

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BECKMAN COULTER, INC.,
Petitioner,

v.

BECTON, DICKINSON AND COMPANY,
Patent Owner.

IPR2022-01122
Patent 7,787,197 B2

Before KEVIN W. CHERRY, DAVID COTTA, and
MICHAEL A. VALEK, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* VALEK.

Opinion Dissenting filed by *Administrative Patent Judge* CHERRY.

VALEK, *Administrative Patent Judge*.

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

I. INTRODUCTION

Beckman Coulter, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”), seeking *inter partes* review of claims 1–13 of U.S. Patent No. 7,787,197 B2 (Ex. 1001, “the ’197 patent”). Becton, Dickinson and Company (“Patent Owner”) filed a Preliminary Response challenging the merits of the grounds in the Petition. Paper 6 (“Prelim. Resp.”).

With our authorization, Petitioner filed a Preliminary Reply addressing the claim construction issues in the Preliminary Response. Paper 7 (“Reply”). Patent Owner filed an authorized Preliminary Sur-reply to Petitioner’s Reply. Paper 8 (“Sur-reply”).

After considering the arguments and evidence presented at this stage of the proceeding, we are not persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail with respect to at least one claim challenged in the Petition. Accordingly, *inter partes* review is denied.

II. BACKGROUND

A. Real Parties in Interest

The parties identify themselves as the real parties in interest. Pet. 3; Paper 5, 1.

B. Related Matters

Petitioner and Patent Owner identify the following pending matter involving the ’197 patent: *Becton, Dickinson and Company v. Beckman Coulter, Inc.*, Civ. Action No. 21-00833-CFC (D. Del.). Pet. 1, 3–4; Paper 4, 1.

C. The '197 patent

“The present invention relates to . . . laser optics, as used in optical analyzers.” Ex. 1001, 1:14–15. The '197 patent explains that “[p]article analyzers, such as flow and scanning cytometers, are well known analytical tools that enable the characterization of particles on the basis of optical parameters such as light scatter and fluorescence.” *Id.* at 1:16–19. According to the '197 patent,

[i]n a typical flow cytometer, the excitation light from a laser or other source is focused onto a focal spot to illuminate the core stream (the fluid stream containing the particles to be analyzed). Accurate focusing of the excitation light beam on the core stream is important for optimizing focal spot intensity and, thus, fluorescence sensitivity. . . . Because a typical flow cytometer is designed to analyze biological cells or particles that are few microns in size, the precision of the light beam adjustment also needs to be in the micron range, thus requiring high resolution mechanical displacement devices. Conventional positioning methods typically employ expensive differential micrometers to position the light source itself or optical elements, such as mirrors or prisms.

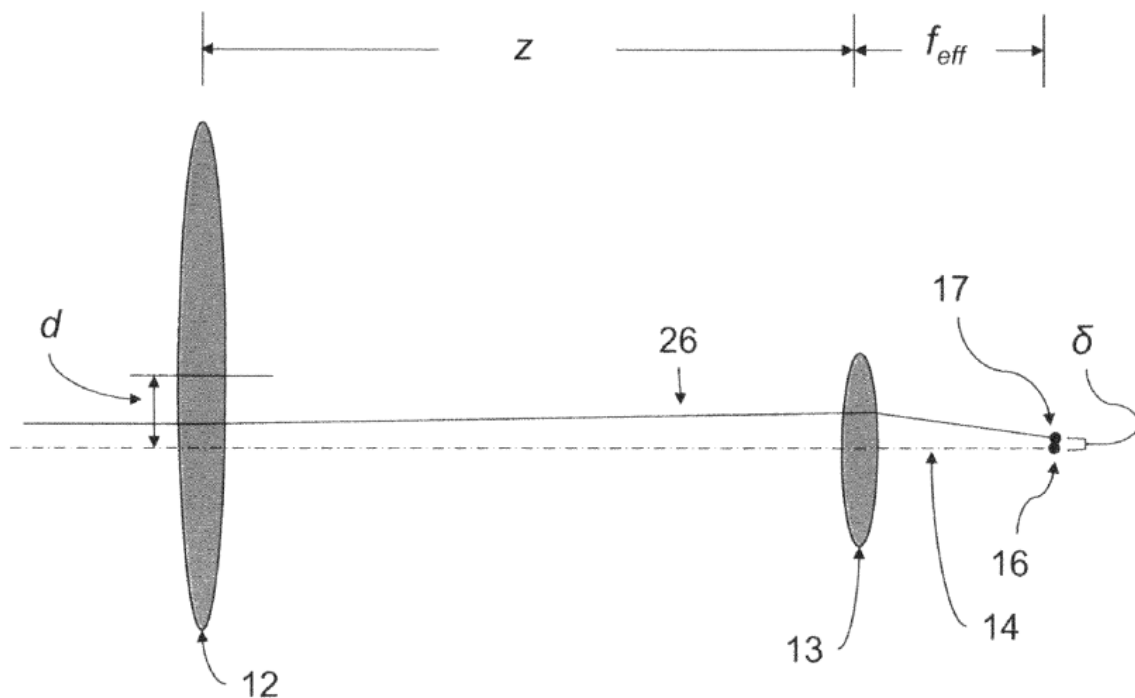
Id. at 1:39–55.

The '197 patent discloses “illumination optics for use in an optical analyzer” including a light source, “a focusing lens that focuses the beam onto a focus spot,” and “beam-adjusting optics” comprising a movable lens “that allows repositioning of the lens in a plane perpendicular to the light path” to “allow for precise positioning of the focus spot.” Ex. 1001, 2:3–17. “The present invention further provides an optical analyzer incorporating the illumination optics of the present invention, adapted to focus an illumination beam onto a sample analysis region.” *Id.* at 2:18–21.

Figure 2 of the '197 patent, reproduced below, is “a schematic

representation of the path of a light ray through” an embodiment of the disclosed illumination optics. Ex. 1001, 3:62–65.

Figure 2



In Figure 2 above, movable lens 12 is positioned between a light source and focusing lens 13. Moveable lens 12 “has been displaced by a distance d from the optical path in a plane perpendicular to the optical path.” *See id.* at 6:2–21. This displacement results in a “new focal spot 17” that is displaced from the original focal spot 16 by a distance δ , which is smaller than distance d . *Id.* at 6:22–26.

The ’197 patent explains that “the displacement of the focal spot is greatly reduced relative to the displacement of beam-adjusting lens 12” because “lens 12 has a focal length much longer than the focal length of lens 13 and the distance between the lenses.” Ex. 1001, 6:57–7:3. This relationship is expressed mathematically as “ $|f_{12}-z| \gg f_{13}$ ” where z is the

distance between the focusing and beam-adjusting lenses. *Id.* The '197 patent teaches that “the focal length of lens 12 is such that $|f_{12}-z| \geq 2*f_{13}$, more preferably, $|f_{12}-z| \geq 4*f_{13}$, and even more preferably $|f_{12}-z| \geq 6*f_{13}$.” *Id.* at 7:9–11. According to the '197 patent, the “reduced sensitivity of the focal spot adjustment to movement of the beam-adjusting lens” made possible by such configurations “enables obtaining a high degree of precision over the adjustment of the focal spot using less expensive lens adjusting mechanisms with less precise motion control.” *Id.* at 7:3–8.

D. Challenged Claims

The Petition challenges claims 1–13. Claim 1 is illustrative for purposes of this decision. It reads as follows:

1. An optical analyzer comprising:
 - (a) a light source adapted to emit an approximately collimated light beam along a light path;
 - (b) a focusing lens positioned in the light path, adapted to focus the light beam onto a focal spot within a sample analysis region, wherein said focusing lens has a focal length f_1 ,
 - (c) beam-adjusting optics positioned in the light path between the light source and the focusing lens, wherein said beam-adjusting optics comprises at least one beam-adjusting lens that is mounted in a positioning device that allows movement of the beam-adjusting lens in a plane perpendicular to the light path, wherein said beam-adjusting lens has a focal length f_2 , wherein said beam-adjusting lens and said focusing lens are separated by a distance z along the light path, wherein $|f_2-z| \geq 4*f_1$.

