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**Datasheet for the decision
of 9 October 2007**

Case Number: T 0311/04 - 3.2.01

Application Number: 94117621.6

Publication Number: 0653347

IPC: B62M 9/12

Language of the proceedings: EN

Title of invention:
Front gear for a bicycle

Patentee:
SHIMANO INC.

Opponent:
SRAM Deutschland GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 54

Keyword:
"Novelty - main request and auxiliary requests 1 and 2 (no)"
"Added subject-matter - auxiliary requests 3 to 6 (yes)"

Decisions cited:
T 0284/94

Catchword:
-



Case Number: T 0311/04 - 3.2.01

D E C I S I O N
of the Technical Board of Appeal 3.2.01
of 9 October 2007

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 19 December 2003
revoking European patent No. 0653347 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: J. Osborne
Members: Y. Lemblé
T. Karamanli

Summary of Facts and Submissions

I. The appeal is directed against the decision of the Opposition Division posted 19 December 2003 to revoke the European patent No. 0 653 347. In its decision the opposition division held that the subject-matter of claim 1 according to a main and an auxiliary request was not novel having regard to the following prior art document:

D9: EP-A-0 075 927

II. During oral proceedings held 9 October 2007 the appellant (patent proprietor) requested that the decision to revoke the patent be set aside and the patent be maintained in amended form on the basis of the respective claims 1 to 10 according to the main request and auxiliary requests 1 to 6 all filed during the oral proceedings.

The respondent (opponent) requested that the appeal be dismissed.

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

"1. A front derailleur apparatus attachable to a frame (1) of a bicycle and operable by an operating force transmitted through a control cable (12a) to shift a bicycle chain (9) among a plurality of front chain wheels (G1-G3), comprising:
a fixed section (3) for fixing to said frame (1);
a chain guide (7a,7b,7c) for contacting said chain (9) to shift said chain (9);

a movable section (7) being connected to said fixed section (3) and fixedly supporting said chain guide (7a,7b,7c);

a first and a second link (5, 6) disposed between and pivotally connected to said fixed section (3) and said movable section (7) through respective first (5a), second (5b), third (6a) and fourth (6b) pivotal axis, said movable section (7) is supported by said pivotal links (5,6) to be movable relative to the fixed section (3), said pivotal axes (5a, 5b; 6a, 6b) extending substantially longitudinally of the bicycle, said first and second links (5, 6) relatively movably connecting said movable section (7) to said fixed section (3);

a cable connector fixed to said first link (5) for securing said control cable (12a);

characterized in that

an auxiliary projection (5d) extending from said cable connector (11) for contacting said control cable (12a) in a position substantially spaced from said cable connector (11)."

Claim 1 of the auxiliary request 1 comprises the features of claim 1 of the main request in combination with the following additional features:

"... pivotal links (5,6)..., which constitute together with the fixed section (3) and the movable section (7) a substantially parallel four-point link mechanism, said pivotal axes (5a, 5b; 6a, 6b) extending substantially longitudinally of the bicycle, said first and second links (5, 6)..."

Claim 1 of the auxiliary request 2 comprises the features of claim 1 of the auxiliary request 1 in combination with the following additional feature:

"... a substantially parallel four-point link mechanism, which is designed such that the movable section (7) is movably transversely relative to the bicycle frame (1) while maintaining a substantially fixed posture relative to the chain wheels (G1-G3) and the chain (9); said pivotal axes (5a, 5b; 6a, 6b) extending ..."

Claim 1 of the auxiliary request 3 comprises the features of claim 1 of the auxiliary request 2 with the following additional feature in its characterizing part:

"... characterized in that the first pivotal link (5), in its home position, being disposed to overlap a seat tube (1b) as seen from the front of the bicycle and an auxiliary projection ..."

Claim 1 of the auxiliary request 4 comprises the features of claim 1 of the auxiliary request 3 with the following additional feature in its characterizing part:

"... front of the bicycle, the second pivotal link (6) being disposed to overlap the seat tube (1b) as seen from a direction perpendicular to the front view and an auxiliary projection ..."

