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**Datasheet for the decision
of 12 June 2008**

Case Number: T 0232/07 - 3.2.01

Application Number: 97309605.0

Publication Number: 0849152

IPC: B62L 1/14

Language of the proceedings: EN

Title of invention:

Spring retaining apparatus for a bicycle brake

Patentee:

SHIMANO INC.

Opponent:

SRAM Deutschland GmbH

Headword:

-

Relevant legal provisions (EPC 1973):

EPC Art. 56

Keyword:

"Inventive step (no)"

"Examination of appeals - new ground for opposition (not admitted)"

Decisions cited:

G 0010/91

Catchword:

-



Case Number: T 0232/07 - 3.2.01

D E C I S I O N
of the Technical Board of Appeal 3.2.01
of 12 June 2008

Appellant: SRAM Deutschland GmbH
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 6 December 2006
rejecting the opposition filed against European
patent No. 0849152 pursuant to Article 102(2)
EPC 1973.

Composition of the Board:

Chairman: S. Crane
Members: J. Osborne
T. Karamanli

Summary of Facts and Submissions

- I. The appeal is directed against the decision posted 6 December 2006 to reject the opposition against European patent No. 0 849 152.
- II. The contested decision found that the subject-matter of the claims as granted was both new and involved an inventive step in the light of *inter alia* the following evidence:
- E1: DE-A-43 04 186
- E2: DE-A-39 13 769
- E5: EP-B-0 554 909
- E7: EP-A-0 432 268.
- III. An objection of insufficiency of disclosure was withdrawn during the opposition proceedings. During the appeal proceedings the objections of lack of novelty and inventive step were maintained. A new objection of addition of subject-matter was raised in respect of the main request. The respondent did not consent to its introduction.
- IV. At oral proceedings on 12 June 2008 the appellant requested that the contested decision be set aside and the patent revoked. The respondent requested that the appeal be dismissed (main request) or in the alternative that the decision under appeal be set aside and the patent maintained in amended form on the basis

of the auxiliary request filed with letter dated 17 July 2007.

V. Claim 1 as granted (main request) reads:

"A brake arm apparatus comprising:

a brake arm (2,3) having a fitting bore (21,31);

a fixing sleeve (14) having a first end and a second end, wherein the first end is disposed in the fitting bore (21,31) for pivotally supporting the brake arm (2,3);

a fixing member (50) attached to the second end of the fixing sleeve (14) for fixing the fixing sleeve (14) to a fixing base (1) attached to a bicycle frame;

a return spring (6,7) disposed between the brake arm (2,3) and the second end of the fixing sleeve (14);

wherein a first end (61,71) of the return spring (6,7) is retained at the brake arm (2,3); and

wherein the second end of the fixing sleeve (14) includes a second spring end retainer (52) for retaining a second end (62,72) of the return spring (6,7) independently of the fixing base;

characterised in that the fixing sleeve (14) includes a generally cylindrical portion (56) which extends entirely through the brake arm (2)."

Claim 1 according to the auxiliary request additionally has the following final wording:

", and the fixing member (50) comprises a pin formed separately from the fixing sleeve (14)".

VI. The appellant's submissions as relevant to this decision may be summarised as follows:

The subject-matter of claim 1 as granted is not new with respect to the disclosures of each of E1 and E2. In particular, the feature of a fixing member attached to the second end of the fixing sleeve for fixing it to a fixing base attached to a bicycle frame is known by virtue of the end portion of the respective sleeves which frictionally engage the fixing base.

For consideration of inventive step of the subject-matter of claim 1 as granted the closest state of the art is known from E5 in the embodiment of figure 6. This discloses all of the subject-matter of claim 1 except the feature that the retention of the second end of the return spring is independent from the fixing base. In particular, the second end of the spring in E5 is a fixing member attached to the second end of the fixing sleeve for fixing it to a bicycle frame. The differentiating feature avoids the risk of damaging the spring by shear forces resulting from rotation of the fixing sleeve relative to the fixing base. The skilled person faced with this problem will seek other solutions to avoiding relative rotation and so become aware of the disclosure of E7 in the same technical field. E7 discloses in the embodiment of figure 5 an arrangement in which the second end of the spring engages a support disk integrated into a cover member which in turn is provided with a tab for engaging a slot in the fixing base. The skilled person faced with the problem of relative rotation between the sleeve and fixing member in E5 would find a solution in the teaching of E7 and so arrive at the subject-matter of claim 1 without the need for inventive effort.

The additional feature in claim 1 according to the auxiliary request is conventional in the art and contains no specific detail which would render it more suitable for the problem of resisting shear forces.

