

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JOHNSON & JOHNSON SURGICAL VISION, INC.,

Petitioner,

v.

ALCON INC.,

Patent Owner.

IPR2021-01053
Patent 9,427,356 B2

Before GRACE KARAFFA OBERMANN, CHRISTOPHER M. KAISER,
and JAMIE T. WISZ, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Johnson & Johnson Surgical Vision, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) for institution of an *inter partes* review of claims 1 and 2 of U.S. Patent No. 9,427,356 B2 (Ex. 1001, “the ’356 Patent”). Alcon Inc. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). With Board pre-authorization (Ex. 1020), Petitioner filed a Reply (Paper 14) and Patent Owner filed a Sur-reply (Paper 15) limited to addressing whether the Board should exercise its discretion and deny review under 35 U.S.C. § 325(d) (“Section 325(d)").

The information presented in the Petition, Preliminary Response, Reply, and Sur-reply forms the basis for the preliminary findings and conclusions set forth in this Decision, which are provided for the sole purpose of explaining our reasons for instituting an *inter partes* review. Any final determinations shall be based on the full trial record.

A. Real Parties-in-Interest and Related Matters

The Petition indicates that Johnson & Johnson Surgical Vision, Inc., AMO Development, LLC, AMO Manufacturing USA, LLC, and AMO Sales and Service, Inc. are real parties-in-interest. Pet. 60. Patent Owner’s Mandatory Notice indicates that Alcon, Inc., Alcon Vision, LLC, and Alcon Research, LLC are real parties-in interest. Paper 4, 1.

Both parties identify as a related matter co-pending district court litigation in *AMO Development, LLC v. Alcon LenSx, Inc.*, No. 1:20-cv-00842-CFC (D. Del.). Pet. 60; Paper 4, 1.

II. BACKGROUND

A. The '356 Patent (Ex. 1001)

The '356 patent is titled “Photodisruptive Laser Fragmentation of Tissue.” Ex. 1001, code (54). The written description discusses “techniques and systems for laser surgery on the crystalline lens” of an eye “via photodisruption caused by laser pulses.” *Id.* at 3:25–26. The written description teaches, “In a laser-induced lens fragmentation process, laser pulses interact with the lens tissue to generate gas in [the] form of cavitation bubbles.” *Id.* at 3:43–45. The written description also discusses a method of applying laser pulses to generate “cells” within the lens tissue by “a non-uniform laser distribution process,” resulting in a “localized tissue effect” that “can improve the precision of the laser surgery.” *Id.* at 3:42–4:35.

The challenged claims relate to a method of laser-induced fragmentation. *See id.* at 12:6–22 (claims 1 and 2). In the claimed method, a pulsed laser generates a pulsed laser beam, which “an optics module” directs “towards a target region in the lens tissue.” *Id.* at 12:6–18. “[A] system control module” controls the optics module “to form a regular array of cells in the target region.” *Id.* Cells are formed in the claimed method “by creating layers of photodisrupted bubbles to generate cell boundaries.” *Id.*

Of critical importance to this Decision, the claims require, “[T]he layers are created by scanning the pulsed laser with the optics module according to a curvature of the focal plane to track the natural curvature of the lens.” *Id.* A central issue raised in the Petition is the meaning of the phrase “track the natural curvature of the lens” as it appears in that claim limitation. *Id.*; Pet. 11–18 (proposing two alternative constructions for that phrase), 24–55 (asserting four challenges, each of which turns on the

construction assigned to that phrase). The layers that form the cell boundaries “are created by scanning the pulsed laser with the optics module according to” that curvature. Ex. 1001, 12:15–18.

B. Challenged Claims

Petitioner challenges claims 1 and 2 of the ’356 patent. Pet. 6. We reproduce below the challenged claims.

1. A method of fragmenting lens tissue of an eye with a laser surgical system, the method comprising:

generating a pulsed laser beam with a pulsed laser;
directing the laser beam with an optics module towards a target region in the lens tissue; and
controlling the optics module by a system control module to form a regular array of cells in the target region by creating layers of photodisrupted bubbles to generate cell boundaries, wherein
the layers are created by scanning the pulsed laser with the optics module according to a curvature of the focal plane of the optics module to track the natural curvature of the lens.

