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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT H. OSHER, BRIANA RAWSON, and
COLLIN ALEXANDER MURRAY

Appeal 2019-006062
Application 15/407,673
Technology Center 3700

Before JENNIFER D. BAHR, JOHN C. KERINS, and
MICHAEL L. WOODS, *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 16–21. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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 Beaver-Visitec International (US), Inc. Appeal Br. 2.

CLAIMED SUBJECT MATTER

Appellant's invention is directed to an electrical resistance heating device for marking a patient's eye in preparation for or during a surgical procedure. Spec. ¶ 4. Claim 16, reproduced below, is the only independent claim and is illustrative of the claimed subject matter.

16. A method of marking a patient's eye with reference marks for ophthalmic procedures, the method comprising:
- providing an ophthalmic marking device having:
 - a handle;
 - a tip on said handle;
 - an electrically conductive tip element at least partially within said tip, said tip element including spaced-apart first and second leads with an arched conductor extending therebetween in physical-direct contact with said first and second leads to define a closed electrical flow path between said first and second leads such that application of an electrical potential across said first and second leads results in electrical flow through said conductor, a first portion of said tip element protruding from said tip to be exposed; and,
 - an electrical power storage associated with the device, said electrical power storage being electrically connectable to said conductive tip element,
 - wherein, said tip element and said electrical power storage are configured so that, with electrical flow through said tip element caused by said electrical power storage, heat is resistively generated in said tip element with temperature in the range of 250 °F – 450 °F at said first portion of said tip element;
 - actuating said ophthalmic marking device to allow said electrical power storage to cause electrical flow through said tip element so that heat is resistively generated in said tip element with a temperature in the range of 250 °F – 450 °F at said first portion of said tip element; and,
 - contacting a target site on a patient's eye to be marked with a reference mark with said first portion of said tip element

and maintaining contact for at least one second with the temperature at said first portion of said tip element being in the range of 250 °F – 450 °F.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Saliaris	US 4,108,181	Aug. 22, 1978
Pao	US 4,674,499	June 23, 1987
Fedorov	US 4,907,587	Mar. 13, 1990

REJECTION

Claims 16–21 stand rejected under 35 U.S.C. § 103 as unpatentable over Pao, Saliaris, and Fedorov.

OPINION

Appellant groups claims 16–21 together in contesting the rejection. *See* Appeal Br. 5–8. We decide the appeal on the basis of independent claim 16, and claims 17–21 stand or fall with claim 16. *See* 37 C.F.R. § 41.37(c)(1)(iv) (permitting the Board to select a single claim to decide the appeal as to a single ground of rejection of a group of claims argued together).

The Examiner finds that Pao teaches a method of marking a patient’s eye comprising providing a device having a handle and a tip element on the handle including first and second electrical leads, actuating the device to allow electrical flow to the tip element, and contacting a target site on a patient’s eye to be marked with a reference mark with a first portion of the tip element. Final Act. 2–3. The Examiner finds that

Pao does not specifically teach arched conductor extending therebetween in physically-direct contact with said first and second leads, an electrical power storage associated with the device, said electrical power storage being electrically connectable to said conductive tip element, wherein, said tip element and said electrical power storage are configured so that, with electrical flow through said tip element caused by said electrical power storage, heat is resistively generated in said tip element with temperature in the range of 250 °F - 450 °F at said first portion of said tip element; and maintaining contact for at least one second with the temperature at said first portion of said tip element being in the range of 250 °F - 450 °F. However, Pao does say that an alternative to the bipolar configuration described in detail in the reference is heating through a resistance element (col. 1 lines 24-33).

Id. at 3.

The Examiner finds, however, that Saliaris teaches an analogous ophthalmic device with a battery that supplies electrical current through two leads (electrodes 17, 18) to an arched conductor (tip 19) to resistively heat the tip. Final Act. 4. The Examiner determines it would have been obvious to modify Pao's device by providing an arrangement as taught in Saliaris, with a "battery powered resistive heating element connecting leads" in order to make the device more compact, which is important when operating in the region of the eye where there is limited space, and to make the device more "simple and reliable for using disposable cauteries." *Id.*

The Examiner relies on Fedorov regarding the claimed temperature range of Appellant's method. *See* Final Act. 4. Appellant does not contest this aspect of the rejection. *See* Appeal Br. 5-7.

