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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JONATHAN ISSEROW and LAURA ISSEROW

Appeal 2019-002419[1]
Application 14/106,198[2]
Technology Center 3700

Before NINA L. MEDLOCK, KENNETH G. SCHOPFER, and AMEE A. SHAH, *Administrative Patent Judges*.

SCHOPFER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the rejection of claims 21, 24, 27–38, and 40. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

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[1] Our decision references the Appeal Brief ("Appeal Br.," filed Feb. 8, 2018), the Reply Brief ("Reply Br.," filed Jan. 28, 2019), the Examiner's Answer ("Ans.," mailed Dec. 11, 2018), the Non-Final Office Action ("Non-Final Act.," mailed Nov. 2, 2017), and the Specification ("Spec.," filed Dec. 13, 2013).

[2] According to Appellants, the real parties in interest are Jonathan Isserow and Laura Isserow. Appeal Br. 1.

BACKGROUND

The Specification discloses that "[t]he current invention relates to a wound or skin care treatment device and related methods." Spec. 1, ll. 17–18.

CLAIMS

Claims 21 and 40 are the independent claims on appeal. Claim 21 is illustrative of the appealed claims and recites:

21. A treatment device comprising:

a therapeutic medium,

wherein the therapeutic medium is configured to produce temperatures covering a range of about -10°C to about 50°C;

an applicator connected to the therapeutic medium; the applicator comprising,

an application layer having an application surface and a receiving surface with the application layer being configured to be applied to a skin surface of a user, and a conductive layer having a front side and a back side,

wherein the conductive layer is directly affixed to and completely covers the receiving surface of the application layer, and

wherein the heat application layer has an adhesive material disposed on a portion of the application surface;

a power source connected to the treatment device, empowering a plurality of flexible lighting mechanisms,

wherein the power source is at least one battery;

a plurality of flexible electrodes integrated with the application layer,

wherein the plurality of flexible electrodes are coupled to the power source providing a mechanism for

> neuromuscular stimulation in a range of 1 Hz to 160 Hz, and
>
> wherein the plurality of flexible electrodes are comprised of a flexible, conductive polymer;
>
> the plurality of flexible lighting mechanisms being interwoven with fibers of the application layer,
>
> *wherein the plurality of flexible lighting mechanisms are configured to emit at least one of red wavelength light and blue wavelength light, and wherein the plurality of flexible lighting mechanisms have a quantum efficiency of 0.65 to 0.95*; and
>
> a control mechanism for changing an operative state of the plurality of flexible lighting mechanisms.

Appeal Br. 11–13 (emphasis added).

REJECTIONS

1. The Examiner rejects claim 40 under 35 U.S.C § 112(b) as indefinite.
2. The Examiner rejects claims 21, 24, 27, 29–30, 33–38, and 40 under 35 U.S.C. § 103 as unpatentable over Leftly[3] in view of Jacobs,[4] Zhang 982,[5] Ein,[6] Fruitman,[7] Zhang 583,[8] and Aydt.[9]
3. The Examiner rejects claim 28 under 35 U.S.C. § 103 as unpatentable over Leftly in view of Jacobs, Zhang 982, Ein, Fruitman, Zhang 583, Aydt, and Quick.[10]

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[3] Leftly et al., US 2014/0364778 A1, pub. Dec. 11, 2014.
[4] Jacobs, US 2008/0046047 A1, pub. Feb. 21, 2008.
[5] Zhang et al., US 2008/0170982 A1, pub. July 17, 2008.
[6] Ein, US 2002/0026226 A1, pub. Feb. 28, 2002.
[7] Fruitman et al., US 2006/0142816 A1, pub. June 29, 2006.
[8] Zhang et al., US 5,658,583, iss. Aug. 19, 1997.
[9] Aydt et al., US 9,492,681 B2, iss. Nov. 15, 2016.
[10] Quick, "Color-changing, heat-sensitive bandage indicates infection," Gizmag, June 9, 2011.