Ex. 1001, 9:55–10:9. The other independent claims, i.e., claims 5 and 6, likewise recite “[a]n optical analyzer comprising” a light source, a focusing lens adapted to focus the light beam onto a focal spot “within a sample analysis region,” and beam-adjusting optics comprising a beam-adjusting

lens “mounted in a position device that allows movement of the beam-adjusting lens in a plane perpendicular to the light path.” *Id.* at 10:15–50.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
1–3	102(b)	Lynch ²
1–13	103(a)	Lynch, Smith, ³ and/or Malone ⁴
1–13	103(a)	Van Saarloos, ⁵ Smith, and/or Malone
1–13	103(a)	Fellner-Feldegg, ⁶ Smith, and/or Malone

Petitioner further relies on the declaration of Nicholas Xuanlai Fang (Ex. 1002) submitted with the Petition.

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included revisions to 35 U.S.C. §§ 102 and 103 that became effective after the filing of the applications to which the ’197 patent claims priority. Therefore, we apply the pre-AIA versions of these statutes.

² U.S. Patent 5,077,622, issued Dec. 31, 1991 (Ex. 1004) (“Lynch”).

³ Warren J. Smith, MODERN OPTICAL ENGINEERING: THE DESIGN OF OPTICAL SYSTEMS (2d ed. 1990) (Ex. 1006) (“Smith”).

⁴ R.M. Malone *et al.*, *Fielding of an Imaging VISAR Diagnostic at the National Ignition Facility (NIF)*, SPIE Int’l Symposium Optical Sci. and Tech. 49th Annual Meeting (2004) (Ex. 1007) (“Malone”).

⁵ U.S. Patent 6,575,963 B1, issued June 10, 2003 (Ex. 1005) (“Van Saarloos”).

⁶ H. Fellner-Feldegg, *Dual Laser Flow Cytometry: Focal Length Compensation When Focussing Through a Single Lens*, 6 Cytometry 286–89 (1985) (Ex. 1008) (“Fellner-Feldegg”).

III. ANALYSIS OF THE ASSERTED GROUNDS

A. Legal Standards

To establish anticipation, each limitation in a claim must be found in a single prior art reference, arranged as recited in the claim. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

Under pre-AIA § 103(a), a claim is unpatentable for obviousness if, to one of ordinary skill in the pertinent art, “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made.” 35 U.S.C. § 103(a) (2006); *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art (“POSA”) “would have at least an undergraduate degree in physics, mechanical engineering, or electrical engineering” and “at least two years of experience in the field of optical imaging, with a specific focus on laser optics or

equivalent academic experience (*e.g.*, a masters’ degree with a similar focus).” Pet. 15 (citing Ex. 1002 ¶ 9).

Patent Owner takes issue with Petitioner’s definition of a POSA because “under Beckman’s proposed definition, a skilled artisan could have no experience with optical analyzers.” Prelim. Resp. 10. Patent Owner argues that the Specification and the claims “make clear that the claimed invention is directed to an optical analyzer.” *Id.* at 11. According to Patent Owner, “[t]here are issues and problems that arise in optical systems specific to optical analyzers such as flow cytometers” and therefore “a POSA would have at least some training and experience relevant to the design and operation of optical analyzers.” *Id.* at 12–14. More specifically, Patent Owner contends that a POSA “would have had a bachelor’s degree in physics, chemistry, mechanical engineering, or electrical engineering and would have had at least two years of experience working with and/or designing optical systems in optical analyzers such as flow cytometers.” *Id.* at 14.

We are sympathetic to Patent Owner’s argument that a POSA would have had at least some experience with the optical systems used in optical analyzers. All of the claims recite an “optical analyzer” and the Specification is replete with references to optical analyzers and their operation. *See, e.g.*, Ex. 1001, Abstr., 1:14–15, 2:3–4, 2:18–29, 3:38–57, 9:55–10:59 (claims reciting an “optical analyzer”). Moreover, Patent Owner cites other evidence that also suggests a POSA would have such experience. *See* Prelim. Resp. 12–13. However, on the current record, we are not convinced that the ordinary level of skill in the art would necessarily require the amount of specific experience (*i.e.*, two years working and/or designing optical systems

in optical analyzers) that Patent Owner urges. Petitioner's declarant, Dr. Fang, testifies that two years of experience "in the field of optical imaging, with a specific focus on laser optics" would suffice. *See* Ex. 1002 ¶ 9. Thus, while it seems likely that a POSA would have at least some experience specific to optical analyzers, we see no reason why additional experience with laser optics more generally could not provide the balance of the two years of experience noted in the parties' definitions. In any event, we need not resolve this issue here because we would reach the same outcome under either parties' POSA definition.

Patent Owner asserts that Petitioner's declarant, Dr. Fang, "appears to have no experience with optical analyzers and would not qualify as a POSA" under its definition. Prelim. Resp. 14. We need not resolve this issue here. Even assuming that Dr. Fang is qualified to offer the opinions in his declaration and considering his testimony, we are not persuaded that Petitioner has met its burden for institution for the reasons explained below.

C. Claim Construction

A key issue in this case is whether the terms "optical analyzer" in the claim preamble and "within a sample analysis region" in the claim body of independent claims 1, 5, and 6 are limiting. For ground 1, Petitioner contends that these terms describe "the intended use of the system" and "do[] not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations." Pet. 27 (quoting Ex. 1003, 60). According to Petitioner, "[b]ecause neither the characterization of the overall device as an 'optical analyzer' nor the intention to focus the light beam at a sample in such an analyzer imposes any structural limitation, 'the

absence of a disclosure relating to function does not defeat [a] finding of anticipation.” *Id.* at 27–28 (quoting *In re Schreiber*, 128 F.3d 1473, 1475 (Fed. Cir. 1997)). Petitioner relies on similar arguments for grounds 2 and 3. *See id.* at 28 (urging that claims 1–3 “would have been obvious over Lynch alone” for the same reasons in ground 1); 37 (ground 3).⁷

Patent Owner argues that “both the preamble and the ‘sample analysis region’ limitation are entitled to patentable weight and should be given their plain and ordinary meaning.” Prelim. Resp. 20–21. According to Patent Owner, the preamble is limiting because “it recites essential structure and fundamental characteristics of the ’197 claims.” *Id.* at 21. Patent Owner contends that the Specification “repeatedly refers to the invention as the preamble term” and “explains that the invention addresses a concern specific to optical analyzers.” *Id.* at 24–25 (quotations omitted). Patent Owner also urges that the preamble term “optical analyzer” informs the meaning “of a claim limitation in the body,” i.e., “the requirement that the focusing lens be ‘adapted to focus the light beam onto a focal spot within a sample analysis region.’” *Id.* at 25–26. According to Patent Owner, the “‘sample analysis region’ is not just any general region where the light beam is focused. Rather, it is limited to a region containing biological particles to be analyzed.” *Id.* at 26.