Claim 1 of the auxiliary request 5 comprises the features of claim 1 of the auxiliary request 4 with the following additional feature in its characterizing part:

"... the front view and the first and second pivotal axis (5a,5b) are substantially shorter than the third and the fourth pivotal axis (6a,6b) so that the first pivotal link (5) is prevented from interfering with the seat tube (1b) and an auxiliary projection ..."

Claim 1 of the auxiliary request 6 comprises the features of claim 1 of the auxiliary request 5 with the following additional feature in its characterizing part:

"characterized in that the first link (5) is pivotably connected with a lower end to the fixed section (3) to rotate around the first pivotal axis (5a) and with an upper end to the movable section (7) to rotate around the second pivotal axis (5b),
the second link (6) is pivotably connected with a lower end to a fixed section (3) to rotate around the third pivotal axis (6a) and with an upper end to the movable section (7) to rotate around a fourth pivotal axis (6b),
said movable section (7) is disposed above said fixed section (3),
the first pivotal link (5), in its home position ..."

- IV. The submission of the appellant, as far as it is relevant to the matter to be decided upon, can be summarized as follows:

Main request

Contrary to the assertion of the opponent, the subject-matter of claim 1 according to this request is new over the content of document D9. D9 discloses a derailleur which is of a different generic type compared to the claimed one. In the introductory part of the

description and in figure 11 of D9, there is described a conventional parallelogram linkage mechanism which relies on the same principle as that of the present patent. D9 cites the disadvantages that this type of mechanism has and then explicitly mentions that it proposes a derailleur which is conspicuously different from such a conventional parallelogram linkage mechanism (see page 5, lines 21 ff.). The derailleur shown in D9 indeed differs from the claimed one in that it discloses neither four axes nor two links. The movable section, i.e. chain guide 107, is supported to the fixed section 101 by a single link in the form of a swing member 112 which is respectively connected the fixed and the movable sections through two axes 110,111 only. The additional connecting bar 13 shown in figures 5A, 7A and 8A of D9 only fulfils the function of a push-rod and is not able to support the movable member 107. The sole and only contribution of this bar 13 is to transmit torque. Moreover, the respective connections of the bar 13 with the fixed and movable members 101,104 are not in the form of pivotal axes.

As regards the feature of the characterising part of claim 1, the opposition division was not correct in interpreting the reel portion 36 mentioned in page 13, line 7 and shown e.g. in figure 8A of D9 as a projection within the meaning of claim 1. When that feature is interpreted by a skilled reader in the light of the description (see paragraph [0006] in combination with paragraph [0029] of the patent specification), it is clear that the effect achieved by the projection is to convert the operating pulling force of the control cable into an effective torque having an increased lever arm. The reel portion 36 shown in figure 8A of D9

is not an "auxiliary projection ... spaced from said cable connector" within the meaning of the claim and cannot achieve the effect of an increased lever arm. As mentioned in lines 7-8 of D9, the reel portion 36 merely serves as a guide for the control cable W when the latter is pulled by operation of the shifting lever.

Auxiliary request 1

This request clarifies that the claimed mechanism is a substantially parallel four-point link mechanism, contrary to the shifting mechanism disclosed in D9, which is of the pushrod type, and that the pivot axes extend substantially longitudinally of the bicycle. A support for the additional wording is to be found in column 4, lines 2-19 and 30-32 of the application as published.

Auxiliary request 2

The additional feature of this request, when interpreted by the skilled man in the light of the description of the contested patent, provides that the movable section, during the shifting operation, is substantially moved transversely in a lateral direction and with no significant vertical movement in a downward or upward direction. A support for the additional wording is to be found in column 4, lines 36-39 of the application as published.

Auxiliary request 3

The feature added in the auxiliary requests 3 to 6 of "the first pivotal link, in its home position, being

disposed to overlap a seat tube as seen from the front of the bicycle" is supported word for word in column 5, lines 3 ff. of the patent application as published.

