

The opinion in support of the decision being entered today was **not** written for publication in a law journal and is **not** binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROSHI MIYAZAWA,
KINYA MATSUZAWA,
NORIO ITO, YASUSHI SOYA,
and KOICHI SAITO

Appeal No. 1997-3279
Application No. 08/240,702

ON BRIEF

Before KRASS, JERRY SMITH, and BARRY, Administrative Patent Judges.

BARRY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the rejection of claims 21 and 28. We reverse.

BACKGROUND

The invention at issue in this appeal relates to brushless direct current (DC) motors. A typical brushless DC

motor suffers several disadvantages. Specifically, the excitation torque generated at the stable point position of the motor's permanent magnet rotor is small. Because a magnetic balance has to be destroyed to start the motor, moreover, the magnetic pole shape thereof becomes special, and flux leakage is increased, which reduces the motor's efficiency. In addition, the different magnetic pole shapes of the motor's stator yokes complicate assembly.

The inventive brushless DC motor includes a rotor having magnetic poles, a stator having magnetic poles, and a field coil. The ratio of the open angle of the stator's magnetic poles to the open angle of the rotor's magnetic poles is between 0.75 and 1. Such a ratio ensures that the stable point position of the rotor is in vicinity of a maximum point of torque generated by the field coil, which provides a high starting torque. The stator's magnetic poles are alternately disposed at regular intervals in the circumferential direction with a constant air gap from the rotor magnet. The constant air gap limits flux leakage into the gap, which increases the

motor's efficiency. The disposition of the stator's magnetic poles simplifies assembly.

Claim 21, which is representative for our purposes, follows:

21. A brushless DC motor comprising:
a rotor having a rotor yoke and a rotor magnet forming a plurality of magnetic poles in a circumferential direction disposed on the rotor yoke,
a stator having a stator yoke with a plurality of magnetic poles alternately disposed at regular intervals in the circumferential direction on the stator yoke having a constant air gap next to the rotor magnet,
a coil unit disposed on the stator yoke and having a magnetic field coil for exciting the magnetic poles of the stator,
a magnetic pole sensing element set at a position shifted in the circumferential direction from an intermediate position of one magnetic pole of the rotor magnet for detecting a pole of the rotor magnet,
wherein an open angle of the magnetic poles of the stator is set at no less than 75% but less than 100% of an open angle per magnetic pole of the rotor so that a static stable point position where the rotor stops by a cogging torque in a magnetic circuit consisting of the rotor and stator is in vicinity of a maximum point of torque generated by

an electric current passed to the magnetic field coil.

The references relied on in rejecting the claims follow:

Doemen	4,030,005	June 14, 1977
Fujitani et al. (Fujitani)	4,891,567	Jan. 2, 1990
Suzuki ¹ (Published Japanese Patent Application).	1-274655	Nov. 2, 1989

Claims 21 and 28 stand rejected under 35 U.S.C. § 102(b) as anticipated by Fujitani. Claims 21 and 28 also stand rejected under 35 U.S.C. § 103 as obvious over Suzuki in view of Doemen. Rather than repeat the arguments of the appellants or examiner in toto, we refer the reader to the brief and answer for the respective details thereof.

OPINION

In reaching our decision in this appeal, we considered the subject matter on appeal and the rejection advanced by the examiner. Furthermore, we duly considered the arguments

¹A copy of the translation prepared by the U.S. Patent and Trademark Office is attached. We will refer to the translation by page number in this opinion.

and evidence of the appellants and examiner. After considering the totality of the record, we are persuaded that the examiner erred in rejecting claims 21 and 28. Accordingly, we reverse. Our opinion addresses the novelty and nonobviousness of the claims.

Novelty of the Claims

We begin by noting the following principles from Rowe v. Dror, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997).

A prior art reference anticipates a claim only if the reference discloses, either expressly or inherently, every limitation of the claim. See Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "[A]bsence from the reference of any claimed element negates anticipation." Kloster Speedsteel AB v. Crucible, Inc., 793 F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986)).

With these principles in mind, we consider the examiner's rejection and the appellants' argument.