Patent Owner additionally contends that “sample analysis region” is “entitled to patentable weight because it is a structural element that appears

⁷ For ground 4, Petitioner asserts that Fellner-Feldegg “teaches an optical analyzer,” but notes that “in any event, this preamble language merely goes to the intended use of the system and does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.” Pet. 52 (quotations omitted).

in the body of the claim.” *See* Prelim. Resp. 27–30 (citing cases). Patent Owner explains that “[i]t holds the particles being analyzed, allowing them to be exposed to the excitation light and allowing the detection optics to detect the light scattered by the particles being analyzed.” *Id.* at 31 (citing Ex. 1001, 2:24–29); *see also id.* at 31–32 (relying on the disclosure in Figure 1 of the ’197 patent). For this reason, Patent Owner contends that the phrase “adapted to focus the light beam onto a focal spot within a sample analysis region” in the challenged claims

is not simply a statement of intended use, but rather a limitation describing the functioning of the claimed focus lens and its relationship to the sample analysis region. Simply providing a focusing lens that can focus light onto a focal spot, as [Petitioner] alleges, is not sufficient. Rather the focusing lens must focus light on a focal spot in a sample analysis region, *i.e.*, the focusing lens must be able to focus light with micron scale accuracy such that the particles within the sample analysis region can be analyzed. . . . The “sample analysis region” is a defined region within the invention to which the optics are “adapted,” not a mere result.

Id. at 33.⁸

⁸ Patent Owner additionally asserts that the preamble is limiting because it relied on the term “optical analyzer” to “successfully argue that the asserted claims were not directed to ineligible subject matter” in a parallel proceeding. *See* Prelim. Resp. 34–39. Contrary to Patent Owner’s argument, the district court does not appear to have finally resolved that issue. *See* Ex. 2012, 9 (Magistrate Judge’s recommendation that the motion to dismiss be denied “with leave to renew [Petitioner’s] § 101 arguments at the summary judgment stage”); Ex. 2013, 2 (order adopting Magistrate Judge’s report and recommendations). In any event, we need not further address this additional argument because we determine that the preamble is limiting based on our review of the ’197 patent itself.

In its Reply, Petitioner reiterates its argument that these terms merely describe the use or purpose of the recited apparatus and are therefore not limiting. *See* Reply 2–5. According to Petitioner, “[n]either the specification nor [Patent Owner] articulates any way in which the apparatus differs based on why the light is being focused or the thing the light is focused on.” *Id.* at 3. In addition, Petitioner asserts that Patent Owner misconstrues “optical analyzer” and “sample analysis region” to the extent it limits them to “a flow cytometer” in which “biological particles” are analyzed because that is “just one preferred embodiment.” *See id.* at 1–2.

In its Sur-reply, Patent Owner explains that the ’197 patent uses the terms “particle analyzer” and “optical analyzer” interchangeably and describes flow cytometers as an example of such. *See* Sur-reply at 1–2. Referring back to the argument in the Preliminary Response, Patent Owner argues that the term

“sample analysis region” further limits the “focusing lens,” because the “focusing lens” is “adapted to focus the light beam onto a focal spot within a sample analysis region.” This means that “the focusing lens must be able to focus light with micron scale accuracy such that the particles within the sample analysis region can be analyzed.” This requirement comes from the ’197 patent specification, which explains that “the precision of the light beam adjustment also needs to be in the micron range” because “a typical flow cytometer is designed to analyze biological cells or particles that are few microns in size.” And because this term further limits another claim limitation, the “focusing lens,” [Petitioner] is wrong (at 3-4) that [Patent Owner] “cannot differentiate” the claims from the optics asserted in the prior art.

Sur-reply 3–4 (quoting Prelim. Resp. 33; Ex. 1001, 1:48–51).

Based on the current record, Patent Owner has the better argument. “Whether to treat a preamble as a limitation is a determination ‘resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.’” *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1347 (Fed. Cir. 2002) (citation omitted). “In general, a preamble limits the claimed invention if it recites essential structure or steps, or if it is necessary to give live meaning and vitality to the claim.” *Id.* (citation and quotations omitted). This may be ascertained by review of the entirety of the patent to determine whether the preamble “discloses a fundamental characteristic of the claimed invention” as opposed to merely “stat[ing] a purpose or intended use.” *Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004). As Patent Owner points out, the ’197 patent is replete with references describing the invention as an optical analyzer. *See* Prelim. Resp. 24–25 (bullet pointing quotes from the Specification). The Specification begins by explaining that optical or “[p]article analyzers . . . are well known analytical tools that enable the characterization of particles on the basis of optical parameters such as light scatter and fluorescence.” Ex. 1001, 1:16–19. The Specification explains that “[t]he present invention” provides both “illumination optics for use in an optical analyzer” and “an optical analyzer incorporating the illumination optics of the present invention.” Ex. 1001, 2:3–4, 2:18–19. Claims 1–13, each of which recites an “optical analyzer” comprising a set of optical elements, are specifically directed to the latter. *Id.* at 9:55–10:59.

The Specification further demonstrates that the preamble term is limiting by explaining that “the invention addresses a concern specific to” optical analyzers. *See Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349 1358

(Fed. Cir. 2012) (finding that the specification “demonstrates that the preamble phrase ‘rotary cutter deck’ is a limitation” because it “explains that the invention addresses a concern specific to rotary cutters”). The Specification explains that in a flow cytometer, i.e., an exemplary type of optical analyzer, “the excitation light from a laser . . . is focused onto a focal spot to illuminate the core stream (the fluid stream containing the particles to be analyzed).” Ex. 1001, 1:39–42. According to the Specification, “[a]ccurate focusing of the excitation light beam on the core stream is important,” “[o]ptimal performance is compromised if the focused light beam is not properly adjusted on the core stream,” and because the particles being analyzed are only a “few microns in size, the precision of the light beam adjustment also needs to be in the micron range.” *Id.* at 1:42–51; *see also id.* at 3:38–49 (explaining that “fine control over the focus spot” is useful in optical analyzers). The present invention addresses these concerns by providing an optical analyzer “adapted to focus an illumination beam onto a sample analysis region,” configured to obtain a “high degree of precision over the adjustment of the focal spot using less expensive lens adjusting mechanisms,” and comprising “detection optics for measuring the light emitted from the analysis region.” *See id.* at 2:18–23, 7:3–8.

We also agree with Patent Owner that the recitation of an “optical analyzer” in the preamble informs the meaning of the phrase “a focusing lens . . . adapted to focus the light beam onto a focal spot within a sample analysis region” in the claim body. The term “sample analysis region” refers to a structural feature of the claimed “optical analyzer,” i.e., the area configured to contain the sample to be analyzed. This is confirmed by the Specification, which explains that in addition to illumination optics “[t]he

optical analyzer will further comprise detection optics for measuring the light emitted from the analysis region. In a preferred embodiment, the optical analyzer is a flow cytometer, and the sample analysis region is a sample detection region in a fluid stream containing particles to be optically analyzed.” Ex. 1001, 2:21–26. In this regard, the preamble informs the meaning of “sample analysis region” by indicating that the recited “sample analysis region” is configured such that it can contain a sample and that light emitted from that region can be measured by the analyzer. *See Deere*, 703 F.3d at 1358 (explaining that “rotary cutter deck” in the claim preamble “informs the meaning of the ‘torsional stiffness’ limitation—the claimed structure must possess sufficient stiffness to withstand the torsional loads imposed by the operation of a rotary cutter”). By the same measure, holding that the “sample analysis region” need not be so configured would undermine the benefits the Specification indicates the recited illumination optics achieve. *See* Ex. 1001, 1:39–55, 2:30–48, 7:3–7 (explaining that “accurate focusing” is important because the sample to be analyzed may be very small and that the present invention obtains “precise positioning control” using less expensive components). The fact that the preamble informs the meaning of a term in the claim body, distinguishes it from “non-limiting preamble terms” that “merely state a name or a use” by demonstrating that the optical analyzer recited in the preamble of the presently challenged claims is a “fundamental characteristic of the claimed invention.” *Deere*, 703 F.3d at 1358 (quoting *Poly-Am.*, 383 F.3d at 1310).⁹

⁹ To the extent Petitioner contends “*Poly-America* is inapposite because it is about whether preamble language in a *process* claim” as opposed to an apparatus claim “is limiting,” we disagree. *See* Reply 4. The Federal Circuit

For these reasons, we determine that preamble term “optical analyzer” is limiting.

