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**Datasheet for the decision
of 14 March 2017**

Case Number: T 1137/12 - 3.2.06

Application Number: 06001536.9

Publication Number: 1688345

IPC: B62M9/10

Language of the proceedings: EN

Title of invention:
Bicycle sprocket assembly

Patent Proprietor:
SHIMANO INC.

Opponent:
SRAM Deutschland GmbH

Headword:

Relevant legal provisions:
EPC Art. 123(2)
RPBA Art. 11, 13(1)

Keyword:
Amendments - added subject-matter (yes) Main request and
auxiliary requests 1 to 3

Decisions cited:

T 0331/87

Catchword:



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Case Number: T 1137/12 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 14 March 2017

Appellant:
(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 13 March 2012
revoking European patent No. 1688345 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman	M. Harrison
Members:	M. Hannam
	M.-B. Tardo-Dino

Summary of Facts and Submissions

- I. An appeal was filed by the appellant (proprietor) against the decision of the opposition division revoking European Patent No. 1 688 345, in which it found that the subject-matter of claim 1 according to each of a main request, a first and a second auxiliary request failed to meet the requirement of Article 123(2) EPC. With its appeal grounds, the appellant requested that the patent be maintained according to a main request or, in the alternative, according to one of auxiliary requests 1 to 5. It also requested that the appeal fee be reimbursed.
- II. The respondent (opponent) requested that the appeal be dismissed.
- III. The Board issued a summons to oral proceedings and a subsequent communication containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 1 of each of the requests on file appeared not to meet the requirement of Article 123(2) EPC.
- IV. With letter of 13 February 2017 the appellant filed new auxiliary requests 1 to 3 replacing all auxiliary requests previously on file.
- V. Oral proceedings were held before the Board on 13 March 2017, during which the appellant filed a replacement auxiliary request 2 and withdrew its request for reimbursement of the appeal fee.

The appellant requested that the decision under appeal be set aside and the case be remitted to the first instance. Alternatively it requested that the patent be

maintained on the basis of the main request filed with the statement of grounds of appeal (9 July 2012), or auxiliary request 1 filed with the letter of 13 February 2017, or auxiliary request 2 filed during oral proceedings of 13 March 2017, or auxiliary request 3 filed with the letter of 13 February 2017.

The respondent requested that the appeal be dismissed.

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

"A bicycle sprocket assembly (12) comprising:
a first sprocket (S2) including a first attachment portion (36c) and a first chain engaging portion (36a) with a plurality of first teeth (36b); and
a second sprocket (S3) including a second attachment portion and a second chain engaging portion with a plurality of second teeth that are fewer in total number than a total number of the first teeth (36b) of the first sprocket (S2),
the bicycle sprocket assembly (12) further comprising
a first sprocket support (34; 134) being a separate member that is fixedly coupled to the first attachment portion (36c) of the first sprocket (S2); the first sprocket support (34; 134) having a first radially innermost end (101d) attachable to a hub (11); and
a second sprocket support (45) being a separate member that is fixedly coupled to the second attachment portion of the second sprocket (S3); the second sprocket support (45) having a second radially innermost end attachable to the hub (11);
a plurality of space maintaining projections (34c; 137a) being disposed between the first and second sprockets (S2; S3),
the space maintaining projections (34c; 137a) being located radially outwardly of the first and second

radially innermost ends (101d) of the first and second sprocket supports (34, 45; 134, 45); characterized in that, the plurality of space maintaining projections (34c; 137a) is configured and arranged to limit relative deflection between the first and second sprockets (S2; S3), wherein at least some of the space maintaining projections (34c; 137a) have free ends that extend axially from the one of the first and second sprockets (S2; S3) and axially towards an adjacent one of the first and second sprockets (S2; S3) while axially spaced from the adjacent one of the first and second sprockets (S2; S3)."

Claim 1 of auxiliary request 1 reads as per claim 1 of the main request with the following features appended thereto:

"and wherein at least some of the space maintaining projections (34c; 137a) have free ends that extend axially from the one of the first and second sprockets support (S2; S3) and axially towards an adjacent one of the first and second sprockets (S2; S3) while axially spaced from the adjacent one of the first and second sprockets (S2; S3)".

