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**Datasheet for the decision
of 22 October 2009**

Case Number: T 0476/07 - 3.2.08

Application Number: 94112515.5

Publication Number: 0638737

IPC: F16C 33/44

Language of the proceedings: EN

Title of invention:

Retainer for rolling-contact bearing

Patentee:

JTEKT Corporation

Opponent:

SKF GmbH

Headword:

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Relevant legal provisions:

EPC Art. 56

Relevant legal provisions (EPC 1973):

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Keyword:

"Inventive step (yes)"

Decisions cited:

-

Catchword:

-

Case Number: T 0476/07 - 3.2.08

DECISION
of the Technical Board of Appeal 3.2.08
of 22 October 2009

Appellant: SKF GmbH
(Opponent) Gunnar-Wester-Straße 12
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Representative: Hetterich, Winfried
SKF GmbH
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Respondent: JTEKT Corporation
(Patent Proprietor) 5-8, Minamisemba 3-chome
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Representative: Sajda, Wolf E.
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
15 January 2007 concerning maintenance of the
European patent No. 0638737 in amended form.

Composition of the Board:

Chairman: T. Kriner
Members: M. Alvazzi Delfrate
E. Dufrasne

Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal, received at the EPO on 15 March 2007, against the interlocutory decision of the opposition division posted on 15 January 2007 to maintain the European patent No. 638737 in amended form. The appeal fee was paid on the same day and the statement setting out the grounds for appeal was filed on 3 May 2007.
- II. The opposition division held that the fourth auxiliary request then on file met the requirements of the EPC.
- III. Oral proceedings were held on 22 October 2009.

The appellant requests the revocation of the patent as a whole.

The respondent (patent proprietor) requests that the appeal be dismissed.

- IV. Claim 1 of the fourth auxiliary request underlying the decision of the opposition division reads as follows:

"A retainer for a rolling contact bearing used in a lubricating oil, composed of a resin comprising an aliphatic polyamide resin matrix and a hydrocarbon polymer,
wherein the hydrocarbon polymer has no oil resistance and good compatibility with the aliphatic polyamide resin matrix and the hydrocarbon polymer is dispersed in the aliphatic polyamide resin matrix,
the aliphatic polyamide resin being selected from Nylon 6 and Nylon 66,

the proportion of the hydrocarbon polymer being in a range of 5 to 25% by weight, characterized in that the hydrocarbon polymer is an olefin polymer, selected from

- a) ethylene-propylene-diene rubber, ethylene-propylene rubber, polypropylene and polyethylene;
- b) a modified olefin polymer modified by copolymerizing it with any one selected from α , β -unsaturated carboxylic acid, an ester thereof and a metal salt thereof;
- c) a modified olefin polymer obtained by grafting it with carboxylic acid or an acid anhydride thereof; and
- d) a styrene polymer selected from styrene-ethylene/butene-styrene block copolymer, styrene-butadiene-styrene block copolymer and styrene-isoprene-styrene block copolymer."

V. The following documents are relevant for the present decision:

D6: DE-A-3617501, and

D7: US-A-4999394.

VI. The appellant's arguments can be summarised as follows.

D7, disclosing the features of the preamble of claim 1 and dealing with oil resistance at high temperatures, could be seen as representing the most relevant prior art. The subject-matter of claim 1 differed from the disclosure of D7 in that the hydrocarbon polymer is one of the olefin polymers listed in claim 1.

No effect was associated with this feature, since the effect of providing good oil resistance at high temperature was already achieved by the retainer shown

in D7, wherein the hydrocarbon polymer was polybutadiene rubber. Therefore, the object to be achieved could be seen in the provision of an alternative composition which also exhibited good oil resistance at high temperatures.

Since D7 (column 1, lines 40-41) described "polybutadiene rubber and the like" as useful elastomers, it would be obvious for the person skilled in the art to achieve the given object by replacing the polybutadiene rubber with a similar polymer. The person skilled in the art was aware that propylene, ethylene rubbers or their mixtures exhibited structures and properties similar to polybutadiene rubber, as evidenced for example by D6 (page 4, lines 64-67). Accordingly, it was obvious for him to achieve said object by replacing the polybutadiene rubber with said other polymers, for instance with ethylene-propylene rubber. Since ethylene-propylene rubber was one of the polymers listed in claim 1 of the patent in suit, the subject-matter of said claim was obvious in view of D7 in conjunction with the common general knowledge of the person skilled in the art, as evidenced by D6.

