

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TATSUYA ANMA
and TADASHI TAKANO

Appeal No. 2005-0189
Application No. 09/683,997

HEARD: May 5, 2005

Before HAIRSTON, LEVY, and MACDONALD, Administrative Patent Judges.
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-9, which are all of the claims pending in this application.

BACKGROUND

Appellants' invention relates to a coil winding arrangement for a rotary three-phase electrical machine. Each phase of coil winding is comprised of a parallel circuit formed by the connection of a plurality of series circuits in parallel

(specification, pages 2 and 3). The coils of the series circuits are wound in alternating direction (specification, page 6) to prevent or reduce a circulating current from flowing in the parallel circuit (specification, pages 2 and 8). An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1. A permanent magnet type three-phase AC rotary electric machine including a permanent magnet element having a number of permanent magnet poles and a coil winding element having a number of slots, each of said three phases being connected in a line current circuit and being comprised of a parallel circuit formed by connecting a plurality of series circuits in parallel, said coil winding element comprising cores of each of said series circuits combined such that electromotive voltages or counter electromotive voltages generated across opposite ends of said plurality of series circuit forming each phase are substantially the same based on symmetry of arrangement of said permanent magnets and said coils, thereby preventing generation of a circulating current in said parallel circuit.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Kilgore	2,575,716	Nov. 20, 1951
Nishio et al. (Nishio)	5,006,745	Apr. 9, 1991
Naoki et al. (Naoki)	JP2001-197696	Jul. 19, 2001

Claims 1-4, and 7-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Naoki in view of Nishio.

Claims 4 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Naoki in view of Nishio and Kilgore.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (mailed January 30, 2004) for the examiner's complete reasoning in support of the rejections, and to appellants' brief (filed November 12, 2003) for appellants' arguments thereagainst. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered. See 37 CFR § 41.37(c)(1)(vii).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejections advanced by the examiner, and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellants' arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

Upon consideration of the record before us, we reverse, for the reasons set forth by appellants. We begin with claim 1. In

rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or

evidence. Obviousness is then determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner's position (answer, pages 3 and 4) is that Naoki¹ shows, inter alia, a permanent magnet-type three-phase AC rotary electric machine including a parallel circuit formed by connecting a plurality of series circuits in parallel, but that Naoki does not show the cores (3) of each series being encircled by alternately wound coils. To overcome this deficiency of Naoki, the examiner turns to Nishio for a teaching of cores (C1-C18) of series circuits being encircled by alternately wound coils (figure 7 and figures 10A-10C). The examiner asserts (answer, page 4) that "[s]ince Naoki and Nishio et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others." The examiner concludes (id.) that it would have been obvious to an artisan to encircle the cores of each of the series

¹ In determining the teachings of Naoki, we will rely on the translation provided by the USPTO. A copy of the translation is attached for the appellants' convenience.

circuits with alternately wound coils as taught by Nishio. In addition, the examiner expands on the motivation for combining the teachings of Naoki and Nishio stating (answer, page 7) that:

As the applicant admitted, Naoki et al. purpose is to reduce the circulating current in a parallel circuit. Although Naoki et al. do not use the alternately wound coils to further decrease the circulating current, Nishio et al. teach to wind the winding alternately in order to reduce the cogging torque, which is a well known problem in the art of motor and generator. In addition, Nishio et al. even disclose the problem of cogging torque with windings wound around the stator poles in the same direction in Figures 15-17 and columns 1-3. As a result, one having ordinary skill in the art would recognize that there is a problem with cogging torque in the machine of Naoki et al. Therefore, using the alternate winding of Nishio would not destroy the purpose of the basic Naoki reference. Instead, it can improve the performance of the motor by reducing cogging torque as disclosed in column 3 of Nishio reference while maintaining low circulating current as shown in paragraph 0017 of Naoki et al.

Appellants admit (brief, page 3) that Naoki discloses a plurality of series circuits in parallel, and that Naoki's purpose is the same as appellants. However, appellants assert (id.) that they have gone a step further in solving the problem (of preventing the generation of a circulating current in the parallel circuit due to a phase difference of an electromotive

force or counter electromotive force) by providing alternately wound coils. Appellants do not dispute the examiner's assertion that alternately wound coils are well known in the art. However, appellants maintain (brief, page 3) that "the art does not teach that Naoki et al's construction could be improved by using the alternately wound coils." It is argued (brief, page 4) that "[t]he Nishio et al reference does not teach or suggest that it could be used to reduce the circulating current in circuits having parallel circuits comprised of series wound coils. Thus the teaching for making this modification is not taught by the prior art" and (id.) that "[t]he combination is only obvious after one sees appellants' invention and hindsight reasoning is not permitted to support a rejection under 35 USC 103."

We agree. From the disclosure of Nishio, we find, as appellants and the examiner found, that Nishio teaches the desirability of alternately winding cores, but does teach doing so in the context of a parallel circuit formed of series circuits connected in parallel. A teaching of using alternately wound cores to minimize cogging in a circuit that does not have parallel circuits of serially wound coils, is not a suggestion of using alternately wound coils in the series circuits that comprise a parallel circuit.

In our view, the only suggestion for modifying Naoki in the manner proposed by the examiner to meet the above-noted limitation stems from hindsight knowledge derived from the appellants' own disclosure. The use of such hindsight knowledge to support an obviousness rejection under 35 U.S.C. § 103 is, of course, impermissible. See, for example, W. L. Gore and Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). It follows that we cannot sustain the examiner's rejection of claim 1. Accordingly, the rejection of claim 1 and claims 2-4 and 7-9, which depend therefrom, is reversed.

Turning to claims 5 and 6, we cannot sustain the rejection of these claims because Kilgore does not make up for the deficiency of the basic combination of Naoki and Nishio. Accordingly, the rejection of claims 5 and 6 under 35 U.S.C. § 103(a) is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-9 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
STUART S. LEVY)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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ALLEN M. MACDONALD)	
Administrative Patent Judge)	

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