Appellant contends that "Pao's intended purpose and principle of operation are premised on controlling spot cauterization with high frequency alternating current." Appeal Br. 6. According to Appellant, "[m]odifying

Pao to be battery powered would undermine the principle of operation of Pao, as well as, render Pao unsatisfactory for its intended purpose.” *Id.* Appellant submits that “Pao specifically provides improved spot cauterization for high frequency alternating current applications” and the proposed modification “seeks to impermissibly alter Pao at its crux.” *Id.*

The Examiner counters that Pao does not indicate that direct current would be less satisfactory than, or go against the principle of operation of, using alternating current. Ans. 4. Rather, according to the Examiner, Pao lists direct current as an alternative to high frequency energy. *Id.* (citing Pao, Abstract). The Examiner states that Appellant has not shown that the modification proposed by the Examiner would hinder the flow of electricity to the tip of Pao’s device to heat tissue, but, rather, “has simply alleged that the intended purpose and principle [of] operation of Pao is to use alternating current.” *Id.* at 5.

Appellant takes issue with the Examiner’s statement that Pao teaches direct current as an alternative to high frequency, alternating current. Reply Br. 2. In particular, Appellant submits that the single mention in Pao’s Abstract “references ‘direct voltage,’” and that “[t]he modifier ‘direct,’ as applied to voltage, may be used to describe how a voltage is applied, i.e., direct vs. indirect, and not necessarily as yielding direct current.” *Id.*

Pao discloses that the electrodes “are adapted to receive a high frequency voltage or direct voltage thereacross.” Pao, Abstract. The language “high frequency voltage or direct voltage” suggests that “direct voltage” is an alternative to “high frequency voltage.” Further, an ordinary and customary meaning of “direct voltage” is “[a] voltage that forces electrons to move through a circuit in the same direction continuously,

thereby producing a direct current. Also known as direct-current voltage.” McGraw-Hill Dictionary of Scientific & Technical Terms (2003), <https://encyclopedia2.thefreedictionary.com/direct+voltage> (last visited May 27, 2020).² Thus, a preponderance of the evidence supports the Examiner’s interpretation of Pao’s Abstract as teaching direct current (i.e., direct voltage or direct-current voltage) as an alternative to high frequency voltage for cauterizing eye tissue for scleral marking. *See* Pao 2:30–42, 3:27–29.

Moreover, although Pao discloses an embodiment comprising a bipolar probe energized using high frequency voltage, Pao does not disparage or otherwise discourage the use of a resistive heating probe having a tip comprising a resistance element heated by passing electrical current from a direct-current voltage source, such as a battery. Thus, Pao does not teach away from modifying Pao as the Examiner proposes, in view of *Saliaris*, or otherwise indicate that such a modification would render Pao’s device unsuitable for its intended purpose or change Pao’s principle of operation.

As for the principle of operation and intended purpose of Pao’s device, Pao seeks to provide an electrocautery device that is visible through the sclera, capable of pinpoint accuracy to produce cautery spots of predetermined areas for producing repeatable marks for use in procedures such as scleral marking, and capable of producing spot cauterization without passing current through a patient’s body. *See* Pao 3:39–54. Pao teaches that using electrical current to heat a resistance element, which is then applied to the tissue to be cauterized, “precludes the necessity of applying an electrical

² A copy of this definition is appended to this opinion.

current through the tissue.” *Id.* at 1:25–30. Further, Saliaris likewise seeks to provide a cautery device that ensures “repeatable reliable operation.” Saliaris 1:37–41. This suggests that providing a probe tip that is resistively heated by application of current from a battery via first and second leads, as taught by Saliaris, would be consistent with Pao’s objectives.

For the above reasons, Appellant does not apprise us of error in the Examiner’s determination that the subject matter of claim 16 would have been obvious in view of the combined teachings of Pao, Saliaris, and Fedorov. Accordingly, we sustain the rejection of claim 16 as unpatentable over Pao, Saliaris, and Fedorov. We also sustain the rejection of claims 17–21, which fall with claim 16, as unpatentable over Pao, Saliaris, and Fedorov.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
16–21	103	Pao, Saliaris, Fedorov	16–21	

TIME PERIOD FOR RESPONSE

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

AFFIRMED