VII. The respondent replied essentially as follows:

The subject-matter of claim 1 as granted is new with respect to the disclosures of both E1 and E2 because neither contains a fixing member within the meaning of the present patent. In the context of the patent specification the skilled person will appreciate that the "fixing" of the sleeve to the base is to ensure that there is no relative rotation. In order for a component to "fix" it must itself attach or place one part relative to another. In E1 the adjusting ring which the appellant considers to be a fixing member is rotatable in order to provide adjustment and so does not have a "fixing" function. According to E2 the fixing member would be the screw. In the absence of clamping force provided by the screw the part identified by the appellant as a fixing member does not attach or place one part relative to another.

E5 does form the closest state of the art for consideration of inventive step. However, E5 discloses neither a fixing member attached to the second end of the sleeve for fixing it to a base nor that the second end of the spring is retained by the retainer independently of the base. In the embodiment of E5 figure 6 the attachment screw bears directly on the sleeve and causes it to rotate relative to the base, thereby risking damage to the second end of the spring. The fixing member solves this problem but the skilled

person would have received no motivation for its solution either from E5 or from E7. E5 does not acknowledge that the problem exists. It moreover teaches offering-up the assembly as a single unit, which would be made more difficult if the sleeve were fixed to the base. In E7 the only rotational forces are those exerted by the spring so that no problem similar to that presently addressed exists. If the skilled person nevertheless were to combine the teachings the result would be an extension to the cover which already is present in E5 and retention of the spring in that rather than in the sleeve. A further problem which is solved by separating the retention of the end of the spring from the base is to permit freedom in the design of the spring. In E7 the spring second end is shown as being positioned closer than the lug to the axis, so would be subjected to higher shear forces than the lug and teaches away from the present invention.

Claim 1 according to the auxiliary request contains the additional feature that the fixing member is a separately formed pin. This provides the advantage that the material can be selected according to its duty. By comparison, E7 discloses only an integrally formed tab of unknown material.

Reasons for the Decision

Additional ground for opposition

1. The grounds for opposition introduced during the opposition procedure were insufficiency of disclosure, which was later withdrawn, novelty and inventive step.

In the statement of grounds of appeal the appellant introduced the additional ground for opposition of addition of subject-matter in accordance with Article 100(c) EPC 1973.

- 1.1 Since the ground for opposition in accordance with Article 100(c) EPC 1973 was not introduced during the opposition proceedings it is a fresh ground within the meaning of decision G 10/91 (OJ EPO 1993, 420). In accordance with that decision, see particularly point 3 of the Order, a fresh ground for opposition in appeal proceedings may be considered only with the approval of the patent proprietor.
- 1.2 In the present case the patent proprietor explicitly denied its approval to consideration of the ground for opposition in accordance with Article 100(c) EPC 1973. Reasoning in respect of that ground therefore is not contained in this decision.

Patentability

2. The patent relates to a brake assembly for a bicycle in which the brake block is applied to the wheel rim by pivoting a brake arm against the action of a return spring. The spring at one end engages the brake arm and at the other end engages a sleeve which is non-rotatably mounted on a base attached to the bicycle frame. The sleeve is retained against rotation by means of a "fixing member".

Main request

Novelty

3. The parties and the board are in agreement that novelty of the subject-matter of claim 1 turns on the matter of whether the feature of a "fixing member ... for fixing the fixing sleeve to a fixing base" is present in either of E1 and E2. There is, furthermore, agreement that the claimed action of "fixing ... to" is intended to mean the rotational immobilisation of the sleeve relative to the base. Disagreement exists between the parties, however, as to the interpretation of the term "fixing member". Whereas the appellant considers that this term would include components which frictionally prevent relative rotation, the patent proprietor sees the term as requiring a positive engagement.

3.1 As put forward by the respondent, the term "fix" has the general meaning of placing one part relative to another. The term "placing" in turn implies a determined position so that a friction clutch would not "fix" the input and output members relative to another whereas a dog clutch would. The teaching of the patent specification supports this interpretation in the single embodiment of the "fixing member" as a pin which is mounted in a flange on the sleeve and positively engages the base by entering into a hole. In the light of both the general meaning of "fix" and the specific disclosure in the patent specification the term "fixing member" therefore is to be interpreted as an at least functionally identifiable component which provides positive engagement between two parts.

3.2 In both E1 and E2 the component which the appellant identifies as a "fixing member" is an annular end face which is pressed against a surface by the action of a screw thread. Friction between the end face and the surface acts in combination with friction elsewhere in the assembly to immobilise the two parts relative to each other. Those annular faces cannot be considered as "fixing members" since they do not provide a positive engagement but merely provide resistance to relative movement in dependence on the clamping force applied by the screw thread.

