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Paper 14
Entered: January 11, 2019

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HAAG-STREIT AG,
Petitioner,

v.

EIDOLON OPTICAL, LLC,
Patent Owner.

Case IPR2018-01309
Patent 6,547,394 B2

Before PATRICK R. SCANLON, SCOTT A. DANIELS, and ERIC C. JESCHKE, *Administrative Patent Judges*.

JESCHKE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314; 37 C.F.R. § 42.4(a)

I. INTRODUCTION

A. BACKGROUND

Haag-Streit AG ("Petitioner") filed a Petition to institute an *inter partes* review of claims 1, 5, 6, 8–10, 14–16, and 19 (the "Challenged Claims") of U.S. Patent No. 6,547,394 B2 (Ex. 1001 ("the '394 patent")).[1] Paper 1 ("Pet.").[2] Eidolon Optical, LLC ("Patent Owner") filed a Patent Owner's Preliminary Response. Paper 8 ("Prelim. Resp."). The Board granted Petitioner's request for authorization to file a Reply to the Patent Owner's Preliminary Response to address the prior art status of the only reference asserted in this proceeding and also authorized Patent Owner to file a Surreply on the issue. *See* Paper 11. Petitioner filed a Reply (Paper 12 ("Reply")) and Patent Owner filed a Surreply (Paper 13 ("Surreply")).

Section 314(a) of Title 35 of the United States Code provides that an *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Upon consideration of the evidence and arguments in the Petition (including its supporting testimonial evidence), the evidence and arguments in the Preliminary Response (including its supporting testimonial evidence), as well as the arguments in the Reply and Surreply, for the reasons below, we determine that the Petition does not

[1] All references to 1000-series Exhibits (other than Exhibit 1021) refer to the set of corrected 1000-series Exhibits filed July 25, 2018. The only version of Exhibit 1021 was filed on November 9, 2018.

[2] The Petition indicates that, along with Petitioner, the following entities are real parties-in-interest: Haag-Streit Holdings AG and Metall Zug AG. Pet. 1.

show a reasonable likelihood that Petitioner would prevail with respect to at least one of the Challenged Claims. We thus deny institution of *inter partes* review.

B. RELATED PROCEEDING

Petitioner filed an additional petition for *inter partes* review of claims 1, 5, 6, 8–10, 14–16, and 19 of the '394 patent in Case IPR2018-01311.

C. THE '394 PATENT

The '394 patent relates to "a device which is used to illuminate a patient's eye that has been administered with a fluorescent dye for the purpose of examining the eye for epithelial defects." Ex. 1001, 1:48–51. According to the '394 patent, "[t]he invention in its simplest form utilizes four components: a battery, an electrical resistor, an electrical switch and a blue light emitting diode." *Id.* at 1:51–53. Figure 1 is reproduced below:

FIG. 1

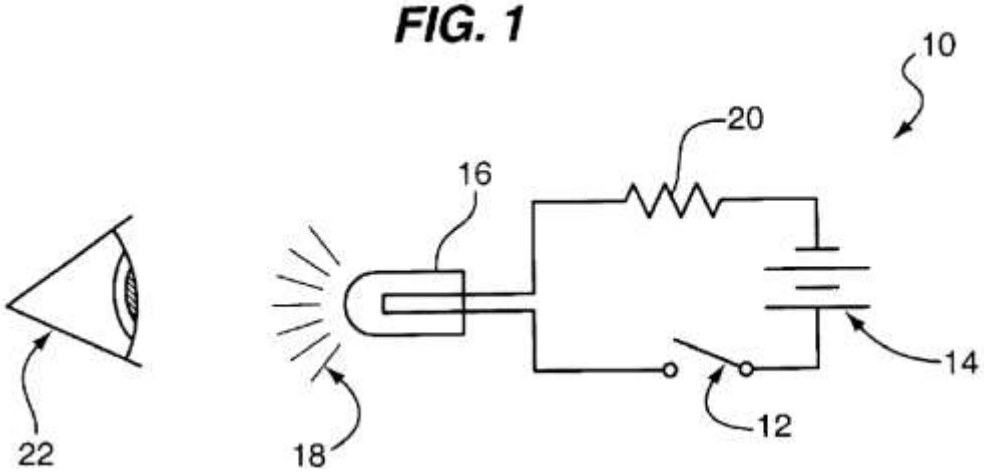

Figure 1 depicts "an electrical schematic of an ophthalmic illuminator utilizing a blue LED source, according to the invention." Ex. 1001, 1:56–58. Describing Figure 1, the '394 patent discloses that "when the switch 12 is closed[,] electrical energy from the battery 14 flows through the circuit 10

and causes the blue LED 16 to produce blue light 18." *Id.* at 2:7–10.[3] The '394 patent also discloses that "[t]he resistor 20 is used to limit the current that is applied to the LED 16 as per the manufacturer specification[,] which is typically 20 to 30 milli-amps." *Id.* at 2:10–12.