The term "home position" is fully clear and refers to the position in which the movable section 7, which is spring biased in an inward position of the bicycle (column 3, lines 51 ff. of the patent specification), is located above the smallest chain wheel corresponding to the lowest gear of the derailleur. This is also the starting position in which the cyclist usually starts riding (see column 7, lines 40 ff. of the patent specification).

Auxiliary requests 4 to 6

The feature added in the auxiliary requests 4 to 6 of "the second pivotal link (6) being disposed to overlap the seat tube (1b) as seen from a direction perpendicular to the front view" is disclosed by figures 1, 4 and 6 of the patent application as published. In column 8, lines 33 ff. of the application as published, it is explained that the second pivotal link 6 cooperates with the adjusting screws 14,15 which act as stoppers for the pivotal movement of the link. The man skilled in the art, when regarding figures 1, 4 and 6 side by side, clearly recognises that the second pivotal link 6 has to be arranged beneath the adjusting screws 14,15 and along an imaginary line drawn through the adjusting screws. As shown in figure 6, the support member 3b is equipped with link supports 3c and 3d which receive the axis 6a of the second pivotal link. That means nothing else than that the second link must be arranged between these two supports and thus must

overlap the seat tube as seen from a direction perpendicular to the regular direction of the bike's travel.

- V. The respondent argued essentially in the following way, as far as it is relevant to the matter to be decided on:

Main request

Claim 1 of the main request is not clear in that it does not specify to which of the first or the second links the first, second, third and fourth pivotal axes are assigned. According to the originally filed documents, the first pivotal link 5 is pivotally connected at a lower end to the fixed section to rotate around the first pivotal axis 5a and at an upper end to the movable section to rotate around the second pivotal axis 5b, the second pivotal link 6 is pivotally connected at a lower end to a fixed section 3 to rotate around the third pivotal axis 6a and at an upper end to the movable section 7 to rotate around a fourth pivotal axis 6b. Since claim 1 does not specify which axes are assigned to which link, it covers embodiments for which any axis could be assigned to any link or section.

Embodiments falling under the general formulation used in the claim are not disclosed in the application as filed. The subject-matter of claim 1 therefore extends beyond the content of the application as originally filed.

The subject-matter of claim 1 of the main request is not new over the content of document D9.

Auxiliary requests 1 and 2

The features introduced into claim 1 according to both these requests are also known from D9.

Auxiliary requests 3 to 6

The features added in claim 1 of these requests cannot be directly and unambiguously derived from the application as originally filed. Therefore these requests do not meet the requirements of Article 123(2) EPC.

Reasons for the Decision

1. Main request

1.1 *Admissibility (Articles 84 and 123(2) EPC)*

The amendments to claim 1 meet the requirements of Article 84 and of Article 123(2) EPC. The claim stipulates that first and second links are disposed between and pivotally connected to a fixed section and a movable section through respective first, second, third and fourth pivotal axes. For the skilled person reading this passage of claim, it would be immediately clear how to pivotally connect a fixed to a movable section by means of two links disposed between them and how such a pivotal connection defines four pivotal axes. No necessity arises as to specify which axes are assigned to which links, since the designation of the individual axes plays no further role in defining the subject-matter of the claim. As regards the

requirements of Article 123(2) EPC, there is also no doubt that the general formulation used in the claim is justified in view of the two different embodiments of link mechanisms disclosed in the application as originally filed (see figure 8 and figure 19 of the application as published).

1.2 Novelty

D9 discloses in figures 9 and 10 a front derailleur apparatus attached (fixing band I) to a frame H of a bicycle and operable by an operating force transmitted through a control cable W' to shift a bicycle chain among a plurality of front chain wheels G1, G2.

The derailleur comprises a fixed section 101 fixed to the frame H, a chain guide 107 to shift the chain and a movable section 104 which supports the chain guide. The movable section 104 is supported to be movable relative to the fixed section 101 by a link (swing member 112) and two axes (shafts 110,111).