Ex. 1001, 12:6–18.

2. The method of claim 1, the forming the regular array of cells comprising:

forming the cells with a size suitable for extraction by aspiration without additional lens fragmentation.

Id. at 12:19–22.

C. Asserted Grounds of Unpatentability

Petitioner asserts four grounds under 35 U.S.C. § 103¹, as follows:

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011), includes revisions to Section 103 that

Ground	Claims Challenged	References
1	1, 2	Frey ² , Knowledge in the Art
2	1, 2	Frey, Koschmieder ³ , Knowledge in the Art
3	1, 2	Blumenkranz ⁴ , Frey, Knowledge in the Art
4	1, 2	Blumenkranz, Frey, Koschmieder, Knowledge in the Art

Pet. 3. Petitioner relies on the Declaration of Georg Schuele, Ph.D. Ex. 1004.

Patent Owner relies on the Declaration of Edward A. DeHoog, Ph.D.

Ex. 2001. Based on their statements of qualifications and *curricula vitae*, for purposes of this Decision, we find that both Dr. Schuele and Dr. DeHoog are qualified to opine about the level of ordinary skill in the art at the time of the invention. Ex. 1004 ¶¶ 1–11 (Dr. Schuele’s statement of qualifications); Ex. 1005 (Dr. Schuele’s *curriculum vitae*); Ex. 2001 ¶¶ 5–16 (Dr. DeHoog’s statement of qualifications); Ex. 2002 (Dr. DeHoog’s *curriculum vitae*).

became effective on March 16, 2013. Petitioner assumes, and Patent Owner does not contest on this record, that the pre-AIA statutory provisions apply in this proceeding. Pet. 13, 25–26 n.7, 33, 39; *see generally* Prelim. Resp. Neither party directs us to information indicating that the result would change in this case, based on which version of the statute the Board applies for purposes of deciding whether to institute review.

² WO 2007/084602 A2, published July 26, 2007 (Ex. 1006).

³ US Pub. 2006/0170867 A1, published Aug. 3, 2006 (Ex. 1007).

⁴ US Pub. 2006/0195076 A1, published Aug. 31, 2006 (Ex. 1008).

III. ANALYSIS

A. Level of Ordinary Skill in the Art

The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). Based on the information presented, we find that the asserted prior art itself is sufficient to demonstrate the level of skill in the art at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself can reflect the appropriate level of ordinary skill in the art). To the extent a more precise definition is required, we adopt Petitioner's definition because, on this record, it appears consistent with the disclosures of the asserted prior art and the written description of the invention provided in the '356 patent. Pet. 10 (Petitioner's asserted definition of the ordinarily skilled artisan); *see* Prelim. Resp. 12 (reciting that definition without adopting it or proposing an alternative definition).

B. Claim Construction

For petitions such as this one, filed after November 13, 2018, claims “shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)).

Under that standard, the “words of a claim ‘are generally given their ordinary and customary meaning,’” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). We construe terms in controversy only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner proposes two alternative meanings for the claim limitation that includes the phrase “track the natural curvature of the lens.” Pet. 11–12. Patent Owner, by contrast, “does not believe that any claim terms” require express construction for purposes of deciding whether to institute review and, on that basis, submits that the terms should “be given their plain and ordinary meaning.” Prelim. Resp. 12. For reasons that follow, we determine that some discussion of the meaning of the claim limitation, which includes the phrase “track the natural curvature of the lens,” is necessary to resolve whether to institute review. Ex. 1001, 12:15–18 (entirety of the limitation).

Petitioner advances a first construction under which the phrase “track the curvature of the lens” is satisfied when “the boundary of the overall pattern of photodisrupted bubbles matches the curvature of the eye lens.” Pet. 11. Petitioner identifies no intrinsic support for that construction, but relies on a single extrinsic source, namely, Patent Owner’s initial infringement contentions in the co-pending district court litigation. *Id.* (citing Ex. 1013, 49–81). That “construction is the basis for Grounds 1 and 3

in [the] Petition.” *Id.* at 12. We reject that construction because it is not tethered adequately to any language that appears in claim 1, which nowhere refers to “the boundary of the overall pattern of photodisrupted bubbles,” much less specifies that such a boundary must match “the curvature of the eye lens.” *Id.* at 11; *see* Ex. 1001, 12:6–18 (claim 1).

