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Guardian Glass, LLC (Nixon) c/o KCPS IP Dept./Shannon Gonsalves 4111 E. 37th Street North Mail Stop T2C Wichita, KS 67220			HORNING, JOEL G	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARK A. LEWIS and DAVID D. McLEAN

Appeal 2020-000190
Application 12/076,101
Technology Center 1700

Before JO-ANNE M. KOKOSKI, JEFFREY R. SNAY, and LILAN REN,
Administrative Patent Judges.

SNAY, *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, 3–9, 11–21, and 26. 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 Guardian Glass, LLC, as the real party in interest. Appeal Br. 3.

BACKGROUND

The invention relates to combustion deposition to form anti-reflection glass coatings. Spec. ¶ 1; claim 1. Claim 1 reads:

1. A method of forming an anti-reflection coating on a glass substrate using combustion deposition, the method comprising:
providing a glass substrate having at least one surface to be coated;

selecting a reagent, the reagent being selected such that at least a portion of the reagent is used in forming the coating;

introducing a first concentration of a first precursor to be combusted by a first flame;

combusting at least a portion of the reagent and the first precursor to form a first combusted material, the first combusted material comprising non-vaporized material;

providing the glass substrate in a first area so that the glass substrate is heated sufficiently to allow the first combusted material to form a first growth directly or indirectly, on the glass substrate;

introducing a second concentration of a second precursor to be combusted by a second flame;

combusting at least a portion of the reagent and the second precursor to form a second combusted material, the second combusted material comprising non-vaporized material, wherein the first concentration of the first precursor is less than the second concentration of the second precursor; and

providing the glass substrate in a second area so that the glass substrate is heated sufficiently to allow the second combusted material to form a second growth directly or indirectly, in or on the first growth,

wherein the anti-reflection coating is formed on the at least one surface to be coated and comprises at least the first and second growths, the first growth being made with process conditions that produce first particles of a first mean particle size distribution and the second growth being made with process conditions that produce second particles of a second mean particle size distribution, wherein particles in the first mean particle size distribution are generally smaller than particles in the second mean particle size distribution, and

wherein the first particles comprise small nucleation-sized particles and the second particles comprise large agglomerates of nano-particles, such that the first mean particle size distribution has a mean particle size that is smaller than that of the second mean particle size distribution;

wherein the anti-reflection coating comprises a silicon oxide matrix including nano-particles, the nano-particles being embedded therein in situ via the combustion deposition and including at least some of the non-vaporized material from the first and second combusted materials, ***wherein the coating comprises a mixed microstructure wherein particles of different size distributions, from the first and second growths, are provided in a common plane of the anti-reflection coating, the common plane being substantially parallel to the at least one surface of the glass substrate on which the anti-reflection coating is formed,*** and

wherein particles at an upper surface of the anti-reflection coating are generally larger than particles at the lower surface of the anti-reflection coating, the lower surface of the anti-reflection coating being located immediately adjacent the glass substrate, and the upper surface of the anti-reflection coating being located farther from the glass substrate than is the lower surface, the mixed microstructure being located between the upper and lower surfaces.

Appeal Br. 18–20 (Claims Appendix) (emphasis added).

Independent claims 16 and 26 similarly recite combustion deposition processes performed under conditions which produce a mixed microstructure of particles from first and second growths having different size distributions. Each remaining claim on appeal depends from claim 1 or 16.

REJECTION

Claims 1, 3–9, 11–21, and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Debsikdar,² Grünler,³ Hunt,⁴ and Friedlander.⁵

OPINION

The Examiner has the initial burden of establishing a *prima facie* case of obviousness based on an inherent or explicit disclosure of the claimed subject matter under 35 U.S.C. § 103. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) (“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.”). To establish a *prima facie* case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art or the inferences and creative steps a person of ordinary skill in the art would have employed. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

Each independent claim on appeal recites, *inter alia*, “the coating comprises a mixed microstructure wherein particles of different size distributions, from the first and second growths, are provided in a common

² US 4,830,879, issued May 16, 1989.

³ EP 1 602 633 A1, published December 7, 2005, as translated.

⁴ US 6,193,911 B1, issued February 27, 2001.

⁵ S.K. Friedlander, *SYNTHESIS OF NANOPARTICLES AND THEIR AGGLOMERATES: AEROSOL REACTORS*, WTEC Hyper-Librarian (January 1998) available at http://web.archive.org/web/20060911135838/http://www.wtec.org/loyola/nano/us_r_n_d/04_04.htm

plane.” The Examiner finds Debsikdar discloses forming multiple particle layers by a sol-gel process. Final Act. 3. To meet the mixed microstructure recitation of the claims, the Examiner concludes—without citation to evidence—that “it is readily apparent that particles from the second growth will impregnate some distance into the porous layer of the first growth, which has its own particles, resulting in a mixed microstructure layer with particles of different sizes, from the first and second growths.” *Id.* The Examiner does not rely upon any cited evidence beyond Debsikdar to reach the mixed microstructure recitation in the claims.

Appellant argues the Examiner’s above-mentioned conclusion implies an unsubstantiated finding of inherency. Appeal Br. 14. We agree.

“The mere fact that a certain thing may result from a given set of circumstances is not sufficient” to render the result inherent. *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981) (quoting *Hansgirg v. Kemmer*, 102 F.2d 212, 214 (CCPA 1939)).

Here, the Examiner points to no credible evidence to support the stated inference that Debsikdar’s process necessarily would have produced a mixed microstructure of particles from first and second growths. To the contrary, as Appellant points out (Appeal Br. 14), the Examiner’s finding that Debsikdar forms each subsequent layer with particles that are larger than those of the previous layer (Final Act. 2–3) appears inconsistent with a determination that a subsequently deposited particle layer necessarily would have mixed with the previous layer.

It is well-established that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal

conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).
Having reviewed the Final Action and the Examiner’s Answer, we are persuaded that the Examiner has not met the burden to articulate sufficient reasoning to support the legal conclusion of obviousness.

CONCLUSION

The Examiner’s decision rejecting claims 1, 3–9, 11–21, and 26 is reversed.

DECISION SUMMARY

In summary:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3–9, 11– 21, 26	103(a)	Debsikdar, Grünler, Hunt, Friedlander		1, 3–9, 11– 21, 26

REVERSED