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Datasheet for the decision of 12 February 2015

Case Number: T 1710/12 - 3.2.08

Application Number: 06250854.4

Publication Number: 1693582

IPC: F16C23/10, F16C35/02

Language of the proceedings: EN

Title of invention:
Adjustable bearing

Patent Proprietor:
Cooper Cameron Corporation

Opponent:
Voith Turbo BHS Getriebe GmbH

Headword:

Relevant legal provisions:
EPC Art. 100(a), 54, 56
RPBA Art. 12(4)

Keyword:
Novelty - main request (no) - auxiliary request (yes) - availability to the public
Evidence - balance of probabilities
Inventive step - auxiliary request (yes)

Decisions cited:

Catchword:

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Case Number: T 1710/12 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 12 February 2015

Appellant: (Patent Proprietor)	Cooper Cameron Corporation 1333 West Loop South, Suite 1700 Houston, Texas 77027 (US)
Representative:	Akers, Noel James N.J. Akers & Co 63 Lemon Street Truro, TR1 2PN (GB)
Appellant: (Opponent)	Voith Turbo BHS Getriebe GmbH Hans-Böckler-Strasse 7 87527 Sonthofen (DE)
Representative:	Weitzel, Wolfgang Dr. Weitzel & Partner Patent- und Rechtsanwälte mbB Friedenstrasse 10 89522 Heidenheim (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 6 June 2012 concerning maintenance of the European Patent No. 1693582 in amended form.**

Composition of the Board:

Chairman	T. Kriner
Members:	C. Herberhold
	D. T. Keeling

Summary of Facts and Submissions

I. By its decision posted on 6 June 2012 the Opposition Division decided that the European Patent No. 1693582 in amended form according to the Auxiliary Request then on file and the invention to which it related met the requirements of the EPC.

II. The opponent (appellant 1) as well as the proprietor (appellant 2) both lodged an appeal against this decision in the prescribed form and within the prescribed time limit.

III. Oral proceedings before the Board of Appeal were held on 12 February 2015.

At the end of the oral proceedings the requests of the parties were as follows:

Appellant 1 requested that the decision under appeal be set aside and that the patent be revoked.

Appellant 2 requested that the decision under appeal be set aside and that the patent be maintained as granted (Main Request) or, in the alternative, that the patent be maintained in the amended form held allowable by the Opposition Division (Auxiliary Request).

Furthermore, appellant 2 requested that documents

E1b: BHS Getriebe, Konstruktionsrichtlinie: "Standardisierung für WGE, WGC und TGC Schulungsunterlagen für einstellbare Lager", 31. Mai 2004, and

Dx: GB-B-635,601

not be admitted into the proceedings.

IV. Claim 1 of the Main Request reads as follows:

"A bearing to be mounted in a surrounding housing, comprising:
a bearing housing (10) defining an outer periphery for contact with the surrounding housing, said bearing housing defining an interior bore (12) having a center (16) eccentric from the center (18) of said outer periphery, **characterized in that**
the bearing further comprises at least one tilting pad (20) oriented toward said interior bore."

Independent claim 15 as granted has not played a role in the present proceedings.

V. The single independent Claim 1 of the **Auxiliary Request** differs from claim 1 of the patent as granted in that the bearing further comprises:

"an indexing feature (40) connected to said outer housing (10) to engage said surrounding housing (26) to maintain said outer periphery in a predetermined orientation against rotation about its center,

wherein said indexing feature comprises a plurality of spaced bores on said outer periphery and a pin (40) to be selectively inserted into one of said bores."

VI. In addition to the documents mentioned in point III above, the following further documents played a role for the present decision:

E1: Catalogue: "Sartorius Gleitlagertechnik, Kippsegment-Lager, Standard-Baureihen, Februar 2003, BHS Getriebe";
E5: US-A-3,936,103;
D2: GB-B-994,028.

