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Datasheet for the decision of 27 November 2019

Case Number: T 0163/17 - 3.2.08

Application Number: 08012058.7

Publication Number: 2014937

IPC: F16C19/16, F16C19/55, F16C33/58, F16C35/067, F16C35/04

Language of the proceedings: EN

Title of invention:
Assembling method of bearing unit

Patent Proprietor:
NSK Ltd.

Opponent:
SKF GMBH

Headword:

Relevant legal provisions:
EPC Art. 123(2), 84, 54, 56
RPBA Art. 12(2), 13(1), 13(3)

Keyword:

Amendments - allowable (yes)
Claims - clarity - main request (yes)
Novelty - (yes)
Inventive step - (yes)
Statement of grounds of appeal and the reply thereto - party's complete case

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0163/17 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 27 November 2019

Appellant: (Patent Proprietor)	NSK Ltd. 6-3, Ohsaki 1-chome Shinagawa-ku Tokyo 141-8560 (JP)
Representative:	Grünecker Patent- und Rechtsanwälte PartG mbB Leopoldstraße 4 80802 München (DE)
Respondent: (Opponent)	SKF GMBH Patentabteilung Gunnar-Wester-Strasse 12 D-97421 Schweinfurt (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 7 November 2016 revoking European patent No. 2014937 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	C. Herberhold
Members:	M. Foulger
	Y. Podbielski

Summary of Facts and Submissions

I. With the decision posted on 7 November 2016, the opposition division revoked the European patent No. 2 014 937 B1.

II. The proprietor lodged an appeal against this decision. The appeal was duly filed and reasoned.

III. Oral proceedings took place before the Board on 27 November 2019.

IV. The appellant (proprietor) requested:

that the decision under appeal be set aside, and that a patent be maintained on the basis of the main request filed as auxiliary request 5 on 25 October 2019.

V. The respondent (opponent) requested:

that the main request not be admitted into the proceedings and that the appeal be dismissed.

VI. The claim according to the main request reads:

"An assembling method of a bearing unit (10) which comprises a bearing (11) having an outer ring (13) and a retainer plate (12) having a retainer hole for holding the outer ring (13), the assembling method comprising:
bringing an axial end face of the retainer plate (12) to contact with an end face (18a) of a small diameter step portion (18) provided in an axial end portion of an outer circumferential face of the outer ring (13) and

after bringing the axial end face of the retainer plate (12) to contact with the end face (18a) of the small diameter step portion (18), ~~characterized by~~ pressing by a press machine a plurality of circumferential edge portions at a circumferential edge of an inner circumferential portion of the retainer hole of the retainer plate (12) in an axial direction against the end face (18a) of the small diameter step portion (18) of the outer ring (13) so as to form engagement pawls (121) protruding radially inward to thereby engage the engagement pawls (121) of the retainer plate (12) with an engagement groove (19), wherein the engagement pawls (121) are provided in a circumferential direction on an inner circumferential portion of the retainer hole of the retainer plate (12) ~~and~~ wherein the engagement groove (19) is continuously provided on an outer circumferential face of the small diameter step portion (18) of the outer ring (13) and wherein the circumferential edge of the inner circumferential portion of the retainer hole of the retainer plate (12) is a circle defining an axial end of the retainer hole."

Modification to the granted claim underlined by the Board.

VII. The following document is mentioned in this decision:

D6: DE 10 2004 031 830 A1

VIII. Note that the paragraph numbering of the originally filed application differs from that of the published application. In the following the paragraph numbering of the originally filed application is used.

IX. The appellant argued essentially the following:

a) Admittance of the main request

With the statement setting out the grounds of appeal, the auxiliary requests 1 - 4 were filed. The Board in its communication dated 19 June 2019, see paragraph 6.1, had made objections to the then valid auxiliary request 3. It was in direct response thereto that - with letter dated 25 October 2019 - auxiliary request 5, now the main request, had been submitted. For the reasons set out below auxiliary request 5 was *prima facie* allowable.

It should therefore be admitted into the proceedings.

b) Admittance of objection relating to "plurality of circumferential edge portions" (Article 123(2) EPC)

This objection should have been filed with the reply to the appeal. It was thus late filed and should not be admitted into the proceedings.

c) Added subject-matter - Article 123(2) EPC

"plurality of circumferential edge portions" - this feature was disclosed in paragraph [0029] of the originally filed application.