According to the '394 patent, the device depicted in Figure 1 "is superior to the current incandescent technology" for three reasons: (1) "the blue LED 16 emits more illumination in the desired blue spectrum (425 to 475 NM) than the filtered incandescent lamp[,] which results in more fluorescence of the fluorescein dyed eye 22 and thus . . . better sensitivity"; (2) "the blue LED 18 uses less power than a blue optically filtered incandescent or halogen bulb so that the battery power source 14 should last significantly longer"; and (3) "the invention is simpler to the prior art technology in that there is no need for a blue bandpass optical filter." Ex. 1001, 2:25–35.

D. ILLUSTRATIVE CLAIM

Of the Challenged Claims, claims 1 and 15 are independent. Claims 5, 6, 8–10, and 14 depend from claim 1, and claims 16 and 19 depend from claim 15. Claim 1 is reproduced below:

> 1. An ophthalmic illuminator, comprising:
>
> a battery;
>
> an electrical resistor in circuit with the battery;
>
> an electrical switch in circuit with the resistor;

[3] Throughout this Decision, we omit any bolding of reference numerals in quotations from the '394 patent.

> at least one light emitting diode, in circuit with the switch, for generating blue light energy in response to activation of the switch; and
>
> a fluorescein dye administered to a pat[i]ent's eye, the dye being responsive to the energy to fluoresce.

Ex. 1001, 4:12–21.

E. THE ASSERTED PRIOR ART

Petitioner relies on the following reference in the asserted grounds of unpatentability:

Lys: US 6,211,626 B1, issued April 3, 2001 (Ex. 1003).

Petitioner also relies on the declaration testimony of Dr. Jianzhong Jiao (Ex. 1002).

F. ASSERTED GROUNDS OF UNPATENTABILITY

Petitioner asserts the unpatentability of the Challenged Claims based on the following grounds:

Reference	Basis[4]	Claims Challenged
Lys	§ 102(e)(2)	1, 5, 6, 8–10, 14–16, and 19
Lys	§ 103(a)	6, 10, and 14

[4] The relevant sections of the Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, took effect on March 16, 2013. Because the application for the '394 patent was filed before that date, we apply the pre-AIA statutory framework.

II. DISCUSSION

A. THE LEVEL OF ORDINARY SKILL IN THE ART

The level of skill in the art is "a prism or lens" through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). In determining the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation marks and citation omitted).

Petitioner identifies October 20, 1998—the filing date of U.S. Patent Application No. 09/175,796 ("the '796 application"), to which the '394 patent claims priority—as the relevant date for purposes of this analysis. Pet. 7; *see also* Ex. 1001, Cover (63), 1:5–8 (priority claim to the '796 application). According to Petitioner, "the '394 Patent is directed to 'a device which is used to illuminate a patient's eye that has been administered with a fluorescent dye for the purpose of examining the eye for epithelial defects.'" Pet. 7–8 (quoting Ex. 1001, 1:48–51). Petitioner submits, via its declarant Dr. Jiao, that a person having ordinary skill in

> the art of the '394 Patent as of October 20, 1998, would have had at least a bachelor of science or engineering degree in electrical or mechanical engineering, physics, optics, or a related field, and either an advanced degree (such as a masters) in such a subject or an equivalent amount of work experience, *i.e.* 2–3 years, in an area relating to ophthalmic instrument design and/or fabrication or a related technical field.

Pet. 8 (citing Ex. 1002 ¶¶ 33–34). Patent Owner does not dispute Petitioner's proposed definition of the level of ordinary skill in the art, which

appears consistent with the record at this stage of the proceeding. For purposes of this Decision, we adopt the definition of a person of ordinary skill in the art proposed by Petitioner.

B. CLAIM CONSTRUCTION

Petitioner proposes a construction for the claim term "ophthalmic illuminator." Pet. 8–9. Patent Owner does not address Petitioner's proposed construction for "ophthalmic illuminator" and does not propose constructions for any additional claim terms. *See* Prelim. Resp.

On the current record, we do not discern a need to construe explicitly the term "ophthalmic illuminator" or any other claim terms from the '394 patent because doing so would have no effect on the analysis below. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed '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))).

C. EFFECTIVE FILING DATE OF THE CHALLENGED CLAIMS

The '394 patent issued from U.S. Patent Application No. 09/768,731, filed on January 24, 2001 ("the '731 application"). Ex. 1001, Cover (22). The '731 application claims priority as a continuation-in-part of U.S. Patent Application No. 09/175,796, filed on October 20, 1998. *See* Ex. 1001, Cover (63), 1:5–8; Ex. 1004, 19–22.[5] Patent Owner asserts that the '394

[5] On July 30, 2018 (after the filing of the Petition), Patent Owner filed a Petition in the '731 application. *See* Prelim. Resp. 2 n.1. According to Patent Owner, "[t]hrough the Petition, Patent Owner requested that the Office accept Patent Owner's unintentionally delayed priority claim under 35 U.S.C. §§119, 120 to provisional application Serial No. 60/061,131." *Id.*

patent "is entitled to a priority date of at least as early as October 20, 1998"—i.e., the filing date of the '796 application. Prelim. Resp. 8–9. For the reasons below (and for purposes of this Decision only), we agree with Patent Owner that the claims of the '394 patent are entitled to an effective filing date of October 20, 1998.

