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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT N. SQUIRE, JEFFREY S. LINDQUIST,
DEREK C. SUTERMEISTER, PATRICK A. HAVERKOST, and
TIMOTHY A. OSTROOT

Appeal 2019-006525
Application 14/549,121
Technology Center 3700

Before MICHAEL L. HOELTER, JEREMY M. PLENZLER, and
SUSAN L. C. MITCHELL, *Administrative Patent Judges*.

HOELTER, *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 1–8 and 10–19, which constitute all the claims pending in this application. 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. We understand the real party in interest is “Boston Scientific Scimed, Inc.” Appeal Br. 3.

CLAIMED SUBJECT MATTER

The disclosed subject matter “pertains to medical devices, and methods for manufacturing medical devices. More particularly, the present disclosure pertains to medical devices for sympathetic nerve ablation.” Spec. 1:10–12. Apparatus claim 1, and method claims 13 and 17, are independent. Claim 1 is representative of the claims on appeal and is reproduced below.

1. A medical device for sympathetic nerve ablation, comprising:
 - a catheter shaft;
 - an expandable balloon coupled to the catheter shaft, the balloon being capable of shifting between an unexpanded configuration and an expanded configuration;
 - wherein the balloon includes a first layer and a second layer;
 - wherein the first layer includes a convertible circuit;
 - wherein the convertible circuit is defined along an etched region of the first layer;
 - an electrode and circuitry metal positioned within the etched region and in electrical contact with the convertible circuit; and
 - an insulating layer disposed over the circuitry metal but not over the electrode.

Appeal Br. 19 (Claims Appendix).

EVIDENCE

Name	Reference	Date
Corbett, III et al. (“Corbett”)	US 5,515,848	May 14, 1996
Stern et al. (“Stern”)	US 5,562,720	Oct. 8, 1996
Levin	US 6,562,035 B1	May 13, 2003
Tittle	US 7,514,643 B1	Apr. 7, 2009

Perry et al. (“Perry”)	US 2011/0130708 A1	June 2, 2011
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REJECTIONS

Claims 1–8, 10–15, and 17–19 are rejected under 35 U.S.C. § 103 as unpatentable over Stern, Tittle, Corbett, and Levin.

Claim 16 is rejected under 35 U.S.C. § 103 as unpatentable over Stern, Tittle, Corbett, Levin, and Perry.

ANALYSIS

*The rejection of claims 1–8, 10–15, and 17–19
as unpatentable over Stern, Tittle, Corbett, and Levin*

*The rejection of claim 16
as unpatentable over Stern, Tittle, Corbett, Levin, and Perry*

Appellant argues claims 1–8, 10–15, and 17–19 together. *See* Appeal Br. 7–14. Appellant also separately addresses claims 13–19 together. *See* Appeal Br. 15–17. Appellant does not separately argue the different rejection of claim 16, but merely addresses the additional reference cited (i.e., Perry) stating that this reference does “not make up for the above-noted deficiencies.” Appeal Br. 14. Accordingly, we select independent claims 1 and 13 for review, with the remaining claims standing or falling therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Claim 1

The Examiner primarily relies on Stern for disclosing the structure recited in claim 1 including the recited conductive parts. *See* Final Act. 2. The Examiner specifically relies on Stern for teaching “that the conductive parts of the device may be formed by any known method (col. 8 lines 17-28, col. 14 lines 29-42).” Final Act. 2–3. To be clear, the Examiner’s

paraphrasing of “any known method” is not technically accurate (but close) because Stern actually states “[t]he expandable balloon or bladder **10** with its electrodes can be manufactured in a variety of ways” and thereafter provides examples of such “ways,” and concludes this listing “and the like.” Stern 8:17–28. Thus, while “any” may be too broad an interpretation, it is clear that Stern expresses the ability to employ a number of known methods by which to make the device. *See also* Ans. 7 (“Stern still points broadly to other methods beside those listed.”). Hence, Appellant’s attempt to restrict Stern’s teachings to only those methodologies explicitly identified therein is too restrictive an interpretation of Stern’s teachings. *See* Appeal Br. 10; Reply Br. 10–11, 14–15.

