

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 22 June 2017**

Case Number: T 1805/12 - 3.2.06

Application Number: 06022160.3

Publication Number: 1780111

IPC: B62M3/00, B62K19/34

Language of the proceedings: EN

Title of invention:
Bicycle bottom bracket assembly

Patent Proprietor:
SHIMANO INC.

Opponent:
SRAM Deutschland GmbH

Headword:

Relevant legal provisions:
EPC 1973 Art. 54, 56, 83
RPBA Art. 13(1)
EPC R. 99(2)

Keyword:

Sufficiency of disclosure - (yes) - objection not
substantiated - admitted (no)
Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1805/12 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 22 June 2017

Appellant: SRAM Deutschland GmbH
(Opponent) Romstraße 1
97424 Schweinfurt (DE)

Representative: Thum, Bernhard
Wuesthoff & Wuesthoff
Patentanwälte PartG mbB
Schweigerstraße 2
81541 München (DE)

Respondent: SHIMANO INC.
(Patent Proprietor) 3-77, Oimatsu-cho
Sakai-ku,
Sakai City
Osaka 590-8577 (JP)

Representative: Harrison, Robert John
Sonnenberg Fortmann
Patent- und Rechtsanwälte
Postfach 33 08 65
80068 München (DE)

Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
12 June 2012 concerning maintenance of the
European Patent No. 1780111 in amended form.

Composition of the Board:

Chairman	M. Harrison
Members:	M. Hannam
	E. Kossonakou

Summary of Facts and Submissions

- I. An appeal was filed by the appellant (opponent) against the interlocutory decision of the opposition division in which it found that European patent No. 1 780 111 in an amended form met the requirements of the EPC.
- II. The appellant requested that the patent be revoked.
- III. The respondent (patent proprietor) requested that the appeal be dismissed.
- IV. The following documents, referred to by the appellant in its grounds of appeal, are relevant to the present decision:
- E1 Fahrrad-System-Komponenten & Technik, 2003
E3 EP-A-1 449 760
E4 EP-A-1 342 656
E6 DE-U-85 18158
- V. With letters of 1 August 2013 and 19 March 2014 the appellant *inter alia* provided arguments regarding its objection under Article 83 EPC.
- VI. The Board issued a summons to oral proceedings including a communication containing its provisional opinion, in which it indicated *inter alia* that the objection under Article 83 EPC appeared not to have been substantiated in the statement setting out the grounds of appeal and that the admittance of the additional arguments submitted in the letters referenced in point V above may be considered under Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA). It further suggested that the

subject-matter of claim 1 was novel but appeared not to involve an inventive step.

VII. Oral proceedings were held before the Board on 22 June 2017, during which the appellant withdrew its novelty objection. The final requests of the parties were as follows:

The appellant requested that the decision under appeal be set aside and the patent be revoked.

The respondent requested that the appeal be dismissed.

VIII. Claim 1 of the main request reads as follows:

"A bicycle bottom bracket assembly (50) comprising:
first and second bearing support members (55, 56) with each of the first and second bearing support members (55, 56) having an external abutment part (55c, 56c) adjacent a non-threaded outer circumferential surface that is configured and arranged to be press-fitted into an open end of a hanger part (40) of a bicycle frame (12); and
first and second bearings (58, 59) retained in the first and second bearing support members (55, 56), respectively, such that the first and second bearings (58, 59) are disposed axially inwardly of the external abutment part (55c, 56c) of a corresponding one of the first and second bearing support members (55, 56) with outer races (58b, 59b) of each of the first and second bearings (58, 59) engaging the first and second bearing support members (55, 56), respectively;
first and second cover members (60, 61) being disposed radially inwardly from the inner races (58a, 59a) of the first and second bearings (58, 59), respectively;
characterized in that

the first and second cover members (60, 61) are configured and arranged so that a crank axle (54) is removable from the first and second cover members (60, 61) in an axial direction without removing the first and second cover members (60, 61) from the inner races (58a, 59a) of the first and second bearings (58, 59)."