Although Fujitani "doesn't show magnetic poles at regular intervals in the circumferential direction," (Examiner's Answer at 4), the examiner asserts, "[i]t would have been

obvious ... to set the magnetic poles at regular intervals
...." (Id.) The appellants argue, "Fujitani ... offsets one
of the stator magnetic elements 28 and 29 by an electric angle
of $B/4$ to $3B/4$. By contrast, appellant's [sic] stator yokes
both are disposed at regular intervals" (Appeal Br. at
6.)

Claims 21 and 28 each specifies in pertinent part the
following limitations: "a stator having a stator yoke with a
plurality of magnetic poles alternately disposed at regular
intervals in the circumferential direction on the stator yoke
...." Accordingly, the claims each requires stator yokes
disposed at regular intervals.

The examiner fails to show a disclosure of the claimed
limitations in the prior art. To the contrary, he admits that
Fujitani "doesn't show magnetic poles at regular intervals in
the circumferential direction." (Examiner's Answer at 4.)
Furthermore, the appellants observe, "Fujitani ... offsets one

of the stator magnetic elements 28 and 29 by an electric angle of $\mathbf{B}/4$ to $3\mathbf{B}/4$." (Appeal Br. at 6.)

Because the examiner admits that Fujitani doesn't show magnetic poles at regular intervals, and the appellants observe that the reference offsets one of its stator magnetic elements, we are not persuaded that Fujitani discloses the claimed limitations of "a stator having a stator yoke with a plurality of magnetic poles alternately disposed at regular intervals in the circumferential direction on the stator yoke" The absence of this disclosure negates anticipation. Therefore, we reverse the rejection of claims 21 and 28 under 35 U.S.C. § 102(b) as anticipated by Fujitani. Next, we address the nonobviousness of claims 21 and 28.

Nonobviousness of the Claims

We begin by noting the following principles from In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993).

In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).... "A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." In re Bell, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting In re Rinehart, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)). If the examiner fails to establish a prima facie case, the rejection is improper and will be overturned. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

With these principles in mind, we consider the examiner's rejection and the appellants' argument.

Admitting that in Suzuki "[i]t is not known what the ratio of the stator/rotor magnetic elements may be . . .," (Examiner's Answer at 5), the examiner draws the following conclusion.

It would have been obvious to one of ordinary skill in the art to employ a rotor and stator magnetic component ratio greater than 75% and less than 100% because this is known in the art as shown by Doemen. Furthermore, as this is known, no inventive step is

applied in such a combination. (Examiner's Answer
at 6.)

The appellants argue, "mere happenstance overlap in the rotor and stator magnetic component ratio is not sufficient to establish a prima facie obvious case. It is necessary that he knowledge would lead to combine [sic] the relevant teachings of the references to arrive at the claimed invention."

"Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor."

Para-Ordnance Mfg., 73 F.3d at 1087, 37 USPQ2d at 1239 (citing W.L. Gore & Assocs., Inc., 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13 (Fed. Cir. 1983)). "[T]he question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" In re Beattie, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (quoting Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)). "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the

prior art so that the claimed invention is rendered obvious." In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

Here, the examiner fails to identify a sufficient suggestion to combine Doemen with Suzuki. Rather than providing a line of reasoning that explains why such a combination would have been desirable, he opines, "no inventive step is applied in such a combination." (Examiner's Answer at 6.) The examiner's opinion is conclusory and unsupported by facts.

In view of the examiner's conclusory opinion, we are not persuaded that the prior art would have suggested the desirability, and thus the obviousness, of combining Doemen's teaching with that of Suzuki. The examiner's opinion impermissibly relies on the appellants' teachings or suggestions to piece together the teachings of the prior art. He fails to establish a prima facie case of obviousness.

Therefore, we reverse the rejection of claims 21 and 28 under 35 U.S.C. § 103 as obvious over Suzuki in view of Doemen.

CONCLUSION

In summary, the rejection of claims 21 and 28 under 35 U.S.C. § 102(b) as anticipated by Fujitani is reversed.

The rejection of claims 21 and 28 under 35 U.S.C. § 103 as obvious over Suzuki in view of Doemen is also reversed.

REVERSED

ERROL A. KRASS)
Administrative Patent Judge)
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) BOARD OF PATENT
JERRY SMITH) APPEALS

Administrative Patent Judge) AND
) INTERFERENCES
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LANCE LEONARD BARRY)
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