In this proceeding, Petitioner has not contested Patent Owner's assertion as to the effective filing date of the '394 patent. *See* Prelim. Resp. 9 n.4 ("Petitioner admits in its Petition that [October 20, 1998] is the earliest effective filing date of the '349 Patent, and does not contest this fact."). Rather, as shown by the record in this proceeding (as discussed below), Petitioner's positions as to the alleged prior art status of Lys are based on the premise that the claims of the '394 patent are in fact entitled to the effective filing date asserted by Patent Owner—October 20, 1998.

For example, when identifying the alleged prior art status of Lys in the Petition in the context of summarizing the asserted ground of anticipation based on Lys, Petitioner stated:

> **Challenge #1:** Claims 1, 5, 6, 8–10, 14–16 and 19 of the '394 Patent are anticipated under pre-AIA 35 U.S.C. § 102(e)(2) by United States Letters Patent No. 6,211,626 to Lys et al. ("Lys"; Ex. 1003). Lys issued on April 3, 2001 from an application filed on December 17, 1998, and that application claims priority to an earlier provisional application filed in the United States on December 17, 1997. Because the earliest

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Because the Petition has not yet been acted upon, as of the issuance of this Decision, the earliest possible effective filing date for the '394 patent is October 20, 1998. As to the text in Patent Owner's footnote (Prelim. Resp. 2 n.1), we note for future practice that documents created for these proceedings must use 14-point, Times New Roman proportional font, with normal (i.e., double) spacing. *See* 37 C.F.R. § 42.6(a)(2)(ii).

> effective filing date of the '394 Patent in the United States is October 20, 1998, Lys is prior art to the '394 Patent under pre-AIA 35 U.S.C. § 102(e)(2).

Pet. 3–4.[6] This passage indicates that Petitioner does *not* base the alleged status of Lys as prior art under 35 U.S.C. § 102(e)(2) on the fact that the *filing date* of the application that issued as Lys (i.e., December 17, 1998 (Ex. 1003, Cover (22))) preceded the *filing date* of the application that issued as the '394 patent (i.e., January 24, 2001 (Ex. 1001, Cover (22))).

Instead, the passage above indicates that Petitioner views the '394 patent as entitled to an effective filing date of October 20, 1998, but Petitioner views Lys as entitled to an *earlier* effective filing date. This understanding is supported by Petitioner's statement that "Lys is being used in the instant Petition as prior art under pre-AIA 35 U.S.C. § 102(e)(2) based on the '394 Patent only being entitled to a filing date of October 20, 1998." Pet. 38; *see also* Reply 2 (arguing Lys would "qualify as prior art under pre-AIA 35 U.S.C. § 102(e)(2) even if the . . . '394 Patent is entitled to an October 21 [sic 20], 1998 filing date").

In addition, as noted above (*see* § II.A), in a discussion as to the level "of ordinary skill in the relevant art (technical field) *at the time the invention was made*" (Pet. 7 (emphasis added)), Petitioner stated that "the relevant date is October 20, 1998, *i.e.* when the inventor named on the '394 Patent filed the original patent application to the subject matter now claimed in the '394 Patent and to which priority is claimed" (*id.*). This statement further supports the understanding that Petitioner views the '394 patent as entitled to an effective filing date of October 20, 1998.

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[6] Throughout this Decision, we omit any italicization of the names of references in quotations from the briefing.

Moreover, in the Request for Authorization to File a Reply to the Patent Owner's Preliminary Response (Paper 9), Petitioner did *not* seek authorization to address Patent Owner's prior assertion that the '394 patent "is entitled to a priority date of at least as early as October 20, 1998" (Prelim. Resp. 8–9). Instead, in the Request for Authorization, Petitioner sought to file a Reply "directed *solely* to the issue of whether . . . Lys . . . is entitled to the benefit of its earlier filing date(s)." Paper 9, 3 (emphasis added). And we authorized additional briefing to address *solely* that issue. *See* Paper 11, 3 (authorizing a reply by Petitioner "limited to the issue of the effective filing date of Lys"), 4 (authorizing a surreply by Patent Owner "limited to the issues raised in the reply").