IX. The appellant's arguments may be summarised as follows:

The patent failed to disclose the invention sufficiently. This objection had been substantiated in the grounds of appeal by referring to the opposition division's decision and underlining the relevant portions; with no detail of the coupling properties of the cover members to the crank axle being provided in the patent, the skilled person would be unable to provide an appropriate fit allowing the removal of the axle from the cover members. If common general knowledge allowed the skilled person to carry out the invention according to claim 1, the same skilled person should be used in the evaluation of the documents questioning the presence of an inventive step in the claim. Even if the Board considered the objection not to have been substantiated, the objection should be admitted as a change of case.

The subject-matter of claim 1 did not involve an inventive step starting from E6 and combining this with the teaching of E3. The cover member and bearing arrangement of E3 was identical to that of the patent such that a simple exchange with the bearing of E6 would meet the claimed subject-matter. Page 2, lines 15 to 17 of E6 also disclosed the ability to axially position the axle optimally relative to the bearings such that a sliding of the bearings on the axle was suggested.

E6 in combination with the teaching of E4 also anticipated the subject-matter of claim 1. Col. 1, lines 40 to 43 of E4 suggested the complete replacement of the bearing assembly in order to overcome the prior art disadvantages. A complete replacement of the bearing in E6 with that in E4 was thus obvious to the skilled person. This required minimal modification of E6, the bearing assembly being replaced as a complete unit.

E1 (see original page 75) also provided the skilled person with the hint as to how to modify E6 and reach the claimed subject-matter, E1 demonstrating well-known general knowledge of the skilled person.

X. The respondent's arguments may be summarised as follows:

The statement of grounds of appeal failed to substantiate the objection under Article 83 EPC which should therefore not be admitted. Nor should the objection be admitted as a change of case.

The subject-matter of claim 1 involved an inventive step. E6 was not an appropriate starting point for an inventive step attack in combination with any of E3, E4 or E1 since it disclosed a bicycle bottom bracket assembly of a fundamentally different construction to that in these three documents. As a consequence, the skilled person would not consider E6 as the starting point and, even if it did, it would not be able to reach the claimed subject-matter without exercising inventive activity. In addition to those features identified in the preliminary opinion of the Board as not being known therefrom, E6 further failed to

disclose any cover member whatsoever as well as the bearings being disposed axially inwardly of the external abutment part of the bearing support members: the 'Kunststoffkäfig 7' offered no sealing function for the bearing as its purpose was to assist the pressing of the bearing onto the axle; col. 3, lines 40 to 42 of the patent clarified that the claimed bearing position was to be interpreted as inwardly from, or at most flush with, the axial ends of the cylindrical hanger part. An appropriate objective technical problem based on the differentiating features could be seen as being 'to provide bearing protection during disassembly of the axle from the bearing arrangement, whilst avoiding misalignment of the bearing'.

With respect to the inventive step objection starting from E6 and combining this with the technical teaching of E3, the bearings of E6 were press-fitted onto the crank axle and thus represented a fundamentally different arrangement to that in E3. The skilled person would thus not consider combining the two documents, as significant modification would be required to the fundamental concept in E6 (i.e. the press fitted nature of the bearings), making such combination anything but obvious.

With respect to the combination of E6 with the technical teaching of E4, the discussion of prior art in col. 1, lines 40 to 43 did not concern E6 since E6 could not be disassembled as a piece due to the press-fitted bearings. Such an inability to disassemble the bearing from the axle in E6 would dissuade the skilled person from considering a combination of E6 with E4, as was the case for E3.

Although E1 was cited as disclosing general knowledge

of a skilled person before the priority date, E1 in this regard essentially disclosed the same as E3 and thus, when combined with E6, also failed to deprive the subject-matter of claim 1 of an inventive step.

Reasons for the Decision

1. *Sufficiency of disclosure (Article 83 EPC 1973)*

1.1 The appellant's objections as regards the sufficiency of disclosure of the main request were not substantiated in the grounds of appeal.