VII. The essential arguments of appellant 1 can be summarised as follows:

Admissibility of documents E1b and Dx

Document E1b had been provided right at the beginning of the appeal proceedings. It related to the same eccentric bearings as document E1, but additionally, see Figure 3, showed the bearings to engage the surrounding housing in different predetermined orientations, with pins selectively inserted into a plurality of bores securing said particular orientation. The document was thus *prima facie* more relevant than E1, in particular with respect to the reasoning in the impugned decision. As stated explicitly in the document, page 1, point 1, it was meant to be provided to workers of a company different from the proprietor, i.e. to members of the public not bound by a confidentiality agreement. The document should thus be admitted into the proceedings.

With respect to Dx, the document had accidentally just been found the day before the oral proceedings and transmitted to the Board and the other party immediately. It was very short, *prima facie* novelty destroying and should thus be admitted into the proceedings.

Main Request - Novelty

Document E1 was a catalogue by the company "Sartorius", with printing date February 2003. In addition to the fact that the document explicitly referred to itself as a catalogue, it was immediately evident that it aimed at informing and raising interest of potential customers, and thus was meant to be as publicly available as it possibly could. In view of all experience of life it thus had to be accepted as certain that the document had been distributed within the two years following printing and thus before the priority date of the patent. Further evidence by several witnesses had been offered in case public availability was deemed questionable by the Opposition Division or the Board.

It further had to be considered that E1 was submitted as a piece of written evidence and not in support of an alleged prior use, such that case law requiring an up to the hilt standard of proof for prior uses did not apply.

As a result, document E1 had to be considered publicly available and thus was prior art under Article 54(2) EPC. It showed, e.g. on page 2, right column, eccentric tilting pad bearings to be mounted in a surrounding housing. Hence, the subject-matter of claim 1 of the Main Request was not novel over the disclosure of document E1.

Auxiliary Request - Novelty

Furthermore, E1 also inherently disclosed an indexing feature in order to maintain the bearing housing in a predetermined orientation relative to the surrounding housing. In fact, it was the very purpose of an

eccentric bearing to be adjustable by employing different rotational positions thereof. It was thus immediately evident to the person skilled in the art that a plurality of holes needed to be present in the surrounding housing, into which the fixation pins - which on their part were fitted in the holes shown in partial cross-section in the drawing on page 18 - were to be inserted.

This was even more evident from E1b, page 6, Figure 3, which showed the bearing housing in different orientations relative to the surrounding housing, thereby disclosing a plurality of spaced bores in the surrounding housing into which the fixation pins could be selectively inserted. This constituted a separate adjustment mechanism for the zero position, in addition to the fine adjustment mechanism using a threaded pin extending through the fixation pin as described in point 5.3 of E1b.

Therefore, claim 1 of the Auxiliary Request was not new over prior art E1 or E1b.

Auxiliary Request - Inventive step

Document D2 constituted the closest prior art. It disclosed on page 1, lines 71 to 86 and in Figures 2 to 5 an eccentric bearing having a plurality of spaced holes on the outer periphery thereof which selectively engaged with a pin in a surrounding housing. The only difference between the bearing of D2 and the claimed subject-matter was thus in the type of the bearing: whereas D2 showed a roller bearing, claim 1 defined a tilting pad bearing. However, - as evidenced e.g. by E5 - tilting pad bearings had been known for a long time, including their advantages and disadvantages as well as

their particular capability to provide hydrodynamic support for high rotation speeds while preventing unwanted oscillations thereof. A tilting pad bearing thus had to be considered an obvious alternative to a roller bearing in the event that a high load bearing ability in combination with high rotational speed was required.

Consequently, the subject-matter of claim 1 of the Auxiliary Request was obvious.

VIII. The essential arguments of appellant 2 can be summarised as follows:

Admissibility of documents E1b and Dx

Document E1b had only been submitted in the appeal proceedings and thus was late filed. It was no more relevant than the other documents already in the proceedings. Moreover it was uncertain whether the document had been available to the public before the priority date of the application. Therefore, the document should not be admitted.