Claim 1 of auxiliary request 2 reads:

"A bicycle sprocket assembly (12) comprising: a first sprocket (S2) configured to rotate around an axis (X), the first sprocket (S2) including a first attachment portion (36c) with a plurality of first through-holes (36d) and a first chain engaging portion (36a) with a plurality of first teeth (36b), the first attachment portion projecting towards the axis and being formed on an inner circumferential surface of the

first chain engaging portion; and
a second sprocket (S3) configured to rotate around said axis (X), the second sprocket (S3) including a second attachment portion with a plurality of second through-holes and a second chain engaging portion with a plurality of second teeth that are fewer in total number than a total number of the first teeth (36b) of the first sprocket (S2), the second attachment portion projecting towards the axis and being formed on an inner circumferential surface of the second chain engaging portion,
the bicycle sprocket assembly (12) further comprising a first sprocket support (34; 134) being a separate member that is fixedly coupled to the first chain engaging portion (36a) via the first attachment portion (36c) of the first sprocket (S2); wherein the first sprocket support comprises a boss part (34a) and six sprocket support arms (34b) extending radially outward from an outer circumferential surface of the boss part (34a) in directions substantially perpendicular to the axis (X), the first sprocket being mounted to outer ends of the sprocket support arms (34b) via six rivets (37) which are passed through the first through holes of the first attachment portion (36c) and attachment holes (48) of the first sprocket support arms (34b), the first sprocket support (34; 134) having a first radially innermost end (101d) being the boss part attachable to a hub (11), the boss part (34a) having a plurality of engaging grooves (101a) and a plurality of splines (101d) extending in the axial direction and formed in an inner circumferential surface of the boss part; and
a second sprocket support (45) being a separate member that is fixedly coupled to the second chain engaging portion via the second attachment portion of the second sprocket (S3); wherein the second sprocket support

comprises a second boss part and second sprocket support arms extending radially outward from a second outer circumferential surface of the second boss part in directions substantially perpendicular to the axis (X), the second sprocket being mounted to second outer ends of the second sprocket support arms via six second rivets (44) which are passed through the second through holes of the second attachment portion and second attachment holes of the sprocket support arms, the second sprocket support (45) having a second radially innermost end attachable to the hub (11), the second boss part having a plurality of second engaging grooves (101a) and a plurality of second splines (101d) extending in the axial direction and formed in a second inner circumferential surface of the second boss part; a plurality of space maintaining projections (34c; 137a) being disposed between the first and second sprockets (S2; S3), the space maintaining projections (34c; 137a) being located radially outwardly of the first and second radially innermost ends (101d) of the first and second sprocket supports (34, 45; 134, 45); characterized in that, the plurality of space maintaining projections (34c; 137a) is configured and arranged to limit relative deflection between the first and second sprockets (S2; S3), wherein at least some of the space maintaining projections (34c; 137a) have free ends that extend axially from the one of the first and second sprockets (S2; S3) and axially towards an adjacent one of the first and second sprockets (S2; S3) while axially spaced from the adjacent one of the first and second sprockets (S2; S3)."

Claim 1 of auxiliary request 3 reads as per claim 1 of auxiliary request 2 in all aspects relevant to the

decision on these requests.

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

The case should be remitted back to the opposition division since it had, under point 2 of the decision, incorrectly interpreted the sprocket and sprocket support member as integral rather than separate elements. This misunderstanding led to the finding of the requirement of Article 123(2) EPC not being met. The opposition division had also not indicated any opinion in this respect in advance of the final decision which had thus taken the proprietor by surprise.

The subject-matter of claim 1 of the main request met the requirement of Article 123(2) EPC. The 'attachable to a hub' feature was not taken from a particular embodiment, rather was derivable from the entirety of the application as filed. This was also evident in that the innermost end of the sprocket supports clearly had to be attached to something. The skilled reader would contemplate other methods of attachment other than that specifically disclosed, particularly since this feature had no technical bearing on the claimed invention relating to the space maintaining projections. The feature was furthermore a functional indication of no technical importance which, according to T331/87, did not restrict the scope and so did not contravene Article 123(2) EPC.