1.2 The appellant's submissions on this point in its statement of grounds of appeal were essentially limited to identifying, through underlining, two passages of the opposition division's decision. The first passage indicated that no detail of the coupling properties of the cover members to the crank axle was provided in the patent to enable removal of the axle, the second passage indicating that selection of an appropriate fit would nonetheless be obvious to the skilled person when carrying out the invention according to claim 1.

The statement of grounds of appeal, however, neither questions the opposition division's finding nor indicates any reasons for setting aside the finding on Article 83 EPC 1973 in accordance with Rule 99(2) EPC. The appellant merely concluded, with reference to the decision, that the same skilled person should be used in the evaluation of the documents questioning the presence of an inventive step in claim 1 as was used for the analysis of sufficiency.

1.3 The Board thus concludes that the objection to the main request under Article 83 EPC 1973 submitted with the statement of grounds of appeal is not substantiated, and merely amounts to a set of observations.

1.4 With letter of 1 August 2013 the appellant maintained the objection under Article 83 EPC 1973 and provided arguments which were further elaborated upon in its letter of 19 March 2014.

With these arguments being filed subsequent to the statement of grounds of appeal, they represent a change of case and their admittance is at the discretion of the Board under Article 13(1) RPBA.

In substance these arguments are, however, limited to identifying that the patent fails to disclose the nature of the cover members and crank axle to allow removal of the axle without removing the cover members; they thus essentially re-iterate the finding of the opposition division (and the appellant's own statement in the grounds of appeal regarding this finding) such that no highly relevant reason is apparent for admitting the arguments pertaining to sufficiency of disclosure into the proceedings.

1.5 The Board thus exercised its discretion under Article 13(1) RPBA not to admit the objection under Article 83 EPC 1973 into the proceedings.

2. *Inventive step (Article 56 EPC 1973)*

The subject-matter of claim 1 is found to involve an inventive step in view of the cited prior art.

2.1 The appellant's inventive step objections are all based on E6 as the starting point.

2.1.1 E6 is found to disclose the following features of claim 1 (the annotations in parentheses referring to E6):

A bicycle bottom bracket assembly (see claim 1 and the Figure) comprising:
first and second bearing support members (5) with each of the first and second bearing support members (5) having an external abutment part (12; see page 3, lines 30 to 34 and the Figure), adjacent a non-threaded outer circumferential surface (see the Figure) that is configured and arranged to be press-fitted (page 3, line 34 to page 4, line 2) into an open end of hanger part (6) of a bicycle frame; and
first and second bearings (3, 4) retained in the first and second bearing support members (5), respectively, such that the first and second bearings (3, 4) are disposed axially inwardly of the external abutment part (12; see Figure) of a corresponding one of the first and second bearing support members (5) with outer races (10) of each of the first and second bearings (3, 4) engaging the first and second bearing support members (5), respectively; and
first and second cover members (7).

2.1.2 E6 fails to disclose:
the first and second cover members being disposed radially inwardly from the inner races of the first and second bearings; and
the first and second cover members being configured and arranged so that a crank axle is removable from the first and second cover members in an axial direction without removing the first and second cover members

from the inner races of the first and second bearings.

2.1.3 The respondent's argument that E6 lacks a cover member whatsoever is not accepted. Other than their positioning relative to the bearing, the function and nature of the claimed cover members in the patent is not disclosed. The interpretation of what a cover member entails is thus down to the skilled person who, from its name and its arrangement relative to the bearing in the patent, would see a technically reasonable interpretation as a structure to some degree covering the bearing. When considering E6 with this interpretation in mind, the 'Kunststoffkäfig 7', which at least partially covers the bearing on its axially outer side, can be considered a 'cover member'. The appellant's suggestion, with reference to page 4, lines 24 to 30, that the Kunststoffkäfig 7 of E6 is used solely to protect the bearing when fitting to the axle is not in accordance with the disclosure in E6 at page 5, lines 3 to 5 which describes that it further provides a good sealing of the bearings and thus evidently meets the above interpretation of what a cover member entails.

