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28284	7590	09/28/2020	EXAMINER	
SECOND SIGHT MEDICAL PRODUCTS, INC. 12744 SAN FERNANDO ROAD Suite 400 SYLMAR, CA 91342			ANTISKAY, BRIAN MICHAEL	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* BOOZARJOMEHR FARAJI, ROBERT J. GREENBERG,  
JAMES S. LITTLE, JERRY OK, NEIL HAMILTON TALBOT, and  
DAVID DAOMIN ZHOU

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Appeal 2020-001516  
Application 13/097,399  
Technology Center 3700

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Before JENNIFER D. BAHR, EDWARD A. BROWN, and  
SUSAN L. C. MITCHELL, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1, 24, and 25.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM.

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<sup>1</sup> We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Second Sight Medical Products, Inc. Appeal Br. 1.

<sup>2</sup> Claims 2–10 have been canceled, and claims 11–23 have been withdrawn from consideration. Amdt. (Feb. 19, 2019); Final Act. 1 (Office Action Summary).

### CLAIMED SUBJECT MATTER

Appellant's invention is directed to "an improved method for attaching a flexible circuit, such as attaching an electrode array to an implantable hermetic package, as for packaging electronics." Spec. 1. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An implantable device comprising:
  - a hermetic package enclosing electronics having a set of hermetic vias through the hermetic package, a first set of platinum electrical contact pads on a first surface of the hermetic package, and traces connecting the first set of platinum electrical contact pads to the set of hermetic vias through the hermetic package;
  - a flexible circuit including a second set of platinum electrical contact pads on a second surface of the flexible circuit aligned with said first set of contact pads;
  - a roughened fractal platinum gray surface electroplated on, and extending from, a platinum surface, beyond at least one platinum electrical contact pad of at least one of said first set of platinum electrical contact pads or said second set of platinum electrical contact pads, the roughened fractal platinum gray surface having a critical load strength greater than 60 millinewtons; conductive adhesive interlocking with the roughened fractal surface extending from the platinum surface to engage the conductive adhesive between said first set of platinum electrical contact pads and said second set of platinum electrical contact pads;
  - wherein the roughened fractal platinum gray surface improves physical and electrical contact between said at least one platinum electrical contact pad and the conductive adhesive;
  - the first surface or second surface being roughened to improve adhesion; and
  - nonconductive adhesive underfill between said hermetic package and said flexible circuit around said conductive adhesive.

## REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Mishra	US 5,826,586	Oct. 27, 1998
Egitto	US 6,613,184 B1	Sept. 2, 2003
Zhou	US 2003/0192784 A1	Oct. 16, 2003
Greenberg	US 2007/0005112 A1	Jan. 4, 2007

## REJECTION

Claims 1, 24, and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Greenberg, Zhou, Egitto, and Mishra.

## OPINION

Appellant argues against the rejection without specifically referencing any particular claims. *See* Appeal Br. 3–7. We decide this appeal on the basis of independent claim 1, and dependent claims 24 and 25 stand or fall with claim 1. *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 Greenberg discloses an implantable device substantially as recited in claim 1, but that Greenberg “does not specifically disclose a roughened surface on the contact pads, the surfaces that contact the conductive adhesive are roughened, or that the first surface or second surface is roughened to improve adhesion.” Final Act. 3. The Examiner finds that Zhou teaches a roughened fractal surface with platinum gray electroplated on and extending from a platinum surface beyond a contact pad. *Id.* at 3–4. The Examiner determines it would have been obvious to create a roughened surface as taught by Zhou on the platinum contact pads

of Greenberg in order to increase the contact area of the contact pads without increasing their size. *Id.* at 4.

Relying on Egitto’s teaching that it was a common practice in the art to roughen metal surfaces to enhance adhesion between the metal and polymer adhesive systems, the Examiner determines it would have been obvious to use the roughened surface of the combination of Greenberg and Zhou to allow for better surface adhesion of the contact pads to the adhesive due to the increase in surface area. *See* Final Act. 4. The Examiner finds that “due to the material nature of the roughened surface of Zhou as well as Egitto, the material would have inherently interlocked with the adhesive as the protruding fractal surface would have random gaps between the highest peaks and by extension would have adhesive fill said gaps even if only on the micron scale.” *Id.* The Examiner explains that “[t]he resultant combination of Greenberg, Zhou, and Egitto would have included a set of electrical contact pads electrically connected by a conductive adhesive (of Greenberg) with contacts including roughened platinum gr[a]y on top of a platinum surface (of Zhou) via the interlocking conductive adhesive (of Egitto).” *Id.* at 4–5.

The Examiner finds that Mishra teaches roughening outer surfaces of a medical implant to improve adhesion. Final Act. 5. The Examiner determines it would have been obvious to roughen the first surface of the housing (hermetic package) or the second surface of the flexible substrate to enhance adhesion. Final Act. 5.