According to the last paragraph of page 11 of D9, the essential elements of the front derailleur apparatus of figures 9-10 may be those of the embodiments shown in figures 1 to 4B of D9 and previously described in detail in connection with a rear derailleur (see also page 1, lines 11-15). In the oral proceedings, it was not disputed that the swing member 112 may enclose two discs 20,23 and a connecting bar 13 as shown in the embodiment of figures 4A, 5A, 7A and 8A of D9.

The fixed section comprises the stationary member 1,101 and the disc 20 having a pair of projections 25a in

engagement with notches 21 on the stationary shaft 10,110 of the stationary member 1,101, resulting in the disc being restricted from rotating about the stationary shaft 10,110 and the stationary member (D9: page 7, lines 11-15). The movable section comprises the movable member 4,104 and the disc 23 having a pair of projections 26a in engagement with notches 24 on the shaft 11,111 of the movable member 4,104, resulting in the disc 23 being restricted from rotating about the shaft 11,111 and the movable member (D9: page 8, lines 16-25).

The hooked ends 13a and 13b of the connecting bar 13 are pivotally linked respectively to the stationary disc 20 and to the movable disc 23 (see D9 page 7, lines 16-18; page 8, lines 25-28; page 10, lines 11-21). During the speed change operation, the connecting bar 13 rotates with respect to the disc 20 and the disc 23 which are respectively parts of the fixed and the movable sections. The hooked ends 13a,13b can therefore be considered as forming "axes" within the meaning of the claim.

In the same way, the swing member 112 and the connecting bar 13 can respectively be considered as first and second links within the meaning of the claim.

The argument of the appellant that the connecting bar 13 is not a supporting link in the sense of the litigious patent, is not cogent, since the wording of the claim does not require that each of the links supports the movable section against forces acting in all directions but only that "the movable section is

supported by said pivotal links to be movable relative to the fixed section".

Figure 10 of D9 also shows a cable connector (similar to the screw 39 and clamping ring 40 mentioned in page 13, lines 7ff. of D9) fixed to the link 112 for securing the control cable W' and an auxiliary projection (similar to the reel portion 36 mentioned in page 13, line 7 and shown e.g. in figure 8A of D9) extending from said cable connector.

Contrary to the opinion of the appellant, the wording of the characterising part of the claim does not imply that the projection necessarily achieves the effect of an increased lever arm. As claimed, the projection is "for contacting the control cable in a position substantially spaced from said cable connector". The claimed "spaced" contact is to be compared with that of a conventional cable connector in which the control cable always acts directly and on the same point of contact of the connector. To space the point of contact of the control cable from the cable connector amounts to modifying or displacing the point of application of the operating pulling force of the control cable.

The reel portion 36 shown in D9, when it pivots and guides the control cable W' as the latter is pulled by operation of the shifting lever, modifies the position of its contact with the cable W', and in turn, the point of application of the operating pulling force of the control cable on the link 112. The position of the contact is spaced from the position of the cable connector 39,40. Hence, the reel portion 36 acts as an

"auxiliary projection ... spaced from said cable connector" within the meaning of the claim.

The Board concludes from the above that the front derailleur mechanism disclosed in figures 9 and 10 of D9 comprises all of the features of claim 1. The subject-matter of claim 1 of the main request is therefore not novel, contrary to the requirement of Articles 52(1) and 54 EPC.

2. *Auxiliary request 1*

The features added in claim 1 of this request are not novel when compared with the content of D9.

Figure 6 and the passage of page 10, lines 11-21 of D9 leave no doubt as to the fact that the shifting mechanism which is disclosed in figures 4A, 7A, 8A and 10 of this document is a substantially parallel four-point 10, 11, P1, P2 link mechanism. Moreover, it is evident to the skilled person from figure 10 that the pivot axes formed by the ends of the bar 13, when provided in the front derailleur, would extend substantially longitudinally of the bicycle.

3. *Auxiliary request 2*

Contrary to the opinion of the appellant, the feature of "substantially fixed posture" added in claim 1 of this request is also known from D9.

