b)(2)(A) because:

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/s/ Debra J. McComas
Debra J. McComas