Petitioner advances a second, alternative construction under which “the ‘curvature of the focal plane’ must ‘track the natural curvature of the lens.’” Pet. 12. Petitioner asserts that this second “construction is the basis for Grounds 2 and 4 in [the] Petition.” *Id.* We agree with Patent Owner that Petitioner identifies no evidence in support of this alternative construction. Prelim. Resp. 14; *see* Pet. 12 (setting forth this construction without directing the Board to any supporting evidence). Under the particular circumstances presented, however, we disagree with Patent Owner that the Board fairly may “reject Petitioner’s second, alternative construction” and decline to “consider Grounds 2 and 4” on that basis. Prelim. Resp. 14.

Petitioner’s second proposed construction repeats, word-for-word, language that appears in claim 1. *Compare* Pet. 12 (“‘curvature of the focal plane’ must ‘track the natural curvature of the lens’”), *with* Ex. 1001, 12:17–18 (“curvature of the focal plane” will “track the natural curvature of the lens”). That suggests Petitioner, in advancing the alternative construction, agrees with Patent Owner that those words can, and should, “be given their plain and ordinary meaning.” Prelim. Resp. 12. We agree with the parties’ suggestions that those words, as they appear in the full claim limitation at hand, are clear and unambiguous.

The full claim limitation requires that “the layers,” which form the cell boundaries, “are created by scanning the pulsed laser with the optics

module according to *a curvature of the focal plane* of the optics module *to track the natural curvature of the lens.*” Ex. 1001, 12:15–18 (emphasis added). Given that both highlighted phrases include the same word, “curvature,” we find that the phrases relate to one another and that the word should be assigned a single, cohesive meaning. *Id.* Read fairly, the limitation indicates that the layers are created by scanning a pulsed laser according to a *single* curvature – a curvature that characterizes *both* the focal plane of the optics module *and* the natural bend of the lens. *Id.*

Against that backdrop, we find that the “curvature of the focal plane” *itself* must “track the natural curvature of the lens.” *Id.* Other evidence of record supports that finding. Most notably, the record of examination includes this unequivocal statement: “It was Applicant’s inventive idea to design the laser surgical system such that the curvature of its focal plane tracks the curvature of the eye.” Ex. 1002, 133.⁵ In addition, Petitioner advances a construction in the co-pending district court litigation, supported by citations to the intrinsic record, under which the layers of photodisrupted bubbles are generated by using a focal plane having a curvature that matches “the natural curvature of the lens.” Ex. 2003, 11–14 (Petitioner’s proposed construction in district court litigation, including citations to the intrinsic record). In other words, Petitioner advances a construction in the district court litigation under which the curvature of the focal plane *itself* tracks the curvature of the lens.⁶ *Id.*

⁵ We refer to page numbers added by Petitioner.

⁶ Petitioner proposes a district court construction that includes a further requirement that the method creates “curved layers.” Ex. 2003, 11–14; *but see* Ex. 1002, 265 (argument during examination that the invention is not directed to “any ‘curved layers’”). For purposes of deciding whether to

Accordingly, on this record, we preliminarily find that “the layers of photodisrupted bubbles” that form the “cell boundaries” in the method of the claimed invention “are created by scanning the pulsed laser with the optics module according to a curvature of the focal plane” that *itself* is adapted “to track the natural curvature of the lens.” Ex. 1001, 12:15–18; *see* Pet. 12 (Petitioner’s second proposed construction). Of the two alternative meanings proposed by Petitioner (*see* Pet. 11–12), only this second alternative aligns with the actual words of claim 1. Ex. 1001, 12:15–18. Therefore, we adopt it for purposes of deciding whether to institute review. Patent Owner is free to propose a different construction in a timely response to the Petition.