Document Dx had been provided so late that appellant 2's representative had already been on his way from the UK to the oral proceedings in Munich, such that he was only able to retrieve an incomplete copy. Admitting an extremely late filed document, in respect of which appellant 2 had not been able to properly prepare, would constitute a serious procedural prejudice to appellant 2. Therefore, the document should not be admitted.

Main Request - Novelty

Document E1 could not be considered novelty destroying because the document had not been publicly available.

Firstly, it was not clear what kind of a document E1 represented, why it had been produced, whether it had been at all intended for public distribution or whether it was only made available internally, to a closed group of recipients possibly under a secrecy agreement.

Furthermore, appellant 2 was not in a position to prove whether or not the document had been published, whereas appellant 1 apparently had access to several witnesses and could have easily provided written evidence in support of the public availability. There was thus an imbalance in the position of the parties and the fact that no such written evidence - as for example an affidavit - had been provided, counted against the facts alleged by appellant 1. In this context, in particular in respect of evidence possibly leading to a revocation of a patent, a very high standard of proof was required, namely the standard of proof "up to the hilt".

In view of said rigorous standard, public availability of document E1 could not be considered proven and claim 1 as granted was thus novel over prior art E1.

Auxiliary Request - Novelty

Even if E1 was considered publicly available, it did not disclose the indexing feature claimed in claim 1 of Auxiliary Request 1. As discussed on page 15 of E1, the bores for the fixing pins were chosen such that the bearing was rotated by 18° with respect to the split in the gearing box, in order to guarantee that the

resulting force vector was aiming into a gap between the tilting pads. Thus, said indexing feature assured a fixed, specific orientation which was not selectively adaptable. Moreover, the axes of the two bores shown in a partially sectional representation in drawing E1, page 18, did not extend radially but were shifted relative to a diametric line of the circle. Therefore, if the first hole was aligned with a respective cut-out in the surrounding housing, the second hole - after rotation of the bearing housing - was no longer aligned with said cut-out, as it had a different axis orientation. A fixation pin in the cut-out of the surrounding housing thus could not be selectively inserted into one of the two bores.

While it was true that eccentricity only made sense in the context of an adjustable orientation, such a mechanism was indeed disclosed in E1b, point 5.3, however, in the form of a threaded pin piercing the fixing pin. This mechanism did not qualify as a pin to be selectively inserted into one of the bores of the bearing housing, and moreover only allowed for a very limited fine-tuning of the rotational orientation, which was technically different from the coarse adjustment brought about by the inventive indexing feature. With respect to appellant 1's allegation that a plurality of spaced bores in the surrounding housing had to be considered present in order to allow for the reorientation of the bearing housing as depicted in Figure 3, it had to be kept in mind that firstly there was no clear and unambiguous disclosure of such holes and secondly that - according to the claim - the spaced bores had to be in the bearing housing and not in the surrounding housing.

Consequently, claim 1 of Auxiliary Request 1 was novel over the disclosure of E1 and E1b.

Auxiliary Request - Inventive step

Appellant 1 had used document D2 as the closest prior art. However, this document referred to a roller bearing, a type of bearing which was considerably different from the tilting pad bearing claimed and which was used in the context of significantly different bearing requirements. The D2 bearing thus was not a good starting point for evaluating obviousness of a bearing to be used in high-speed applications such as a tilting pad bearing. Although tilting pad bearings were in principle known, there was no indication either in D2 or in E5 to replace the roller bearing by any other type of bearing. In fact, there were multiple other bearing types available from which the skilled person could have equally chosen. Hence, the skilled person could have modified the roller bearing into a tilting pad bearing, but had no indication to this effect and thus would not have done so.

Consequently, the subject-matter of claim 1 of the Auxiliary Request was inventive.