The same arguments applied to auxiliary request 1 as were applicable to the main request.

As regards auxiliary request 2, all features relating to the splined attachability of the sprocket support

bosses to a hub were now included in claim 1. As regards each sprocket support having a sprocket attached on each side of it as a subassembly, the additional sprocket (S_1) on the first sprocket support was defined in dependent claim 11 of the application as filed and was thus to be seen as an optional feature.

The same arguments applied to auxiliary request 3 as were applicable to auxiliary request 2.

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

The appellant's request for immediate remittal of the case to the opposition division was late, based essentially on reasons presented for the first time at oral proceedings and unfounded; no justification for remittal existed.

The subject-matter of claim 1 of the main request contravened Article 123(2) EPC. There was no basis in the application as filed for the first and second sprocket supports to be attachable to a hub in the generality claimed, since the only disclosure was for attachment via a splined innermost end of the support. The same objection applied to auxiliary request 1.

Auxiliary request 2 should not be admitted since it did not overcome the problem of Article 123(2) EPC being contravened. Each sprocket support was solely disclosed as supporting two sprockets in a subassembly, yet only one sprocket per sprocket support was claimed. The omission of the second sprocket from claim 1 amounted to an unallowable intermediate generalisation of the original disclosure. The same objection applied also to

auxiliary request 3.

Reasons for the Decision

1. *Remittal to the opposition division*

1.1 The appellant's request to remit the case to the opposition division had been indicated at the very end of its statement of grounds of appeal, with the very sparse reasoning that the opposition division had improperly read and understood the wording of the claims. In order to allow this request, the alleged errors in the reading and understanding of the claims would have to be fundamental deficiencies as indicated in Article 11 of the Rules of Procedure of the Boards of Appeal (RPBA). However, in relation to the request for remittal in the written statement of grounds of appeal, no detail was provided regarding the way in which the claims had been incorrectly read and understood by the opposition division, or what the consequence of the alleged incorrect reading and understanding had been. The Board thus does not see how what is alleged to be an error of judgment on the part of the opposition division can result in a procedural defect justifying remittal.

1.2 During oral proceedings the appellant submitted new arguments regarding the request for remittal, which became its main request. These new arguments do not prove the existence of a fundamental defect in the sense of Article 11 RPBA for the reasons which follow.

1.2.1 The appellant's argument that the claims had been wrongly interpreted by the opposition division cannot *per se* result in a procedural defect. The

interpretation by an opposition division of features in a claim is dependent upon the technical understanding of its subject-matter by the individual members of the division. If a party is not satisfied with this interpretation it may appeal and have this interpretation reviewed; that is the very purpose of an appeal.

1.2.2 As regards the appellant's argument that no guidance had been provided in advance of the oral proceedings, this is not a requirement before an opposition division. The provision of any preliminary opinion by the opposition division is entirely at its discretion. Omission of such guidance being provided can thus not be seen as a procedural violation. It is furthermore noted that, as is evident from point 8 of the minutes of the oral proceedings before the opposition division, after having been presented with the opposition division's interpretation of the claims, an opportunity to respond through the filing of further requests was not taken by the proprietor. Therefore even if the patent proprietor heard the opposition division's interpretation for the first time at oral proceedings, it had an opportunity to react and did not at that time do so.

1.3 The Board thus concludes that there was no fundamental deficiency in the procedure before the opposition division which would justify a remittal (Article 11 RPBA). The request for remittal is thus refused.

2. *Main request*

2.1 *Article 123(2) EPC*

The subject-matter of claim 1 fails to meet the

requirement of Article 123(2) EPC.

- 2.1.1 The subject-matter of claim 1, at least due to the inclusion of the following features, lacks a direct and unambiguous basis in the application as filed:
- 'the first sprocket support having a first radially innermost end attachable to a hub'; and
 - 'the second sprocket support having a second radially innermost end attachable to the hub'.