Our determination on this issue is further supported by the fact that, in the prosecution history of the '394 patent, the Examiner heard arguments addressing the effective filing date of at least the independent claims of the '394 patent. *Cf. PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1305 (Fed. Cir. 2008) ("When neither the PTO nor the Board has previously considered priority, there is simply no reason to presume that claims in a [continuation-in-part] application are entitled to the effective filing date of an earlier filed application."). In summarizing the applicant's response to the only rejection in the prosecution history, Petitioner states: "In response to this rejection, the applicant did not amend the claims, but instead argued that the cited reference patent had an effective filing date after the priority date of the '731 Application." Pet. 6 (citing Ex. 1004, 78–81). Petitioner then quoted part of applicant's response:

> Under 35 U.S.C. § 120 (see also M.P.E.P. 201.11), Applicant is at least entitled to a priority date of October 21, 1997 for the use of Fluorescein and a blue LED to examine an eye.

> Accordingly, the effective filing date of the present '731 Application for use of Fluorescein and a blue LED to examine the eye is October 21, 1997. All elements or step elements, respectively, of claims 1 and 15, listed in detail below, were taught and disclosed in [US Provisional Patent Application No. 60/063,131]. The invention of claims 1 and 15 in the '731 Application are therefore entitled to a priority date of at least October 21, 1997, which is prior to the filing date of [the cited reference].

Ex. 1004, 79, *quoted at* Pet. 6 (bracketing by Petitioner). As noted by Petitioner, the "[E]xaminer subsequently withdrew the rejection of the cited reference, and allowed all of the pending claims as originally filed." Pet. 6 (citing Ex. 1004, 82). From these aspects of the prosecution history, we view the Examiner as having considered the effective filing date of the subject matter that issued as the claims of the '394 patent. This further supports Patent Owner's assertion that the claims of the '394 patent are "entitled to a priority date of at least as early as October 20, 1998," via the priority claim to the '796 application. Prelim. Resp. 8–9.

For these reasons (and for purposes of this Decision only), we determine that the claims of the '394 patent are entitled to an effective filing date of October 20, 1998.

D. WHETHER LYS IS AVAILABLE AS PRIOR ART

Petitioner asserts that claims 1, 5, 6, 8–10, 14–16, and 19 of the '394 patent are anticipated under § 102(e)(2) by Lys. Pet. 3–4, 9–31. Petitioner also asserts that claims 6, 10, and 14 of the '394 patent are unpatentable under § 103(a) based on Lys. Pet. 4, 31–36. Patent Owner argues, in the context of both asserted grounds, that Petitioner has failed to demonstrate that Lys is prior art to the '394 patent under 35 U.S.C. § 102(e)(2). *See* Prelim. Resp. 1, 4–9, 11. As noted above (*see* § I.A), at Petitioner's request,

we authorized additional briefing to address the proper effective filing date of Lys. *See* Papers 11–13.

1. Background of Lys

Lys issued from U.S. Patent Application No. 09/213,659, filed on December 17, 1998 ("the '659 application"). Ex. 1003, Cover (21) & (22). The '659 application claims priority as a continuation-in-part of U.S. Patent Application No. 08/920,156, filed on August 26, 1997 ("the '156 application"). *See id.*, Cover (63), 1:4–25.

Lys generally "relates to providing light of a selectable color using light sources, such as light-emitting diodes (LEDs)." Ex. 1003, 1:29–31. Among the several features described, Lys discloses a modular LED unit 4000 as shown in Figure 24, reproduced below:

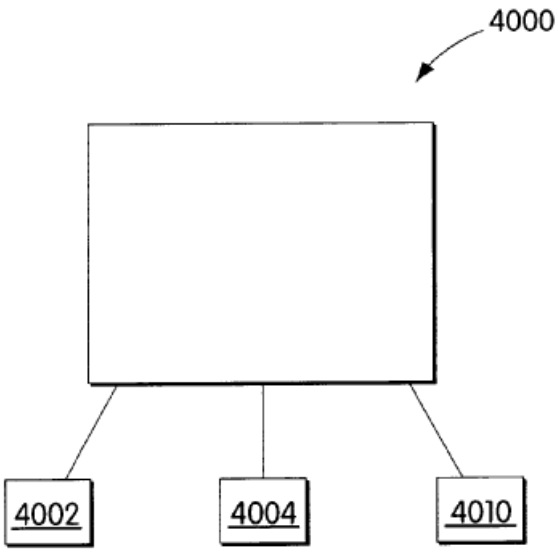

Fig. 24

Figure 24 depicts "a schematic illustration of a modular LED unit in accordance with one embodiment." Ex. 1003, 8:7–8. More specifically, Figure 24 depicts modular LED unit 4000, which (in this embodiment)

includes light module 4002, processor 4004, and power module 4010. *Id.* at 31:64–32:1, 32:29–33. Lys discloses that light module 4002 "may include, as illustrated in FIG. 25, an LED 4006 having a plurality of color-emitting semiconductor dies 4008 for generating a range of radiation within a spectrum, for example, a range of frequencies within the visible spectrum." *Id.* at 32:1–6. Figure 25 is reproduced below:

