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 TAKAYUKI NORIMATSU

Appeal 2007-0001
Application 09/944,589
Technology Center 3600

Decided: June 22, 2007

Before MURRIEL E. CRAWFORD, JENNIFER D. BAHR, and LINDA E. HORNER, *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This appeal involves claims 1-12, the only claims pending in this application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b) (2002).

The claims are directed to a wheel bearing assembly. Claim 1 is illustrative:

> 1. A wheel bearing assembly which comprises:
> an inner member;
> an outer member;
> at least one circumferential row of rolling elements rollingly interposed between the inner and outer members;
> a sealing device sealing an annular end space defined between the inner and outer members; and
> a magnetized encoder mounted on one of the inner and outer members which serves as a rotary member and including an elastic member made of a base material mixed with a powder of magnetic material, said elastic member being bonded by vulcanization to the magnetized encoder and having a series of alternating magnetic poles of opposite polarities formed in a direction circumferentially of the rotary member;
> wherein under a thermal endurance test condition in which the magnetized encoder is subjected to 1,000 thermal cycles each consisting of heating at 120°C for one hour followed by cooling at -40°C for one hour, the magnetized encoder retains the following initial magnetic characteristics when measured at a point 2.0 mm distant from a magnetic sensor:
> Single pitch deviation: ±2% or less and
> Magnetic flux density: ±3 mT or higher.

The Examiner relies on the following prior art references to show unpatentability:

Alff	US 5,622,437	Apr. 22, 1997

Keizo Ohta, *Knack of Selecting Magnetic Material*, 45 Japanese Standards Assoc. (Nov. 10, 1989) ("Knack").

The rejections as presented by the Examiner are as follows:

1. Claims 1-12 are rejected under 35 U.S.C. § 112, ¶ 1.

2. Claims 1-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Alff in view of Appellant's prior art admission (filed March 18, 2004) based on Knack.

In regard to the rejection under 35 U.S.C. § 112, first paragraph rejection, the Examiner contends:

"Since applicant has not clearly disclosed the mixing ratio and materials needed in obtaining the claimed encoder, it would be difficult for one in the art to make the claimed encoder without undue experimentation." (Answer 4).

The Appellant contends that the Examiner has failed to establish that undue experimentation would be required to make and use the claimed invention.

The Appellant also contends that the Examiner failed to establish a prima facie case of obviousness in regard to claims 1-12. Specifically, Appellant contends that there is no motivation to combine the teachings of the prior art and that even if such combination is properly made, the prior art references fail to disclose each element of the claimed invention.

ISSUES

The first issue is whether the Appellant has shown that the Examiner erred in holding that the Appellant's disclosure failed to enable a person of ordinary skill in the art to make and use the invention. This issue turns on whether the Examiner has established that it would require undue experimentation to practice the claimed invention.

The second issue is whether the Appellant has shown that the Examiner erred by holding that there was a reason to combine the teachings of the prior art, and that, when combined, the prior art rendered the claimed subject matter obvious.

PRINCIPLES OF LAW

The PTO bears the initial burden when rejecting claims for lack of enablement. When rejecting a claim under the enablement requirement of section 112, the PTO bears an initial burden of setting forth a reasonable explanation as to why it believes that the scope of protection provided by that claim is not adequately enabled by the description of the invention provided in the specification of the application; this includes, of course, providing sufficient reasons for doubting any assertions in the specification as to the scope of enablement. If the PTO meets this burden, the burden then shifts to the applicant to provide suitable proofs indicating that the specification is indeed enabling. *In re Wright*, 999 F.2d 1557, 1561-62, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)(citing *In re Marzocchi*, 439 F.2d 220, 223-24, 169 USPQ 367, 369-70 (CCPA 1971)).

It is by now well-established law that the test for compliance with the enablement requirement in the first paragraph of 35 U.S.C. § 112 is whether the disclosure, as filed, is sufficiently complete to enable one of ordinary skill in the art to make and use the claimed invention without undue experimentation. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). "Enablement is not precluded by the necessity for some experimentation. . . . However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not

'experimentation.'" *Wands*, 858 F.2d at 736-37, 8 USPQ2d at 1404.

To evaluate whether a disclosure would require undue experimentation, the Federal Circuit has adopted the following factors to be considered:

> (1) The quantity of experimentation needed to make or use the invention based on the content of the disclosure;
> (2) The amount of direction or guidance presented;
> (3) The existence of working examples;
> (4) The nature of the invention;
> (5) The state of the prior art;
> (6) The relative skill of those in the art;
> (7) The level of predictability in the art; and
> (8) The breadth of the claims.

Wands, 858 F.2d at 737, 8 USPQ2d at 1404. The Examiner's analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole. *Id.*, 858 F.2d at 737, 8 USPQ2d at 1404.