4. The Examiner rejects claim 31 under 35 U.S.C. § 103 as unpatentable over Leftly in view of Jacobs, Zhang 982, Ein, Fruitman, Zhang 583, Aydt, and Khodak.[11]
5. The Examiner rejects claim 32 under 35 U.S.C. § 103 as unpatentable over Leftly in view of Jacobs, Zhang 982, Ein, Fruitman, Zhang 583, Aydt, and Moreshead.[12]

DISCUSSION

Indefiniteness

The Examiner finds that claim 40 is indefinite because the limitation "a plurality of flexible electrodes integrated with the application layer" appears in the claim twice such that "[i]t is unclear if there is a different set of flexible electrodes." Non-Final Act. 3. Appellant does not address this rejection and the Examiner does not address it in the Answer. We agree with the Examiner that claim 40 includes duplicative language, and we see no indication in the record that this claim has been amended to correct the claim language. Accordingly, we sustain this rejection.

Obviousness

With respect to each of the independent claims, the Examiner acknowledges that the art of record "is silent regarding wherein the plurality of flexible lighting mechanisms have a quantum efficiency of 0.65 to 0.95." Non-Final Act. 10. However, the Examiner finds that "Aydt teaches that quantum dots are advantageous because of their theoretical quantum efficiency of 100%." *Id.* (citing Aydt col. 3, ll. 59–60). The Examiner

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[11] Khodak et al., US 2012/0022620 A1, pub. Jan. 26, 2012.
[12] Moreshead, US 2008/0109941 A1, pub. May 15, 2008.

determines that it would have been obvious to provide a quantum efficiency in the claimed range either because "a prima facie case exists where the claimed ranges or amounts do not overlap with the prior art but are merely close" or because "it would be advantageous to come as close to the theoretical value as possible" and "[i]t has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art." *Id.* at 11 (citing *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 783 (Fed. Cir. 1985); *In re Aller*, 220 F.2d 454 (CCPA 1955)).

Regarding the Examiner's determination that the claimed range would have been obvious because the prior art discloses a similar efficiency, we determine that the Examiner has not sufficiently supported this determination. A prima facie case of obviousness exists where the claimed ranges or amounts do not overlap with the prior art but are merely close. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 783, (Fed. Cir. 1985). This is because, where the claimed amount and prior art amount are sufficiently close, "one skilled in the art would have expected them to have the same properties." *Id.*

Here, we find that the Examiner has not explained adequately why the claimed efficiency and the theoretical efficiency in Aydt are not patentably distinct. First, we agree with Appellants that Aydt does not disclose an actual range of efficiency for flexible lighting mechanisms. Rather, the only evidence pointed to is Aydt's disclosure that quantum dots have a "theoretical internal quantum efficiency as high as 100%, compared to 25% of the singlet organic emitter." Aydt col. 3, ll. 58–60. From this, one of ordinary skill in the art may conclude that quantum dots are likely to be

more efficient than other light emitting diodes, but there is no explanation regarding how such efficiency is obtained or how it is effected by the particular structure of the quantum dot or lighting mechanism. The Examiner does not otherwise explain, or cite to evidence showing, how this theoretical efficiency or any efficiency within the claimed range may be achieved. Thus, we see no evidence on the record providing a suitable correlation between the claimed efficiency and the theoretical efficiency for us to conclude that a device with the claimed efficiency and a device with the theoretical efficiency would have had the same properties.

Regarding the Examiner's determination that it would have been obvious to arrive at the claimed range of efficiency based on optimization, the Examiner has not established that the claimed efficiency is a result effective variable. With respect to this reasoning, the law requires "[a] recognition in the prior art that a property is affected by the variable" in order to find the variable result-effective. *In re Applied Materials, Inc.*, 692 F.3d 1289, 1297 (Fed. Cir. 2012). Although optimization of a variable known to be result effective is generally prima facie obvious, where "the parameter optimized was not recognized to be a result-effective variable" is an exception. *See In re Antonie*, 559 F.2d 618, 620 (CCPA 1977). As discussed above, the only evidence presented explains that the theoretical efficiency for quantum dots is 100%, and the Examiner does not explain, or provided evidence showing, how this efficiency is obtained. Thus, the Examiner has not shown how the quantum efficiency is a result effective variable.

Based on the foregoing, we are persuaded of reversible error in the rejections of independent claims 21 and 40. Accordingly, we do not sustain

the rejections of those claims. We also do not sustain the rejections of the dependent claims, for which the Examiner relies on the same reasoning.

CONCLUSION

We AFFIRM the rejection of claim 40 under 35 U.S.C § 112(b).

We REVERSE the rejections under 35 U.S.C. § 103.

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-IN-PART