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Slayden Grubert Beard PLLC
401 Congress Avenue
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dallen@sgbfirm.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HARVEY I-HENG LIU, PATRICK REICHERT,
TOBIN C. ISLAND, and ROBERT GROVE

Appeal 2017-011772¹
Application 13/366,202
Technology Center 3700

Before MURRIEL E. CRAWFORD, MICHAEL W. KIM, and
PHILIP J. HOFFMANN, *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal from the final rejection of claims 1, 6–22, 24–30, 34–45, and 47–53. We have jurisdiction to review the case under 35 U.S.C. §§ 134 and 6.

¹ The Appellants identify TRIA Beauty, Inc. as the real party in interest. Appeal Br. 2.

The invention relates generally to devices for radiation-based dermatological treatment. Spec. 1 lines 18–21.

Claim 1 is illustrative:

1. A self-contained, hand-held device for providing radiation-based dermatological treatments, the device comprising:
 - a cordless, self-contained device body configured to be handheld by a user;
 - a battery supported in the handheld device body;
 - a laser device supported in the handheld device body and electrically connected to the battery, the laser device including a laser source configured to emit laser radiation;
 - a heat sink supported in the handheld device body and thermally coupled to the laser source to remove heat from the laser source;
 - an application end of the handheld device body having an outer surface configured to be manually moved across the surface of the skin during a treatment session;
 - at least one sensor located at the application end and configured to emit sensor radiation toward the skin, receive sensor radiation returned from the skin, and generate sensor signals based on the received sensor radiation returned from the skin;
 - a processor; and
 - computer instructions stored in a non-transitory computer-readable medium and executable by the processor to:
 - pulse the laser source to emit a sequence of pulsed beams to the skin to generate an array of treatment spots on the skin, wherein adjacent treatment spots generated on the skin are spaced apart from each other by areas of non-treated skin between the adjacent treatment spots, to thereby provide a fractional treatment to the skin, wherein each treatment spot is defined by a contiguous area on the skin surface receiving at least $1/e^2$ times the maximum intensity of a respective beam pulse, which maximum intensity is sufficient to cause a lesion in the skin, and the areas of non-treated skin receive insufficient radiation to qualify as a treatment spot;

determine at least one of a displacement or a speed of the application end relative to the skin surface based on the sensor signals generated by the at least one sensor; and

control the pulsing of the laser source based on the determined displacement or speed of the application end to inhibit the generation of successive treatment spots that overlap each other on the skin surface;

wherein each pulsed beam is divergent in at least one direction upon outwardly passing through a plane defined by the outer surface of the application end of the handheld device body and thereby upon incidence with the skin surface;

wherein each treatment spot on the skin has an instantaneous area of less than 1.0 mm²; and

wherein the device includes, downstream of the laser source, only an open air interface, a window, or other structure that does not deflect or influence the angular distribution profile of the pulsed beams from the laser source to the skin.

The Examiner rejected claims 1, 6–10, 12–22, 25, 27, 29, 52, and 53 under 35 U.S.C. § 103(a) as unpatentable over Durkin et al.

(US 2008/0091179 A1, pub. Apr. 17, 2008) (“Durkin”), Altshuler et al.

(US 2008/0058783 A1, pub. Mar. 6, 2008) (“Altshuler”), and Hawkins et al.

(US 2008/0262484 A1, pub. Oct. 23, 2008) (“Hawkins”).

The Examiner rejected claim 11 under 35 U.S.C. § 103(a) as unpatentable over Durkin, Altshuler, Hawkins, and Miller (US 5,658,323, iss. Aug. 19, 1997).

The Examiner rejected claims 24, 26, and 28 under 35 U.S.C. § 103(a) as unpatentable over Durkin, Altshuler, Hawkins, and Moench et al.

(WO 2011/010239 A1, pub. Jan. 27, 2011) (“Moench”).