FINDINGS OF FACT

Appellant's Specification discloses that in vehicle wheel bearing assemblies of the prior art, a magnetized encoder is integrated together with a sealing device. The magnetized encoder is formed of an elastic material such as rubber and a powder of magnetizable material such as ferrite and is of the design in which magnetic poles of opposite polarities are formed alternatively in a direction circumferentially thereof and is detected by a magnetic sensor disposed in a face-to-face relation therewith (Specification 1:18- 2:8).

Appellant's Specification also teaches that vehicle wheel assemblies are placed under severe environment temperature changes and that the temperature changes result in fine cracking of the magnetized encoder which reduces the magnetic characteristics of the magnetized encoder and therefore leads to inaccuracy (Specification 2:9-16).

The Norimatsu Declaration states that a person of ordinary skill in the art would know to form the magnetized encoder of 85-90% wt% magnetic material and 10-15% wt% elastic material without undue experimentation based on the disclosure in Knack (Decl. ¶ 3).

Appellant's Specification teaches that the magnetized encoder is formed of heat resistant rubber and in a thermal endurance test condition in which the magnetized encoder is subjected to 1,000 thermal cycles each consisting of heating at 120°C for one hour followed by cooling at -40°C for one hour, the magnetized encoder retains the following initial magnetic characteristics when measured at a point 2.0 mm distant from a magnetic sensor:

> Single pitch deviation: ±2% or less and
> Magnetic flux density: ±3 mT or higher [Specification 11:3-15.]

Alff discloses a wheel bearing assembly as claimed including a magnetized encoder formed of elastomer material loaded with magnetic particles (Alff, col. 2, ll. 26-36 (describing a sealing device with an integrated coding device as described in U.S. Patent No. 5,431,413)). The outer end of the cylindrical portion of the second sealing plate 25 has a wall thickness smaller than the remaining part of the cylindrical portion and is bent radially inward (Figs. 1 and 2).

Knack discloses that a bonded magnet can be formed of a mixture of magnetic material and non-magnetic material, such as rubber. The quantity of rubber being within the range of 2 to 15 wt%.

A person of ordinary skill in the art would know that the use of a heat resistant rubber would eliminate or at least reduce the cracking caused by temperature changes in a magnetized encoder. A person of ordinary skill in the art would have been motivated to utilize heat resistant rubber in the magnetized encoder of Alff to eliminate the well known problem of cracking in order to increase the efficiency of the encoder. The modified Alff magnetized encoder, formed of heat resistant rubber as is used in the claimed magnetized encoder, would have the same thermal characteristics as the claimed magnetized encoder.

ANALYSIS

Enablement rejection

The Examiner states that because the Appellant does not disclose mixing ratios of powder ferrite and either heat resistant nitrile rubber, acrylic rubber or fluorine containing rubber utilized to form the encoder, a person would not be able to make the encoder without undue experimentation. However, the fact that the exact ratios are not disclosed in the Specification, does not establish that a person of ordinary skill in the art would not be able to make and use the invention without undue experimentation. Such lack of disclosure may establish that there is a need for some experimentation but does not establish that the experimentation is undue. The Examiner has failed to evaluate the amount of experimentation needed in accordance with the factors enumerated in *Wands*, 858 F.2d at 737, 8 USPQ2d at 1404. For

example, the Examiner has failed to evaluate the quantity of experimentation needed to make or use the invention based on the content of the disclosure; the nature of the invention; the state of the prior art; the relative skill of those in the art; and the level of predictability in the art. The Examiner has failed to establish that undue experimentation would have been necessary to make and use the invention and therefore, we will not sustain this rejection.

The obviousness rejection

We agree with the Appellant that a person of ordinary skill in the art would be taught by Knack how to form the magnetized encoder claimed so as to arrive at the claimed percentages 85-90% wt% of magnetic material and 10-15% wt% elastic material. We have found that a person of ordinary skill in the art would have been motivated to use a heat resistant rubber for the elastic material to predictably improve the magnetized encoder's heat resistance and thereby reduce or eliminate cracking, a known problem in the art, that leads to inaccuracies. *See KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) ("One of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims.") The magnetized encoder thereby produced would have the thermal characteristics recited in the claims.

We note that the Appellant acknowledges in their Specification that an encoder having a series of alternating magnetic poles of opposite polarities formed in a direction circumferentially of the rotary member was known in the art (Specification 1:18-2:8).

In view of the foregoing, we will sustain this rejection as it is directed to claim 1. We will also sustain the rejection as it is directed to claims 2-7 and 9-12 as the Appellant has not argued the separate patentability of these claims.

We will also sustain the rejection as it is directed to claim 8 as we have found that Alff discloses that the outer end of the cylindrical portion of the second sealing plate 25 has a wall thickness smaller than the remaining part of the cylindrical portion and is bent radially inward.

The decision of the Examiner is *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). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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