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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BRYAN WEBER, JOSEPH COAKLEY, and JOHN POTOSKY

Appeal 2019-004179
Application 13/358,337
Technology Center 3700

Before JENNIFER D. BAHR, STEFAN STAICOVICI, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–23 and 26–34, which are all of the pending claims. 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. Appellant identifies the real party in interest as Zeltiq Aesthetics, Inc. Appeal Br. 2.

CLAIMED SUBJECT MATTER

Appellant's invention is directed to "devices, application systems[,] and methods for removing heat from subcutaneous lipid-rich cells" and, in particular, to "a device that provides independent control of the heat flux through a plurality of zones based on a desired heat flux profile." Spec.

¶ 28. Claim 1, reproduced below, is illustrative of the claimed subject matter.

1. An application system for cooling subcutaneous lipid-rich tissue, comprising:
 - a cooling unit;
 - a cryoprotectant vessel configured to contain a cryoprotectant such that at least a portion of the cryoprotectant is cooled by the cooling unit to a desired cold temperature;
 - a contact member configured to be attached to the cryoprotectant vessel, the contact member including a backside configured to contact the cryoprotectant and a front side opposite the backside and a thermal gradient layer having one or more physical discontinuities configured to define one or more units of the thermal gradient layer, wherein each unit is associated with one or more of a plurality of selectively^[2] addressable heating elements;
 - an array of the plurality of selectably addressable heating elements carried by the contact member, and wherein the contact member is configured to allow the cryoprotectant to flow from the backside to the front side; and
 - a controller with a stored profile and being programmed to
 - cause the application system to cool the subcutaneous lipid-rich tissue, and

² Appellant's claims use both "selectively" and "selectably" in describing the "addressable heating elements." Appellant may wish to consider amending the claims to use either "selectively" or "selectably" consistently throughout the claims.

command one or more heating elements of the array of selectably addressable heating elements to warm the subcutaneous lipid-rich tissue, which has been cooled by the application system, based on the stored profile while the application system cools the subcutaneous lipid-rich tissue to disrupt subcutaneous lipid-rich cells, wherein the stored profile includes a target heat flux profile and/or a target temperature profile.

EVIDENCE

The prior art relied upon by the Examiner is:

Name	Reference	Date
Levinson	US 2007/0255362 A1	Nov. 1, 2007
Mills	US 2008/0188915 A1	Aug. 7, 2008
Ebbers	US 2009/0118722 A1	May 7, 2009
Nebrigic	US 2011/0202048 A1	Aug. 18, 2011

REJECTIONS³

- I. Claims 1, 3, 5–18, 20, 26–30, and 32–34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Levinson, Ebbers, and Nebrigic.
- II. Claims 2, 4, and 19 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Levinson, Ebbers, Nebrigic, and Mills.
- III. Claims 21–23 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Levinson and Nebrigic.
- IV. Claim 31 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Levinson, Nebrigic, and Ebbers.

³ The Examiner withdrew a rejection of claim 19 under 35 U.S.C. § 112, second paragraph. Ans. 3; *see* Final Act. 3.

OPINION

Each of Appellant’s independent claims 1, 20, 21, 29, 32, and 33 recites, in pertinent part, a contact member including “a thermal gradient layer [or interface] having one or more physical discontinuities configured to define one or more units of the thermal gradient layer [or interface]” and a plurality of “selectively [or selectably] addressable heating elements,” wherein each unit is associated with one or more of the plurality of heating elements. *See* Appeal Br. 37, 41–46 (Claims App.). The Examiner finds that Levinson discloses a contact member (front side portion 508), but does not specifically disclose the contact member including a thermal gradient layer/interface having one or more physical discontinuities configured to define one or more units of the thermal gradient layer/interface and a plurality of selectively addressable heating elements, wherein each unit is associated with one or more of the plurality of heating elements. *See* Final Act. 5, 7, 16, 20, 22, 25, 27, 28, 30, 38. The Examiner finds that Nebrigic teaches, in a treatment apparatus for providing both heating and cooling, treatment electrode 20 having a conductor region that “may be segmented into plural individual electrodes that can be individually powered to deliver electromagnetic energy to the tissue.” *Id.* at 7, 16–17, 22, 27, 30–31, 39 (emphasis omitted) (citing Nebrigic ¶ 27). According to the Examiner, “The segments in Nebrigic read on an electrical and structural/physical separation and discontinuities.” *Id.* at 7, 17, 22, 27, 31, 39. The Examiner determines:

[I]t would have been obvious to one of ordinary skill in the art at the time of the invention to provide a thermal gradient layer having one or more physical discontinuities configured to defined one or more units of the thermal gradient layer, wherein each unit is associated with one or more of a plurality of selectively addressable heating elements, an array of the

plurality of selectably addressable heating elements, since Levinson already contemplates that the treatment device is configured to heat and cool tissue [0020] and modifying the treatment device of Levinson to include the plural individual electrodes of Nebrigic that are capable of being individually powered, allows a user to controllably heat tissue (Abstract).