Appellant emphasizes that the limitation that “a roughened fractal platinum gray surface is electroplated on, **and extending from**, a platinum surface” is a structural limitation. Appeal Br. 5. Be that as it may, this

limitation does not distinguish over the structure resulting from the combination of Greenberg, Zhou, Egitto, and Mishra set forth in the rejection. Zhou's roughening process, which the Examiner proposes to apply to Greenberg's platinum contact pads, is an additive process of electroplating a surface coating of platinum gray onto a platinum surface, which results in a roughened fractal platinum gray surface extending from the platinum surface. *See* Zhou ¶¶ 12, 33.

Appellant argues that Zhou gives no indication "that platinum gray would be a superior material to interlock with an adhesive or any other physical structure." Appeal Br. 5. According to Appellant, the use of platinum gray "for an electrode to increase capacitance and improve charge injection capability," as taught by Zhou, "does not render obvious the use of platinum gr[a]y in a structure to create a physical interconnection with a conductive adhesive." *Id.*

This line of argument is not persuasive. Zhou teaches that the "rough and porous fractal structure" of the platinum gray surface coating "increases the electrochemically active surface area of the platinum surface" without increasing the size of the electrode, thereby improving the ability of the electrode to transfer current. Zhou ¶¶ 6, 27. Greenberg's platinum contact pads (contacts 222 or bond pads 232) transfer current between rigid integrated circuit 244 and flexible circuit 218 through conductive adhesive 281. *See* Greenberg ¶ 54; Fig. 6. Thus, the benefit of increased surface area afforded by the electroplated platinum gray surface coating taught by Zhou would likewise be applicable to Greenberg's contact pads. This alone would have provided ample incentive to a person having ordinary skill in the art to electroplate a platinum gray coating on Greenberg's contact pads. The fact

that Appellant may have identified an additional benefit to providing such a coating does not nullify the obviousness of doing so. “In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls. What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” *KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 419–20 (2007). “Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining elements in the manner claimed.” *Id.* The reason to modify a reference may often prompt a person of ordinary skill in the art to do what the inventors have done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by an applicant. *See, e.g., In re Kahn*, 441 F.3d 977, 987 (Fed. Cir. 2006). As a rule, unrecognized advantages that flow naturally from structure otherwise obvious from the teachings of the prior art do not render the obvious structure patentable. *See Ex parte Obiaya*, 227 USPQ 58, 60 (BPAI 1985).

Moreover, the Examiner cites Egitto as evidence that roughening of surfaces was a known technique for enhancing adhesion between metals and polymer adhesives. Final Act. 4; *see Egitto* 1:50–53. Appellant concedes that the “simple fact [that a rough surface is better for use with an adhesive] is known in the art.” Reply Br. 3. Thus, considering the known advantages of a roughened surface formed by an electroplated platinum gray coating with respect to improved electrical contact, as taught by Zhou, and the known advantages of a roughened metal surface formed in a manner that does not produce a thick oxide layer with respect to improved adhesion with

an electrically conductive adhesive, as taught by Egitto (*see* Egitto 1:50–58), a person having ordinary skill in the art would have had a reasonable expectation of success in applying Zhou’s platinum gray electroplating technique to Greenberg’s platinum contact pads.

Appellant contends that “Egitto teaches that roughening is inadequate” for interconnecting with adhesive. Reply Br. 3. This mischaracterizes what Egitto teaches. Egitto teaches that “when the bond must be electrically conductive, treatments that improve adhesion *by producing a thick oxide layer, such as phosphoric acid or chromic acid anodization*, are not suitable because of the poor electrical properties of the thick oxide layers.” Egitto 1:54–58 (emphasis added). This teaching does not apply to roughening an electrode (or contact pad) by electroplating a platinum gray coating onto the electrode or contact pad surface, as taught by Zhou. Zhou’s platinum gray electroplating process is an additive process in which the workpiece (the electrode) acts as a cathode. Further, as discussed above, Zhou teaches that such a surface provides a good electrical interface. In contrast, the anodization treatments that Egitto characterizes as unsuitable when the bond must be electrically conductive are subtractive processes in which the workpiece acts as an anode.

Finally, Appellant argues that, “[e]ven assuming a seamless combination of all four references, the combination does not teach a structure extending from a bond pad to interlock with an adhesive,” and that “nothing in the prior art teaches the motivation for the present invention, which is to focus an improved biocompatible bond.” Appeal Br. 6. This argument appears to be merely a re-packaging of the arguments discussed above and, for the same reasons, is not persuasive.

For the above reasons, Appellant fails to apprise us of error in the rejection of claim 1 as unpatentable over Greenberg, Zhou, Egitto, and Mishra. Accordingly, we sustain the rejection of claim 1, and of claims 24 and 25, which fall with claim 1, as unpatentable over Greenberg, Zhou, Egitto, and Mishra.

#### DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 24, 25	103(a)	Greenberg, Zhou, Egitto, Mishra	1, 24, 25	

#### 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