C. Analysis of the Patentability Challenges

Petitioner asserts four grounds of unpatentability. Pet. 3. We organize our discussion into two parts, addressing first the grounds keyed to the correct construction of “track the natural curvature of the lens” (Grounds 2 and 4) and then the grounds that apply an incorrect construction of that claim phrase (Grounds 1 and 3). *See* Pet. 12 (asserting that a construction gleaned from Patent Owner’s infringement contentions in co-pending litigation “is the basis for Grounds 1 and 3” and an alternative construction, keyed to the words that actually appear in claim 1, “is the basis for Grounds 2 and 4”).

institute review, we need not, and do not, resolve whether the claimed method creates curved layers. We observe only that the construction proposed by Petitioner in the district court requires a “curvature of the focal plane” that *itself* tracks “the natural curvature of the lens.” Ex. 2003, 11–14. The ’356 patent discloses “implementations” wherein “the layers themselves can be somewhat curved, to accommodate the natural curvature of the lens target region itself or the natural curvature of the focal plane of the surgical system.” Ex. 1001, 7:44–48. We will address that disclosure, as it relates to curved layers, only as necessary in any final written decision.

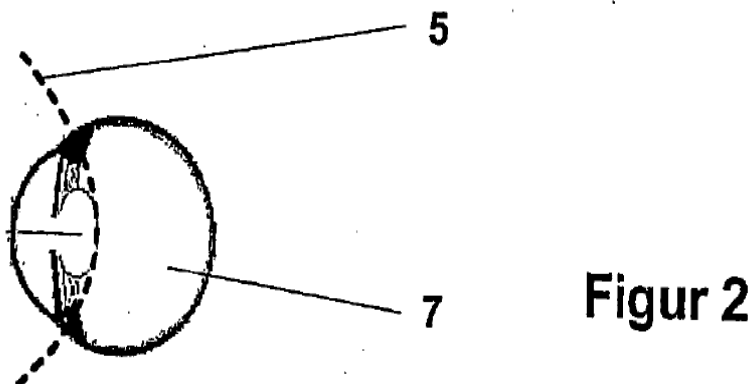
(a) Grounds 2 and 4

Petitioner comes forward with information sufficient to show that the subject matter of claims 1 and 2 would have been obvious over Frey (Ex. 1006) in view of Koschmieder (Ex. 1007) and the understanding of an ordinarily skilled artisan (Ground 2). Pet. 32–39 (mapping each claim limitation sufficiently to disclosures in the prior art, and advancing reasons to combine the references in the manner claimed with a reasonable expectation of success), 55 (addressing secondary considerations). Petitioner also shows sufficiently that the subject matter of those claims would have been obvious over Blumenkranz (Ex. 1008) in view of Frey, Koschmieder, and the knowledge of an ordinarily skilled artisan (Ground 4). *Id.* at 51–55 (mapping each claim limitation sufficiently to disclosures in the prior art, and advancing reasons to combine the references in the manner claimed with a reasonable expectation of success).

For example, Petitioner shows sufficiently that Frey and Blumenkranz both teach controlling an optics module to form a regular array of cells in the target region by creating layers of photodisrupted bubbles to generate cell boundaries. Pet. 13–18, 39–43, 51–55 (including citations to Frey and Blumenkranz); Reply 1; Ex. 1004 ¶¶ 50–59, 121–128, 168–174; *but see* Sur-reply 2 n.2 (noting, without citation to evidence, that Patent Owner does not concede that Frey teaches that feature). Petitioner also shows sufficiently that Koschmieder discloses improved ophthalmic instruments for diagnosis and treatment of the eye, including instruments such as laser scanners used in laser surgery of the eye. Pet. 33–35 (including citations to Koschmieder).

In particular, as Petitioner points out, Koschmieder teaches “one or more diffractive optical elements [(DOE)] . . . arranged . . . in the

illumination beam path for deliberate shaping of the image plane in the eye to be irradiated.” Ex. 1007, code (57); Pet. 34 (citing this disclosure in Koschmieder). Figure 2 of Koschmieder illustrates eye 7 and “an image plane 5 that is adapted to the rear surface of the eye lens.” *Id.* ¶ 22, Fig. 2; Pet. 34 (reproducing Fig. 2). We reproduce that figure below.