Petitioner’s argument that the phrase “within a sample analysis region” is merely an intended use that cannot serve to distinguish Patent Owner’s claims from the prior art is similarly unavailing. As explained above, the term “sample analysis region” refers to a structural feature of the claimed optical analyzer. Moreover, the claim language makes clear that the optical analyzer includes a focusing lens “adapted to focus the light beam onto a focal spot within a sample analysis region.” Thus, an apparatus that lacks such a region or that lacks a focusing lens adapted to focus the light beam on that region could not satisfy this limitation. The cases Petitioner cites are distinguishable for this reason. *See* Pet. 27–28, 37–38 (citing *In re Schreiber*, 128 F.3d at 1475; *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990)). In those cases, the claim language at issue recited a particular use (*Schreiber*, *Masham*) or newly discovered property (*Spada*) that did not serve to differentiate the claimed structure from the same structure in the prior art. *See Schreiber*, 128 F.3d at 1477 (explaining that there was “no dispute that the structural limitations” were all present in the prior art reference, although that reference did “not address the use of the disclosed structure” recited in the claims); *Spada*, 911 F.2d at 709 (“Although newly discovered properties can be the basis of claims to *novel* polymers, . . . *Spada* did not overcome, with argument or evidence, the apparent chemical

applied the same analysis to an apparatus claim in *Deere*, repeatedly citing *Poly-America* to support its determination that the preamble reciting “[a] rotary cutter deck, comprising” was limiting. *Deere*, 703 F.3d at 1353, 1358; *see also* Sur-reply 4–5 (citing other cases applying similar logic to apparatus claims).

identity of his polymers and those [in the prior art reference].”). In contrast, the “sample analysis region” recited in the present claims describes a structural feature of the claimed optical analyzer and therefore may serve to distinguish a prior art reference lacking that element.

The cases Petitioner cites in its Reply are distinguishable for the same reasons. Reply 3–5 (citing *Ex parte Masham*, 2 U.S.P.Q.2d 1647, 1987 WL 123826 (B.P.A.I 1987); *In re Miller*, 2022 WL 594417 (Fed. Cir. Feb. 28, 2022)). The Board of Patent Appeals and Interferences in *Masham* explained that “a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of that claimed.”

Masham, 1987 WL at *1. Similarly, the Federal Circuit in *Miller* determined that the word “emergency” in the claim term “emergency water store” described an intended use that did not limit the structure of the water store itself. *Miller*, 2022 WL at *3. Here in contrast, the “sample analysis region” describes a structural feature of the claimed “optical analyzer,” i.e., it is the area configured to contain the sample to be analyzed. Moreover, it limits the structure of other recited elements, e.g., the focusing lens which must be “adapted to focus the light beam onto a focal spot within a sample analysis region.” Ex. 1001, 9:55–61 (claim 1); *see also* Sur-reply 3–4 (explaining that “the focusing lens must be able to focus light with micron scale accuracy such that the particles within the sample analysis region can be analyzed”). Thus, unlike the limitations at issue in the cases Petitioner cites, the “sample analysis region” of the present claims affects the overall structure of the claimed apparatus and is not merely a recitation of the intended use or purpose of the invention.

In sum, we determine the terms “optical analyzer” and “sample analysis region” in claims 1–13 of the ’197 patent are limiting and therefore should be given patentable weight in our analysis of Petitioner’s grounds.¹⁰ No additional construction of these or any other claim terms is required for this Decision. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. References Relied Upon

i. Lynch

Lynch is a United States Patent that was issued on December 31, 1991. Ex. 1004, code (45). Petitioner asserts that Lynch qualifies as prior art under 35 U.S.C. §§ 102(b) and 102(e). Pet. 13–14. At this stage, Patent Owner does not dispute that Lynch is prior art to the challenged claims.

¹⁰ As the Dissent notes, during prosecution certain claims were rejected over Lynch based on the Examiner’s determination that “optical analyzer” and “sample analysis region” were not entitled to patentable weight. *See* Dissent 4 (citing Ex. 1003, 60). At the same time, the Examiner explained that most of the dependent claims would be allowed if they were rewritten in independent form. Ex. 1003, 63. The fact that Patent Owner responded to the rejection by amending its claims to recite limitations from those dependent claims, rather than arguing that these terms do have patentable weight and distinguishing Lynch on that basis, does not prevent it from making such patentability arguments now. *See TorPharm, Inc. v. Ranbaxy Pharms., Inc.*, 336 F.3d 1322, 1330 (Fed. Cir. 2003) (“A patentee is not required to fight tooth and nail every possibly adverse thought an examiner commits to paper, nor to advance redundant arguments for patentability.”).

Lynch discloses an apparatus “which enables precision focusing and positioning of the waist of a laser beam on a target such as the core of an optical fiber.” Ex. 1005, 2:8–11.

The apparatus includes a first lens, having a focal plane f_1 , disposed in the path of an incoming beam and a second lens, having a focal plane f_2 and being spaced downstream from the first lens by a distance at least equal to $f_1 + 10f_2$, which cooperates with the first lens to focus the final waist of the beam on the target.

Id. at Abstr. Figure 5 of Lynch, reproduced below, is a schematic representation of such an apparatus.

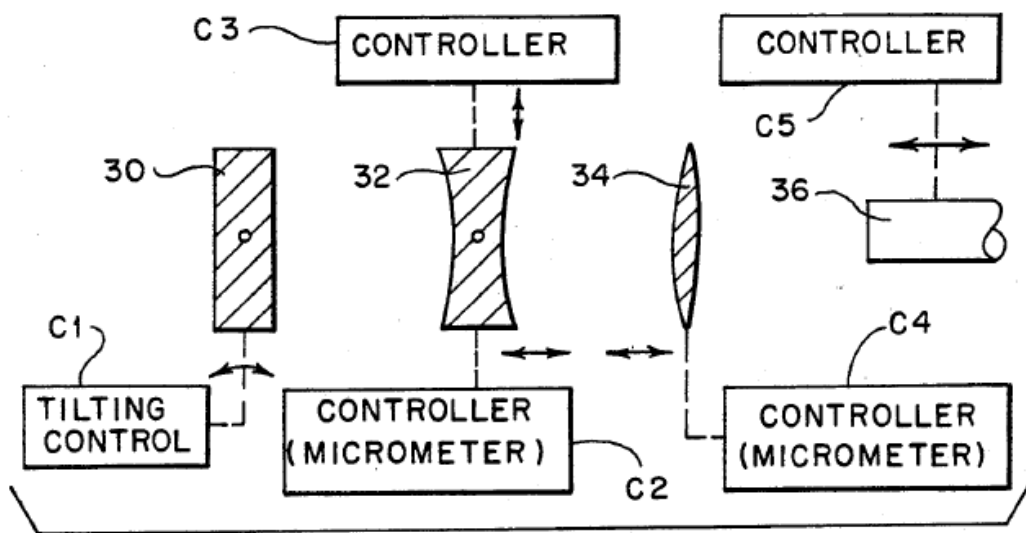


FIG. 5

Figure 5 above depicts a first lens 32 and a target optical fiber 36 with second lens 34 positioned between the two. *Id.* at 5:26–33. “[A] series of mechanical controllers for controlling the movement” of these lenses are shown as C2, C3, and C4 in Figure 5. *Id.* at 5:47–50. Lynch teaches the lenses can be moved to adjust, *inter alia*, the “relative transverse (x)” and

“relative transverse (y) position of the beam waist with respect to the optical target.” *See id.* at 1:21–31, 7:11–44.

ii. Smith

Smith is a reference book bearing a 1990 copyright date. *See* Ex. 1006, 5. Petitioner asserts that Smith qualifies as prior art under 35 U.S.C. § 102(b). Pet. 14. At this stage, Patent Owner does not dispute that Smith is prior art to the challenged claims.