Reasons for the Decision

1. The appeal is admissible.

2. Admissibility of documents E1b and Dx

2.1 E1b

Document E1b was submitted together with the statement of grounds of appeal. Accordingly, it lies within the power of the Board to admit or not this document into the proceedings (Article 12(4) RPBA and Article 114(2) EPC).

E1b was submitted at a very early moment in the appeal proceedings. Moreover, its submission is considered a reaction to the impugned decision: E1b deals with an eccentric tilting-pad bearing similar if not identical to the ones disclosed in E1, further disclosing the adjustability thereof (point 5.3 of E1b). The filing of E1b thus addresses a crucial point of the decision under appeal, which had argued that the eccentric bearings of E1 did not allow adjustable positioning (point 15.1 of the reasons). The filing of E1b is thus considered an appropriate reaction to the proceedings before the Opposition Division. Consequently the Board decided to admit E1b into the proceedings.

2.2 Dx

In contrast, document Dx was filed extremely late in the appeal proceedings, i.e. less than 24 hours before the beginning of the oral proceedings. At this point in time the UK based attorney of appellant 2 was already on his way to Munich and was only able to retrieve an incomplete copy of the document. Furthermore, there were no new developments regarding the request situation, the Main Request and the Auxiliary Request being identical to the ones already treated before the Opposition Division. There is thus no reason why the document could not have been found and submitted earlier. Consequently, the Board is of the opinion that the fact that appellant 1 only accidentally discovered the document the day before does not justify putting

appellant 2 into the procedurally disadvantageous situation of having to deal with the document on such short notice.

Therefore, document Dx is not admitted into the proceedings.

3. Main Request - Novelty over E1

3.1 Public availability:

Document E1, according to the date on its first page, was printed for the company "Sartorius Gleitlagertechnik", Göttingen in February 2003.

On its last page, first sentence, the document explicitly refers to itself as a "catalogue". Moreover, it has the typical "look" of a catalogue: it presents multiple different product strains including detailed information, how a particular bearing is to be ordered ("Bestellbeispiel", see e.g. page 3, 4, etc.), whether the company has the bearing immediately available or in what form the product will be delivered ("bevorrated"; with or without oil injection nozzles, see e.g. page 19). It furthermore comprises the necessary contact information to order the products (last page).

To summarise, the document has all the characteristics of a typical catalogue intended for distribution to potential customers in order to encourage them to order one of the Sartorius bearings described in the catalogue. Therefore the Board comes to the conclusion that document E1 was intended for publication and that - given the printing date February 2003 on the front page - it can reasonably be assumed that it was

published before the relevant priority date of the patent, which was approximately two years later.

Furthermore, catalogue E1 was published by a company not being a party in the opposition and appeal proceedings. As discussed during the oral proceedings, the Board thus does not see why any of the appellants was in a more or less favourable position to provide evidence on the public availability of E1 than the other. Appellant 2 deduced from the fact that witnesses had been offered by appellant 1 that appellant 1 was apparently in a better position to produce evidence regarding public availability of E1. According to appellant 2, the onus was thus on appellant 1 to provide such evidence, which most conveniently should have been provided in the form of an affidavit.

However, Article 117(1) gives no order of preference regarding the means of giving or obtaining evidence in proceedings before the EPO and it remains the free choice of a party to rely on hearing a witness (Article 117(1)(d)) or on producing a sworn statement in writing (Article 117(1)(g)). Thus the decision to offer witness evidence instead of an affidavit does in no way weaken the position of appellant 1.

Secondly, given the fact that Sartorius' contact information are available on the last page of E1, an enquiry about the document's public availability would have been equally possible for appellant 2, but apparently was not deemed appropriate. Appellant 2 has not made any effort to show that it was not within its power to obtain evidence that the catalogue was or was not publicly available.