The Examiner relies on the teachings of Tittle as simply being “one of numerous references that describe in broad terms how LDS [laser direct structuring] works.”² Final Act. 3; *see also* Ans. 5 (“Tittle was cited primarily because of the robust description of how LDS actually works.”). Thus, based on Stern’s teaching above, the Examiner reasons that it would have been obvious to a skilled person to employ Tittle’s method of manufacture (i.e., LDS) so as “to produce the predictable result of a balloon with conductive elements.” Final Act. 3; *see also* Ans. 3 (“Examiner contends using a known method to make a known structure that produces predictable results is in fact obvious.”). However, the Examiner recognizes that neither Stern nor Tittle specifically address the limitation that the circuit

² The Examiner also refers to Kupferschmid as being another reference describing LDS. *See* Final Act. 6. Appellant recognizes that Kupferschmid is “like Tittle” and “analogous to Tittle” in this regard. Appeal Br. 10; Reply Br. 12. However, it should be noted that Kupferschmid is not expressly relied upon by the Examiner to reject claim 1.

“is defined along an etched region” of the balloon because these two references are silent as to “the relationship between the outer surface of the electrode and the outer surface of the balloon.” Final Act. 3.

The Examiner relies on Corbett for disclosing that “electrodes may be formed below, flush with, or above a dielectric material” (i.e., within an “etched” region). Final Act. 4 (referencing Corbett Figs. 11–13). Corbett specifically teaches using a laser to form openings in a dielectric and that these openings may be either partly filled, filled flush, or filled so as to form a protrusion with “suitable deposits of metal having desired conductivity.” Corbett 8:10–49. Thus, based on Corbett, the Examiner reasons that it would have been obvious “to provide the electrode surface of Stern-Tittle at any particular relationship with the balloon surface,” i.e., recessed, flush, or protruding. Final Act. 4. Finally, the Examiner relies on Levin for disclosing “an electrosurgical device which uses insulation to control which portion of a conductor emits energy” and reasons that it would have been obvious to combine the above teachings with Levin “to allow the device to emit energy in a desired manner.” Final Act. 4.

Appellant disputes the Examiner’s combination of Stern and Tittle on the basis of non-analogous art and hindsight. Appeal Br. 8, 12; Reply Br. 7, 16. Appellant argues that a skilled person “would not have been motivated” to employ Tittle’s LDS process pertaining to a “rigid PC board” in conjunction with Stern’s “flexible polymer film balloon.” Appeal Br. 7, 8; Reply Br. 6, 7. Hence, Stern and Tittle (a) are “not from the same field of endeavor” and (b) address problems “clearly isolated from one another.” Appeal Br. 8; Reply Br. 7. Thus, as per Appellant, the Examiner relied on

“the hindsight provided by the present disclosure.” Appeal Br. 8; Reply Br. 7.

Regarding this rigid/flexible difference raised by Appellant, the Examiner states, “Applicant has not shown that applying [the] teachings of one type to the other would be out of reach of the person of ordinary skill in the art.” Final Act. 7. Further, “the cited prior art nowhere says ‘these methods are only applicable to rigid structures’,” and the Examiner notes that “the illustrative methods in Stern of putting an electrode on a balloon (vapor deposition in particular) are well known for use on rigid structures too.” Ans. 8; *see also* Ans. 5–6 (discussing Breitter’s teaching of the functional equivalence of LDS and vapor deposition as supporting Examiner’s conclusion that “one reading Stern would recognize that the methods disclosed, particularly vapor deposition, are known for use in other types of devices”). Appellant proffers no evidence explaining why Tittle’s LDS methodology is not suitable for use with Stern’s flexible material. Ans. 8 (“Appellant has not offered any evidence or argument that the teachings of the various references are not applicable to each other.”).