According to Petitioner, “Smith contains a number of relevant disclosures of concepts that would have been known to the POSA and were applied routinely by skilled artisans working on optical systems.” Pet. 20.

iii. Malone

According to Petitioner, Malone “was a conference paper published in the SPIE [Society of Photographic Instrumentation Engineers] International Symposium Optical Science and Technology 49th Annual Meeting in Denver, Colorado, between August 2-6, 2004.” Pet. 20. Petitioner asserts that Malone qualifies as prior art under 35 U.S.C. § 102(b). Pet. 14. At this stage, Patent Owner does not dispute that Malone is prior art to the challenged claims.

Malone describes diagnostics using “VISAR (Velocity Interferometer System for Any Reflector) interferometers,” which are used “to analyze high-energy density physics experiments” at the National Ignition Facility. Ex. 1007, Abstr. According to Petitioner, “Malone discloses a common problem recognized in the art, which is that the misalignment of lens elements along the optical path can degrade optical performance. . . . Specifically, Malone teaches two primary types of lens misalignment:

decentering and tilt.” Pet. 21 (citing Ex. 1007, 7–8). Malone discloses a 2-inch lens surrogate system in which “surrogate lenses were mounted onto translation stages, which allowed all lenses to be moved out of the optical axis.” Ex. 1007, 7.

iv. Van Saarloos

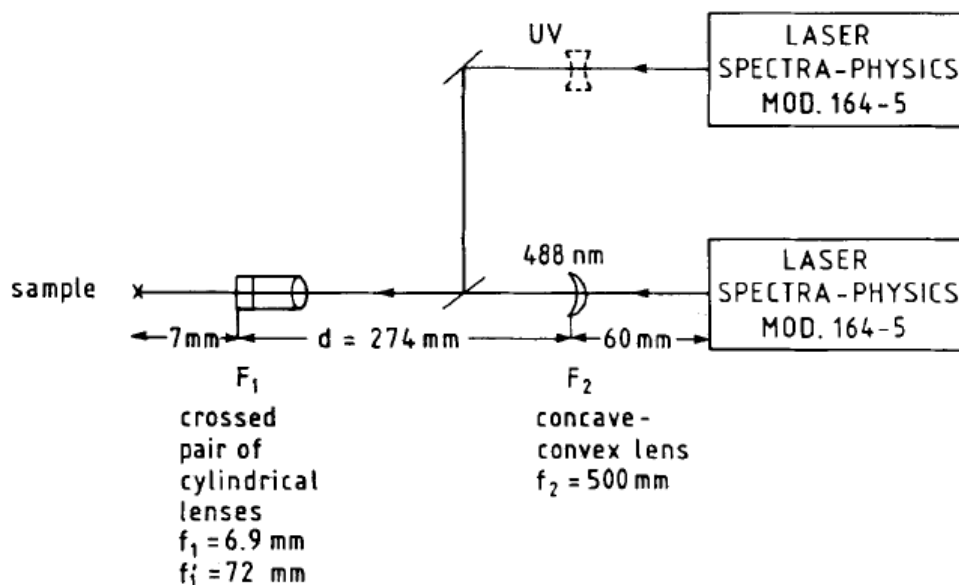
Van Saarloos is a United States Patent issued on June 10, 2003. Ex. 1005, code (45). Petitioner asserts that Van Saarloos qualifies as prior art under 35 U.S.C. §§ 102(b) and 102(e). Pet. 13–14. At this stage, Patent Owner does not dispute that Van Saarloos is prior art to the challenged claims.

Van Saarloos “relates to the field of laser processing or ablation of materials, and is of application in, for example, the field of laser procedures for the refractive correction of the eye.” Ex. 1005, 1:5–8; *see also id.* at 3:1–4 (“Preferably the apparatus is for scanning a laser across the cornea of an eye in surgical procedures.”). Van Saarloos discloses “a scanning apparatus for scanning material with a laser beam” that includes a scanning means with “two lenses, separated by a distance approximately equal to the focal length of one of the lenses” and wherein at least one of the lenses “is mounted for movement perpendicular to said beam.” *Id.* at 2:34–42. Van Saarloos teaches that the first lens “may have a focal length substantially longer than the second lens,” which provides for a higher “resolution of controlling the position of the beam on the eye” as compared to the “resolution of controlling the position of the first lens.” *Id.* at 2:32–33, 3:65–4:2.

v. *Fellner-Feldegg*

Fellner-Feldegg is an article bearing a 1985 copyright date. Ex. 1008, 1. Petitioner asserts that Fellner-Feldegg qualifies as prior art under 35 U.S.C. § 102(b). Pet. 14. At this stage, Patent Owner does not dispute that Fellner-Feldegg is prior art to the challenged claims. Fellner-Feldegg discloses a dual laser flow cytometer. Ex. 1008, Abstr. Fellner-Feldegg explains that “[d]ual laser operation of flow cytometers, using a single focusing lens for both beams, requires compensating for chromatic aberration of the lens.” *Id.* Fellner-Feldegg teaches that “a prefocussing lens at a fixed position in one of the laser beams” can be used to obtain “complete focal length compensation . . . without any loss in system performance.” *Id.*

Figure 2 of Fellner-Feldegg, reproduced below, depicts such a system.



The figure above shows a dual laser system comprising “a crossed pair of cylindrical lens with 6.9 mm and 72 mm focal length” that is used as the “focussing lens F_1 ” for both laser beams. Ex. 1008, 287. A prefocussing, “correcting lens F_2 ” with a focal length of 500 mm is placed in the path between the laser and the focusing lens F_1 for one of the beams. *Id.* Fellner-

Feldegg teaches that correcting lens F_2 “can be permanently mounted in this position.” *Id.* According to Fellner-Feldegg, “the main advantage of the permanently mounted prefocussing lens is to be able to align the two beams precisely relative to each other and to the same stream, using a dual aperture tube in place of the cylindrical focussing lens system.” *Id.* at 289.

E. Ground 1: Anticipation by Lynch

The Petition asserts that Lynch anticipates claims 1–3 even though Petitioner acknowledges that “the invention disclosed in Lynch was deployed to focus light on a fiber optic cable rather than on a sample in an analyzer.” Pet. 28. Indeed, the Petition makes no attempt to show that Lynch discloses the “optical analyzer” or the “within a sample analysis region” limitations of the challenged claims. *Id.* at 27–28. Rather, the anticipation ground is wholly premised on Petitioner’s argument that these limitations are not limiting. *Id.* For the reasons explained above, and on the current record, we do not agree with Petitioner’s argument. *Supra* § III(C). As such, Petitioner has not demonstrated a reasonable likelihood that it will succeed in showing that claims 1–3 are anticipated by Lynch.

F. Ground 2: Obviousness over Lynch, Smith and/or Malone

Petitioner asserts that claims 1–13 would have been obvious over Lynch, Smith and/or Malone. *See* Pet. 28–36. Petitioner does not contend that any of these references disclose the “optical analyzer” or the “within a sample analysis region” limitations of the challenged claims. *Id.* Instead, Petitioner argues that “if it were necessary to establish a motivation to deploy the claimed optical system in the context of an optical analyzer, the POSA would have had such a motivation” because Lynch is directed to “the

same problem faced by designers of optical analyzers, such as flow cytometers, seeking to focus a laser beam onto a sample to be analyzed. . . . And Lynch teaches in detail how to do this, so the POSA would have had a reasonable expectation of success.” *Id.* at 29 (citing Ex. 1002 ¶¶ 115, 126–127).