Alternatively, the subject-matter of claim 1 was also obvious in view of D7 and D6.

Since oil could be seen as a solvent, the person skilled in the art, starting from D7 and trying to maintain a good oil resistance, would consider D6, relating to the problem of thermoplastic mixtures exhibiting good mechanical properties and resistance to solvents. To solve said problem D6 taught in particular the use of the rubbers described on page 5, lines 4-6 and line 20-22, which were also among those listed in present claim 1. Therefore, it was obvious for the

person skilled in the art to achieve the object underlying the patent in suit by replacing the polybutadiene rubber disclosed in D7 with one of said rubbers disclosed in D6.

The other lines of argumentation against the inventive step of the subject-matter of claim 1 presented during the written procedure were not maintained.

VII. The respondent's arguments can be summarised as follows.

The subject-matter of claim 1 was distinguished from the retainer disclosed in D7 by the selection of a hydrocarbon polymer from the list comprised in claim 1. The cited prior art did not give any indication to adopt one of the polymers listed in present claim 1 when starting from D7. The wording "and the like" did not give any concrete indication to the reader of D7 as to which other polymers should be considered as alternative to polybutadiene rubber. Therefore, the subject-matter of claim 1 involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.
2. Inventive step
 - 2.1 The most relevant state of the art is undisputedly represented by D7, which relates to a retainer for a rolling contact bearing having a composition similar to that of claim 1 (see abstract and claim 1) and deals with the issue of the mechanical properties after

immersion in a lubricating oil at high temperature (see Figure 3 and column 4, line 34-48).

D7 discloses in more detail a retainer for a rolling contact bearing (see the abstract) used in a lubricating oil (see column 3, line 1-6), composed of a resin comprising an aliphatic polyamide resin matrix (see column 1, line 34-38) and a hydrocarbon polymer (polybutadiene elastomer), wherein the hydrocarbon polymer has no oil resistance and good compatibility with the aliphatic polyamide resin matrix and the hydrocarbon polymer is dispersed in the aliphatic polyamide resin matrix (see column 1, line 49-52, "polymer mixture"), the aliphatic polyamide resin being Nylon 66, the proportion of the hydrocarbon polymer being in a range of 5 to 25% by weight (see claim 1, 10-20%).

- 2.2 Since the retainer described in D7 already achieves good oil resistance when used in lubricating oil at high temperature (see D7, Figure 3 and column 4, line 34-48), the object underlying the claimed invention can be seen in providing an alternative to the known retainer, while maintaining good oil resistance at high temperature.

This object is achieved in that the hydrocarbon polymer is selected from the polymers listed in the characterising portion of claim 1.

- 2.3 D6, in particular the passage cited by the appellant to show the common general knowledge of the person skilled in the art (page 4, lines 64-67), does not concern the problem to provide the resin with oil resistance at

high temperature and, therefore, does not mention any hydrocarbon polymer suitable to that effect.

D7 (see column 1, line 34-41) does not give any indication to use the polymers according to present claim 1 either, but merely states that polybutadiene rubber and other unspecified elastomers ("polybutadiene rubber and the like") may be useful for achieving the desired properties, including the oil resistance at high temperature.

Accordingly, it has not been shown that D7 in combination with common general knowledge would render obvious replacing polybutadiene rubber with one of the polymers listed in present claim 1 to achieve the given object.

The line of argument against inventive step based on D7 in conjunction with D6 is not convincing either. The object of D6 (see in particular page 2, line 45-48) pertains to a generic resistance to solvents ("Lösungsmittelbeständigkeit") and not to the oil resistance at high temperature, since there is nothing to indicate that oil is meant as a solvent in the context of D6. Therefore, there is no indication in D6 that the elastomers used to attain its object can be used to achieve the object underlying the claimed invention too. Accordingly, the subject-matter of claim 1 is also not obvious in view of D7 and D6.

Since none of the arguments presented by the appellant has convincingly shown that the claimed invention was obvious, the subject-matter of claim 1 is regarded as involving an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

V. Commare

T. Kriner