

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 SHO HONDA

Appeal 2007-1459
Application 10/204,413
Technology Center 3600

Decided: July 25, 2007

Before TERRY J. OWENS, MURRIEL E. CRAWFORD, and JENNIFER D. BAHR, *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This appeal involves claims 8-12. Claims 1-7 have been allowed. We have jurisdiction over the appeal pursuant to 35 U.S.C. §§ 6(b) and 134.

INTRODUCTION

The claims are directed to a hypoid gear in which a tooth surface of one gear of a pair of gears is an involute helicoid. Claim 8 is illustrative:

8. A hypoid gear in which a tooth surface of one gear of a pair of gears is an involute helicoid, wherein, in said hypoid gear, a radius of a base circle of the gear having the involute helicoidal tooth surface differs at a drive side and a coast side.

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

Wildhaber	US 1,694,028	Dec. 4, 1928
Litvin	US 6,128,969	Oct. 10, 2000

The rejections as presented by the Examiner are as follows:

1. Claim 11 is rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. The Examiner contends that the variable i_0 is not described in the Specification in such a way as to enable one skilled in the art to which it pertains, or to which it is most nearly connected, to make and/or use the invention because Appellant repeatedly refers to i_0 as a ratio of angular velocity and not as a gear ratio as claimed.
2. Claims 10 and 11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention. The Examiner contends that it is unclear what the ratio E/R_{20} represents such that the metes and bounds of the claim is not discernable.

3. Claims 8 and 9 are rejected under 35 U.S.C. § 102(b) as being anticipated by Wildhaber.
4. Claims 8 and 9 are rejected under 35 U.S.C. § 102(a) as being anticipated by Litvin.
5. Claims 10-12 are rejected under 35 U.S.C. § 103(a) as unpatentable over Wildhaber.
6. Claims 10-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Litvin.

In regard to the rejection under 35 U.S.C. § 112, first paragraph, Appellant contends that the ratio of the angular velocity directly reflects the gear ratio such that i_0 is a ratio of angular velocity and also a gear ratio and is clearly disclosed in the Specification (Appeal Br. 5).

In regard to the rejection under 35 U.S.C. § 112, second paragraph, Appellant contends that one skilled in the art would understand the ratio of two known parameters without additional description (Appeal Br. 5).

In regard to the prior art rejections, Appellant contends that Litvin does not disclose a hypoid gear (Appeal Br. 5-6) and that Wildhaber does not disclose an involute helicoid (Appeal Br. 6).

ISSUES

The first issue is whether claim 11 complies with the enablement requirement of 35 U.S.C. § 112, first paragraph. This issue turns on whether a person of ordinary skill in the art would have been able to make or use the invention of claim 11 without undue experimentation.

The second issue is whether the recitation in claim 10 of the ratio E/R_{20} and the recitation in claim 11 of a gear ratio of i_0 renders the respective claims indefinite.

The third issue is whether Litvin discloses a hypoid gear.

The fourth issue is whether Wildhaber discloses an involute helicoid.

FINDINGS OF FACT

Appellant's Specification discloses that a hypoid gear is a pair of gears whose axes do not intersect and are not parallel with each other (Specification 2).

The Specification equates the ratio of angular velocity with the gear ratio (Specification 69, l. 5). The specification repeatedly refers to "gear ratio i_0 " (Specification 67, 68, and 69).

The Specification also discloses that the ratio of the offset E and the radius R_{20} (E/R_{20}) is a design parameter for a hypoid gear (Specification 67). Figure 22 depicts both E and R_{20} . Claim 10 is an original claim and recites that E/R_{20} is larger than 0.25.

An involute helicoid is a known geometric curve which is traced by a point on a straight line which rolls without slipping on the circle and forms a helical rather than circular arc (Honda Decl., paragraph 4; Litvin, col. 3, l. 48).

Litvin discloses a gear in which the tooth surface on one gear of a pair of gears is an involute helicoid (Litvin, col. 3, ll. 47-52). The teeth on the gear which is an involute helicoid has a driving surface 59 and a coast surface 63 (Litvin, col. 4, ll. 1-3) with base circles that differ at the drive side and the coast side. Litvin discloses that the axes of the gears can be intersecting or crossed or nonintersecting (Litvin, col. 3, ll. 56-58). Litvin does not disclose or suggest a ratio of the offset E and the radius R_{20} being

larger than 0.25, a gear ratio within the range of 2.5 to 5 or a helical angle within the range of 35 degrees to 70 degrees.