Patent Owner argues that Petitioner “does not explain why a POSA would have been motivated to replace the fiber optic target in Lynch with a flow cytometer sample analysis region, or how the combination would result in a system that qualifies as an optical analyzer.” Prelim. Resp. 46. According to Patent Owner, “[t]he cited portions of Dr. Fang’s declaration fare no better” because that testimony does not “disclose[] a motivation to modify Lynch.” *Id.* at 46–47.

On the current record, Patent Owner has the better argument. Petitioner’s argument that Lynch is directed to the same problem and could be adapted for use in an optical analyzer does not sufficiently explain why a POSA would be motivated to do so. *Beldin Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention.”). Lynch does not provide any teachings regarding an optical analyzer or a sample analysis region, nor does the Petition identify any such teachings in Smith or Malone. Thus, the Petition identifies nothing in the cited references that explains why, in Petitioner’s view, a POSA would have been motivated to modify Lynch to include an optical analyzer and sample analysis region. *See Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993–94 (Fed. Cir. 2017) (explaining that it “is not enough” that a POSA

“once presented with the two references, would have understood that they *could be* combined” because such reasoning “does not imply a motivation to pick out those two references and combine them to arrive at the claimed invention”).

The testimony Petitioner offers from its declarant, Dr. Fang, does not provide the missing explanation. Paragraphs 115 and 127 of Dr. Fang’s declaration, provide his opinions that “adapting a lens to focus a light beam onto a focal spot within a sample analysis region is no different from adapting a lens to focus a light beam into any region in space in other applications” and that a POSA would “understand that Lynch is generally applicable to light sources emitting collimated beams, and that such light sources were well-known in the art.” Ex. 1002 ¶¶ 115, 127. In paragraph 126, Dr. Fang testifies that a POSA would have a reasonable expectation of success in implementing the system described in Lynch.¹¹ None of this testimony explains why a POSA would have been motivated to modify Lynch for implementation in an optical analyzer.

For these reasons and based on the current record, Petitioner has not demonstrated a reasonable likelihood that it will succeed in showing that claims 1–13 would have been obvious over Lynch, Smith and/or Malone.

¹¹ The testimony in paragraph 126 seemingly refers to the system disclosed “in Figures 5, 7(a), and 7(b) in Lynch,” which Dr. Fang describes as “a laser-focusing system that permits precise adjustment of the focal spot.” Ex. 1002 ¶ 123. Neither Petitioner, nor Dr. Fang, explain how such a system could be considered an optical analyzer. Instead, the testimony Petitioner cites appears to be premised on Dr. Fang’s understanding that the “optical analyzer” and “within a sample analysis region” limitations are not limiting or entitled to patentable weight. *See id.* ¶¶ 114–115.

G. Ground 3: Obviousness over Van Saarloos, Smith and/or Malone

Petitioner asserts that claims 1–13 would have been obvious over Van Saarloos, Smith and/or Malone. *See* Pet. 36–51. As it did for grounds 1 and 2, Petitioner again argues that the terms “optical analyzer” and “within a sample analysis region” in the challenged claims are not limiting and does not identify any disclosure of such limitations in the cited references. *See id.* at 36–37.

Petitioner alternatively contends that “the POSA would have found it obvious and routine to apply the lens arrangement of Van Saarloos to an optical analyzer like a flow cytometer to focus a laser on a focal spot within a sample analysis region.” Pet. 42 (citing Ex. 1002 ¶ 88) (quotations and brackets omitted). According to Petitioner,

the POSA would have found it obvious and routine to apply teachings concerning optical systems from the field of laser ablation and processing (like Van Saarloos) to the related field of optical analysis, including flow cytometry. . . . The optical systems described in Van Saarloos could be readily implemented in an optical analyzer, as the same underlying optical principles would control their application.

Id. In addition, Petitioner argues that Van Saarloos teaches that the “relatively longer focal length of the first lens” in its laser ablation system “allows for more precise, or ‘higher resolution,’ control of the beam.” *Id.* at 43 (quoting Ex. 1005, 3:65–4:1). Relying on the Specification of the ’197 patent, Petitioner’s contends that a “POSA would have understood that in flow cytometry, ‘[a]ccurate focusing of the excitation light beam on the core stream is important for optimizing focal spot intensity and thus, fluorescence sensitivity.’” *Id.* (quoting Ex. 1001, 1:42–44). Thus, urges Petitioner, a

POSA “would have been motivated to apply Van Saarloos’s teaching to an optical analyzer to obtain ‘precise positioning control.’” *Id.* at 43–44.¹²

Patent Owner argues that Petitioner’s argument is “nothing more than a statement that a POSA could have made the proposed modification,” which “is insufficient alone to demonstrate obviousness, as there must also be a motivation to make the change.” Prelim. Resp. 47–48 (quotations omitted). Patent Owner also contends that Petitioner’s reliance on “the ’197 patent itself” to provide a motivation to modify Van Saarloos is deficient because “[a] ‘motivation to combine references can not come from the invention itself.’” *Id.* at 48 (quoting *Heidelberger Druckmaschinen AG v. Hantscho Com. Prod., Inc.*, 21 F.3d 1068, 1072 (Fed. Cir. 1994)). According to Patent Owner,

[m]issing from Dr. Fang’s declaration and from [the Petition] is any reason why a POSA would have been motivated to look to and modify Van Saarloos’s LASIK system to analyze biological samples contained in a sample analysis region. Also missing is any explanation as to how this combination would result in a system that qualifies as an optical analyzer.

Id. at 49.

On the current record, Patent Owner has the better argument. As explained above, the challenged claims are limited to an “optical analyzer” and the phrase “within a sample analysis region” has patentable weight. *Supra* § III(C). Thus, to prevail on ground 3 Petitioner must demonstrate that

¹² The Petition does not include a cite for this quote. The phrase “precise positioning control” appears to come from the Specification of the ’197 patent, which is quoted elsewhere in the Petition. *See* Pet. 36 (quoting Ex. 1001, 2:47–48).

it would have been obvious to modify Van Saarloos's laser ablation system to arrive at the optical analyzer recited in the challenged claims.

The Petition, however, does not articulate a sufficient motivation with rational underpinning for making that modification. Petitioner's argument that Van Saarloos's laser ablation system is in a "related field" and "could be readily implemented in an optical analyzer" suggests that the techniques taught in Van Saarloos could be implemented in an optical analyzer such a flow cytometer. That argument does not sufficiently explain why a POSA would be motivated to do so. *See Beldin*, 805 F.3d at 1073.

The testimony Petitioner cites in Dr. Fang's declaration is similarly deficient. Dr. Fang testifies that a "POSA would easily recognize [Van Saarloos's] applicability to illumination systems, including those used in optical analyzers" because it "share[s] a common goal," and uses "optical wavelengths" and "optical components . . . such as lenses, lens mounts, and linear bearings" that are "common to optical analyzers." Ex. 1002 ¶ 88. At least on the present record, these commonalities do not in and of themselves sufficiently explain why a POSA would have been motivated to modify Van Saarloos's system to function as an optical analyzer.

Petitioner's other argument that a POSA would be motivated to modify Van Saarloos's system based on teachings in the '197 patent itself is also insufficient. *See* Pet. 43 (quoting Ex. 1001, 1:42–44). Even accepting Petitioner's contention that optical analyzers were known in the art, the Petition does not sufficiently explain why that general observation alone would motivate a POSA to modify Van Saarloos's laser ablation system to function as an optical analyzer, particularly where Petitioner does not

identify any teachings regarding flow cytometry or optical analyzers in Van Saarloos, Smith, or Malone.

For these reasons and based on the current record, Petitioner has not demonstrated a reasonable likelihood that it will succeed in showing that claims 1–13 would have been obvious over Van Saarloos, Smith and/or Malone.

