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O'Shea Getz P.C. 10 Waterside Drive, Suite 205 Farmington, CT 06032			JOHNSON, JONATHAN J	
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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HERBERT A. CHIN, WILLIAM P. OGDEN,
DAVID A. HALUCK, and RONALD F. SPITZER

Appeal 2019-002671
Application 14/776,190
Technology Center 1700

Before BEVERLY A. FRANKLIN, LINDA M. GAUDETTE, and
N. WHITNEY WILSON, *Administrative Patent Judges*.

WILSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ appeals under 35 U.S.C. § 134(a) from the Examiner's May 25, 2018 decision rejecting claims 1–12 and 14–20² (“Non-Final Act.”). We have jurisdiction over the appeal 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 United Technologies Corp. as the real party in interest (Appeal Br. 3).

² Claim 13 has been canceled and is not part of this appeal (Appeal Br. 3).

CLAIMED SUBJECT MATTER

Appellant's disclosure relates to a rolling element bearing that includes a plurality of bearing components (Abstract). A first of the bearing components includes martensitic stainless steel configured with a core and a hardened case (*id.*). The martensitic stainless steel of the core includes approximately 8% by weight or more chromium (*id.*). The martensitic stainless steel of the hardened case has a grain size that is substantially equal to or finer than ASTM grain size #7, and includes approximately 6% by weight or more chromium, and carbon (*id.*). Molecules that include the carbon are substantially uniformly dispersed within the hardened case (*id.*). Details of the claimed structure are set forth in representative claim 1, which is reproduced below from the Claims Appendix to the Appeal Brief:

1. A rolling element bearing, comprising:
 - a plurality of bearing components including one or more rolling elements, an inner ring and an outer ring;
 - a first of the bearing components comprising martensitic stainless steel configured with a core and a hardened case;
 - the martensitic stainless steel of the core including approximately 8% by weight or more chromium; and
 - the martensitic stainless steel of the hardened case having a grain size that is equal to or finer than ASTM grain size #7, and including approximately 6% by weight or more chromium, and carbon;
 - wherein molecules that include the carbon are uniformly dispersed within the hardened case, and the molecules that include the carbon comprise carbo-nitrides; and
 - wherein the martensitic stainless steel of the hardened case comprises between two and fifteen percent retained austenite.

REJECTIONS

Claims 1–12 and 14–20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Chin³ in view of Trivedi,⁴ alone or in further view of Jain⁵ or Knepper.⁶

DISCUSSION

The Examiner’s findings underlying the rejection are set forth at pages 3–4 of the Non-Final Action. The Examiner finds that Chin discloses each element of each claim, except that Chin does not disclose the presence of carbo-nitrides (Non-Final Act. 3–4). The Examiner also finds that the claimed grain sizes of the martensitic stainless steel of the hardened case are disclosed by Chin’s teaching that its grain sizes are ASTM grain size #5 or finer, which size range overlaps with the claimed grain sizes. The Examiner further finds that Chin does not teach the use of carbo-nitrides, but that it “is common practice as shown by Trivedi that carbo-nitrides . . . can be incorporated in[to] the hardened case of a martensitic stainless steel bearing component in order to impart hardness, improve rolling contact fatigue strength and corrosion resistance” (Non-Final Act. 4, internal citation omitted).

The Examiner determines that it would have been obvious to modify Chin’s hardened case by including carbo-nitrides as taught by Trivedi to improve the properties of the steel (Non-Final Act. 4).

³ Chin et al., US 8,308,873 B2, issued November 13, 2012.

⁴ Trivedi et al., WO 2012/166851 A1, published December 6, 2012.

⁵ Jain et al., US 2011/0108164 A1, published May 12, 2011.

⁶ Knepper et al., US 6,443,624 B1, issued September 3, 2002.

Claim 1. Appellant argues that Chin fails to teach or suggest “the martensitic stainless steel of the hardened case having a grain size that is equal to or finer than ASTM grain size # 7” (Appeal Br. 9). The Examiner finds that this limitation is taught by Chin’s statement that it uses a grain size that is equal to ASTM grain size #5 or finer (Non-Final Act. 3). Effectively, the Examiner finds that Chin discloses a range of grain sizes (#5 or finer (i.e., higher numbers)), which overlaps with the claimed grain size of #7 or finer and, therefore, would have rendered the claimed grain size obvious. *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997) (a prima facie case of obviousness exists in situations where the claimed ranges overlaps the ranges disclosed by the prior art).

Appellant contends that the range of grain sizes disclosed by Chin is so broad as to encompass a very large number of possible distinct compositions and does not render the smaller range obvious (Appeal Br. 9–10). This argument is not persuasive. As explained by the Examiner, the grain size disclosed by Chin describes a range which encompasses the claimed range, establishing a prima facie case of obviousness. While Appellant argues that the disclosed range is “so broad,” Appellant has made no showing as to exactly how much broader the disclosure is as compared to the claimed range. Moreover, Appellant has not made a showing that the claimed range provides unexpected results relative to the disclosed range.⁷

⁷ Appellant does not raise the issue of unexpected results in the Appeal Brief, but raises it only in the Reply Brief. Accordingly, we need not address the issue. 37 C.F.R. § 41.41(b)(2) (Any argument raised in the Reply Brief which was not raised in the Appeal Brief, or is not responsive to an argument raised in the examiner’s answer, including any designated new ground of rejection, will not be considered by the Board unless good cause is shown).

Accordingly, based on Appellant’s arguments and the evidence of record, Appellant has not demonstrated reversible error in the rejection of claim 1.

Claims 17 and 18. Appellant raises essentially the same arguments with respect to these claims as in connection with claim 1 (Appeal Br. 11, 12). These arguments are unpersuasive of reversible error for the same reasons.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	References(s)/Basis	Affirmed	Reversed
1–12, 14–20	103(a)	Chin, Trivedi, Jain, Knepper	1–12, 14–20	

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

AFFIRMED