2.1.4 The respondent's argument that E6 fails to disclose the bearings being disposed axially inwardly of the external abutment parts of the bearing support members is not accepted. The appellant's reference to col. 3, lines 40 to 42 in support of its argument fails in two respects. Firstly, it is the wording of the claim which defines the protection which is sought; a passage in the description cannot be used to place a particular interpretation on an already clear and precise expression in the claims. Secondly, the above referenced lines of the description indicate the bearings being positioned inwardly from or flush with

the 'axial ends of the cylindrical hanger part'. This wording is not used in the claim in which the bearings are indicated to be axially inwardly of the 'external abutment part'. With the 'external abutment part' of E6 being the flange indicated as 12 in the Figure, it is clear from the same Figure that the bearings (3, 4) are indeed disposed axially inwardly of the flange 12 (i.e. axially inwardly of the external abutment part) even if not, as argued erroneously by the respondent on the basis of the description, inwardly from or flush with the axial ends of the cylindrical hanger part. This disputed feature is thus also known from E6.

2.1.5 Despite the respondent arguing that E6 was unsuited to be the starting point for inventive step attacks on the subject-matter of claim 1, no alternative starting point was suggested by either party; the sole inventive step objections on file started from E6 as was the case at the oral proceedings as well. As regards the alleged unsuitability, essentially the same arguments were used by the respondent to identify the incompatibility of E6 with the further cited documents during the substantive inventive step debate. It would thus be superfluous to respond to the arguments with respect to E6 not being the closest prior art here, as these same arguments form the core reasons for the finding on inventive step which follows below.

2.1.6 Based on the differentiating features of claim 1 over E6 identified in point 2.1.2 above, the objective technical problem to be solved may be seen as being 'how to provide bearing protection during disassembly of the axle from the bearing arrangement'.

2.1.7 The respondent's objective problem reads as for that in point 2.1.6 above with the addition of avoiding

misalignment of the bearing. This is based on the alleged failure of E6 to disclose the bearings being disposed axially inwardly of the external abutment part of the bearing support members. However, as found in point 2.1.4, this feature is known from E6 such that the reason presented by the respondent for the bearing to misalign is not present in E6, the feature thus not having to contribute to the objective technical problem. As a consequence, the respondent's technical problem is not objective.

2.2 E6 in combination with the teaching of E3

2.2.1 The bottom bracket assemblies known from E6 and E3 have such fundamental differences between them in their bearing design that the skilled person would not combine them in order to solve the objective problem and reach the claimed subject-matter without exercising an inventive step.

2.2.2 The bearing arrangement of E6 is such that the bearings are press-fitted onto the crank axle (see page 2, lines 11 to 13). In contrast, the bearings of E3 are contained within cover members 66 which allow free insertion of the crank shaft (50) into the bottom bracket i.e. lacking a press-fit (see col. 14, lines 7 to 10 and Figs. 3 and 5). Therefore, for the cover member complete with the bearing arrangement of E3 to be adopted into the bottom bracket assembly of E6, the bearing arrangement of E6 would have to be fundamentally altered in so far as the continued use of press-fitted bearings would have to be foregone. This would be a complete deconstruction of the fundamental aspects governing the bearing arrangement of E6 which has, notably as one of its core advantages, the press-fit bearings allowing the use of just a few components

(see page 1, lines 29 to 30).

2.2.3 The appellant's argument that the cover member and bearing arrangement of E3 were identical to that of the patent such that a simple exchange with the bearing of E6 would meet the claimed subject-matter is not persuasive. Whilst E3 and the patent indeed have very similar bearing arrangements, the fundamentally different bearing arrangement in E6 would dissuade the skilled person from considering the combination of the teaching of E3 with E6. Such a combination would require the entire bearing arrangement of E6 to be replaced with that of E3 which would be contrary to the design concept in E6 aimed at a simple construction with minimal parts (as mentioned above).