H. Ground 4: Obviousness over Fellner-Feldegg, Smith, and/or Malone

Petitioner asserts that claims 1–13 would have been obvious over Fellner-Feldegg, Smith, and/or Malone. *See* Pet. 52–63. Our decision on this ground turns on the Petition’s showing for the claim language reciting a “beam-adjusting lens that is mounted in a positioning device that allows movement of the beam-adjusting lens in a plane perpendicular to the light path” (the “positioning device” limitation). *See* Ex. 1001, 10:3–6 (element (c) of claim 1). The same limitation is recited in the other independent claims. *See id.* at 10:24–27, 10:42–45 (claims 5 and 6). We focus on claim 1 below, which is representative for our analysis.

Ground 4 differs from Petitioner’s other grounds in that it is premised on a reference, Fellner-Feldegg, that “teaches an optical analyzer” or more specifically “a multi-laser illumination system suitable for use in flow cytometers.” Pet. 52. Petitioner’s argument focuses on the example shown in Figure 2 of Fellner-Feldegg.¹³ Petitioner contends that the “crossed pair of cylindrical lenses” in Figure 2 corresponds to the “focusing lens” in element (b) of claim 1. *Id.* at 53. Petitioner contends that Fellner-Feldegg’s disclosure of a “prefocussing” or “correcting lens,” i.e., “concave-convex

¹³ Figure 2 is reproduced *supra* § III.D.v.

lens” in Figure 2, corresponds to the “beam-adjusting lens” in element (c) of claim 1. *Id.* at Abstr., 54. Based on the focal lengths and distance between the lenses in Figure 2, Petitioner contends that Fellner-Feldegg also teaches the “ $|f_2 - z| \geq 4 * f_1$ ” limitation recited in claim 1. *Id.* at 55–56.

Regarding the “positioning device” limitation, Petitioner contends that a “POSA would have been motivated to assemble the system described in Fellner-Feldegg by mounting the concave-convex lens on a positioning stage.” Pet. 54. According to the Petition, a POSA “would understand Fellner-Feldegg to be directed to the general problem of precisely positioning the focal spot” and “that precise positioning of each lens is crucial, as alignment problems (including with regard to decentering and tilt) are routine.” *Id.* at 54–55 (citing Ex. 1002 ¶ 158). Petitioner asserts that a “POSA would have been motivated to use, a positioning stage as a mount for Fellner-Feldegg’s ‘correcting lens’” because skilled artisans “routinely use” them “to correct alignment problems.” *Id.*

Patent Owner argues that ground 4 “is unlikely to succeed because [Petitioner] fails to establish a motivation to combine Fellner-Feldegg’s flow cytometer system with Malone’s positioning plates.” Prelim. Resp. 49.

Patent Owner contends that Dr. Fang’s testimony “is conclusory and devoid of evidence on this point.” *Id.* at 50. According to Patent Owner, Petitioner

does not explain or provide evidence as to why a POSA would have selected Malone in the first place, how Malone’s positioning plates—deployed in a highly complex optical system used for high energy density physics experiments—would work in a flow cytometer system, why Malone’s positioning plates would be an improvement on what Fellner-Feldegg already provides, or why Fellner-Feldegg required improvement in the first place such that a POSA would look to Malone.

Id.

On the current record, Patent Owner has the better argument. “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). In its Petition, Petitioner states that Fellner-Feldegg is “directed to the general problem of precisely positioning the focal spot of a laser focusing system,” and that “[i]n designing such systems, the POSA would have understood that precise positioning of each lens is crucial, as alignment problems (including with regard to decentering and tilt) are routine.” Pet. 54–55 (citing Ex. 1002 ¶ 157). Petitioner contends that “[t]o address these problems, skilled artisans routinely use, and the POSA would have been motivated to use, a positioning stage as a mount for Fellner-Feldegg’s “correcting lens,” and that “such mounts would have allowed a movement perpendicular to the beam path, a feature of positioning stages that permits correction of decentering misalignment of the lens.” *Id.* at 55 (citing Ex. 1002 ¶ 158). But “knowledge of a problem and motivation to solve it are entirely different from motivation to combine particular references.” *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1366 (Fed. Cir. 2017). Here, we agree with Patent Owner that “all [Petitioner] does is identify the problems disclosed in the prior art and state that a motivation to combine exists.” Prelim. Resp. 56. We also agree that Petitioner ““provides no explanation or reasoning for concluding that one of skill in the art would have combined [Fellner-Feldegg and Malone] to produce the claimed invention.”” *Id.* (quoting *Metalcraft*, 848 F.3d at 1367).

Moreover, we agree with Patent Owner that Dr. Feng's testimony does not cure this deficiency because he does not sufficiently explain why a person of ordinary skill would have looked to Malone to solve the alleged alignment problems in Fellner-Feldegg. As in *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012), Dr. Feng's "testimony on obviousness [i]s essentially a conclusory statement that a person of ordinary skill in the art would have known, based on the 'modular' nature of the claimed components, how to combine any of a number of references to achieve the claimed inventions. This is not sufficient and is fraught with hindsight bias."

The conclusory nature of Petitioner's analysis is further highlighted by the fact that neither the Petition, nor Petitioner's declarant, address Fellner-Feldegg's teaching that "[b]y using a prefocussing lens at a fixed position in one of the laser beams, complete focal length compensation is obtained without any loss in system performance." Ex. 1008, Abstr. This teaching seemingly contradicts the premise for Petitioner's proposed modification by suggesting that Fellner-Feldegg's existing configuration, which maintains the prefocussing lens at a fixed position in the light path, is already sufficient and therefore need not be made moveable by placing it on a positioning stage as Petitioner contends. The Petition, however, fails to address this teaching, much less provide an explanation sufficient to show that it does not undermine Petitioner's obviousness theory.

The Petition's citations to Smith and Malone are also unavailing. *See* Pet. 54–55 (citing Ex. 1006, 20; Ex. 1007, 7–9). Page 20 of Smith does not discuss positioning stages at all, nor does the Petition otherwise explain the relevance of Smith's teachings to the "positioning device" limitation. Pages

7–9 of Malone describe “pairs of surrogate lenses . . . mounted onto translation stages” and “optical lens groups . . . mounted on kinematic plates” that are “tested for centering and tilt” in a much more complex system involving “very long optical path length” and “>60 optical components (some having seven glass elements).” Ex. 1007, 7. Petitioner does not sufficiently explain how the alignment issues discussed in Malone relate to the flow cytometer system in Fellner-Feldegg, much less articulate sufficient reasoning with rational underpinning to explain why the disclosure in Malone would motivate a POSA to mount Fellner-Feldegg’s “fixed position” prefocussing lens on a positioning stage. *See* Ex. 1008, Abstr.

For these reasons, we determine that Petitioner has not demonstrated a reasonable likelihood it will succeed in showing that claim 1 would have been obvious over Fellner-Feldegg, Smith and/or Malone. Because the Petition relies on the same showing for the “positioning device” limitation in the other challenged claims, Petitioner has not met the burden for institution on claims 2–13 for the same reasons explained above.

IV. CONCLUSION

Based on the current record, Petitioner has not shown a reasonable likelihood of establishing that any of the challenged claims are unpatentable on any of the grounds in the Petition. Accordingly, institution of *inter partes* review is denied.

V. ORDER

Accordingly, it is:

ORDERED that the Petition is denied, and no *inter partes* review is instituted

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BECKMAN COULTER, INC.,
Petitioner,

v.

BECTON, DICKINSON AND COMPANY,
Patent Owner.

IPR2022-01122
Patent 7,787,197 B2

CHERRY, *Administrative Patent Judge, dissenting-in-part,*

I join the opinion's well-reasoned determinations that Petitioner has failed to show a reasonable likelihood of prevailing on Grounds 2–4. However, I disagree with the Majority's determination that Petitioner has failed to show a reasonable likelihood of prevailing on Ground 1, anticipation by Lynch. The Majority finds that Petitioner failed to meet its burden because the preamble is limiting and the claim term “sample analysis region” is entitled to patentable weight. Because I believe the Majority erred in determining that the preamble is limiting and the term “sample analysis region” is entitled to patentable weight, I respectfully dissent from that determination.