There is no explicit basis in the application as filed for either the first or the second sprocket support to be simply attachable, without further structural detail, to a hub. Indeed, the sole disclosure of the first sprocket support's attachment to the hub is from col. 7, line 57 to col. 8, line 4 (referring here to the published (A2) version of the application as filed) in which a splined attachment is described, this also being clearly depicted in Figures 4 to 6. As regards the attachment of the second sprocket support to the hub, col. 8, lines 5 to 7 discloses that this follows analogously to that of the first sprocket support to the hub. This being the sole disclosure of how the two sprocket supports are attachable to the hub, the omission of this detail in claim 1 amounts to its subject-matter comprising an unallowable intermediate generalisation of the original disclosure.

- 2.1.2 The appellant's argument that the feature was derivable from the entirety of the application as filed is not persuasive. Whilst it can be accepted that the two sprocket supports must each be connected to the hub in some manner in order for the sprocket assembly to be able to drive the hub, the only specific way in which this is disclosed is by way of the splines and grooves in col. 7, line 57 to col. 8, line 4. An attachability

in such generality as claimed cannot be directly and unambiguously derived from the application as filed. Indeed, as currently claimed, the attachability includes in its scope even an interim element between the sprocket support and the hub to which each sprocket support was attachable (as argued by the respondent), rather than the attachability being directly to the hub, which possibility is clearly not disclosed to the skilled person in the application as filed. The claimed attachability of the sprocket supports to the hub thus clearly extends beyond the sole, very specific disclosure in the application as filed of how this is achieved by way of the splined connection.

2.1.3 The appellant's argument that the innermost end of the sprocket supports had to be attachable to something does not convince the Board of the claimed generality of attachability to the hub being originally disclosed. The only disclosure of any attachment of the sprocket support to the hub in the application as filed is, as indicated in point 2.1.1, by way of a splined connection. A general attachability is not disclosed and indeed includes further possibilities within its scope, such as an interim attachment piece between the sprocket supports and the hub, which are not disclosed or even implicitly suggested to the skilled reader of the application as filed.

2.1.4 The appellant's suggestion that the attachable nature of the sprocket supports to the hub had no technical bearing on the claimed invention is not accepted. It is firstly noted in this respect that the proprietor chose to include such a formulation in the claim, and all features in a claim define the invention; if a particular feature were of no importance it would not need to be included in the claim. This feature was

indeed added to the claim during examination of the application. As regards the 'technical bearing' on the claimed invention, it is the structural or functional relationship of the splined connection to the features included in claim 1 that is of importance. In this respect the first and second sprocket supports are a structurally and functionally integral element of the subassemblies comprising the sprockets and the space maintaining projections, such that the splined connections of the sprocket supports to the hub are in a structural defined relationship to the features in the claim. The splined connections are also important from a functional point of view, since these allow the torque to be transferred from the sprockets to the hub. It thus follows that the splined connections between the sprocket supports and the hub are both structurally and functionally related to the claimed bicycle sprocket assembly.

- 2.1.5 The reference to T331/87 fails to change the Board's finding in this respect. In that decision, the removal of a feature from a claim was found not to contravene Article 123(2) EPC provided that the skilled person would directly and unambiguously recognise that (1) the feature was not explained as essential in the disclosure, (2) it was not, as such, indispensable for the function of the invention in the light of the technical problem it served to solve, and (3) the replacement or removal required no real modification of other features to compensate for the change. Thus, the situation in the present case is different to that in T331/87. If one were to attempt to analogously apply the finding from that decision to the present case, the specific splined connection would need to be considered as having been removed from a claim in which it was previously present, leaving only the sprocket supports

being attachable to the hub. In the present case, conditions (2) and (3) of T331/87 are anyway not met. As regards condition (2), if the technical problem were taken to be limiting the deflection of the sprockets under load, the splined connection between the sprocket supports and the hub is indispensable in order for any drive to be transferred from the sprockets to the hub. If no drive can be transferred no torque will be experienced by the sprockets and these will thus not distort to require limitation of deflection. Regarding condition (3), removal of the splines will require modification of the sprocket supports in order to allow torque to be transferred to the hub.

It thus ensues that, even if T331/87 were applied to the present situation, this would not result in the omission of the splined connections between the sprocket supports and the hub not contravening Article 123(2) EPC.

2.1.6 The subject-matter of claim 1 thus fails to meet the requirement of Article 123(2) EPC. The main request is consequently not allowable.

