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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MANFRED MUELLER,
BERNARDUS HENDRIKUS WILHELMUS HENDRIKS,
WALTHERUS CORNELIS JOZEF BIERHOFF,
GERHARDUS WILHELMUS LUCASSEN,
JEROEN JAN LAMBERTUS HORIKX, RAMI NACHABE,
and MARJOLEIN VAN DER VOORT

Appeal 2019-006823
Application 14/127,719
Technology Center 2800

Before MONTÉ T. SQUIRE, MICHAEL G. MCMANUS, and
JANE E. INGLESE, *Administrative Patent Judges*.

SQUIRE, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ This Decision refers to the Specification filed Dec. 19, 2013 (“Spec.”); Final Office Action dated Mar. 7, 2018 (“Final Act.”); Advisory Action dated June 14, 2018 (“Advisory Act.”); Appeal Brief filed Sept. 26, 2018 (“Appeal Br.”); and Examiner’s Answer dated July 11, 2019 (“Ans.”). There is no reply brief.

Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner's decision to finally reject claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22.³ We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

The invention relates to an apparatus for optical analysis of an associated tissue sample and, more specifically, to an apparatus, a method and a computer program for optical analysis of an associated tissue sample. Spec. 1; Abstract. Independent claim 1 illustrates the subject matter on appeal and is reproduced below from the Claims Appendix to the Appeal Brief:

1. An apparatus for optical analysis of an associated tissue sample, the apparatus comprising:
 - a spectrometer comprising an optical detector;
 - a light source;
 - a first light emitter* arranged for emitting photons into the associated tissue sample;
 - a first light collector* arranged for receiving photons from the associated tissue sample;wherein the spectrometer, the light source, the first light emitter and the first light collector are arranged for ***obtaining a first set of data representative of a spectrum chosen from a group including a reflectance spectrum***, a transmission

² We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Koninklijke Philips N.V. as the real party in interest. Appeal Br. 3.

³ Claims 3, 7, and 20 are withdrawn and claims 10, 13, and 15 are cancelled. Appeal Br. 5.

spectrum and an absorption spectrum of the associated tissue sample;

a second light emitter arranged for emitting photons into the associated tissue sample;

a second light collector arranged for receiving photons from the associated tissue sample;

wherein the spectrometer, the light source, the second light emitter and the second light collector are arranged for *obtaining a second set of data representative of a fluorescence spectrum of the associated tissue sample*; and

a processor operably configured for:

receiving the first set of data,

determining a wavelength-dependent set of scattering and/or absorption coefficients from the first set of data,

determining a distortion parameter according to the wavelength-dependent set of scattering and/or absorption coefficients,

receiving the second set of data, and

determining a third set of data representative of an intrinsic fluorescence spectrum of the associated tissue sample based on the second set of data and the distortion parameter,

wherein a first distance between the first light emitter and the first light collector is larger than a second distance between the second light emitter and the second light collector, and

wherein a first volume of the associated tissue sample represented by the first set of data at least partially overlaps a second volume of the associated tissue sample represented by the second set of data.

Appeal Br. 30–31 (key disputed claim language italicized and bolded).

Independent claim 12 is directed to a method for optical analysis of an associated tissue sample and recites limitations similar to claim 1. *Id.* at 33–34 (Claims Appendix).

REFERENCES

The Examiner relies on the following prior art references as evidence in rejecting the claims on appeal:

Name	Reference	Date
Weersink et al. ("Weersink")	US 6,219,566 B1	Apr. 17, 2001
Yu et al. ("Yu")	US 2010/0249607 A1	Sept. 30, 2010

REJECTIONS

On appeal, the Examiner maintains (Ans. 3) the following rejections:

1. Claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22 are rejected under 35 U.S.C. § 112(a) or 35 U.S.C. § 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement ("Rejection 1"). Final Act. 8.

2. Claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Yu in view of Weersink ("Rejection 2"). Final Act. 11.

OPINION

Rejection 1

The Examiner rejects claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22 under 35 U.S.C. § 112 for lack of written description. Final Act. 8–10. In this rejection, the Examiner essentially contends that, because the claims appear to cover all ways of determining certain claimed parameters and Appellant's Specification describes only one way of determining those claimed parameters, "the written description requirement was not satisfied in

this case because the specification did not provide sufficient evidence that the inventor invented the generic claim.” *Id.* at 8.

In particular, regarding the “determining a distortion parameter according to the wavelength-dependent set of scattering and/or absorption coefficients” recitation of independent claims 1 and 12, the Examiner contends that, although the Specification discusses the distortion parameter at pages 7–8, the Specification does not disclose possession of any particular way of determining the parameter or describe any algorithm or calculation to achieve the result. *Id.* at 8–9.

A specification complies with the 35 U.S.C. § 112, first paragraph written description requirement if it “reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (citation omitted).

Appellant argues the Examiner’s rejection should be reversed because the Specification provides sufficient written description to reasonably convey to one skilled in the art that, at the time the patent application was filed, the inventors had possession of the claimed subject matter. Appeal Br. 12–15 (citing Spec. 1:7–22, 7:25–8:15, 10:18–27, 16:25–19:18, 18:3–12, 20:7–28, 20:29–31, 20:32–21:1, 21:3–21).

The weight of the evidence supports Appellant’s argument. On this appeal record, we are not persuaded the Examiner has established by a preponderance of the evidence that the claims lack adequate written description in the Specification.

For example, with respect to the “determining a distortion parameter according to the wavelength-dependent set of scattering and/or absorption coefficients” recitation of the claims, the Specification discloses:

In the present context ‘distortion parameter’ is understood to depend on the contribution from scattering and absorption, and to be representative of scattering and absorption. This distortion parameter will be dependent on scattering and absorption at the fluorescence emission [wavelength] but may in addition also depend on the scattering and absorption at the fluorescence excitation wavelength. It will be readily understood that the ‘distortion parameter’ is not limited to being a single number, but may be described as a number, a vector, a matrix, a table or a mathematical function, so as to enable the ‘distortion parameter’ to describe the distortion contributions from scattering and absorption for a number of constituents, such as biomolecules, across a number of wavelengths. It is noted that a possible advantage of knowing the distortion parameter may be that it renders it possible to take the distortion parameter into account, such as the distortion parameter determined from the first set of measured data enables removal of the effects of scattering and absorption from the second set of measured data.

Spec. 7:25–8:5. The Specification further discloses:

For example, an algorithm for disentangling contributions from scattering, absorption and fluorescence in a fluorescence spectrum of one or more different optically active constituents, such as chromophores, in a sample may not be able to correctly disentangle the contributions and correctly quantify the constituents if distortion (such as scattering and absorption) is present in the sample, unless the algorithm determines the distortion parameter and takes it into account. The distortion parameter may be a parameter enabling determination of intrinsic fluorescence in a fluorescence spectroscopy spectrum where the intrinsic fluorescence is entangled with the effects of scattering and/or absorption. In a particular embodiment the distortion parameter is based on any one of: scattering, absorption, a probe specific function, algorithm and/or constant and the anisotropy parameter of the associated tissue sample.

Id. at 8:5–15. The Specification also discloses formulas and equations relating to the scattering coefficient and absorption coefficients elements of that recitation of the claim and describes certain concepts relating to those elements that a person of ordinary skill in the art would have realized and/or understood at the time the application was filed. *Id.* at 18:3–12.

Thus, based on the above disclosures, we determine a preponderance of the evidence supports Appellant’s position that the Specification, as filed, provides sufficient written descriptive support for the “determining a distortion parameter according to the wavelength-dependent set of scattering and/or absorption coefficients” recitation of claims 1 and 12, such that the skilled artisan would have reasonably understood the inventors had possession of and actually invented the claimed subject matter. *Ariad*, 598 F.3d at 1351.