Id., Fig. 2. Figure 2 illustrates curved image plane 5 that is “adapted to the eye” and, in particular, “to the rear surface of the eye lens.” *Id.* ¶¶ 21, 22.

Figure 2 unequivocally discloses a focal plane having a curvature that *itself* tracks the posterior curvature of the lens of the eye. *Id.* ¶¶ 22, 27, 34. Accordingly, for purposes of deciding whether to institute review, we find Petitioner shows sufficiently that Koschmieder teaches an improvement for “laser scanners” (*id.* at code (57), ¶ 34) in which the “curvature of the focal plane” will *itself* “track the natural curvature of the lens” (Ex. 1001, 12:15–18). *See* Pet. 34–35 (Petitioner’s arguments and evidence on point).

A central point of contention, at this juncture, is whether a person of ordinary skill in the art would have been led to combine the disclosures of the asserted prior art references in the manner claimed with a reasonable expectation of success. *Compare* Pet. 35–39, 52–55, *with* Prelim. Resp. 52–58. The parties advance conflicting opinion testimony on that point. *Compare* Ex. 1004 ¶¶ 112–118, 170–176 (Dr. Schuele’s opinion testimony,

explaining why an ordinarily skilled artisan would have been prompted to combine the references in the manner claimed), *with* Ex. 2001 ¶¶ 85–91, 96–98 (Dr. DeHoog’s opinion testimony, explaining why an ordinarily skilled artisan would not have been led to combine the teachings of the references in the manner claimed).

For example, Patent Owner advances information that a person of ordinary skill in the art would not have combined Frey and Koschmieder because Frey teaches a flat-field optical system. Prelim. Resp. 6–7, 52–55. Patent Owner argues that Frey and Blumenkranz disclose flat-field optics, where “the *correction* of aberrations such as field curvature was the ‘conventional’ practice.” *Id.* at 1. Specifically, in that regard, Petitioner argues, Frey creates a “flat plane” because it creates the grid pattern in Figure 25 by “adjust[ing] the XY scanners while holding the location of the Z focusing device constant; then it adjusts the Z focus and scans the XY plane again, and so on.” *Id.* at 6–7. Thus, according to Patent Owner, Frey’s reference to “conventional focusing optics, and/or flat field optics and/or telecentric optics” indicates that, after field curvature correction, Frey describes a flat-field optical system. *Id.* at 7–8.

Somewhat relatedly, Patent Owner contends, an ordinarily skilled artisan “would [not] have found it obvious to implement a curved focal plane in Frey’s (or Blumenkranz’s) system, and, for at least the same reasons,” the artisan “would also not have been motivated to use Koschmieder’s specific curved focal plane either.” *Id.* at 52–53. Patent Owner asserts, on that point, that “the configuration of Frey’s” or “Blumenkranz’s systems . . . would need to be re-designed to be able to execute the shell cut with a curved focal plane optical system,” such as that

disclosed in Koschmieder. *Id.* at 57; *see* Ex. 2001 ¶¶ 96–98 (Dr. DeHoog’s opinions). Thus, in Patent Owner’s view, Petitioner’s proposed combination of Koschmieder with Frey or Blumenkranz would not have been obvious because Koschmieder “describes an entirely different and incompatible system” that “does not describe transforming flat-field optics into curved-field optics.” Prelim. Resp. 54–55.

Patent Owner’s information has some appeal and may be persuasive if developed during the trial. On this record, however, Petitioner directs us to information sufficient to show that the technical acumen, necessary to modify Frey’s or Blumenkranz’s “laser system” to use Koschmieder’s “optical element,” would have required no more than an exercise of ordinary skill in the art. Ex. 1004 ¶ 116; *see* Pet. 35–39 (citing Ex. 1004 ¶¶ 112–118).

Alternatively, based on the preliminary record, we find Patent Owner’s information does not account adequately for the well-established principle that “it is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.” *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983). “Combining the *teachings* of references does not involve an ability to combine their specific structures.” *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973).

