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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL KNOP, MALTE WACHSMUTH, and
JÉRÉMIE CAPOULADE

Appeal 2019-005607
Application 13/371,991
Technology Center 2800

Before ROMULO H. DELMENDO, JAMES C. HOUSEL, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

The Appellant¹ appeals under 35 U.S.C. § 134(a) from the Primary Examiner’s final decision to reject claims 1, 2, and 6–19.² We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42—i.e., the Inventors (Application Data Sheet filed February 13, 2012 at 1–2). The Appellant identifies “European Molecular Biology Laboratory (EMBL)” as the real party in interest (Appeal Brief filed February 11, 2019 (“Appeal Br.”) at 2).

² *See* Appeal Br. 7–17; Reply Brief filed July 15, 2019 (“Reply Br.”) at 2–14; Final Office Action entered July 12, 2018 (“Final Act.”) at 3–14; Examiner’s Answer entered May 15, 2019 (“Ans.”) at 3–24.

I. BACKGROUND

The subject matter on appeal relates to optical microscopes and to associated methods (Specification filed February 13, 2012 (“Spec.”) ¶ 2). Representative claim 1 is reproduced from the Claims Appendix to the Appeal Brief, as follows:

1. A microscope having an illumination light path for illuminating with an illumination light beam a sample through an illumination objective lens and at least one viewing light path for viewing the sample through a detection objective lens, the microscope comprising
a tube lens, arranged in the illumination light path, in front of the illumination objective lens,
an illumination light path focussing arrangement in the illumination light path in front of the tube lens, the illumination light path focussing arrangement including *a cylindrical lens, which focusses the illumination light beam in one direction and leaves the illumination light beam unchanged in another direction transverse to the one direction*, thus defining, at the intersection of the illumination light path and the detection light path, a substantially two-dimensional object illumination region extending along an illumination direction of the illumination light path and the other direction, and
an illumination region-confining device in the illumination light path arranged between the cylindrical lens and the illumination objective lens and for selectively illuminating a portion of the substantially two-dimensional object illumination region, the illumination region-confining device comprising a width confining slit and a length confining slit, the length confining slit being arranged between the tube lens and the illumination objective lens, wherein the portion of the substantially two-dimensional object illumination region is confined at least in the illumination direction and the other direction.

(Claims App. 1 (emphasis added)). Claim 14, the only other independent claim on appeal, recites similar “cylindrical lens” limitations as highlighted above in reproduced claim 1 (*id.* at 3).

II. REJECTIONS ON APPEAL

The claims stand rejected under 35 U.S.C. § 103(a) (pre-AIA), as follows:

- A. Claims 1, 2, 6, and 14 as unpatentable over Lippert et al.³ (“Lippert”);
 - B. Claims 7–13, 15, 16, and 19 as unpatentable over Lippert in view of Betzig⁴ (including its Provisional Application 61/386,342);
 - C. Claim 17 as unpatentable over Lippert in view of Wachsmuth et al.⁵ (“Wachsmuth”); and
 - D. Claim 18 as unpatentable over Lippert in view of Huisken.⁶
- (Final Act. 3–14; Ans. 3–24).

III. DISCUSSION

With respect to claim 1, the Examiner finds that Lippert describes a microscope having many of the limitations recited in the claim, including, *inter alia*, an aspherical element 7 that focusses an illumination light beam in one direction and leaves the illumination light beam unchanged in another direction transverse to the one direction (Final Act. 3–4 (citing, e.g., Lippert

³ US 2009/0237765 A1, published September 24, 2009.

⁴ US 2011/0304723 A1, published December 15, 2011.

⁵ US 2006/0146325 A1, published July 6, 2006.

⁶ WO 2010/014244 A2, published February 4, 2010.