We, therefore, do not sustain the Examiner’s rejection as to claims 1 and 12. Because claims 2, 4–6, 8, 9, 11, 14, 16–19, 21, and 22 depend from claim 1 and/or claim 12, we also do not sustain the Examiner’s rejection of those claims.

Accordingly, we reverse the Examiner’s rejection of claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22 under 35 U.S.C. § 112(a) or 35 U.S.C. § 112 (pre-AIA), first paragraph, for lack of written description.

Rejection 2

The Examiner rejects claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22 under § 103(a) as obvious over Yu and Weersink. Final Act. 11–18. In response, Appellant presents arguments for the patentability of claims 1, 2, 4, 8, 9, 11, 12, 16, 17, 21, and 22 as a group, claims 1, 12, and 14 as a group, claims 8 and 21 as a group, claims 9 and 22 as a group, and claims 2, 4, 11,

16, and 17, respectively, under separate headings/claim groupings in the Appeal Brief (Appeal Br. 16–38), which we address in turn below.

Claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22

At pages 16–19 of the Appeal Brief, Appellant presents argument for the patentability of claims 1, 2, 4, 8, 9, 11, 12, 16, 17, 21, and 22 as a group but does not present separate argument for the patentability of claims 5, 6, 14, 18, and 19. We select claim 1 as representative of this group and claims 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner determines that the combination of Yu and Weersink suggests a device for optical analysis satisfying the limitations of claim 1 and concludes the combination would have rendered the claim obvious. Final Act. 11–14. On this appeal record, we determine a preponderance of the evidence and sound technical reasoning support the Examiner’s findings regarding the teachings of the cited art and the Examiner’s conclusion that the combination would have rendered the device of claim 1 obvious to a person having ordinary skill in the art. Yu, Abstract, ¶¶ 5–8, 21, 22, 27, 28, 36, 65, Figs. 1B, 1C; Weersink, Abstract, 4:45–50, 8:17–21, Fig. 1a.

Appellant argues the Examiner’s rejection of claim 1 should be reversed because the cited art does not teach or suggest “a first light emitter,” “a first light collector,” “a second light emitter,” and “a second light collector,” as recited in the claim. Appeal Br. 20. In particular, Appellant argues that, in contrast to Yu’s device, which the Examiner relies on in the rejection for disclosing the light emitter/light collector limitations, the device of claim 1 excludes

a single component serving as both a light emitter and light collector for obtaining both a reflectance spectrum and a

fluorescence spectrum of a tissue sample . . . [and] a single pairing of a light emitter and a light collector for obtaining both a reflectance spectrum and a fluorescence spectrum of a tissue sample.

Appeal Br. 20. In other words, Appellant contends that, because Yu does not describe a device having each of two separate and distinct sets of light emission optical fibers (light emitters) and light collection optical fibers (light collectors), Yu does not teach or suggest “a first light emitter,” “a first light collector,” “a second light emitter,” and “a second light collector,” as claimed. *Id.* at 20, 21 (stating “*Yu* unequivocally fails to describe . . . two (2) separate and distinct sets of emission/collection optical fibers”), 22 (stating “*Yu* unequivocally fails to describe . . . a first pair of fiberscopes serving as a light emitter and a light collector”).

Appellant further contends Yu teaches away from the claimed device because Yu’s operating principle is specifically limited to obtaining both a reflectance spectrum and a fluorescence spectrum of a tissue sample from a single fiberscope or a single pair of fiberscopes. *Id.* at 22. Appellant also contends Weersink does not teach or suggest modifying Yu’s device to incorporate a first pair of fiberscopes and separate and distinct second pair of fiberscopes and that such modification would be an improper violation of Yu’s operating principle. *Id.* at 22–23.