Petitioner’s arguments, by contrast, properly focus on what the combined disclosures of the references fairly would have suggested to an ordinarily skilled artisan. For example, Petitioner shows sufficiently that Koschmieder discusses specific advantages of employing a curved focal plane in “ophthalmic instruments” such as “laser scanners.” Ex. 1007, code (57), ¶ 34; *see id.* ¶¶ 6, 13, 15, 22, 27 (discussing the improvements of a curved focal plane); *see especially id.* ¶¶ 13, 27 (discussing the advantages

of “image sharpness” provided by curved focal planes, “positioned specifically on the anterior lens surface of anterior lens surface,” as compared to “straight” image planes); Pet. 33–35 (discussing these disclosures in Koschmieder).

Petitioner also shows sufficiently that “conventional focusing optics” would have been “recognized by” the ordinarily skilled artisan “to be simpler to design and typically less expensive than other specialized optics” because “flat field optics (which avoid a curved focal plane) require adding several different optical elements that can introduce aberrations and reduce the intensity of the laser beam.” Pet. 26–27 (citing Ex. 1004 ¶ 94). That proposition is supported by the intrinsic disclosure of Koschmieder, which explains, “[T]he straight or even oppositely curved image planes of the illumination components and irradiation components have a disadvantageous effect.” Ex. 1007 ¶ 13. Koschmieder also teaches the “deliberate shaping of the image plane” using diffractive elements. *Id.* ¶ 15. On this record, we find Petitioner shows sufficiently that Koschmieder’s teachings are compatible with flat-field optics, but that is not enough to show that it would have been obvious to modify Frey or Blumenkranz in view of Koschmieder to achieve the claimed invention.

A close question arises whether Petitioner shows sufficiently that an ordinarily skilled artisan would have been led to modify the flat-field focusing optics of Frey or Blumenkranz to incorporate the curved focal plane that Koschmieder discloses for use in laser scanners. Petitioner contends that Koschmieder’s diffractive optical element “would improve the laser focus (and resulting delivery of laser power) to the lens when creating the grid-like shot pattern of Frey” and “would allow the laser system to

create these curved layers without having to adjust the z focusing device.” Pet. 37; *see* Ex. 1004 ¶¶ 114–116 (Dr. Schuele’s opinions). Patent Owner counters that there would have been no reason to combine the teachings in the manner claimed because benefits discussed in Koschmieder, including reductions in blurring and lost intensity near the outer edge of the image plane, have no application in the systems described by Frey and Blumenkranz, where neither system is shown to have those problems. Prelim. Resp. 52–58; *see* Ex. 2001 ¶¶ 93–98 (Dr. DeHoog’s opinions).

The reasons to combine the references introduce highly complex technical issues that implicate the veracity of conflicting opinion testimony provided by the parties’ opposing declarants – testimony untested by cross-examination at this stage of the proceeding. Given that those issues may be a focus of the co-pending district court litigation, we select a prudent course and decline to provide detailed factual findings on those technical issues based on the preliminary record. Those issues are better suited for resolution on a full trial record, without any bias created by preliminary findings, and only as necessary to any final written decision.

On this record, therefore, we find only that Patent Owner’s information does not undercut the sufficiency of Petitioner’s showing for purposes of meeting the threshold necessary to support institution of review. *See* Pet. 35–39, 49–53 (Petitioner’s arguments, evidence, and citations to authority). In reaching that finding, we observe, Petitioner adequately tethers its arguments, and Dr. Schuele adequately tethers his opinions, to intrinsic disclosures of the asserted prior art. *See id.* (citations to Frey, Blumenkranz, Koschmieder, and Dr. Schuele’s declaration testimony).

Claim 2 depends on claim 1 and adds an additional feature related to the “size” of “the cells.” Ex. 1001, 12:19–22. Petitioner explains adequately how and why the subject matter of claim 2 would have been obvious over the combined disclosures of Koschmieder and Frey or Blumenkranz. Pet. 31–32, 39, 50–51. At this juncture, Patent Owner does not address the merits of Petitioner’s information pertaining to claim 2, except to argue that Petitioner has not shown adequately how the subject matter of claim 1, from which claim 2 depends, would have been obvious. Prelim. Resp. 35–58.