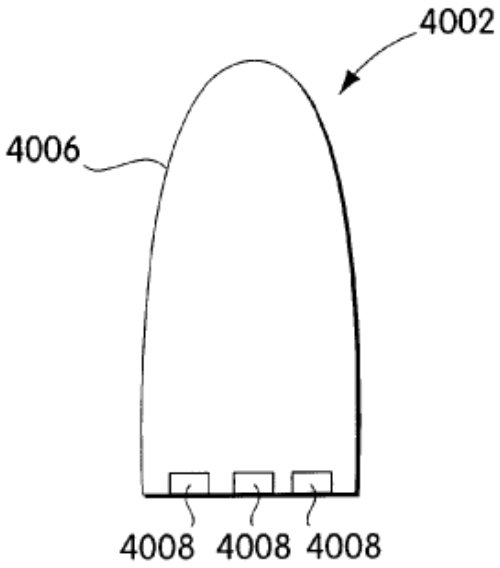

Fig. 25

Figure 25 "illustrates a light module in accordance with one embodiment." Ex. 1003, 8:11–12. Lys discloses that "[e]ach color-emitting die 4008 preferably represents a primary color and is capable of individually generating a primary color of varying intensity" and that, "[w]hen combined, the primary colors from each of dies 4008 can produce a particular color within the color spectrum." *Id.* at 32:6–10. Turning back to Figure 24, Lys discloses that processor 4004 "may be provided for controlling an amount of electrical current supplied to each of the semiconductor die 4008." *Id.* at 32:10–13. Lys discloses that "by controlling the intensity of the primary

color produced from each die, the processor 4004, in essence, can control the particular color illuminated from the LED 4006." *Id.* at 32:15–18.

2. Analysis

a. Legal Standard

For Lys to be entitled to the filing date of the '156 application (i.e., August 26, 1997), the invention *claimed* in Lys must have adequate support in the '156 application. *In re Wertheim*, 646 F.2d 527, 537 (CCPA 1981).[7] In other words, the specification of the '156 application must "contain a written description of the invention and the manner and process of making and using it, in such full, clear, concise, and exact terms" (35 U.S.C. § 112 ¶ 1) such that one of ordinary skill in the art could have practiced the invention *claimed* in Lys. *Id.*[8] Petitioner does not dispute this requirement.

[7] The Federal Circuit recently relied on *In re Wertheim* in reaching a similar result for pre-AIA provisional applications. *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1381 (Fed. Cir. 2015) ("A reference patent is only entitled to claim the benefit of the filing date of its provisional application if the disclosure of the provisional application provides support *for the claims in the reference patent* in compliance with § 112, ¶ 1.") (emphasis added).

[8] In this Decision, we need not and do not address any *additional* requirement that the specific *disclosures* in Lys relied on by Petitioner in their contentions (rather than the *claims* of Lys) must *also* be sufficiently supported in the '156 application. *See In re Giacomini*, 612 F.3d 1380, 1383 (Fed. Cir. 2010) ("[A]n applicant is not entitled to a patent if another's patent discloses the same invention, which was carried forward from an earlier U.S. provisional application or U.S. non-provisional application."); *see* Prelim. Resp. 9–10 (arguing that "Petitioner has not met its burden" to "establish that Lys is prior art" and *then* arguing, "[i]n addition, several of the passages from the Lys patent relied upon in Petitioner's argument for anticipation are not found in any of the Lys provisional or CIP applications").

See Reply 1 ("To show that Lys is entitled to [the] benefit of the earlier filing date of Mueller, Petitioner is only required to show that an issued claim in Lys is described and enabled by the specification of Mueller."[9] (citing *Wertheim*, 646 F.2d at 537)).[10]

Because the '659 application (which issued as Lys) claims priority as a continuation-in-part of the '156 application, there is no presumption that Lys is entitled to the filing date of the '156 application. *See Dynamic Drinkware*, 800 F.3d at 1380 (citing *PowerOasis*, 522 F.3d at 1305), *discussed at* Surreply 1. On the facts here, Petitioner bears the overall burden to show that Lys is entitled to the filing date of the '156 application. *See Dynamic Drinkware*, 800 F.3d at 1378 (placing the burden of persuasion on a petitioner to show a reference patent was entitled to the filing date of a provisional application).

b. Petitioner Has not Shown Support for the Thermal Connection Limitation in Claim 1 of Lys

Sole independent claim 1 of Lys recites, among other limitations, (1) "a housing within which the LED system is positioned" ("the Housing limitation"), (2) "a heat spreader plate in contact with the housing for dissipating heat from the housing" ("the Heat Spreader Plate limitation"), and (3) "wherein the LED system includes a thermal connection to the heat

[9] "Mueller" refers to U.S. Patent No. 6,016,038, which issued from the '156 application (discussed above (*see* § II.D.1)).

[10] We need not and do not address the disagreement as to whether Petitioner must show support in the '156 application for (1) *all* claims in Lys, as argued by Patent Owner (Surreply 5) or (2) only *one* claim in Lys, as argued by Petitioner (Reply 1–2). For the reasons addressed in this Decision, Petitioner has not shown support in the '156 application for even sole independent claim 1 in Lys.

spreader plate" ("the Thermal Connection limitation"). Ex. 1003, 76:63–77:7.