Thirdly, appellant 1 has not only provided the document, which in itself confers a high probability that it had been publicly available, but offered further proof by hearing of witnesses, which however neither the Opposition Division nor the Board considered necessary. In any case, offering a witness cannot put appellant 1 in a less favourable procedural position than not offering a witness. Not to hear the witnesses was at the discretion of the Opposition Division and of the Board. The fact that no witness was heard thus cannot count against appellant 1.

The Board further agrees that the rigorous standard of "up to the hilt" is typically applied in cases where a prior use is involved. However, in the present case, catalogue E1 has not been provided in support of an alleged prior use, but as written evidence on its own. The Board thus deems it appropriate to judge public availability of E1 using the "balance of probabilities" approach.

Hence, in view of the very clear inclination of the balance of probabilities towards public availability of document E1, document E1 is considered prior art under Article 54(2) EPC.

3.2 E1, page 2, right column, shows several bearings comprising at least one tilting pad ("Kippsegement-Radiallager") with a bearing housing defining an outer periphery, the bearing housing defining an interior bore having a centre eccentric from the centre of said outer periphery. Thus, E1 discloses the subject-matter of claim 1 of the Main Request. This has not been contested by appellant 2.

Therefore, claim 1 is not novel over the disclosure in document E1.

4. Auxiliary Request - Novelty

4.1 E1:

The bearing housing disclosed in E1 has an indexing feature comprising a plurality of spaced bores on said outer periphery (page 18, the hole having diameter d6 in the lower drawing, see also the two holes displaced by t5 and t5-e) to maintain said outer periphery in a predetermined orientation against rotation about its centre.

As disclosed on page 15, left column, second bullet point, the holes are provided such that the bearing housing is fixed by the fixing pins in a 18° rotated orientation with respect to the split line of the gear-box housing. In this way the resulting force vector is directed towards a gap in between the tilting pads (page 15, middle column, last paragraph - right column, first paragraph).

As correctly analysed by the opposition division, due to the non-radial orientation of the bores, a pin within the cut out on the gearbox housing can only interact with its corresponding hole on the periphery of the bearing. Because the other bore has a different orientation, its axis would - after rotating the bearing housing to best approximate the two holes - not align with the orientation of a pin aligned with the first cut out. The pin thus cannot be "selectively" inserted into one of said two holes.

Appellant 1 has further argued that for the eccentricity to make any technical sense, an adjustment mechanism for the rotational orientation of the bearing housing within the surrounding housing had to be present. The skilled person would thus imply that the surrounding housing was provided with a plurality of bores into which one of the fixing pins placed in the bores on the periphery of the bearing could then be selectively inserted. However, there is no clear and unambiguous disclosure in E1 for such a plurality of bores in the surrounding housing. Furthermore, even if such holes were present, this would only mean that a pin is to be selectively inserted into bores of the surrounding housing, whereas the claim requires a pin to be selectively inserted into bores on the outer periphery of the bearing housing. Moreover, as will be shown in point 4.2 below, there is a different adjustment mechanism at work, such that there is no need for the pin to be selectively inserted in different non-depicted bores.

Therefore, document E1 does not clearly and unambiguously disclose "a pin to be selectively inserted into one of the bores provided on the outer periphery of the bearing housing".

4.2 E1b

It is noted that public availability of document E1b has been put into doubt by appellant 2. This question can however be left open, because - as will be shown below - E1b equally does not disclose an indexing feature with a pin to be selectively inserted into one of the bores on the outer periphery of the bearing housing.

E1b discloses an adjustable eccentric bearing (see e.g. Figure 2) very similar if not identical to the one disclosed in E1 (in favour of appellant 1 it is assumed that both documents relate to the same adjustable eccentric bearings). As can be appreciated in E1b, "Bild 2", the orientation of the two bores shown on the outer periphery of the bearing housing is the same as in the figure on E1, page 18. Therefore the arguments provided in point 4.1 above apply *mutatis mutandis*.

