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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TADASHI NAKANISHI, SHINJI KOSEKI, YOSHIHIKO ODA,
and TOMOYUKI OKUBO

Appeal 2019-003162
Application 15/503,570
Technology Center 1700

Before ADRIENE LEPIANE HANLON, JEFFREY B. ROBERTSON, and
MONTÉ T. SQUIRE, *Administrative Patent Judges*.

SQUIRE, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner’s decision rejecting claims 1–3 and 5, which are all of the claims pending in this Application.³ We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ In this Decision, we refer to the Specification filed Feb. 13, 2017 (“Spec.”); Final Office Action dated Apr. 6, 2018 (“Final Act.”); Advisory Action dated July 26, 2018 (“Adv. Act. “); Appeal Brief filed Oct. 11, 2018 (“Appeal Br.”); Examiner’s Answer dated Jan. 25, 2019 (“Ans.”); and Reply Brief filed Mar. 13, 2019 (“Reply Brief”).

² We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies JFE Steel Corporation as the real party in interest. Appeal Br. 2.

³ Claims 4 and 6–8 are canceled. Appeal Br. 14.

CLAIMED SUBJECT MATTER

Appellant's disclosure relates to a non-oriented electrical steel sheet having a certain chemical composition. Spec. ¶¶ 1, 10; Abstract. According to the Specification, the steel sheet is said to have high magnetic flux and excellent magnetic properties and is mainly used as an iron core of a driving motor or a generator motor for hybrid vehicles and electric vehicles. Spec. ¶ 1.

Claim 1 illustrates the claimed subject matter on appeal and is reproduced below from the Claims Appendix to the Appeal Brief:

1. A non-oriented electrical steel sheet having a chemical composition comprising C: not more than 0.01 mass%, Si: 1.3-5.0 mass%, Mn: 0.001-3 mass%, sol. Al: not more than 0.004 mass%, P: 0.05-0.20 mass%, S: not more than 0.005 mass%, N: not more than 0.005 mass%, Ti: more than 0.0020 mass% but not more than 0.1 mass%, and the remainder being Fe and inevitable impurities, wherein a sheet thickness is 0.1-0.3 mm.

Appeal Br. 14.

REFERENCES

The Examiner relies on the following prior art references⁴ as evidence in rejecting the claims on appeal:

Name	Reference	Date
Kono	JP 2001323347 (A)	Nov. 22, 2001
Hiroshi	JP 2005200755 A	July 28, 2005

⁴ In rejecting the claims on appeal, the Examiner relies and cites to the English translations of record for both the Kono and Hiroshi references.

REJECTIONS

On appeal, the Examiner maintains (Ans. 3) the following rejections:

1. Claims 1 and 2 are rejected under 35 U.S.C. § 103 as being unpatentable over Kono (“Rejection 1”). Final Act. 2.
2. Claims 3 and 5 are rejected under 35 U.S.C. § 103 as being unpatentable over Kono, as applied to claims 1 and 2 above, and further in view of Hiroshi (“Rejection 2”). *Id.* at 4.

OPINION

Having considered the respective positions advanced by the Examiner and Appellant in light of this appeal record, we affirm the Examiner’s rejections based on the fact-finding and reasoning set forth in the Answer, Final Office Action, and Advisory Action, which we adopt as our own. We add the following primarily for emphasis.

Rejection 1

The Examiner rejects claims 1 and 2 as being obvious over Kono (Final Act. 2), which we refer to as Rejection 1. Appellant presents argument for the patentability of claim 1 and does not present separate argument for the patentability of claim 2. Appeal Br. 3, 11. We select claim 1 as representative and claim 2 stands or falls with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner determines that Kono teaches or suggests a non-oriented steel sheet satisfying all of the limitations of claim 1 and concludes the reference would have rendered the claim obvious. Final Act. 2–3. On the record before us, we find a preponderance of the evidence and sound technical reasoning support the Examiner’s findings and

determination that Kono teaches or suggests a non-oriented steel sheet satisfying all of the limitations of claim 1 and conclusion that the reference would have rendered the claim obvious. Kono, Abstract, ¶¶ 1, 9, 31, 36, 39, 40, 43, 45 (Table 1)).

Appellant argues that the Examiner's rejection should be reversed because Kono fails to disclose any example that satisfies the composition of claim 1 and provides no reason to modify any example of Kono to arrive at the claimed composition. Appeal Br. 3–4. In particular, Appellant contends that because every example shown in Table 1 of Kono has a value of Al, P, or Ti that falls outside the range recited in claim 1, Kono's steel sheets are "different" from the steel sheets recited in the claim. Appeal Br. 4; *see also* Reply Br. 3–4 (asserting the "claimed range of Ti differs from that taught by Kono because the range taught by Kono extends well below the lower limit of the claimed range of Ti").

We do not find Appellant's argument persuasive of reversible error in the Examiner's rejection because Kono's teachings are not limited to the disclosures in its examples or preferred embodiments. *See In re Mills*, 470 F.2d 649, 651 (CCPA 1972) ("[A] reference is not limited to the disclosure of specific working examples."); *see also In re Susi*, 440 F.2d 442, 445-46 (CCPA 1971) (holding disclosure of a particular preferred embodiment does not teach away from a prior art reference's broader disclosure).