Petitioner asserts that the Heat Spreader Plate limitation and the Thermal Connection limitation are "fully supported according to 35 U.S.C. § 112, first paragraph, by the specification of Mueller," which issued from the '156 application (discussed above (*see* § II.D.1)).[11] Reply 2; *see also* Ex. 1021, Cover (21) (showing that the '156 application issued as Mueller).[12]

Although Petitioner does not expressly address the Housing limitation, Petitioner identifies light module 20, power module 40, and conductive sleeve 30 (shown in Figure 3 of Mueller) as a "housing." Reply 3 (stating "Mueller discloses the light module 20, power module 40 and conductive aluminum sleeve 30 as constituting a housing" (discussing Ex. 1021, 7:58–64, 8:20–23)). Figure 3 of Mueller is reproduced below:

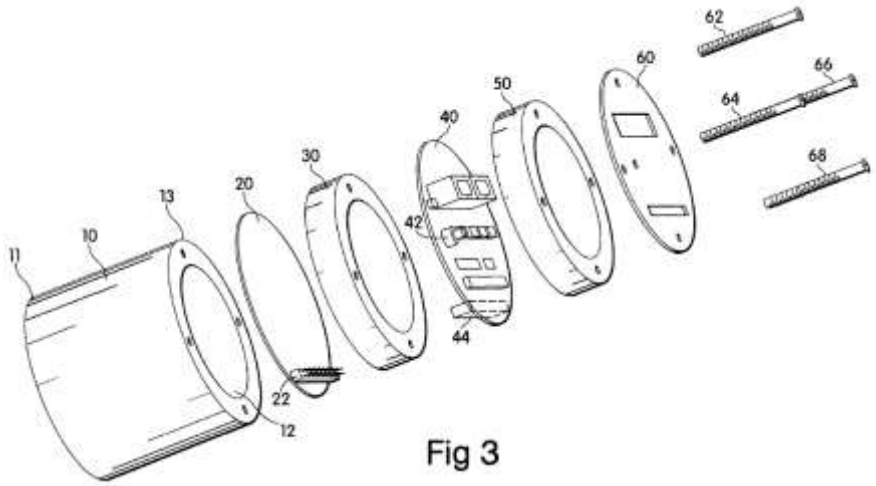

Fig 3

[11] According to Petitioner, "Patent Owner has only challenged" whether the Heat Spreader Plate limitation and the Thermal Connection limitation have support in the earlier-filed applications of Lys. Reply 2.

[12] For purposes of this Decision, we assume that the disclosures in the '156 application and Mueller are the same.

Figure 3 depicts an "exploded view of the housing of one of the embodiments" of Mueller. Ex. 1021, 2:45–46.

As to the Heat Spreader Plate limitation, Petitioner states that Mueller "discloses that light module 20 is disk-shaped and composed of a circuit board which has a layer of aluminum on the surface of the side opposite the 'housing' formed by light module 20, power module 40 and conductive aluminum sleeve 30." Reply 3 (citing Ex. 1021, 2:27–32, 8:6–13). According to Petitioner, "[t]his layer of aluminum on the surface of light module 20 is a 'plate' (*i.e.* a thin, flat layer, particular of metal deposited on a surface)." *Id.* Petitioner argues that because Mueller "discloses that aluminum conducts heat ([Ex. 1021,] 8:1–4), the aluminum plate on the surface of light module 20 is therefore a 'heat spreader' plate (*i.e.*, a plate that spreads or distributes heat)." Reply 3–4.

As to the Thermal Connection limitation, Petitioner argues that "Mueller discloses that light module 20 is mechanically connected to cylindrical body 10 by a plurality of screws." Reply 4 (citing Ex. 1021, 8:23–30). According to Petitioner, "[b]ecause there is nothing interposed between light module 20 and cylindrical body 10, there is a thermal connection (*i.e.*, a connection that permits the transfer of heat) between the aluminum plate on the surface of light module 20 and cylindrical body 10 (which is also made of heat-conductive aluminum)." *Id.*

According to Petitioner, the disclosures in Lys and Mueller "are identical when it comes to" the Heat Spreader Plate limitation and the Thermal Connection limitation. Reply 5. Petitioner contends that "the only difference between Lys'[s] specification and Mueller's specification as it relates to th[ose two limitations] is a single sentence directed to the

embodiment expressly claimed in Lys'[s] claim 2 (which requires the use of a thermally conductive polymer as the thermal connection required by claim 1)." *Id.* (citing Ex. 1003, 6:31–35, 77:8–9 (claim 2)).