Instead, Appellant responds, “Appellant respectfully submits that [this] would not” be the case. Appeal Br. 9; Reply Br. 8. Appellant states, “Appellant is arguing, *inter alia*, that it would not be *prima facie* obvious to modify Stern based on the teachings of Tittle.” Ans. 9; *see also id.* at 11, 21. These rejoinders by Appellant, sans any evidence in support of Appellant’s argument, are not sufficient to overcome a *prima facie* finding of obviousness. In other words, Appellant does not dispute the Examiner’s finding that one of the methodologies described in Stern (i.e., vapor deposition) can also be employed on a rigid structure (*see* Ans. 8).

However, Appellant fails to explain or proffer evidence as to how the reverse is not also true, i.e., a methodology employed on a rigid structure (i.e., Tittle's LDS process) is likewise suitable for use on a flexible structure such as Stern's balloon especially in light of Stern's teaching concerning the variety of ways that the electrodes can be manufactured. *See Stern* 8:17–28. Instead, Appellant contends merely that “it is self-evident that one clearly would not be motivated to consider teachings directed to circuits from any other area of circuit manufacturing.” Ans. 9; *see also id.* at 10, 14.

We have been instructed that “attorney argument [is] not the kind of factual evidence that is required to rebut a prima facie case of obviousness.” *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997). Hence, this rigid/flexible distinction made by Appellant is not persuasive the Examiner erred in combining Tittle's LDS process with Stern's balloon.³

More specific to Appellant's “field” prong of the analogous art argument discussed above, the Examiner notes that “LDS technology was generally understood to be useful in medical fields” and thereafter references Kupferschmid, a previously cited reference, that “shows a medical device which uses LDS to construct an electrode.”⁴ Ans. 5. Further, Stern is also directed to the use of a balloon catheter within a patient, similar to Appellant's device. *See Stern generally.*

³ In Appellant's Answer, Appellant appears to be focusing specifically “on what the cited references teach” (Ans. 14) to the exclusion of the capabilities of a person skilled in the art. As is well-known, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

⁴ Kupferschmid was “cited in the rejection dated 11/20/18.” Ans. 5.

Regarding the problem addressed by Appellant, Appellant states “the problems being solved by the inventor vis-a-vis the claimed invention include the formation of an electrode and circuitry metal that is positioned within an etched region on a medical device surface.” Appeal Br. 12; Reply Br. 17. What is noteworthy from Appellant’s description of the problem solved by the inventor is the lack of any reference whatsoever to applying LDS methodology to a flexible surface. Accordingly, we are not persuaded the Examiner’s combination of Stern and Tittle is a combination of non-analogous art.

As to Appellant’s hindsight argument, Stern was cited for teaching that a variety of different methodologies may be used (Stern 8:17–18), and that Tittle’s LDS methodology was simply one such process for a skilled person to consider (*see* Final Act. 3). Hence, Appellant’s contention that one skilled in the art would not have been motivated to combine Stern and Tittle “given the markedly different needs and problems faced by Stern and Tittle” (Appeal Br. 9–10; Reply Br. 9), is not persuasive of Examiner error on this point.

Appellant further contends that “just because a given method of manufacturing circuits may have particular advantages and disadvantages, doesn’t mean that this would lead one of ordinary skill in the art to the claimed invention.” Appeal Br. 10; *see also* Reply Br. 14 (“The cited art, however, does not disclose or suggest that LDS [] has any particular advantages.”). On this point, the Examiner responds that a skilled person “would be motivated to consider a wide range of circuit construction methods depending on the particular advantages to be sought or the particular disadvantages to be avoided.” Ans. 6. This would particularly be

the case “since Stern specifically suggests various construction methods are possible.” Ans. 6. Appellant’s contentions above are not persuasive of Examiner error on this point.

Of further interest in the matter before us is Appellant’s statement that “Appellant has in fact used LDS in a novel fashion to form a novel device.” Appeal Br. 11. However, “apparatus claims cover what a device *is*, not what a device *does*.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1468 (Fed. Cir. 1990). The Examiner further clarifies that “novelty is not the only criteria for patentability; with respect to the prior art, the device must also be non-obvious.” Ans. 9. We are not persuaded of Examiner error on this point.