The Examiner rejected claims 30, 34–45, and 47–51 on the ground of non-statutory obviousness-type double patenting over claims 1–29 of Liu et al. (US 8,961,578 B2, iss. Feb. 24, 2015) and Island et al.

(US 2004/0176823 A1, pub. Sept. 9, 2004).

We AFFIRM.

ANALYSIS

Rejection of Claims 1, 6–10, 12–22, 25, 27, 29, 52, and 53

The Appellants argue independent claims 1, 52, and 53 together as a group by advancing one set of arguments which applies to each of the three claims. Appeal Br. 15. We select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv).

We are not persuaded by the Appellants’ argument that Durkin fails to disclose a laser beam that is divergent upon passing through the outer surface of the device body, as generally recited in each of claims 1, 52, and 53, on the basis that Figure 4 does not show a laser diode as an energy source, and on the basis that parallel radiation lines 68 in Figure 4 are not displayed as divergent lines. Appeal Br. 11.

In spite of what the Appellants argue on the basis of the simplified visual representation in Durkin’s Figure 4, Durkin discloses in the detailed description of the figure that the energy source 60 can be a diode laser. Durkin ¶ 69. The Examiner finds a laser diode “inherently produces a beam that diverges in a least one direction when emitted absent the presence of collimating optics.” Final Act. 6 (emphasis omitted). In support of this assertion of inherency, the Examiner cites two supporting references, “*Sun* and *Newport*,” and the Appellants’ Specification, which states that laser diodes typically have highly divergent beams. Answer 12–13 (citing Spec. 2 lines 20–21). The Appellants acknowledge that Durkin teaches the use of a laser diode that creates divergent beams. Reply Br. 3; *see also id.* at 6 (“Appellant[s] agree that laser diodes typically emit diverging beams”).

In spite of the laser diode inherently producing divergent beams, the Appellants further argue that the parallel lines labeled as radiation 68 in Durkin's Figure 4 mean that optics are present, to convert divergent beams into parallel beams, which violates the claim language of there being no downstream optics. Appeal Br. 11–12. As evidence of the existence of optics in Figure 4, the Appellants argue that embodiments shown in Durkin's Figures 5 and 6 have optics, and Figure 4 does not explicitly show that optics are not present. Appeal Br. 14; *see also* Reply Br. 2–5.

We are not persuaded by this argument. Durkin fully describes the embodiment shown in Figure 4, and optics are not described. Durkin ¶¶ 65–69. In contrast, Figure 5 shows optics elements 96 and 100 that are described as optics elements, and Durkin indicates Figure 5 is “another embodiment.” *Id.* ¶ 70. Durkin describes a third embodiment in Figure 6 using optical fiber 80 and diffusing optic 100'. *Id.* ¶ 72. Thus, Durkin's Figures 5 and 6 do not provide evidence that the embodiment in Figure 4 includes undisclosed optics.

Because the Appellants have failed to show error in the Examiner's rejection of claims 1, 52, and 53, we sustain the obviousness rejection of these claims. We also sustain the rejection of dependent claims 6–10, 12–22, 25, 27, and 29 that were rejected along with claims 1, 52, and 53, and were not argued separately.

Rejections of Claims 11, 24, 26, and 28

In addition, because no separate arguments were advanced for the remaining obviousness rejections, we also sustain the rejections of dependent claims 11, 24, 26, and 28.

Double Patenting Rejection

The Appellants do not advance arguments directed to the Examiner's double-patenting rejection of independent claim 30 and dependent claims 34–45, and 47–51. Instead, the Appellants agree to file a terminal disclaimer to overcome the rejection. Reply Br. 2. Therefore, we sustain the double-patenting rejection.

DECISION

We affirm the rejections of claims 1, 6–22, 24–29, 52, and 53 under 35 U.S.C. § 103(a).

We affirm the rejection of claims 30, 34–45, and 47–51 on the basis of non-statutory, obviousness-type double patenting.

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