"circle" - although this term was not literally mentioned in the application as filed, the skilled person would recognise that the circumferential edge of the hole in the retainer plate was a circle. This was shown in Figs. 2 and 3 of the application as filed, it

being described in paragraph [0027] that these figures also applied to the claimed, second embodiment. It also followed from paragraph [0030] of the application, according to which the retainer plate engaged with the small diameter step portion 18 of the outer ring 13. The step portion had a circular cross-section because it was described as having a diameter. Thus, the skilled person would consider that the circumferential edge of the inner circumferential portion of the retainer hole of the retainer plate was a circle defining an axial end of the retainer hole.

d) Clarity - Article 84 EPC

The term "circle" referred to a two-dimensional shape which was used in the claim to define the end of the circular hole in the retainer plate. The term was thus clear.

e) Novelty - Article 54 EPC

The subject-matter of the claim was new with respect to D6 because the axial end of the hole in the retainer plate of D6 was not a circle as required by the claim. In fact, it was partially circular with niches around its circumference.

f) Inventive step - Article 56 EPC

D6 disclosed a method of assembling a bearing and addressed the problem of making the assembly as stiff as possible, see D6, paragraph [0004]. To solve this problem D6 suggested a two-step process whereby firstly niches are made in the inner circumference of the hole in the retainer plate, see paragraph [0006], and secondly the material in the niches is swelled

circumferentially inward by a press action. This had the effect that the material in the niches was already work-hardened before the engagement pawls were formed. The skilled person would be dissuaded from changing the two-step process of D6 into a one-step process because to do so would result in a less stiff arrangement. As this went against the teaching of D6 the skilled person would not do it without the exercise of inventive activity.

Moreover, the skilled person had no reason whatsoever to increase the first axial region X1, see D6, Figure 4, which would result in the outer ring protruding over the retainer plate. The respondent's argument in this respect was clearly motivated by hindsight.

X. The respondent argued essentially the following:

a) Admittance of the main request

The main request should not be admitted into the proceedings. It could have been filed in opposition proceedings as well as with the statement setting out the grounds of appeal. Moreover, it was filed as part of a set of requests which were not convergent and it was - see below - *prima facie* not allowable.

b) Admittance of objection relating to "plurality of circumferential edge portions" (Article 123(2) EPC)

This objection was *prima facie* relevant. Article 123(2) EPC had to be examined for the amendments contained in this request. This objection should therefore be admitted into the proceedings.

c) Added subject-matter - Article 123(2) EPC

The claim contained several features which offended against Article 123(2) EPC.

The term "circle" was not explicitly mentioned in the application as filed. The figures could not provide a basis for this feature as they were merely schematic and Figs. 8A and B showed merely a cross-section through the hole. Furthermore, the claim defined the press action as being executed at a circumferential edge of an inner circumferential portion. However, as could be seen in Figure 8B the pressing had to be rather at a certain distance from the edge, not at the edge. Indeed pressing strictly at the edge was impossible, such that the definition in the claim, according to which the pressing was at a circumferential edge being an exact circle, extended beyond the original disclosure.

The feature relating to a "plurality of circumferential edge portions" had been introduced in the claim. There was however no disclosure of the pressing machine "acting on the circumferential edge portion provided in a circumferential direction on an inner circumferential portion..." in the originally filed application.

Thus, the amendments did not meet the requirements of Article 123(2) EPC.

d) Clarity - Article 84 EPC

The term "circle" was unclear because the claimed object was a three-dimensional edge region whereas a circle was only two-dimensional and thus the term was not suitable to clearly define this feature.

e) Novelty - Article 54 EPC

Depending on how the hole was viewed and at which point the circle was defined, the disclosure of D6 could still be read onto the claim.

f) Inventive step - Article 56 EPC

The claim also encompassed embodiments where the small diameter portion was extended. Taking D6 as the closest prior art, it would then have been obvious for the skilled person, in order to make the assembling method simpler and more economic, to produce the pawls in a single press action. The skilled person would have thereby arrived at the subject-matter of the claim without an inventive step.

Reasons for the Decision

1. Admittance of the main request

This request was submitted on 25 October 2019, i.e. after the summons to oral proceedings had been issued, and one month before the oral proceedings. Its admittance is therefore subject to the Board's discretion (Articles 13(1) and (3) RPBA).

In the communication dated 19 June 2019, the Board had drawn the parties attention to the matters to be discussed and pointed out possible problems with the then valid third auxiliary request. The now valid main request was filed as an attempt to overcome these problems.

The Board's discretion shall be exercised *inter alia* on the basis of the complexity of the new subject-matter, the current state of the proceedings and the need for procedural economy. In the current case, the amendments were simple and were filed one month before the oral proceedings, such that the Board and the respondent had ample time to consider them.

Moreover, the amendments are a *bona fide* attempt to overcome objections raised in the Board's communication against the then valid third auxiliary request (which was filed together with the statement setting out the grounds of appeal). As in this earlier request, the present main request aims at defining subject-matter which is novel over the disclosure of D6 by more precisely defining the edge. Furthermore, for the reasons set out in points 2 and 3 below, the Board is not convinced by the respondent's objection according to which the request was *prima facie* not in accordance with the requirements of Articles 84 and 123(2) EPC.

Hence, the Board admitted the main request (the then valid fifth auxiliary request) into the proceedings.

2. Admission of the objection related to a "plurality of circumferential edge portions"

According to Article 12(2) RPBA the reply to the appeal should contain the respondent's complete case. This objection had already been discussed in opposition proceedings (see decision paragraph II.1.2) but the respondent had not mentioned it in their reply to the appeal. The admission on this objection is therefore at the Board's discretion (Article 13(1) RPBA).

The Board admitted this change in the respondent's case

into the proceedings because the respective feature is related to the definition of the edge specific to the present main request and thus needs to be examined in any case *ex officio*.