We do not find Appellant’s arguments persuasive of reversible error in the Examiner’s rejection based principally on the fact-finding and reasoning the Examiner provides at pages 8–13 of the Answer, page 3 of the Advisory Action, and pages 11–14 of the Final Office Action. Regarding “a first light emitter” and “a first light collector,” as the Examiner finds (Final Act. 11), Yu teaches a device having a first light emitter arranged for emitting photons (nitrogen laser 52 in conjunction with fiber coupler 48 and

optical fibers 56) and a first light collector arranged for receiving photons (collection optical fibers 75). Yu ¶¶ 21–22, Figs. 1B, 1C. As the Examiner further finds (Final Act. 11), Yu discloses that the light emitter and the light collector are arranged for obtaining data representative of a reflectance spectrum of an associated tissue sample. Yu ¶ 22 (disclosing that the “measurements serve to provide reflectance . . . measurements”).

Regarding “a second light emitter” and “a second light collector,” as the Examiner finds (Final Act. 12), according to Yu’s disclosure, the light emitter and the light collector are also arranged for obtaining data representative of a fluorescence spectrum of an associated tissue sample. Yu ¶ 22 (disclosing “fluorescence is collected in the same manner as diffuse reflectance” and the “measurements serve to provide . . . fluorescence measurements”). As the Examiner explains (Ans. 9–10; Final Act. 13–14), to the extent claim 1 is read as requiring two separate and distinct sets of first and second light emitters and first and second light collectors, as Appellant contends (Appeal Br. 20–22), it would have been obvious to one of ordinary skill in the art to have modified Yu’s device to arrive at a device which satisfies the “first light emitter,” “first light collector,” “second light emitter,” and “second light collector” limitations of the claim.

In particular, as the Examiner determines (Ans. 9–10), it would have been obvious to one of ordinary skill in the art to have modified Yu’s device to include two separate and distinct sets of first and second light emitters and first and second light collectors because constructing a formerly integral structure into various elements involves only routine skill in the art. *See Nerwin v. Erlichman*, 168 USPQ 177, 179 (BPAI 1969). Moreover, the duplication of parts for the same function is within the abilities of one

having ordinary skill in the art. *In re Harza*, 274 F.2d 669, 671 (CCPA 1960) (“It is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced.”); *see also KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007) (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

Appellant’s arguments do not reveal reversible error in the Examiner’s factual-findings, analysis, and conclusions in this regard. Appellant’s argument that claim 1 excludes a device having a single component serving as both a light emitter and light collector and a single pairing of a light emitter and a light collector (Appeal Br. 20) is not persuasive because, as the Examiner explains (Ans. 8–10), there is no such exclusionary language or limitations recited in the claims. *See In re Van Geuns*, 988 F.2d 1181, 1184–85 (Fed. Cir. 1993) (“[L]imitations are not to be read into the claims from the specification.”); *see also In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“Many of appellant’s arguments fail from the outset because . . . they are not based on limitations appearing in the claims.”).

Contrary to what Appellant’s argument seems to imply, the fact that Appellant’s Specification describes an exemplary embodiment that includes two separate and distinct sets of first and second light emitters and first and second light collectors (Spec. 13–14, Fig. 2), without more, does not mean other devices, which may not have that same arrangement of light emitters and light collectors are necessarily excluded from the scope of the claim. *See E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003) (explaining that claims must be interpreted “in view of the specification”

without importing limitations from the specification into the claims unnecessarily).

Appellant's arguments in this regard are also unpersuasive because, as we previously discuss above, even if we were to construe claim 1 to exclude a device having a single component serving as both a light emitter and light collector and a single pairing of a light emitter and a light collector, as Appellant argues, we agree with the Examiner that it would have, nonetheless, been obvious to one of ordinary skill to have modified Yu's device to arrive at the claimed device, including the first and second light emitter and first and second light collector elements arranged in the manner Appellant contends is required by the claim.