Patent Owner argues that, "[c]ontrary to what is argued by Petitioner, the specifications of Lys and Mueller are not identical." Surreply 3. Patent Owner highlights Lys's disclosure of "another embodiment" in which "the LED board is thermally connected to a separate heat spreader plate by means of a thermally conductive polymer and fasteners." Ex. 1003, 6:31–34, *quoted at* Surreply 3–4. Patent Owner also argues that "[a] separate thermal connection to the heat spreader is . . . claimed in Lys" and that "[n]o such thermal connection is disclosed in Mueller." Surreply 4. According to Patent Owner, "Petitioner uses the coating on the aluminum surfaces of the light module 20 in its analysis as the thermal connection to the heat spreader plate" and "Petitioner is thus referencing the light module 20 as part of the housing, as the heat spreader plate ('aluminum on the surface of the light module 20 is a "plate,"' Reply p. 3) and also as the thermal connection to the heat spreader plate." *Id.* at 4–5.

We determine that Petitioner has not demonstrated that Mueller provides adequate support for the Thermal Connection limitation. The Thermal Connection limitation requires that "the LED system includes a thermal connection *to* the heat spreader plate." Ex. 1003, 77:6–7 (emphasis added). As alleged support for the "LED system," Petitioner identifies portions of light module 20 and power module 40. *See* Reply 7–8 (providing a claim chart addressing the claim language "an LED system for generating a range of colors within a color spectrum"). And as noted above, as alleged support for the "heat spreader plate," Petitioner identifies the

"layer of aluminum on the surface of the side opposite the 'housing' formed by light module 20, power module 40 and conductive aluminum sleeve 30." *Id.* at 3 (citing Ex. 1021, 2:27–32, 8:6–13). With this, we understand Petitioner to rely on the aluminum surface coated on the "illumination side" of light module 20, which is *opposite* the "connection side" shown in Figure 3. *See* Ex. 1021, 8:7–13.

Petitioner does not adequately identify the alleged "thermal connection" from the identified "LED system" (i.e., portions of light module 20 and power module 40) *to* the identified "heat spreader plate" (i.e., the aluminum coating on the "illumination side" of light module 20). Instead, Petitioner identifies an alleged "thermal connection" between the identified "heat spreader plate" and aspects *other than* the identified "LED system"—namely cylindrical body section 10 shown in Figure 3. Reply 4 (asserting that "there is a thermal connection . . . between the aluminum plate on the surface of light module 20 *and cylindrical body 10*" (emphasis added)). This fails to satisfy the burden on Petitioner.

We turn now to the claim chart provided by Petitioner, in which Petitioner appears to rely on the aluminum coating on the illumination side of light module 20 as not only the "heat spreader plate" *but also* the "thermal connection." *See* Reply 10–11 (addressing both the Heat Spreader Plate limitation and the Thermal Connection limitation by quoting Ex. 1021, 8:10–13). This position, however, conflicts with the language of the Thermal Connection limitation, which requires a "thermal connection *to* the heat spreader plate." Ex. 1003, 77:6–7 (emphasis added).

This determination is further supported by the disclosure highlighted by Patent Owner (Surreply 3–4), which is *present* in Lys but *absent* in

Mueller: "In another embodiment, the LED board is thermally connected to a separate heat spreader plate by means of a thermally conductive polymer and fasteners . . . ." Ex. 1003, 6:31–34. Although we agree with Petitioner that this passage relates (at least in part) to the additional requirement of claim 2[13] (Reply 5), it also supports the understanding that the "thermal connection" of claim 1 of Lys is a structure(s) *separate from* the "heat spreader plate." For these reasons, Petitioner has not shown adequate support in Mueller for the Thermal Connection limitation in claim 1 of Lys.

c. Petitioner Has not Shown Support for the Heat Spreader Plate Limitation in Claim 1 of Lys

As discussed above, as alleged support for the "heat spreader plate" in claim 1 of Lys, Petitioner identifies the "layer of aluminum on the surface of the side opposite the 'housing' formed by light module 20, power module 40 and conductive aluminum sleeve 30" in Mueller. Reply 3 (citing Ex. 1021, 2:27–32, 8:6–13). According to Petitioner, "[t]his layer of aluminum on the surface of light module 20 is a 'plate' (*i.e.* a thin, flat layer, particular of metal deposited on a surface)." *Id.*

Patent Owner argues that Petitioner "defines 'plate' as plating, which is a thin coating of metal." Surreply 4 (citing Reply 3). According to Patent Owner, "the specification of Lys is clearly not referring to plating, but a separate element from the LED circuit board." *Id.*

We agree with Patent Owner that the feature in Mueller relied on by Petitioner—an aluminum surface coated onto the "illumination side" of light module 20 (*see* Ex. 1021, 8:10–13)—does not fall within the scope of the

[13] Claim 2 depends from claim 1 and adds the requirement that "the thermal connection includes a thermally conductive polymer." Ex. 1003, 77:8–9.

"heat spreader *plate*" in claim 1 of Lys. Here, Petitioner does not adequately support the proposed construction of the term "plate" in "heat spreader plate" as "a thin, flat layer, particular of metal deposited on a surface." Reply 3. For example, Petitioner does not explain how that proposed construction is supported by the claims, the specification, or the prosecution history of Lys. Moreover, Petitioner does not identify any dictionary defining "plate" as proposed and does not rely on any declaration testimony to support the proposed construction.