3. *Auxiliary request 1*

3.1 *Article 123(2) EPC*

3.1.1 The subject-matter of claim 1 of auxiliary request 1 includes the features of claim 1 of the main request found to extend beyond the content of the application as filed. The appellant provided no further arguments in defence of this request beyond those presented for the main request. The Board thus concludes that the subject-matter of claim 1 of this request also fails to meet the requirement of Article 123(2) EPC. Auxiliary

request 1 is thus not allowable.

4. *Auxiliary request 2*

4.1 *Admittance of the request*

This request was submitted during oral proceedings before the Board. The request may thus be admitted and considered at the Board's discretion, as set out in Article 13(1) RPBA, such discretion being exercised *inter alia* in view of the need for procedural economy. As is established case law of the Boards of Appeal, such procedural economy implies that amended requests should at least be *prima facie* allowable in order to be admitted.

4.1.1 In claim 1 of this request the nature of the first and second sprocket supports' attachability to the hub has been specified with the addition of features relating to engaging grooves and splines formed on the inner circumferential surface of the boss part. The specific features detailing the first sprocket support 34 have been taken from: col. 6, lines 7 to 11 and lines 44 to 46; col. 7, lines 36 to 37; and col. 7, line 57 to col. 8, line 4 of the published application. These passages of the original description all relate to the embodiments of Figures 2 to 4 which show the sprocket support 34 as part of a subassembly 31 supporting not only sprocket S_2 , as claimed, but also sprocket S_1 . This subassembly necessarily including both sprocket S_2 and sprocket S_1 is underlined through the rivets 37, included in claim 1, which mount the first sprocket S_2 to one side of the sprocket support also simultaneously mounting the sprocket S_1 to the opposing side of the sprocket support. With the features added to claim 1 being taken specifically from the particular embodiment

depicted in Figures 2 to 4 and being detailed in the above referenced passages of the description, and there being no other basis for such an amendment, omission of the further sprocket S_1 from claim 1 presents an unallowable intermediate generalisation of the application as filed.

4.1.2 The appellant's argument that the additional sprocket (S_1) on the first sprocket support was to be seen as an optional feature since it was in dependent claim 11 of the application as filed is not accepted. It is true that in the application as filed the additional sprocket (S_1) on the first sprocket support was merely an optional feature of the claimed invention. However, claim 1 of auxiliary request 2 is not based solely on a combination of claims 1 and 11 as filed, rather comprises a host of features taken from a specific embodiment of the invention disclosed *inter alia* in col. 6, lines 7 to 11 and lines 44 to 46; col. 7, lines 36 to 37; and col. 7, line 57 to col. 8, line 4. In this specific embodiment, the additional sprocket (S_1) is disclosed in combination with the further features of the first sprocket support taken up into claim 1. It thus follows that the extraction of these further features from the description for insertion into claim 1 without the additional sprocket (S_1) presents the skilled person with technical information in the form of a new combination of features which is not directly and unambiguously derivable from the application as filed.

4.1.3 The subject-matter of claim 1 thus at least *prima facie* fails to meet the requirement of at least Article 123(2) EPC.

4.1.4 Therefore, since subject-matter of claim 1 is at least not *prima facie* allowable the Board exercised its discretion under Article 13(1) RPBA not to admit this request into proceedings.

5. *Auxiliary request 3*

5.1 *Article 123(2) EPC*

5.1.1 The subject-matter of claim 1 of auxiliary request 3 includes essentially the same features of claim 1 of auxiliary request 2 which were found to result in subject-matter at least *prima facie* extending beyond the content of the application as filed. The appellant did not contest that the same finding would also apply to auxiliary request 3 and thus opted to provide no further arguments in defence of this request, and relied instead on those presented with respect to the *prima facie* allowability of auxiliary request 2. The Board thus concludes, for the same reasons as those for auxiliary request 2, that the subject-matter of claim 1 of this request fails to meet the requirement of Article 123(2) EPC.

Auxiliary request 3 is thus not allowable.

6. Auxiliary requests 4 and 5 were both withdrawn. In the absence of any allowable request the appeal is to be dismissed.

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