I disagree that the preamble term “optical analyzer” should be limiting. “In general, a preamble limits the invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). “Whether to treat a preamble as a limitation is ‘determined on the facts of each case in light of the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history.’” *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1357 (Fed. Cir. 2012) (quoting *Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1572–73 (Fed. Cir. 1996)). The general rule is that “preamble language is not treated as limiting.” *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1347 (Fed. Cir. 2012).

Beginning with the language of the claims, the structure of the claims supports the conclusion that the preamble is not limiting. The remaining limitations recite, in relevant part: a light source, focusing lens, and beam adjusting optics. These limitations form “a self-contained description that could stand alone, with or without the preamble.” *STX, LLC v. Brine, Inc.*, 211 F.3d 588, 591 (Fed. Cir. 2000). The term “optical analyzer” does not provide antecedent basis for any term. The Majority suggests that “optical analyzer” “informs the meaning” of “sample analysis region,” but I disagree. The term “sample analysis region” has a readily understandable meaning with or without the preamble. Thus, I disagree that the term “optical analyzer” is necessary to “inform the meaning” of the claim, and it does not provide any antecedent to the body of the claim.

Turning to the specification, I believe the specification supports finding that the preamble is not limiting. The specification defines the field of invention very broadly explaining that “[t]he present invention relates to the field of optics and, in particular, to laser optics, as used in optical analyzers.” Ex. 1001, 1:14–15. The specification states that “[t]he present invention provides illumination optics *for use in* an optical analyzer, that includes a light source, such as a laser or other source, adapted to emit a collimated, or approximately collimated, beam, a focusing lens that focuses the beam onto a focus spot, and beam-adjusting optics positioned in the light path between the light beam source and the focusing lens, which allow for precise positioning of the focus spot of the focused light beam.” *Id.* at 2:3–10 (emphasis added). The specification also explains that a flow cytometer is simply “a preferred embodiment,” and states,

fine control over the focus spot of a illumination beam can be useful in a variety of applications, and the present invention will be generally useful in applications in which fine control over the focus spot of a illumination beam is useful. Other applications in which the illumination optics of the present invention may be useful include, for example, microscopy and laser scanning cytometry.

Ex. 1001, 3:38–49; *see also id.* at 2:23–24 (describing a flow cytometer as a preferred embodiment).

I agree with the Majority that the specification does describe the benefits the claimed optics provide to flow cytometer applications. *See* Majority Op. 14 (citing Ex. 1001, 1:39–42, 1:42–51, 3:38–49, 2:18–23, 7:3–8). But, as the specification explains, those same advantages would also apply in wide variety of applications. *See* Ex. 1001, 3:38–49; *see also id.* at 5:62–67 (“While this invention is satisfied by embodiments in many

different forms, shown in the drawings and described herein in detail are preferred embodiments of the invention, with the understanding that the present disclosure is to be considered as exemplary of the principles of the invention and is not intended to limit the invention to the embodiments illustrated.”). Thus, I disagree the specification supports a finding that the invention is related to a concern “specific to” optical analyzers. Rather, while the invention certainly has applications in specific instruments, such as flow cytometers and other particle analyzers, the specification makes clear that the invention relates to a concern with much wider range of applications.

I also note that the prosecution history is consistent with finding that the preamble is not limiting. During prosecution, the Examiner rejected some of the pending as anticipated by Lynch, finding that “optical analyzer” and “sample analysis region” “merely go to the intended use of the system.” Ex. 1003, 60. Rather than argue that these phrases had patentable weight, the applicant simply amended the claims to incorporate limitations from dependent claims that the Examiner found would be allowable if re-written in independent form. *Id.* at 84. Thus, the applicant did not rely on the preamble the claimed invention from the prior art.

“[A] preamble is not limiting ‘where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.’” *Catalina*, 289 F.3d at 808. As in *Catalina*, “deletion of the disputed phrase from the preamble . . . [would] not affect the structural definition or operation of the [invention] itself.” *Id.* at 810. Here, the preamble would merely add structure of which the body-recited optics are a part. *Arctic Cat v. GEP Power Prods., Inc.*, 919 F.3d

1320, 1329 (Fed. Cir. 2019). But “[a]n apparatus claim is not required to include all the elements necessary for the claimed structure’s installation.” *Blackbird Tech LLC v. ELB Elecs., Inc.*, 895 F.3d 1374, 1379 (Fed. Cir. 2018). Although the specification describes in detail the “excitation optics” and “illumination optics” of a flow cytometer, it only briefly mentions the “detection optics for measuring the light emitted from the analysis region.” *See* Ex. 1001, 2:21–23. Just as in *Arctic Cat*, “[w]hat is missing in the specification is any identification of a feature of the [optical analyzer] that is asserted to be an improvement other than the [beam-adjusting optics] as described in the various claims.” *See Arctic Cat*, 919 F.3d 1320, 1329–30 (preamble phrase “[a] personal recreational vehicle” was not limiting because it merely described conventional, rather than inventive aspects of the claimed invention). Moreover, the specification and the prosecution history both counsel against departing from the “general rule” that a preamble is not limiting. Accordingly, I dissent from the Majority’s holding that the preamble is limiting.

The Majority also gives patentable weight to the phrase “sample analysis region” found in the independent claims. Maj. Op. 15. The Majority finds that the term “sample analysis region” “refers to a structural feature of the claimed ‘optical analyzer,’ i.e., the area designed to contain the sample to be analyzed.” *Id.* I disagree that this phrase imposes any structural limitation on the claim. I note that the Majority relies, in part, on its finding that the preamble is limiting to give weight to this term. I disagree that the preamble is limiting, as I explained above, so I also disagree the preamble supports giving weight to this term.

I think it is helpful to begin with the full claim limitation—“a focusing lens positioned in the light path, adapted to focus the light beam onto a focal spot within a sample analysis region.” Thus, viewed in its full context, it is clear that the “sample analysis region” is not an affirmatively recited structure, but part of a functional limitation on the “focusing lens.” Also, the claim term is directed to a “region” not a specific structure. Although I agree with the Majority that the “region” could contain structures, a “region” is place, not a specific structure. Moreover, even if the “sample analysis region” was a structure, I see no support for the Majority’s requirement that “sample analysis region” be “configured to contain the sample to be analyzed.” Maj. Op. 15. Here, there is no support in the claim language for requiring that the “sample analysis region” be “configured to” do anything, versus merely having the capability. *See, e.g.*, MPEP § 2111.04 (citing *In re Giannelli*, 739 F.3d 1375, 1378 (Fed. Cir. 2014) and stating that the court found that an “adapted to” clause limited a machine claim where “the written description makes clear that ‘adapted to,’ as used in the [patent] application, has a narrower meaning, viz., that the claimed machine is designed or constructed to be used as a rowing machine whereby a pulling force is exerted on the handles”). I also note a larger problem with giving patentable weight to the term “sample analysis region”—there is nothing in the construction suggesting what possible structural characteristics would differentiate a “sample analysis region” from any other region where the “a focusing lens positioned in the light path, adapted to focus the light beam onto a focal spot” would focus. Thus, at this stage of the proceeding, I would also not give patentable weight to the term “sample analysis region,” because it is merely an intended use.

Because the Majority's and Patent Owner's arguments on why Lynch does not anticipate claims 1–3 depend on the claim constructions of “optical analyzer” and “sample analysis region,” which I decline to adopt, I would find that Petitioner has shown a reasonable likelihood of prevailing, at this stage on that ground.

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