Rather, as the Examiner finds (Ans. 3–4; Final Act. 2–3), Kono explicitly teaches a non-oriented electrical steel sheet having a chemical composition which encompasses or overlaps Appellant's claimed composition ranges (Kono, Abstract, ¶¶ 1, 9, 31, 39) and describes working examples of sheets having thicknesses that fall within Appellant's claimed

thickness range (*id.* ¶¶ 43, 45 (Table 1)). *See In re Petersen*, 315 F.3d 1325, 1329-1330 (Fed. Cir. 2003) (holding that a prima facie case of obviousness “exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art” and when “the claimed ranges are completely encompassed by the prior art, the [obviousness] conclusion is even more compelling than in cases of mere overlap.”).

Appellant’s argument reveals no reversible error in the Examiner’s factual findings and conclusion in this regard.

Appellant argues further that the claimed invention yields unexpected results. Appeal Br. 3, 5–11; Reply Br. 1–5. In particular, Appellant argues the claimed composition achieves unexpected results with respect to the effect of Ti content on the magnetic flux density of the steel sheet. Appeal Br. 5. Relying on the data and results provided in Figure 2 of the Specification, Appellant contends that “when Ti content is increased above the lower limit of the claimed invention, magnetic flux density is also substantially increased” (Appeal Br. 5) and this effect “would have been unexpected in view of the teachings of Kono” (*id.* at 6). Appellant further contends that, in contrast to the claimed invention, when Ti is increased in Kono, magnetic flux density decreases. *Id.* at 6 (relying on data and examples from Table 1 of Kono and an abridged version of Figure 2 of Kono).

We do not find Appellant’s arguments persuasive based on the fact-finding and well-stated reasoning provided by the Examiner at pages 4–6 of the Answer. In attempting to overcome a prima facie case of obviousness by showing unexpected results, the burden rests with Appellant to establish, among other things, that the alleged unexpected results

presented as being associated with the claimed invention are, in fact, unexpected and the supplied evidentiary showing is commensurate in scope with the claimed subject matter. *See In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972).

Appellant has failed to satisfy the requisite burden. Appellant has not sufficiently established that the alleged unexpected results associated with the claimed invention are, in fact, unexpected. In particular, Appellant does not identify persuasive evidence or adequately explain why the alleged increase in magnetic flux as Ti content is increased would have been considered to be an unexpected result and not just a typical result by one of ordinary skill in the art. *Klosak*, 455 F.2d at 1080 (“[T]he burden of showing unexpected results rests on [the party] who asserts them.”). Especially, as the Examiner finds (Ans. 6) and contrary to what Appellant argues, Kono explicitly teaches that increasing the concentration of Ti improves (increases) the magnetic properties of the sheet. Kono ¶ 36.

Appellant’s alleged showing of unexpected results is also not commensurate in scope with claim 1. As the Examiner finds and explains (Ans. 5), although Kono teaches a composition having a Ti concentration, which overlaps the claimed range of 0.0020–0.1 mass % (*see* Kono, Abstract, ¶ 9), Appellant does not provide any data for compositions having Ti contents at the upper part of the claimed range between 0.005–0.1 mass %. Thus, we are not persuaded that Appellant has provided data sufficient to show that the alleged unexpected results occur over the entire claimed range of 0.0020–0.1 mass %. *See In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (“Evidence of secondary considerations must be reasonably commensurate with the scope of the claims.”).

Accordingly, we affirm the Examiner's rejection of claims 1 and 2 under 35 U.S.C. § 103 as obvious over Kono.

Rejection 2

In response to the Examiner's rejection of claims 3 and 5 as obvious over the combination of Kono and Hiroshi, which we refer to above as Rejection 2, Appellant does not present any new or additional substantive arguments. Rather, Appellant relies on principally the same arguments previously presented above in response to the Examiner's rejection of claim 1 as obvious over Kono. *See* Appeal Br. 12 ("Appellant submits that claims 3 and 5 are not obvious based on Kono and Hiroshi for at least the reasons set forth above with respect to claim 1.").

Appellant's assertions that "Hiroshi fails to provide any reason which would have motivated one of ordinary skill in the art to modify the steel sheets of Kono" (Appeal Br. 11) and "Hiroshi would not have led one of ordinary skill in the art to expect the effect of Ti on magnetic flux density achieved by the present invention" (*id.* at 12) are not persuasive of reversible error in the Examiner's rejection because they are conclusory. *De Blauwe*, 736 F.2d at 705.

Thus, based on the findings and technical reasoning provided by the Examiner, and for principally the same reasons discussed above for affirming the Examiner's rejection of claims 1 and 2 under 35 U.S.C. § 103 as obvious over Kono, we affirm the Examiner's rejection of claims 3 and 5 under 35 U.S.C. § 103 as obvious over the combination of Kono and Hiroshi.

CONCLUSION

In summary:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2	103	Kono	1, 2	
3, 5	103	Kono, Hiroshi	3, 5	
Overall Outcome			1-3, 5	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (1)(iv).

AFFIRMED