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| SALIWANCHIK, LLOYD & EISENSCHENK A PROFESSIONAL ASSOCIATION PO Box 142950 GAINESVILLE, FL 32614 | | | XU, XIAOYUN | |
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BERTRAND MERANDON and CHRISTOPHE VEDRINE

Appeal 2019-003345
Application 15/302,517
Technology Center 1700

Before LINDA M. GAUDETTE, JEFFREY W. ABRAHAM, and
JEFFREY R. SNAY, *Administrative Patent Judges*.

ABRAHAM, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner’s decision to reject claims 17 and 18. We have jurisdiction under
35 U.S.C. § 6(b).

We REVERSE.

CLAIMED SUBJECT MATTER

The claims are directed to “the use of absorbent particles to improve
the detection of a signal corresponding to the presence of an analyte.”

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R.
§ 1.42. Appellant identifies the real party in interest as Bio-Rad Europe
GmbH. Appeal Br. 1.

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Abstract. Claim 17, reproduced below from the Claims Appendix (Appeal Br. 9), is illustrative of the claimed subject matter:

17. An absorbent composition comprising absorbent particles and at least one compound selected from the group consisting of luminol, isoluminol, a derivative of luminol or isoluminol, an electron mediator and an oxidizer.

REJECTION ON APPEAL

On appeal, the Examiner maintains the rejection of claims 17 and 18 under 35 U.S.C. § 103 as unpatentable over Dodeigne² in view of Hasegawa.³ Final Act. 2–4; Ans. 3–6.

OPINION

The Examiner finds that Dodeigne discloses a composition for optical assay measurement comprising luminol, isoluminol, a derivative of luminol or isoluminol, an electron mediator, and an oxidizer. Final Act. 2; Ans. 3. The Examiner further finds that Dodeigne teaches “[h]igh background is frequently observed in peroxyoxalate chemiluminescence” due to the formation and decomposition of chemiluminescence intermediates. Final Act. 3 (citing Dodeigne, 432); Ans. 4.

The Examiner acknowledges that Dodeigne does not disclose absorbent particles as part of its composition, but finds that Hasegawa discloses using absorbent particles to absorb unwanted background light in order to improve the signal to noise (S/N) ratio of optical immunity measurements. Final Act. 2–3 (citing Hasegawa, 14:1–7, Fig. 1); Ans. 3. The Examiner thus determines that it would have been obvious to one of

² Dodeigne et al., *Chemiluminescence as diagnostic tool. A review*, *Talanta* 51, 415–439 (2000).

³ Hasegawa et al., US 5,811,312, issued Sept. 22, 1998.

ordinary skill in the art to modify Dodeigne in view of Hasegawa by “incorporat[ing] adsorbent particles in the composition to absorb the background light from the formation and decomposition of chemiluminescence intermediates, in order to improve the S/N ratio of the chemiluminescence measurement.” Final Act 3; Ans. 4.

Appellant argues that a person of ordinary skill in the art would not have been motivated to combine the teachings of Dodeigne and Hasegawa. Appeal Br. 3. In particular, Appellant contends that Hasegawa is directed to improving the S/N ratio of fluorescence measurements, which involve excitation by exciting light to generate a fluorescence signal, whereas Dodeigne is directed to chemiluminescence measurements, which involve excitation by chemical reaction. *Id.* at 3–4. Appellant thus argues that the S/N problems caused by stray exciting light and unselective photoexcitation solved by Hasegawa are absent in Dodeigne’s chemiluminescence systems, and, therefore, the Examiner combines the teachings of Hasegawa and Dodeigne to solve a problem that doesn’t exist.

We are persuaded by Appellant’s arguments. As Appellant points out, Hasegawa addresses problems associated with optical measurements utilizing fluorescent light, wherein excited light is introduced into a system that contains fluorescent dye. Hasegawa, Abstract, 2:1–27. Hasegawa explains that in addition to the desired fluorescent light radiated from the fluorescent die of reacted antibodies, a “scattered component of the exciting light excite[s] the fluorescent dye, so that fluorescent dye which labels unreacted antibodies also radiate fluorescent light.” *Id.* at 2:27–39. Since the fluorescent light radiated from unreacted and reacted antibodies cannot be optically separated from one another, the resulting optical measurement suffers from a poor S/N ratio. *Id.* at 2:39–47. To address this problem,

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Hasegawa discloses the use of dispersing elements to absorb the scattered component of the exciting light and/or the fluorescent light radiated from the dye labeling the unreacted antibodies to improve the S/N ratio of the optical measurement. *Id.* at 4:4–9.

Dodeigne is directed to the use of chemiluminescence for diagnostic measurements. Dodeigne, Abstract. Dodeigne explains that unlike fluorescence, which uses exciting light to excite molecules, chemiluminescence uses a chemical reaction to obtain molecules in an excited state. *Id.* at 415–416. In addressing the differences between fluorescence and chemiluminescence, Dodeigne states, “[s]ince excitation is not required for sample radiation, problems frequently encountered in photoluminescence as light scattering or source instability are absent in chemiluminescence. High backgrounds due to unselective photoexcitation are absent too.” *Id.* at 416.

In view of this, we agree with Appellant that the teachings of Hasegawa solve a problem that does not exist in the chemiluminescence applications described in Dodeigne. Appeal Br. 4–5. This undermines the Examiner’s determination that a person of ordinary skill in the art would have had a reason to modify Dodeigne in view of Hasegawa. *See* Final Act. 2–3; Ans. 4.

In contrast to the “[h]igh backgrounds due to unselective photoexcitation,” which are absent in chemiluminescence, Dodeigne discloses that high background signals are “frequently observed in peroxyoxalate chemiluminescence,” due to “the formation and decomposition of chemiluminescence intermediates.” Dodeigne, 432. The Examiner relies on this disclosure of “high background” in Dodeigne as support for the proposed reason to combine the teachings of Dodeigne and

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Hasegawa. Final Act. 2–3; Ans. 5–6. Dodeigne, however, explains that this luminescence “is reduced at high hydrogen peroxide-oxalate ratios” and that “[c]ontinuous reagent addition has been proposed for suppressing background emission.” Dodeigne, 432. The teachings of Dodeigne thus support Appellant’s argument that fluorescence and chemiluminescence systems “were recognized to have different [background] problems for which there were different solutions.” Reply Br. 2. Furthermore, as Appellant argues, there is insufficient evidence in the record demonstrating that adding Hasegawa’s absorbent particles to a peroxyoxalate chemiluminescence system would reduce the high background readings caused by the formation and decomposition of chemiluminescent intermediates. Appeal Br. 6; Ans. 6; *see also* Reply Br. 1 (arguing there is no evidence in the record supporting the Examiner’s assertion that “it does not matter how the background light is produced”). Accordingly, the Examiner has not provided sufficient “articulated reasoning with some rational underpinning” to support the obviousness rejection in view of the teachings of Dodeigne and Hasegawa. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

For all of the foregoing reasons, we determine that Appellant has shown error in the rejection of claims 17 and 18 under 35 U.S.C. § 103 as obvious in view of Dodeigne and Hasegawa.

CONCLUSION

The Examiner’s rejection is reversed.

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DECISION SUMMARY

In summary:

| Claim(s) Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed |
|------------------------------|--------------------|---------------------------|-----------------|-----------------|
| 17, 18 | 103 | Dodeigne, Hasegawa | | 17, 18 |

REVERSED