(b) Grounds 1 and 3

Grounds 1 and 3 are based on an assumption that the claim phrase “track the natural curvature of the lens” (Ex. 1001, 12:17–18) is met when “the boundary of the overall pattern of photodisrupted bubbles matches the curvature of the eye lens” (Pet. 11). *See* Pet. 27–31, 49–50 (Petitioner’s information pertaining to that claim phrase in the context of Grounds 1 and 3). Petitioner asserts Grounds 1 and 3 only to the extent that we accept this interpretation, which we reject for reasons stated above in our claim construction analysis. *Id.* at 12. Accordingly, we have concerns about the sufficiency of Petitioner’s information as to these two remaining grounds. *See* Pet. 27–31, 49–50 (Petitioner’s arguments and evidence on point).

D. Secondary Considerations of Nonobviousness

Petitioner directs us to Patent Owner’s contentions in related litigation regarding secondary considerations of non-obviousness. Pet. 55 (citing Ex. 1017, 35 (Patent Owner’s Response to Interrogatory No. 15)). Specifically, Petitioner directs us to evidence that Patent Owner’s commercial product, marketed under the tradename LenSx, has garnered praise and enjoyed commercial success. Ex. 1017, 35–36. Patent Owner

presents no arguments or evidence pertaining to secondary considerations at this stage of the proceeding. *See generally* Prelim. Resp.

“[E]vidence rising out of the so-called ‘secondary considerations’ must always when presented be considered en route to a determination of obviousness.” *Stratoflex v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983). For reasons stated by Petitioner, we determine that the evidence of secondary considerations, presented on the current record, does not undercut the sufficiency of Petitioner’s information that it is reasonably likely to prevail at trial in showing that at least one challenged claim is unpatentable. Pet. 55 (citing Ex. 1004 ¶ 177). For example, on this record, no “nexus between the evidence and the merits of the claimed invention” is established. *Id.* (quotation omitted); *see* Ex. 1004 ¶ 177 (Dr. Schuele, opining that “none of the comments” reflected in Patent Owner’s asserted evidence of secondary considerations “relate at all to any advantages” associated with the claimed invention). We will evaluate any evidence of secondary considerations of non-obviousness, as presented on the full trial record, to the extent necessary in any final written decision.

E. Conclusions on the Merits of the Challenges

For the above reasons, we find Petitioner is reasonably likely to prevail at trial in showing that the subject matter of claims 1 and 2 would have been obvious over the combined disclosures of Frey, Koschmieder, and the knowledge of an ordinarily skilled artisan (Ground 2) and Blumenkranz, Frey, Koschmieder, and the knowledge of an ordinarily skilled artisan (Ground 4). We have concerns about the sufficiency of Petitioner’s showing with respect to the other grounds (Grounds 1 and 3) because Petitioner’s information as to those grounds is keyed to an incorrect claim construction.

F. Discretion to Deny Review under Section 325(d)

Patent Owner requests that we exercise our discretion and deny review under Section 325(d) based on the prosecution history. Prelim. Resp. 16–35. Under Section 325(d), the Director, and by delegation the Board, has discretion to deny review, even where a petitioner meets the threshold showing necessary to support institution of a trial, where the same or substantially the same prior art or arguments previously were presented to the Office, for example, during patent examination.

We resolve Patent Owner’s request under a two-part framework: First, we assess whether the Examiner considered the same or substantially the same prior art or arguments asserted in the Petition and, only if so, we resolve whether the Examiner erred in a manner material to the patentability of the challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential).

On this record, we find that Frey⁷ and Blumenkranz were before the Examiner, but Koschmieder was not. Prelim. Resp. 2; *see* Ex. 1001, code (56) (references cited). Patent Owner argues that Koschmieder is cumulative of Kurtz, which was before the Examiner. Prelim. Resp. 17–18. By way of support, however, Patent Owner repeatedly directs us to Kurtz’s paragraph 32, which discusses “one or more layers” that “are at least

⁷ It is uncontested that the disclosures of Frey and Gray are substantially the same and that Gray was before the Office during the examination of the abandoned parent application for the ’356 patent. Pet. 56; Prelim. Resp. 19–20. In particular, Petitioner admits, “Frey claims priority to Gray, and all the disclosures of Gray are included in Frey.” Pet. 8 n.2.

partially formed along a curved focal plane of a laser delivery system.”

