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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TAKUYA KOCHI, HITOSHI HATANO, and KOTARO TOYOTAKE

Appeal 2015-000722
Application 13/582,608
Technology Center 1700

Before ROMULO H. DELMENDO, JEFFREY W. ABRAHAM, and JENNIFER R. GUPTA, *Administrative Patent Judges*.

GUPTA, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants[1] appeal under 35 U.S.C. § 134(a) from the Examiner's decision[2] finally rejecting claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] Appellants identify the real party in interest as Kabushiki Kaisha Kobe Seiko Sho (Kobe Steel, Ltd.). Appeal Brief filed August 4, 2014 ("App. Br."), 2. Oral arguments were heard on November 10, 2016.
[2] Final Office Action mailed March 11, 2014 ("Final Act.").

The subject matter on appeal relates to a seamless steel pipe for a high-strength hollow spring. Spec. ¶ 1. Claim 1, reproduced below, is illustrative of the claims on appeal.

1. A seamless steel pipe, comprising:

   from 0.20 to 0.70 mass% of C;

   from 1.0 to 3.0 mass% of Si;

   from 0.1 to 3.0 mass% of Mn;

   from 0 to 0.030 mass% of P;

   from 0 to 0.030 mass% of S;

   from 0 to 0.02 mass% of N; and

   a remainder of Fe and unavoidable impurities,

   wherein the seamless steel pipe comprises carbide comprising cementite, which has an equivalent circle diameter of 1.00 μm or less, and

   the pipe is suitable for a hollow spring.

App. Br. (Claims Appendix) i.

REJECTIONS ON APPEAL

1. Claims 1–20 stand rejected under 35 U.S.C. § 103(a) as obvious over Toyotake et al. (US 2010/0037976 A1, published Feb. 18, 2010) (hereinafter "Toyotake") in view of Toyooka et al. (US 6,290,789 B1, issued Sept. 18, 2001) (hereinafter "Toyooka"); and
2. Claims 1–20 stand rejected under 35 U.S.C. § 103(a) as obvious over Toyooka.

DISCUSSION

Although argued separately, Appellants' arguments are substantially the same for independent claim 1 and dependent claims 3–5, 9–14, 19, and 20. Appellants do not separately argue dependent claims 2, 6–8, or 15–18. Accordingly, we focus on claim 1 in deciding this appeal.

The Examiner finds that Toyotake teaches a seamless steel pipe having all the claimed elements in ranges that overlap with the ranges recited in claim 1. Non-Final Office Action mailed Dec. 2, 2013 ("Non-Final Act."), 3–5;[3] Toyotake Abstract and ¶ 185; Table 3 (Steel A and B). The Examiner, however, acknowledges that Toyotake does not specify "carbide comprising cementite" as recited in the claims. Non-Final Act. 5.

The Examiner finds Toyooka discloses a steel pipe containing the claimed elements in ranges that overlap with the ranges recited in claim 1, and also includes fine carbides such as cementite with a grain size of 1.00 μm or less to impart high strength and ductility. Non-Final Act. 8–9; Toyooka Abstract, 4:5–19, 4:34–42, 9:25–50 and 10:60–61.

The Examiner finds that it would have been obvious to a person of ordinary skill in the art to "control the grain size of cementite as demonstrated by [Toyooka] for the alloy of [Toyotake] in order to obtain excellent toughness and ductility." Non-Final Act. 5–6.

Appellants do not dispute that both Toyotake and Toyooka disclose a steel pipe containing the claimed elements in ranges overlapping with the ranges recited in claim 1. *See* App. Br. *generally*. Nor do Appellants dispute the Examiner's reasoning for combining Toyotake and Toyooka.

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[3] In the Final Action, the Examiner simply refers to the rejections made in the Non-Final Action. Final Act. 3.

See id. Rather, Appellants principal argument for reversal of the Examiner's rejections is that none of Toyooka's examples teach or disclose annealing a steel pipe having a combination of from 1.0 to 3.0 mass% of silicon (or narrower ranges recited in dependent claims 9–14) and cementite at a temperature of least 750 ºC, and thus Toyooka's examples would not produce or enable one of ordinary skill in the art to produce a steel pipe that includes cementite having a diameter of 1.00 μm or less (or the narrower diameter ranges recited in dependent claims 3–5, 19, and 20). *See* App. Br. 8–24; *see also* Reply Brief filed October 17, 2014 ("Reply Br.") 7–9.

Appellants' argument is not persuasive of reversible error in the Examiner's rejections. A prior art patent is presumed to be enabled. *See, e.g.*, *In re Antor Media Corp.*, 689 F.3d 1282, 1287–88 (Fed. Cir. 2012). In addition, "[a] reference must be considered for everything that it teaches, not simply the described invention or a preferred embodiment." *In re Applied Materials, Inc.* 692 F.3d 1289, 1298 (Fed. Cir. 2012). Although Toyooka does not include an example of a steel pipe with a silicon content of from 1.0 to 3.0 mass% of silicon and cementite having a grain diameter of 1.00 μm or less, Toyooka broadly discloses its steel pipe contains 0.01 to 3.0% silicon (4:5–12) and can include cementite preferably having a grain diameter of 1.0 μm or less (9:25–61). In addition, Toyooka teaches that its steel pipe is preferably heated at temperatures of 400 ºC to 750 ºC, and preferably not higher than 750 ºC (Toyooka 10:16–47), which Appellants admit (App. Br. 9). Appellants' Specification teaches that it is *preferable* to use a final annealing temperature of 750 ºC or higher, a range that includes 750 ºC, in manufacturing the seamless steel pipe to reduce the size of the carbide in the pipe to 1.00 μm or less. Thus, based on Appellants' own Specification, a

steel pipe with cementite that has a circle diameter of 1.00 μm or less can be formed by annealing a steel pipe containing cementite at a temperature of 750 ºC, as disclosed in Toyooka.. Appellants have not persuasively argued or presented evidence demonstrating why a person of ordinary skill in the art reading Toyooka would have had to engage in undue experimentation to produce a seamless steel pipe having from 1.0 to 3.0 mass % of silicon and cementite having an average crystal diameter of 1.00 μm or less. Nor does Appellants' evidence of record convince us that when the annealing temperature is 750 ºC, the cementite in Toyooka's steel pipe would not have an average crystal diameter of 1.00 μm or less. Accordingly, we sustain the rejection of claims 1–20 under 35 U.S.C. § 103(a) over Toyotake in view of Toyooka, and over Toyooka alone.

We have considered Appellant's remaining arguments (*see, e.g.*, App. Br. 13–20) and find none that warrant reversal of the appealed rejections based on reasoning analogous to those discussed above and those given by the Examiner. *Cf. In re Antor Media Corp.*, 689 F.3d 1282, 1294 (Fed. Cir. 2012).

DECISION

For the above reasons, the Examiner's rejections of claims 1–20 are affirmed.

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