Appellant thereafter addresses Stern as failing to teach or suggest the use of circuitry “positioned within an etched region of a device as claimed.” Appeal Br. 13; Reply Br. 18. Appellant also argues that Tittle “is clearly remote from the formation of an electrode and circuitry metal positioned within an etched region.” Appeal Br. 13; Reply Br. 18. In both cases, Appellant is arguing the art individually because the Examiner relied on Corbett for teaching deposition into an etched region, not Stern or Tittle.⁵ See Final Act. 3–4. Hence, these arguments are not persuasive of Examiner error.

⁵ Regarding the issue of etching, Appellant contends, “there is no suggestion in Tittle that the LDS process could be used to form such an etched region” (Reply Br. 21), but Appellant does not dispute the Examiner’s statement, regarding Tittle, that “to some degree, etching and depositing metal are intrinsic parts of LDS.” Reply Br. 20; Ans. 11–12 (referencing Tittle 5:25–43).

Regarding Corbett, Appellant seeks to distinguish this reference stating, “the use of a laser to provide an active electrode site by *ablating the dielectric material coatings* of fine wires as described in Corbett (*see, e.g.*, col. 4, lines 1–4 and 19–26), is remote from the present invention.” Appeal Br. 14, n.1; Reply Br. 19, n.1. However, as mentioned above, Corbett was relied on for teaching the etching of material, and Appellant’s contention above regarding Corbett’s ablating action would seem to confirm that Corbett indeed teaches etching of the material. We thus conclude that the Examiner did not err by relying on Corbett for teaching the etching of a surface for subsequent filling by “metal having desired conductivity.” Corbett 8:34–49.

Accordingly, and based on the record presented, we are not persuaded the Examiner erred in rejecting claim 1 as being obvious over Stern, Tittle, Corbett, and Levin.

Claim 13

Appellant addresses method claim 13 focusing on Tittle’s teaching of producing “conductive paths on the top of a PC board,” and that “[t]his is clearly remote from the formation of an electrode and circuitry metal positioned *within an etched region* as claimed.” Appeal Br. 15; Reply Br. 22. This contention is not persuasive because the Examiner relied on Corbett for teaching the formation of circuitry “*within an etched region*” as stated, not Tittle. *See* Final Act. 3–4. Further, Appellant’s contention that “forming the conductive paths of Tittle within an etched region would render the electrical contact required by Tittle more difficult” (Appeal Br. 15; *see also* Reply Br. 22) is not persuasive. This is because Appellant does not

explain how the combination of Tittle and Corbett, even if “more difficult,” renders that combination non-obvious.

Regarding Corbett specifically, Appellant contends that Corbett “does not make up for the above noted deficiencies in Stern[and] Tittle.” Appeal Br. 16; Reply Br. 23. Appellant further contends: “The use of a laser to provide an active electrode site *by cutting openings in a dielectric material* to expose conductive material as described in Corbett (see, e.g., col. 4, lines 1-4 and 19-26), is remote from claims 13 and 17.” Appeal Br. 16; Reply Br. 23. Appellant provides no further explanation as to why Corbett’s method of etching might be “remote from” Appellant’s recited method of etching. As such, Appellant’s arguments are not persuasive the Examiner erred when relying on Corbett for teaching etching.

Addressing Levin and Perry (claim 16), Appellant simply contends that these references “do not make up for the above-noted deficiencies in Stern, Tittle, [] and Corbett.” Appeal Br. 17; Reply Br. 24.

Accordingly, and based on the record presented, we are not persuaded the Examiner erred in rejecting claims 1–8, 10–15, and 17–19 as being obvious over Stern, Tittle, Corbett, and Levin. We are further not persuaded the Examiner erred in rejecting claim 16 as being obvious over Stern, Tittle, Corbett, Levin, and Perry.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–8, 10–15, 17–19	103	Stern, Tittle, Corbett, Levin	1–8, 10–15, 17–19	

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
16	103	Stern, Tittle, Corbett, Levin, Perry	16	
Overall outcome			1-8, 10- 19	

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

AFFIRMED