Ex. 1011 ¶ 32; Prelim. Resp. 27 (three times citing Kurtz’s paragraph 32).

A careful reading reveals that Patent Owner, in fact, stops short of arguing that Kurtz’s paragraph 32 discloses a “*curvature of a focal plane*” that will itself “*track the natural curvature of the lens*” and directs us to no information that would support such an argument. Prelim. Resp. 27 (quoting Ex. 1002, 218) (emphasis supplied by Patent Owner); *see id.* at 26–29 (Patent Owner’s additional information on point). Petitioner, for its part, argues that the Examiner did not consider any prior art disclosure of “shaping of the image plane” so that it “can be adapted to the spherical contour of the eye” as discussed in Koschmieder. Pet. 57 (quoting Ex. 1007, code (57); *see also* Reply 6–7 (Petitioner’s additional information on point)).

We find significant that Patent Owner overcame a rejection of claim 1, during patent prosecution, by expressly arguing to the Examiner that Kurtz does *not* describe the limitation that specifies a focal plane having a curvature that will “track the natural curvature of the lens.” Ex. 1002, 265, 280–81. Patent Owner successfully argued to the Examiner that, although Kurtz’s paragraph 32 “does mention the curved focal plane of the laser, neither that paragraph, nor *any other paragraph*” in the reference, “describe[s] the other equally relevant limitation of ‘to track the natural curvature of the lens.’” Reply 7 (quoting Ex. 1002, 264–265) (emphasis supplied by Petitioner); *see* Ex. 1002, 280–281 (Examiner’s allowance of claim 1, which is based, at least in part, on that specific representation advanced during the patent examination).

Accordingly, on this record, we find that Koschmieder, but not Kurtz, teaches “an image plane adapted to the curvature of the respective element

to be irradiated” and “an image plane 5 that is adapted to the rear surface of the eye lens.” Ex. 1007 ¶ 22. Stated somewhat differently, Koschmieder, unlike Kurtz, provides disclosure pertaining to the “equally relevant limitation of ‘to track the natural curvature of the lens.’” Ex. 1002, 265 (Patent Owner, successfully arguing to the Examiner that Kurtz lacks such a disclosure). For purposes of deciding whether to exercise our discretion to deny review under Section 325(d), therefore, we find Koschmieder is not cumulative of Kurtz.

Based on the information presented, we determine that the prior art advanced in the Petition is not the same or substantially the same as the prior art previously presented to the Examiner during patent prosecution. Further, Petitioner raises arguments about Koschmieder’s disclosure never presented to the Examiner. *See* Pet. 33–39, 51–54 (arguments related to that new reference). We, therefore, decline to exercise our discretion to deny review under Section 325(d). We need not, and do not, address the second prong of the applicable two-part framework, which pertains to whether the Examiner erred in a manner material to the patentability of the challenged claims. *Advanced Bionics*, Paper 6 at 8.

G. Summary of Decision

We institute an *inter partes* review of all challenged claims based on all grounds asserted in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019)⁸ (“The Board will not institute on fewer than all claims or all challenges in a petition.”).

⁸ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

H. Notices

The Board shall deem waived any issue not raised in a timely response to the Petition, or as permitted in another manner during trial, even if asserted in the Preliminary Response or discussed in this Decision.

Nothing in this Decision authorizes Petitioner, in a manner not otherwise permitted by the Board's rules, to supplement the information pertaining to any ground advanced in the Petition.

IV. CONCLUSION

For the above reasons, we institute an *inter partes* review on all challenged claims based on all asserted grounds of unpatentability set forth in the Petition. 35 U.S.C. § 315(a)(1) (2018).

V. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1 and 2 of the '356 patent is hereby instituted based on all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), an *inter partes* review of claims 1 and 2 of the '356 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of trial.

IPR2021-01053
Patent 9,427,356 B2

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