Appellant's argument that Yu teaches away from the claimed device (Appeal Br. 22) is not persuasive of reversible error because it is conclusory and Appellant does not direct us to evidence in the record or provide a persuasive technical explanation sufficient to support it. *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *see also In re Fulton*, 391 F.3d 1195, 1201 (finding that there is no teaching away where the prior art's disclosure "does not criticize, discredit, or otherwise discourage the solution claimed"). We will not read into the references a teaching away where no such language exists. *Cf. DyStar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006). Moreover, the fact that Yu may not disclose a particular embodiment that corresponds to Appellant's claimed invention, without more, does not constitute a teaching away. *See In re Susi*, 440 F.2d 442, 445–46 (CCPA 1971) (explaining that disclosure of particular preferred embodiments does not teach away from a prior art reference's broader disclosure).

Appellant's contentions that Weersink does not teach or suggest modifying Yu's apparatus to include a first pair of fiberscopes and separate and distinct second pair of fiberscopes and that such modification would be an improper violation of Yu's operating principle (Appeal Br. 22–23) are equally unpersuasive because they, too, are conclusory. *De Blauwe*, 736 F.2d 699, 705.

Appellant's contentions in this regard are also misplaced because they are premised on what Weersink teaches individually, and not the combined teachings of Yu and Weersink as a whole, and what the combined teachings of the references would have reasonably suggested to one of ordinary skill in the art. One cannot show non-obviousness by attacking references individually where the rejection is based on a combination of references. *See In re Keller*, 642 F.2d 413,425 (CCPA1981). The Examiner does not rely upon Weersink for teaching the “first light emitter,” “first light collector,” “second light emitter,” and “second light collector” elements of the claim. Rather, as we previously discuss above, the Examiner relies principally on Yu for teaching or suggesting those elements of the claim.

Moreover, as we note above, the Examiner does provide articulated reasoning with rational underpinning sufficient to explain why one of ordinary skill in the art would have had reason to combine the teachings of Yu and Weersink to arrive at the claimed invention. *See* Ans. 10–11; Final Act. 13–14. Appellant's disagreement as to the Examiner's factual findings and reasons for combining the references, without more, is insufficient to establish reversible error. *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1320 (Fed. Cir. 2006) (“[M]ere statements of disagreement . . . as

to the existence of factual disputes do not amount to a developed argument.”).

We, therefore, sustain the Examiner’s rejection as to claim 1.

*Claim Groups: Claims 1, 12, and 14; Claims 8 and 21;
Claims 9 and 22; and Claims 2, 4, 11, 16, and 17*

Although Appellant nominally presents separate arguments for the patentability of claims 1, 2, 4, 8, 9, 11, 12, 16, 17, 21, and 22 as a group, claims 1, 12, and 14 as a group, claims 8 and 21 as a group, claims 9 and 22 as a group, and claims 2, 4, 11, 16, and 17, enumerated under separate headings at pages 24–38 of the Appeal Brief, respectively, Appellant does not present any additional substantive argument. Appellant’s contentions on pages 24–38 of the Appeal Brief are also conclusory and Appellant does not adequately explain or identify persuasive evidence in the record to support them. *De Blauwe*, 736 F.2d 699, 705.

Thus, based essentially on the fact-finding, conclusions, and analysis the Examiner provides in this appeal record, and for principally the same reasons discussed above for sustaining the Examiner’s rejection of claim 1, we sustain the Examiner’s rejection as to each of the claim groups/claims Appellant identifies at pages 24–38 of the Appeal Brief.

Accordingly, we affirm the Examiner’s rejection of claims 1, 2, 4–6, 8, 9, 11, 12, 14, 16–19, 21, and 22 under pre-AIA 35 U.S.C. § 103(a) as obvious over Yu and Weersink.

CONCLUSION

In summary:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 4-6, 8, 9, 11, 12, 14, 16-19, 21, 22	112	written description		1, 2, 4-6, 8, 9, 11, 12, 14, 16-19, 21, 22
1, 2, 4-6, 8, 9, 11, 12, 14, 16-19, 21, 22	103(a)	Yu, Weersink	1, 2, 4-6, 8, 9, 11, 12, 14, 16-19, 21, 22	
Overall Outcome			1, 2, 4-6, 8, 9, 11, 12, 14, 16-19, 21, 22	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (1)(iv).

AFFIRMED