There is no support either in the wording of this claim or in the description for the interpretation made by the appellant that this feature requires that there is

substantially no significant vertical movement of the movable section along a downward or upward direction during a shifting operation. In the same way, there is no reason to understand under the term "fixed posture" anything else than that the orientation of the section remains the same. This is an inherent feature of a parallelogram linkage.

4. *Auxiliary request 3*

The appellant contended that the feature added in claim 1 of this auxiliary request was to be found in the description of the application as published (column 5, lines 2-5) and that this feature was intended to solve the technical problem of providing a derailleur with a reduced size and of high compactness.

According to established jurisprudence of the boards of appeal (see T 284/94, OJ EPO 1999, 464) when an amendment of a claim is made by the introduction of a technical feature taken in isolation from the description of a specific embodiment, that amendment is only allowable under Article 123(2) EPC if, for a skilled person, it is clear beyond any doubt from the application documents as originally filed that the subject-matter of the claim thus amended provides a complete solution to a technical problem unambiguously recognizable from the application.

In the circumstances of the present case, the Board judges that the feature that "the first pivotal link (5), in its home position, being disposable to overlap a seat tube (1b) as seen from the front of the bicycle" is an isolated feature which was arbitrarily extracted

out of a group of features in a passage of the description dealing with the compactness of the derailleur. Indeed, it is presented in the description as a result achievable by the provision of pivot axes of different lengths. The introduction of this isolated feature therefore is not a complete solution to the problem of the compactness of the construction of the derailleur and, thus, is not allowable under the provision of Article 123(2) EPC.

Moreover, the term "home position" is not clear in that it does not specify whether it refers to the inward or the outward position of the movable section.

Auxiliary request 4

In this request, the question arises whether the feature of "the second pivotal link (6) being disposed to overlap the seat tube (1b) as seen from a direction perpendicular to the front view" introduced into claim 1 (hereinafter called feature i)) extends beyond the content of the application as originally filed.

In accordance with established jurisprudence of the boards of appeal, when considering whether the introduction of a feature into a claim meets the requirements of Article 123(2) EPC, it should be examined whether there is a direct and unambiguous teaching for the feature.

In the application documents as originally filed there is no indication of the way the second pivotal link is arranged with respect to the seat tube, let alone that this arrangement may be of any relevance or may

contribute to the problem of the compactness of the derailleur.

The appellant argued that feature i), although not explicitly mentioned in the patent application as filed, can be derived from the figures of the originally filed documents. In this respect, the appellant relied on figures 1, 4, 6.

Figure 4, which is the sole plan view of the derailleur, however, does not depict the second pivotal link. The skilled person could only speculate on the way the second pivotal link is arranged with respect to the seat tube, when seen from a lateral direction of the bicycle. The position of the adjusting screws 14,15 visible in figure 4 also fails to provide any relevant teaching in this respect since the implied location of the associated abutment surfaces on the second pivotal link cannot be regarded as overlapping the seat tube. Figure 1 shows the second pivotal link only in an elevation view in the longitudinal direction of the bicycle and gives no information as regards the extent of the link in the direction in which it is viewed. Figure 6 is a perspective view of a support member 3b having openings which provide the location of the third pivot axis 6a. Figures 4 and 6 in combination provide the information that a connecting portion 7d of the movable section overlaps the seat tube when viewed from a lateral direction. However, it is not a necessary requirement of this arrangement that the second pivotal link will have the same degree of extension. It follows that there is no direct and unambiguous disclosure of the feature added to claim 1 according to the present request.

The Board concludes that the subject-matter of claim 1 of the auxiliary request 4 extends beyond the content of the application as originally filed and, therefore, does not meet the requirements of Article 123(2) EPC.

Auxiliary requests 5 and 6

Since claim 1 of the auxiliary requests 5 and 6 also includes feature i), these requests also do not meet the requirements of Article 123(2) EPC and are therefore formally not allowable.

It follows from the foregoing that the respective claims 1 according to all of the appellant's requests fail to satisfy the requirements of the EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

A. Vottner

J. Osborne