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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/811,672	09/28/2010	Vivek Pawar	8178.3407	9823
96878	7590	12/30/2019	EXAMINER	
Smith & Nephew, Inc. - KDB 1450 Brooks Road Memphis, TN 38116			SCHALL, MATTHEW WAYNE	
			ART UNIT	PAPER NUMBER
			3774	
			NOTIFICATION DATE	DELIVERY MODE
			12/30/2019	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte VIVEK PAWAR, DONALD E. KRAMER,
CAROYLN L. WEAVER, and SHILESH C. JANI

Appeal 2018-003451
Application 12/811,672
Technology Center 3700

Before DANIEL S. SONG, ANNETTE R. REIMERS, and JILL D. HILL,
Administrative Patent Judges.

SONG, *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 11–19 and 31–38. 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(a). Appellant identifies the real party in interest as Smith & Nephew, Inc. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to a surface alloyed medical implant. Claim 11, reproduced below, is illustrative of the claimed subject matter:

11. A medical implant substrate comprising:

a first biocompatible metal;

a surface alloyed zone, wherein said surface alloyed zone is formed by diffusing at least a second biocompatible metal into said first biocompatible metal, the diffusion occurring at least at the surface of said substrate;

a hardened zone, wherein at least a portion of said hardened zone is within at least a portion of said surface alloyed zone;

wherein said surface alloyed zone has a thickness that ranges from about 5 microns to about 100 microns.

Appeal Br. 39, Claims App.

REJECTION

The Examiner rejects claims 11–19 and 31–38 under 35 U.S.C. § 103(a) (pre-AIA) as unpatentable over Popoola (US 2006/0233944 A1, pub. Oct. 19, 2006) in view of Pawar (US 2007/0137734 A1, pub. June 21, 2007). Final Act. 3.

OPINION

In rejecting the claims as unpatentable over the combination of Popoola in view of Pawar, the Examiner finds that Popoola discloses “a substrate comprising a first biocompatible metal (paragraph [0028]) with zirconium (the second biocompatible metal) deposited onto the surface in a mixed phase/alloy phase (figure 5),” and that “at least a portion of the zirconium is converted into a zirconia surface layer (a hardened zone).” Final Act. 3. The Examiner concedes that “Popoola does not specifically

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disclose the surface alloyed zone has a thickness between 5 to 100 microns,” but relies on Pawar for teaching “a diffusion hardened medical implant with a surface alloyed zone having a thickness of between 5-100 microns (paragraph [0016]) . . . for the purpose of improving strength and reducing wear (paragraphs [0003]-[0004]).” Final Act. 3. Based on these findings, the Examiner concludes that it would have been obvious to a person of ordinary skill in the art to have modified the substrate “to have the thickness of Pawar in order to improve the strength and reduce the wear on the device.” Final Act. 3.

The Appellant argues, *inter alia*,² that the Examiner has failed to establish a prima facie case of obviousness in rejecting independent claims 11, 31, and 32. Appeal Br. 6. Specifically, as to claim 11, the Appellant argues that neither Pawar nor Popoola discloses “a surface alloyed zone that is formed by diffusion of at least a second biocompatible metal into a first biocompatible metal of the substrate, the diffusion occurring at least at the surface of the substrate” and having a thickness from about 5-100 microns as recited. Appeal Br. 6–7. We generally agree with the Appellant.

² Initially, the Appellant argues that the rejection is deficient because the Final Office Action “did not even include an acknowledgement of the Declaration [of Pawar], let alone provide any explanation regarding the sufficiency of the Declaration.” Appeal Br. 5, citing MPEP § 716.01(b); *see also* Reply Br. 2. However, as the Appellant concedes, the Advisory Action of record states “[a]dditionally, the Affidavit filed 7/25/2016 has been considered.” Advisory Act. 2. Although the Examiner does not discuss the Declaration of Pawar, this is not dispositive because we ultimately agree with the Appellant that the rejection is deficient for the reasons discussed in this Decision.

The Examiner's finding with respect to Popoola is correct, and as the Appellant acknowledges, Popoola discloses an intermix zone in which Zr is diffused into the substrate alloy that corresponds to the recited surface alloyed zone, albeit being only “‘about 1000 Å thick,’ which equates to only 0.1 microns.” Appeal Br. 10 (citing Popoola ¶¶ 9, 16, 28, Abstract). Although the Examiner relies on Pawar as disclosing a thickness of a surface alloyed zone in the claimed range, as the Appellant correctly points out, the portion of Pawar relied upon pertains to an oxidized layer of the core alloy. Appeal Br. 7 (citing Pawar ¶ 16). Thus, the Appellant is correct, and we agree, that “merely oxidizing a core alloy in such a manner [as disclosed in Pawar] neither teaches nor suggests features relating to forming a surface alloyed zone by diffusing, at least at the surface of the substrate, *a second biocompatible metal* into a first biocompatible metal.” Appeal Br. 7 (emphasis added); *see also* Appeal Br. 8–9 (the thickness cited “is with regard to the thickness of a diffusion hardened zone formed by the diffusion of oxygen into an alloy . . . [and] neither teaches nor suggests features relating to diffusing at least one biocompatible metal into another biocompatible metal so as to form a surface alloyed zone.”); Reply Br. 5–6.

The Examiner responds that Pawar “is used for the teaching of altering the thickness,” and that “the claims of the present invention actually require altering the zones from between 1-100 microns (a difference of 100 times larger), and actually supports this obviousness rejection. Therefore the prior art ranges fall within the scope of the claims and thus can be considered obvious.” Ans. 2. However, we agree with the Appellant that the Examiner Answer appears to improperly rely on the Appellant's own claims, rather than the prior art. To any extent this is a response to the Appellant's arguments at all, it is unpersuasive.

We further find persuasive, the Appellant’s arguments that the necessary modification of the 0.1 micron thick intermix zone of Popoola to have a thickness in the recited range appears to be based on impermissible hindsight. Appeal Br. 25. The Examiner does not provide any reason with rational underpinnings as to why a person of ordinary skill would have sought to modify the intermix zone of Popoola to have a thickness in the recited range. Although the Examiner has relied upon Pawar for this thickness, this reliance on Pawar is misplaced for the reasons discussed above.

Therefore, we reverse the Examiner’s rejection of independent claim 11 and claims 12–19 that depend therefrom. The Appellant’s further arguments that the references teach away from the combination suggested by the Examiner (Appeal Br. 21–22), and that the suggested combination lacks reasonable expectation of success (Appeal Br. 23–24), are moot. The Appellant also submits substantially the same arguments in support of patentability of independent claims 31, 32, and claims 33–38 that ultimately depend from claim 32. Appeal Br. 11–20, 26–37. Accordingly, the Examiner’s rejection of these claims is reversed as well.

CONCLUSION

The Examiner’s rejection is REVERSED.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
11–19, 31–38	103(a)	Popoola, Pawar		11–19, 31–38

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Overall Outcome				11-19, 31- 38
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REVERSED