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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/101,391	12/10/2013	Makoto TANIGUCHI	RYM-2018-3303	4650
23117	7590	01/15/2020	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			ALMAWRI, MAGED M	
			ART UNIT	PAPER NUMBER
			2834	
			NOTIFICATION DATE	DELIVERY MODE
			01/15/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MAKOTO TANIGUCHI and HIROKI TOMIZAWA

Appeal 2018-008611
Application 14/101,391
Technology Center 2800

Before KAREN M. HASTINGS, MONTÉ T. SQUIRE and
SHELDON M. McGEE, *Administrative Patent Judges*.

McGEE, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner's decision to reject claims 1–12.

We have jurisdiction. 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 Denso. Appeal Br. 3.

Claim 1, reproduced below, is illustrative of the claimed subject matter, with the dispositive limitation on appeal italicized:

1. A rotor for a rotating electric machine comprising:
 - a rotor boss having a plurality of soft magnetic material poles extending radially outward from the rotor boss;
 - a plurality of magnetic poles extending radially outward from the rotor boss and *separated from the plurality of soft magnetic material poles by a circumferential gap*; and
 - a permanent magnet that is buried in each of the plurality of magnetic poles, wherein d_0 is defined as a product of a radial thickness of the permanent magnet in millimeters and a number (p) of soft magnetic material poles,
 - w_0 is defined as a product of a circumferential width of each soft magnetic material pole extending radially outward from the rotor boss in millimeters and the number of soft magnetic material poles, and $360 \text{ millimeters} \leq (w_0^2 / d_0) \leq 400 \text{ millimeters}$.

Appeal Br. 16.

II. REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Kawabata	US 5,631,512	May 20, 1997
Nagate	US 5,679,995	Oct. 12, 1997
Niguchi	US 2007/0273241 A1	Nov. 29, 2007
Okumoto	US 2009/0134731 A1	May 28, 2009
Yamada	US 2010/0308680 A1	Dec. 9, 2010

III. REJECTIONS

The Examiner rejected the claims as follows under 35 U.S.C.

§ 103(a):

- I. Claims 1 and 12 as unpatentable over the combined disclosures of Okumoto, Nagate, and Kawabata;
- II. Claims 2, 3, and 6–9 as unpatentable over Okumoto, Nagate, Kawabata, and Yamada; and

- III. Claims 4, 5, 10, and 11 as unpatentable over Okumoto, Nagate, Kawabata, Yamada, and Niguchi.

IV. DISCUSSION

The Examiner finds that Okumoto discloses each of the elements recited in independent claims 1 and 12, except for the claimed requirements that: 1) a plurality of magnetic poles is separated from the plurality of soft magnetic material poles by a circumferential gap; 2) the permanent magnet is buried in each of the plurality of magnetic poles; and 3) the relationship between w_0^2/d_0 . Final Act. 10.

The Examiner addresses differences 1) and 2) by relying on Nagate, and difference 3) by relying on Kawabata. *Id.* Specifically, regarding difference 1), the Examiner finds that Nagate discloses a circumferential gap as recited in claim 1, and that the skilled artisan would have been motivated to include such a gap in the rotor of Okumoto “to ease manufacturing direct magnetic flux, and positioning of the [p]ermanent [m]agnet[,] minimize vibration effect[,] provide structural support for the magnets and provide high performance.” *Id.* at 10 (citing Nagate 5:1–65).

Appellant argues, *inter alia*, that the Examiner’s proffered basis for modifying Okumoto with that of Nagate to provide circumferential gaps is erroneous. Appeal Br. 11–12. Specifically, Appellant contends that because “the alleged circumferential gap in Nagate is not even recognized by Nagate as having any function or benefit,” the skilled artisan “would not have been motivated to modify Okumoto to include the alleged circumferential gap from Nagate.” *Id.* at 12.

Upon consulting the cited portion of Nagate relied on by the Examiner, we agree with Appellant that there is no apparent recognition of

any function or benefit being attributed to the “gap” of Nagate. Indeed, Appellant correctly observes that the “gap” disclosed in Nagate at column 5, lines 39–40 may be a reference to gaps 8a–8d of Figure 11 used to connect the steel sheets—not the “gap” identified by the Examiner in annotated Figure 2. Final Act. 13; Appeal Br. 12; Nagate 5:39–40; 7:48–49; 12:6–23. Here, we note that the “gap” identified in the Examiner’s annotated Figure 2 does not appear to be referred to as a “gap” in Nagate. Ans. 13. Rather, the contour of what the Examiner refers to as a “gap” is identified as element 10—which Nagate states is a “bridge.” *See* Nagate 8:6–14.

In any event, the Examiner’s vague reference to Nagate’s entire column 5, coupled with the lack of explanation regarding how the alleged “gap” identified in annotated Figure 2 achieves the purported benefits, is insufficient to establish a reason to modify Okumoto’s rotor with the claimed circumferential gap. The Examiner’s response in the Examiner’s Answer fares no better on this point because it alleges “better accuracy,” again, with no explanation how that benefit is achieved by the alleged “gap.” Ans. 15 (citing Nagate 4:43–46). Here, we agree with Appellant (Reply Br. 5) that this additional portion of Nagate “does not include any discussion of accuracy or detecting position of a magnetic pole, and certainly does not attribute such benefits to a circumferential gap.”

Because all independent claims 1, 2, and 12 require a circumferential gap between the plurality of magnetic poles and the soft material magnetic poles, and because the Examiner has not established that the skilled artisan would have had a reason to modify Okumoto’s rotor to contain such a gap, we reverse all of the rejections on appeal.

V. CONCLUSION

The Examiner's rejections are reversed.

VI. DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1, 12	103(a)	Okumoto, Nagate, Kawabata		1, 12
2, 3, 6-9	103(a)	Okumoto, Nagate, Kawabata, Yamada		2, 3, 6-9
4, 5, 10, 11	103(a)	Okumto, Nagate, Kawabata, Yamada, Niguchi		4, 5, 10, 11

REVERSED