3.3 The board concludes from the foregoing that the subject-matter of claim 1 is new with respect to both E1 and E2.

Inventive step

4. The closest state of the art for consideration of inventive step is the assembly disclosed in E5 figure 6. This corresponds to state of the art acknowledged in the patent specification and with respect to which the statements of problem were formulated. In the assembly of E5 figure 6 the fixing base (hereafter "base") includes a shouldered shaft on which is mounted a fixing sleeve (hereafter "sleeve") having a correspondingly shouldered bore. The sleeve is pressed against the shoulder by the axial load provided by a clamping screw which acts directly on the sleeve. The sleeve includes a radial flange which in the assembled position is slightly spaced from the base. The return spring is mounted on the sleeve and the second end passes through the flange into a hole in the base. Contrary to the appellant's assertions, the end of the

spring extending through the flange does not constitute a fixing member "attached to the ... sleeve" since the spring is merely confined in position.

5. According to the patent specification the embodiment in E5 figure 6 would suffer from the problem that tightly fastening the screw tends to rotate the sleeve. This leads to difficulty in adjusting the spring and, in an extreme case, to damage to the end of the spring. Moreover, engagement of the end of the spring in the base restricts the design of the spring. According to the respondent these problems are to be solved in accordance with claim 1 by the features of:

- a fixing member attached to the second end of the sleeve for fixing the sleeve to the base; and
- the second spring end retainer being for retaining the second end of the return spring independently of the base.

The former feature contributes to solving the first problem but once the sleeve is effectively immobilised the end of the spring will no longer be subject to damage whereby its insertion into the base plays no role. Contrary to the respondent's view, therefore, the latter feature has the primary effect of simplifying the assembly and reducing cost.

5.1 In the embodiment of E5 figure 6 the screw "positively presses" the sleeve against the shoulder to provide "a relatively strong support against rotation" during operation of the brake "even if the end of the return spring is insufficiently inserted" into the base, see

column 7, lines 18 to 30. In accordance with this embodiment, therefore, the sleeve is rotationally immobilised by both direct engagement with the base and insertion of the spring into the base. If the skilled person, in this case a mechanical engineer, having built a device according to E5 figure 6 were to find that the retention of the sleeve is insufficient to withstand the torque to which it is subjected during tightening of the screw he would critically examine both immobilisation means for scope to improve them. He would first direct his attention to the engagement between the sleeve and the base because whereas the spring primarily fulfils the role of storing energy and so offers relatively restricted scope for change, the sleeve/base engagement only fulfils the function which is deficient.

- 5.2 Positive engagement means for securely preventing the relative rotation of two parts, splines or a key for example, are commonly known and are contained in the reservoir of basic knowledge of the skilled person from which he would readily draw when faced with the set problem. Indeed, one example of such means in the same technical field is used in some embodiments of E7. In the embodiment according to figure 5, for example, the end of the return spring enters into a hole in the disc of a cover which in turn is immobilised by a lug which engages a slot in the base. Once the skilled person beginning from E5 has taken the step of employing a positive engagement means the retention of the end of the spring in the base serves no further purpose so its deletion in order to save cost would be an obvious step.

5.3 The respondent argues that neither E5 nor E7 provides any motivation to solve the set problems. As regards E5, this is correct but it is normal that a patent document contains no indication of any outstanding problems. However, any problems which do remain in the assembly as proposed therein would be evident to the skilled person when putting the teaching of E5 into effect so that no inventive activity would be required for the recognition of the problem. The board also disagrees with the respondent's view that the teaching in E5 that the assembly be offered-up as a unit to the base runs counter to the claimed concept of the fixing member. Offering-up the assembly to the base involves in the case of E5 entering the spring end into the base. Similarly, in the case of the assembly of the present patent it would involve entering the fixing member into the base. As regards motivation, as set out above, E7 is merely one example representative of the skilled person's general technical knowledge, for the application of which he would need no explicit motivation. Particularities of the solution shown in E7, moreover, would be of no import since it is evident that the ability of the arrangement to handle the forces occurring in E5 would be a matter of mere detail design. Whether the feature relating to independent retention of the end of the spring does, in fact, result in any additional design freedom in respect of the spring may remain unanswered because, even if so, it would be a purely fortuitous collateral effect of the deletion of the redundant engagement of the end of the spring in the base.

6. On the basis of the foregoing the board finds that the subject-matter of claim 1 as granted does not involve an inventive step (Article 56 EPC 1973).

Auxiliary request

7. The subject-matter of claim 1 in accordance with this request contains the additional feature that the fixing member comprises a pin formed separately from the sleeve. As already stated in respect of claim 1 as granted, a positive engagement means falls within the common knowledge of the skilled person. A pin is merely one such means which would readily occur to him as suitable for the task. Indeed, the term "pin" does not distinguish the claimed feature from the feature disclosed in E7 as a "lug". Whether the pin is formed as part of the member on which it is carried or is formed separately to accommodate manufacturing or functional requirements is a matter of detail design which also falls within the normal activity of the skilled person.
8. The board therefore concludes that the subject-matter of claim 1 according to this request also does not involve an inventive step (Article 56 EPC 1973) and the request fails.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

A. Vottner

S. Crane