Wildhaber discloses a hypoid gear having two gears each with tooth surfaces that are circular (Wildhaber 5:86-98). Wildhaber does not disclose a hypoid gear with a tooth surface that is an involute helicoid.

DISCUSSION

Enablement

At the outset, we note that an analysis of whether claim 11 under appeal is supported by an enabling disclosure requires a determination of whether that disclosure contained sufficient information regarding the subject matter of the appealed claims as to enable one skilled in the pertinent art to make and use the claimed invention. The test for enablement is whether one skilled in the art could make and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation. *See United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988), *cert. denied*, 490 U.S. 1046 (1989); *In re Stephens*, 529 F.2d 1343, 1345, 188 USPQ 659, 661 (CCPA 1976).

In order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. *See In re Wright*, 999 F.2d 1557, 1561-62, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993) (examiner must provide a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure). A disclosure which contains a teaching of the manner and process of making and using an invention in

terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. § 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. Assuming that sufficient reason for such doubt exists, a rejection for failure to teach how to make and/or use will be proper on that basis. *See In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971). As stated by the court,

it is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. Otherwise, there would be no need for the applicant to go to the trouble and expense of supporting his presumptively accurate disclosure.

Marzocchi, 439 F.2d at 224, 169 USPQ at 370 .

In support of this rejection, the Examiner states that Appellant repeatedly refers to i_0 as being a ratio of angular velocity in the Specification but then refers to i_0 as being a gear ratio in claim 11.

We will not sustain this rejection because the Examiner has not shown that undue experimentation would be required to make and use the invention. In fact, the Examiner has not addressed the issue of undue experimentation at all. In addition, as is clear from our findings above, Appellant's disclosure teaches that the gear ratio and the ratio of the angular velocity are the same.

Indefiniteness

The Examiner is of the opinion that the ratio E/R_{20} is unclear because it is not mentioned in the Specification and that the term i_0 is unclear because the Specification discloses that i_0 as a ratio of angular velocity rather than a gear ratio.

We will not sustain this rejection. It is clear from the Specification what the terms E and R_{20} are and that their ratio is used as design parameter in constructing hypoid gears. In addition, as discussed above, Appellant's Specification is clear that ratio of angular velocity is equivalent to a gear ratio.

Anticipation

We will sustain the Examiner's rejection of claims 8 and 9 under 35 U.S.C. § 102(b) as anticipated by Litvin because we find that Litvin discloses each and every element of claims 8 and 9. Specifically, in our view, the disclosure in column 3, lines 56-59 that the present invention is not limited to an intersected axes design but also contemplates gear drives that are crossed is a disclosure that the gear design disclosed in Litvin can be applied to an intersecting set of gears or nonintersecting gears, i.e., a hypoid gear.

We will not sustain the rejection of claims 8 and 9 as being anticipated by Wildhaber because Wildhaber does not disclose a tooth surface which is an involute helicoid.

Obviousness

We will not sustain the rejection of claims 10-12, which depend from claim 8, under 35 U.S.C. § 103(a) as being unpatentable over Wildhaber because, as we found and discussed above, Wildhaber does not disclose a tooth surface which is an involute helicoid as is recited in claim 8.

In regard to the rejection of claims 10-12 under 35 U.S.C. § 103(a) as being unpatentable over Litvin, the Appellant has relied on the arguments made in response to the rejection under 35 U.S.C. § 102(a) as anticipated by Litvin. Therefore, we will sustain this rejection for the same reasons discussed above in regard to the rejection under 35 U.S.C. § 102(a).

CONCLUSION/ORDER

In summary:

The Examiner's rejections of claim 11 under 35 U.S.C. § 112, first paragraph, and of claims 10 and 11 under 35 U.S.C. § 112, second paragraph, are not sustained.

The Examiner's rejections of claims 8 and 9 under 35 U.S.C. § 102(b) as anticipated by Wildhaber and of claims 10-12 under 35 U.S.C. § 103 as unpatentable over Wildhaber are not sustained.

The Examiner's rejections of claims 8 and 9 under 35 U.S.C. § 102(b) as anticipated by Litvin and of claims 10-12 under 35 U.S.C. § 103 as unpatentable over Litvin are sustained.

Appeal 2007-1459
Application 10/204,413

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

hh

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314