¶¶ 65–66; Fig. 1)). According to the Examiner, Lippert’s aspherical element 7 is “anamorphic” (Final Act. 3). The Examiner acknowledges that “[t]he embodiment of FIG. 1 of Lippert does not specifically disclose the anamorphic lens is a cylindrical lens” (*id.* at 4 (presumably addressing the “cylindrical lens” limitation recited in claim 1)). The Examiner finds, however, that Lippert teaches an *alternative* embodiment (Figure 7) in which a cylindrical lens 29 is used, wherein the benefits of the embodiment include preventing or substantially reducing shadows cast from non-transparent specimen substances within the illuminated specimen plane (Final Act. 4 (citing Lippert ¶ 89)). The Examiner then concludes that

it would have been obvious to an ordinarily skilled artisan . . . to use the teaching of the cylindrical lens of the embodiment of FIG. 7 of Lippert in the system of the embodiment of FIG. 1 of Lippert so as to prevent or substantially reduce shadows cast from non-transparent specimen substances within the illuminated specimen plane.

(Final Act. 5).

The Appellant contends, *inter alia*, that, contrary to the Examiner’s finding, Lippert does not disclose the aspherical element 7 as being a light-focusing element but, rather, as a light-expanding element (Appeal Br. 11–12). The Appellant argues that, therefore, “Lippert fails to disclose the cylindrical lens . . . as specified in claim 1” (*id.* at 12). In addition, the Appellant argues that “the Examiner fails to mention which feature of the embodiment shown in [Lippert’s] Fig. 1 is to be replaced with the cylindrical lens 29” and “which role the cylindrical lens 29 is to play in the set-up of Fig. 1 of Lippert” (*id.* at 14–15 (bolding added)).

We concur with the Appellant that the Examiner’s rejection is not well-founded. *In re NuVasive, Inc.*, 842 F.3d 1376 (Fed. Cir. 2016) (“[T]he

[PTO] must make the necessary findings and have an adequate ‘evidentiary basis for its findings.’”) (internal citation omitted).

As the Appellant points out (Appeal Br. 11–12), Lippert explicitly teaches that the aspherical element 7, which the Examiner relies on to account for the “cylindrical lens” limitations recited in claim 1, *expands* the illumination light beam 5 (Lippert ¶ 66 (“By passing through the aspherical element 7, the light bundle 5 is *expanded* in the Y-Z plane shown in FIG. 1a, while the light bundle 5 passes the aspherical element 7 in the X-Z plane, shown in FIG. 1b, substantially unchanged.”) (emphasis added)). By contrast, claim 1 recites that the “cylindrical lens . . . *focuses* the illumination light beam in one direction and leaves the illumination light beam unchanged in another direction transverse to the one direction” (Claims Appendix 1 (emphasis added)).

The Examiner takes the position that “the light [is] focused inside anamorphic aspherical element 7 before expanding after this focus” (Final Act. 3 (bolding added)). But such a finding, even if accepted as supported by sufficient evidence, fails to demonstrate that the “cylindrical lens”—not an interior portion thereof—focuses the illumination light beam, as required by claim 1.

Furthermore, as the Appellant points out (Appeal Br. 14–15), Lippert’s aspherical element 7, as shown in Figure 1, and cylindrical lens 29, as shown in Figure 7, perform different functions in a different environment (*compare, e.g.,* Lippert’s ¶¶ 65–66 and Fig. 1 *with* ¶ 89 and Fig. 7). The Examiner does not adequately explain how Lippert’s cylindrical lens 29 of Figure 7 would be implemented in the microscope shown in Lippert’s Figure 1 such that the requirements disclosed for the Figure 1 device would be

retained (Ans. 22–23). *NuVasive, Inc.*, 842 F.3d at 1382 (“[A]s an administrative agency, the [PTO] ‘must articulate logical and rational reasons for [its] decisions’”) (internal citation omitted).

As stated above, claim 14, the only other independent claim, recites similar “cylindrical lens” limitations (Claims App. 3). Therefore, our reasoning above for claim 1 applies equally to claim 14. Additionally, none of the other references have been applied to cure the deficiencies in the Examiner’s rejection as maintained against claims 1 and 14.

Accordingly, we do not sustain the Examiner’s rejections as maintained against any of the claims on appeal.

IV. CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 6, 14	103(a)	Lippert		1, 2, 6, 14
7–13, 15, 16, 19	103(a)	Lippert, Betzig		7–13, 15, 16, 19
17	103(a)	Lippert, Wachsmuth		17
18	103(a)	Lippert Huisken		18
Overall Outcome				1, 2, 6–19

REVERSED