As argued by Patent Owner, the specification of Lys does *not* support Petitioner's proposed construction. *See* Surreply 4. Indeed, Lys does not refer to the feature at issue as a "plate" but rather describes the "illumination side" as "coated with aluminum surfaces to better allow the conduction of heat outward from the plurality of LEDs to the body section 602." Ex. 1003, 30:7–10 (discussing Fig. 19). In contrast, Lys does use the term "plate" to refer to other structures, such as "enclosure plate 618" shown in Figure 19, which Lys discloses is "preferably made from a material that conducts heat, such as aluminum." *Id.* at 29:65–67. Figure 19 of Lys is reproduced below:

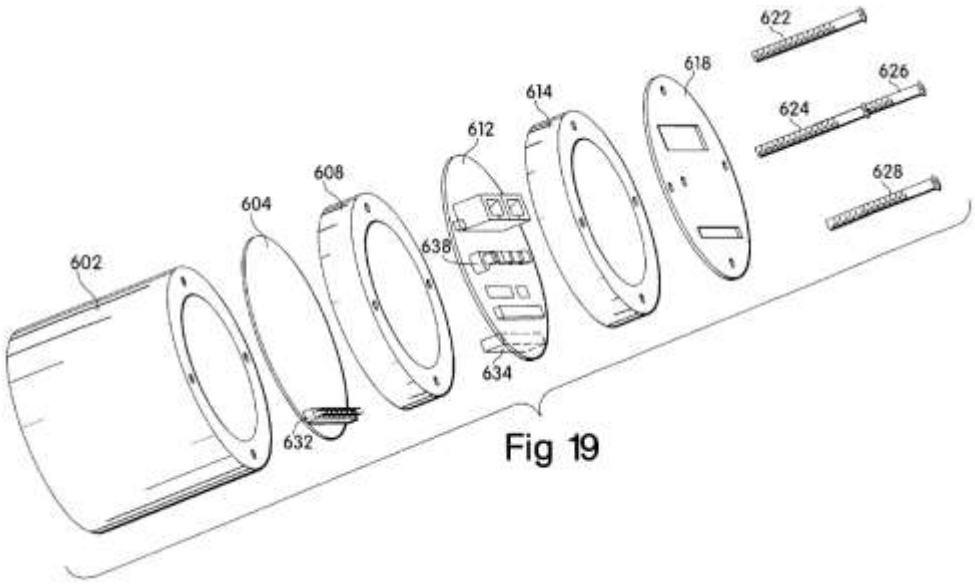

Fig 19

Figure 19 "depicts an embodiment of a light module in which a cylindrical housing houses the light module." Ex. 1003, 7:66–67.

As to extrinsic evidence, we agree with Patent Owner that the proposed construction—"a thin, flat layer, particular of metal deposited on a surface" (Reply 3)—more closely aligns with "plating" than with the term at issue: "plate." *Compare The American Heritage Dictionary of the English Language* (2016) (via Credo Reference), https://search.credoreference.com/content/entry/hmdictenglang/plate/0 (last visited Dec. 3, 2018) (Definition 1 – defining "plate" as "[a] smooth, flat, relatively thin, rigid body of uniform thickness"), *with id.*, https://search.credoreference.com/content/entry/hmdictenglang/plating/0 (Definition 1 – defining "plating" as "[a] thin layer of metal, such as gold or silver, deposited on or applied to a surface").

For these reasons, Petitioner has not shown adequate support in Mueller for the Heat Spreader Plate limitation in claim 1 of Lys.

d. Lys Is Not Prior Art to the Claims of the '394 Patent

For the reasons above, we agree with Patent Owner that Petitioner has not shown that Lys is entitled to the filing date of the '156 application. Thus, Lys is only entitled to a prior art date as of the filing date of the '659 application (i.e., December 17, 1998). Because the prior art date of Lys is thus *after* the effective filing date of the claims of the '394 patent (i.e., October 20, 1998 (*see* § II.C)), we agree with Patent Owner that Petitioner has failed to provide a threshold showing that Lys qualifies as a prior art to the '394 patent.

Accordingly, we determine that the Petition and Reply do not show a reasonable likelihood that Petitioner would prevail with respect to at least one of (1) claims 1, 5, 6, 8–10, 14–16, and 19 as anticipated under 35 U.S.C.

§ 102(e)(2) by Lys or (2) claims 6, 10, and 14 as unpatentable under 35 U.S.C. § 103(a) based on Lys.

III. CONCLUSION

For the reasons above, we determine that the Petition does not show a reasonable likelihood that Petitioner would prevail with respect to at least one of challenged claims 1, 5, 6, 8–10, 14–16, and 19 of the '394 patent.

IV. ORDER

For the reasons above, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), the Petition is denied, and no *inter partes* review is instituted.

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