2.2.4 The appellant's argument that page 2, lines 15 to 17 of E6 discloses the ability to axially position the axle optimally relative to the bearings, due to the axle being of a constant diameter and devoid of projections along its length, is not persuasive for the consideration of whether the skilled person would combine E6 with the teaching of E3. The constant diameter axle enables the final position of the bearings thereon to be adjusted according to the requirement of the crank sprocket (see E6, page 2, lines 5 to 17), yet the inner races of the bearings will still be press-fitted to the axle (see page 2, lines 11 to 13). The combination with the teaching of E3 would thus still require fundamental structural requirements of the bearing arrangement of E6 to be omitted in order to enable the bearing arrangement taught by E3 to be incorporated into the bottom bracket assembly of E6; this is such a fundamental change that the skilled person would not consider it and could not

do it without becoming inventively active.

2.2.5 It thus follows that, starting from E6 and wishing to solve the objective technical problem, the skilled person would not combine this with the bearing arrangement known from E3 in order to reach the claimed subject-matter without exercising an inventive step (Article 56 EPC 1973).

2.3 E6 in combination with the teaching of E4

2.3.1 The bottom bracket assemblies also of E6 and E4 have such fundamental design differences associated with them that, wishing to solve the objective problem, the skilled person would not consider the combination of these two documents in order to reach the claimed subject-matter without becoming inventively active.

2.3.2 The appellant's argument that E4 suggested a complete replacement of the bearing assembly in E6 is not accepted. Col. 1, lines 40 to 44 of E4, whilst indeed suggesting bearing unit replacement, this is with respect to the foregoing prior art discussed from lines 20 to 34 of col. 1, which is not a crank assembly with a press-fitted bearing on the crank axle and thus not obviously applicable to E6 which has such a press-fitted bearing. It follows that exchanging the entire bearing unit of E6 with that suggested in E4 would require a departure from a fundamental aspect of the E6 disclosure requiring a deconstruction of the press-fitted bearing arrangement, this being a significant modification not obvious to the skilled person in the light of the objective problem to be solved.

2.3.3 It is also not accepted that replacing the entire bearing assembly of E6 as a unit is a small

modification. Due to the fundamental different bearing concepts in E6 with a press-fitted bearing and in E4 with a free-sliding arrangement (see col. 7, lines 48 to 57), the skilled person would have to fundamentally alter the bearing arrangement of E6, requiring significant modification and redesign, in order to incorporate the bearing unit of E4 therein. This would not be an obvious step for the skilled person and would require him to become inventively active.

2.3.4 It thus follows that, starting from E6 and wishing to solve the objective technical problem, the skilled person would not combine this with the bearing arrangement known from E4 in order to reach the claimed subject-matter without exercising an inventive step.

2.4 E6 in combination with the teaching of E1

2.4.1 Through a combination of E6 with the technical teaching of E1, the skilled person would also fail to reach the claimed subject-matter, unless inventive activity were used.

2.4.2 For similar reasons to those given in points 2.2 and 2.3 above, the bearing arrangements of E6 and E1 are so fundamentally different that the skilled person would not consider the combination of these documents and, even if he were to do so, would not reach the claimed subject-matter without exercising an inventive step.

2.4.3 The appellant's reference to original page 75 of E1 as the motivation to modify E6 is unconvincing. E1 discloses very similar bearing arrangements to those of E4 and E3 and offers no better justification for modification of E6 than did those documents. It thus follows that the fundamentally different bearing

arrangements disclosed also in E6 and E1 teach the skilled person away from combining these without exercising an inventive step.

2.4.4 Therefore, starting from E6 and wishing to solve the objective technical problem, the skilled person would not turn to E1 in order to modify the bearing arrangement and reach the subject-matter of claim 1 without exercising an inventive step. The fact that E1 was cited by the appellant as being evidence of general knowledge of a skilled person at the priority date does not alter the foregoing conclusion, since E1 only discloses one type of bearing arrangement and does not disclose, generally, that any bearing arrangement (e.g. of the type in E6) may be replaced merely by using certain parts of E1.

2.5 In summary, therefore, the subject-matter of claim 1 involves an inventive step in view of the cited prior art. The requirement of Article 56 EPC 1973 is therefore fulfilled.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. H. A. Patin

M. Harrison

Decision electronically authenticated