3. Added subject-matter - Article 123(2) EPC

3.1 "plurality of circumferential edge portions"

The disputed feature reads "pressing by a press machine a plurality of circumferential edge portions at a circumferential edge of an inner circumferential portion of the retainer hole of the retainer plate (12) in an axial direction against the end face (18a) of the small diameter step portion (18) of the outer ring (13)".

The argument that the restriction that the press machine must act on the edge of the hole was not originally disclosed is not convincing. Paragraph [0029] of the application states that "a plurality of portions in the circumferential direction of the inner circumferential edge of the inner circumferential portion of the retainer hole ... are pressed in the axial direction ... by a press machine". Hence, the application discloses literally and unambiguously that the portions are "of the inner circumferential edge".

Although Fig. 8B shows that the press machine acts at a point radially displaced from the circumferential edge, this figure is of a schematic nature and is there to further illustrate the second embodiment described in the written part of the description. Thus, this figure does not render the disclosure ambiguous.

Furthermore, even if one followed the respondent's argument that pressing exactly at the edge was impossible, this would not change the fact that the feature is disclosed. It might at best be considered a clarity issue related to the term "edge", which was, however already present in the granted claim and which is thus not objectionable for non-compliance with the requirements of Article 84 EPC in opposition appeal proceedings.

3.2 "circle"

The term "circle" is not explicitly mentioned in the application as originally filed. Moreover, it is doubtful whether Figs. 8A and 8B can provide a basis for this term.

The application does, however, consistently refer to the "diameter" of the step portion 18 and the engagement groove 19 is formed all over the circumference of the small diameter step portion (paragraph [0031] of the application). Thus this portion is cylindrical (i.e. circular with some axial extension). Consequently, the hole in the retainer plate, which accommodates the circular small diameter step portion of the outer ring, is also cylindrical.

Figs. 2 and 3 are in accordance with there being a cylindrical retainer hole - note that although these figures relate to a first non-claimed embodiment (paragraph [0015]) the constitution of the retainer plate is substantially the same as in the first embodiment (paragraph [0027]). Thus Figs. 2 and 3 may be used to help explain the second embodiment which is the subject of the patent.

The skilled person reading the application would therefore understand that the circumferential edge of the cylindrical retainer hole of the retainer plate is a circle defining an axial end of the cylindrical retainer hole.

Thus the amendments meet the requirements of Article 123(2) EPC.

4. Clarity - Article 84 EPC

4.1 The argument that the term "circle" refers to a two-dimensional construct and as such cannot describe a three-dimensional object is, in itself, correct. However, the claim uses the term circle to define an edge which extends in two dimensions.

4.2 The argument that there is scope for the skilled person to interpret the term "circle" is not persuasive. The term in itself has an exact geometric meaning. Moreover, in the context of the fact that this term is used to define the end of a cylindrical hole, there is no room for a different interpretation and so the term is clear.

4.3 Claim 1 therefore meets the requirements of Article 84 EPC.

5. Novelty - Article 54 EPC

D6 does not show the feature whereby the circumferential edge of the retainer hole of the retainer plate is a circle defining an axial end of the retainer hole.

The edge of the retainer hole of the retainer plate is generally circular but with recesses 4 as illustrated by D6, Fig. 2. These recesses are due to the two-step plastic deformation described in D6 and have as a consequence that the circumferential edge is not a circle.

In the claim, the circumferential edge is defined as being where the pressing by a press machine takes place, thus it does not depend on from which direction the retainer plate is viewed. Rather it is that edge on which the pressing machine acts.

Hence, the subject-matter of the claim is new with regard to the disclosure of D6.

6. Inventive step - Article 56 EPC

D6 is the closest prior art and the subject-matter of the claim differs from this disclosure in that the circumferential edge of the retainer hole of the retainer plate is a circle defining an axial end of the retainer hole.

According to the respondent, the claim does not specify how far the small diameter step portion protrudes past the retainer plate. Thus, there are examples included in the scope of the claim whereby the arrangement of D6 could be modified to a single-step process, in which case the inner circumferential edge would be defined by a circle.

However, such a modification is not disclosed in D6.

There is also no reason to provide the D6 outer ring with an increased length "Axialbereich X1" as argued by

the respondent (see Figure 4). This would lead to a generally undesirable external protrusion of the outer ring over the retainer plate. Moreover, according to D6 a two-step fabrication is used, which the person skilled in the art understands to have the effect of work-hardening the material at the niches in the inner circumferential edge. This is done in order to solve the problem posed in D6 of providing an arrangement which is as stiff as possible (see D6, paragraph [0004]). Thus, the skilled person would not consider changing the two-step process into a one-step process without the exercise of inventive activity because the two-step process is central to the teaching of D6.

Hence, the subject-matter of claim 1 involves an inventive step in view of the teaching of D6 combined with the general knowledge of the skilled person.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:
- Claim 1 of the main request, filed as auxiliary request 5 with letter dated 25 October 2019,
- Description: columns 1-9 of the patent specification
- Figures 1-13 of the patent specification.

The Registrar: The Chairman:

D. Hampe C. Herberhold

Decision electronically authenticated