Id. at 8, 17, 22–23, 27–28, 31, 39.

Appellant argues, persuasively, that the Examiner’s findings and reasoning fail to account adequately for the fact that the claims recite a thermal gradient layer or interface having one or more physical discontinuities configured to define one or more units *and, additionally*, a plurality of selectively addressable heating elements. *See* Reply Br. 3 (stating, “The Examiner’s Answer ignores claim 1’s thermal gradient layer and addressable heating elements being different structural elements.”). Nebrigic discloses treatment electrode 20 including electrically-insulating substrate 22 and region 24 of an electrical conductor carried on the substrate. Nebrigic ¶ 27; *see id.*, Figs. 2A, 3A. Nebrigic teaches that “the conductor region of treatment electrode 20 may be segmented into plural individual electrodes that can be individually powered to deliver electromagnetic energy to the tissue.” *Id.* ¶ 27. Nebrigic does not mention segmenting the electrically-insulating substrate on which the conductor region is carried, and it is not apparent why one would have been prompted to do so. “Based on Appellant’s reading of Nebrigic,” which is consistent with our reading of paragraph 27 of Nebrigic, the segmented conductor region forming the plural individual electrodes “would still be located along a continuous substrate 22.” Appeal Br. 31.

As Appellant points out, Nebrigic’s “underlying . . . substrate 22 is not discontinuous.” Reply Br. 2 (citing Nebrigic’s Figure 3A as showing a

uniform and continuous substrate 22). Thus, Appellant submits, substrate 22, which carries the segmented conductor region, “is not a thermal gradient layer having one or more physical discontinuities as claimed.” *Id.*

Likewise, even if Nebrigic’s segmented conductor region were mapped to the thermal gradient layer/interface with its one or more physical discontinuities, Nebrigic’s electrode cannot be properly mapped to the claimed contact member because it does not carry addressable heating elements in addition to the thermal gradient layer/interface having physical discontinuities, as called for in the claims. *See id.*

In view of the teachings of Nebrigic, as discussed above, the Examiner does not explain sufficiently why a person having ordinary skill in the art would have been prompted to combine the teachings of Nebrigic with Levinson in a manner to arrive at the subject matter of Appellant’s claims—namely, a contact member including a thermal gradient layer or interface having physical discontinuities defining one or more units and a plurality of selectably/selectively addressable heating elements, wherein each unit is associated with one or more of the plurality of heating elements. The Examiner’s explanation that it would have been obvious to do so because “Nebrigic teaches the advantages of electrodes that can be individually powered and allow a user to controllably heat tissue [Abstract][0027], thereby motivating one of ordinary skill in the art to use them in a device such as Levinson,” simply does not address the issue raised by Appellant (i.e., that the claims recite the thermal gradient layer and addressable heating elements being different structural elements). *See* Ans. 4–5. Further, the Examiner’s application of Ebbers and Mills does not remedy the

aforementioned shortcoming in the combination of Levinson and Nebrigic.
See Final Act. 6–7, 15–16, 21–22, 25–26, 29–30, 34–36, 41–42.

For the above reasons, the Examiner fails to articulate sufficient factual findings and analysis to establish that the subject matter of Appellant’s independent claims 1, 20, 21, 29, 32, and 33, or the claims depending from these independent claims, would have been obvious. Accordingly, we do not sustain the rejections of claims 1–23 and 26–34 under 35 U.S.C. § 103(a).

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3, 5–18, 20, 26–30, 32–34	103	Levinson, Ebbers, Nebrigic		1, 3, 5–18, 20, 26–30, 32–34
2, 4, 19	103	Levinson, Ebbers, Nebrigic, Mills		2, 4, 19
21–23	103	Levinson, Nebrigic		21–23
31	103	Levinson, Nebrigic, Ebbers		31
Overall Outcome				1–23, 26–34

REVERSED