It is further noted that Figure 2 solves the mystery how the orientation of the eccentric bearing housing of E1 may be adjusted: the fixation pin ("Fixierstift"), fixedly glued into the bore on the periphery of the bearing housing ("Fixierstift mit Loctite 242 eingeklebt", see E1b point 5.3.1), is provided with a threaded bore into which a second threaded pin ("Gewindestift") is inserted. The bearing is adjusted by rotation of the threaded pin (see E1b, 5.3.4).

The appellant argued that in addition to the adjustment mechanism just discussed, a further adjustment mechanism was present, as could be seen in E1b, "Bild 3". Allegedly, in this figure, the two bores on the outer periphery of the bearing were shown in alignment with different bores in the surrounding housing (see in particular the situation on the right and on the left of "Bild 3"), such that a plurality of bores had to be considered present in the surrounding housing. However, firstly, this would again only mean that a pin is selectively inserted into one of a plurality of bores in the surrounding housing, whereas the claim requires a pin to be selectively inserted into one of the bores on the outer periphery of the bearing housing. Secondly, as discussed during oral proceedings in appeal, to reach the different configurations shown in

Figure 3, the surrounding housing may just as well have been rotated either around the rotation axis of the bearing or around a vertical axis. The Board notes in this respect the eccentricity of the surrounding housing (in addition to the eccentricity of the bearing housing) shown in Figure 3, which indicates that the surrounding housing has a different orientation in the drawing on the left of Figure 3 than in the drawing on the right (e.g. due to a 180° rotation around a vertical axis).

Consequently, also E1b does not clearly and unambiguously disclose an indexing feature, wherein a pin is to be selectively inserted into one of a plurality of bores on the outer periphery of the bearing housing.

4.3 To conclude, the subject-matter of claim 1 of Auxiliary Request 1 is novel over prior art E1 and E1b.

5. Auxiliary Request - Inventive step

Appellant 1 has referred to document D2 as being the closest prior art. It is uncontested that the document discloses all features of claim 1 apart from the bearing further comprising at least one tilting pad oriented toward said interior bore (see Figures 2-5 in this respect). The parties agree that the disclosure of D2 relates to a roller bearing, whereas claim 1 of Auxiliary Request 1 defines a tilting-pad bearing.

Although the difference appears to involve only a single claim feature, it is technically significant. A roller bearing is a different type of bearing as compared with a tilting pad bearing, the roller bearing employing a different concept to provide low friction

rotation. Switching from one bearing type to the other thus implies major modification of structural features and there is no pointer in document D2 towards switching to a tilting pad bearing. A roller bearing thus cannot be considered a realistic starting point for assessment of inventive step.

According to appellant 1, the advantages of tilting-pad bearings were well known to the person skilled in the art (e.g. from document E5), namely to provide hydrodynamic support for high rotation speeds while preventing unwanted oscillations thereof. It was thus obvious for the person skilled in the art to modify the D2 bearing into a tilting pad bearing in order to solve problems related to high rotational speeds.

However, choosing a roller bearing as closest prior art implies an informed selection of said bearing type by the skilled person for a particular application - being well aware of its advantages and disadvantages. If high rotational speeds were to be expected, the person skilled in the art would primarily have chosen a tilting-pad bearing. Changing during the course of development from one particular application, for which a roller bearing was known to be suitable, towards a different application, for which a tilting pad bearing was known to be suitable, is not a realistic scenario of the problem-solution approach and can only be seen as an *ex post facto* analysis.

Moreover, starting from D2 the person skilled in the art is as likely to switch to a tilting pad bearing as he/she may switch to any other type of bearing. Thus, even if the skilled person could modify the D2 bearing into a tilting pad bearing, there is no indication why

he/she would do so without employing *ex post facto* knowledge.

Hence, the subject-matter of claim 1 of the Auxiliary Request is not obvious in view of D2 alone or in combination with E5.

Order

For these reasons it is decided that:

Both appeals are dismissed.

The Registrar: The Chairman:

V. Commare T. Kriner

Decision electronically authenticated