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**Datasheet for the decision
of 10 December 2015**

Case Number: T 2472/13 - 3.2.01

Application Number: 11150171.4

Publication Number: 2301834

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Language of the proceedings: EN

Title of invention:
Quick release bicycle wheel

Applicant:
Montague, David

Headword:

Relevant legal provisions:
EPC 1973 Art. 56

Keyword:
Inventive step - (no)

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Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 2472/13 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 10 December 2015

Appellant: Montague, David
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Representative: CAPRI
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 25 July 2013
refusing European patent application No.
11150171.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Pricolo
Members: Y. Lemblé
S. Fernández de Córdoba

Summary of Facts and Submissions

I. The appeal of the applicant is directed against the decision of the Examining Division to refuse the European patent application No. 11 150 171.4 which has been filed as a divisional application of the earlier European patent application No. 06 118 745.6. The application has been refused under the terms of Article 84 EPC (lack of clarity) and Articles 123(2) and 76(1) EPC.

II. With his statement setting out the grounds of appeal, the appellant (applicant) requested that the decision under appeal be set aside and a patent be granted on the basis of a single claim 1 as filed therewith. He requested oral proceedings according to Article 116 EPC if the board could not grant a patent on the basis of the written submissions.

III. Single claim 1 reads as follows:

A manually operated wheel fastening system comprising:
a wheel with a wheel hub (3) and hub axle (4),
a wheel skewer (5) mounted concentrically inside said hub axle (4), said skewer having a first end comprising a threaded area and a second end,
a bicycle frame or a bicycle fork comprising a pair of dropouts (2), each dropout having a dropout recess (11) or dropout retaining tabs, a dropout restraining surface (44) and a dropout raised surface (43),
a primary locking system (22, 82, 58) for securing the wheel to the dropouts (2), including an adjusting nut (58) mounted on said first end of said wheel skewer (5) and a quick release comprising a cam arm (22) and a variable cam body (82), wherein the cam variation of said variable cam body (82) is at least as large as the

combined height of the two dropout restraining surfaces (44),
a secondary retention system (54, 58, 53, 44) including an inboard cradle (54), an inner cradle spring (53), said dropout restraining surface (44), and said adjusting nut (58), wherein said inner cradle spring (53) is positioned between said inboard cradle (54) and said quick release, and wherein said adjusting nut (58) comprises counter locking means or a nylon vibration stop,
wherein said inner cradle spring (53) causes said wheel skewer (5) to be spring loaded axially relative to the wheel hub (3) toward said second end of said wheel skewer, wherein said secondary retention system (54, 58, 53, 44) comprises automatically engaging means comprising said inner cradle spring (53) to engage when the wheel is in the dropouts (2) to retain the wheel on both dropouts (2), and
wherein there is enough room, with no rotation of said quick release or adjusting nut (58), to allow inboard cradle (54) and adjusting nut (58) to clear dropout raised surface (43) when inner cradle spring (53) is compressed during wheel installation, and
wherein the secondary retention system (54, 58, 53, 44) is adapted to be held manually disengaged allowing inboard cradle (54) and adjusting nut (58) to exit dropout recesses (11) or dropout retaining tabs, clearing dropout restraining surface (44) and dropout raised surface (43) during the initial movement of removal of the wheel from the dropouts (2),
characterized in that:
said quick release, comprising said cam arm (22) and variable cam body (82), is mounted on the second end of said wheel skewer (5) and said adjusting nut (58) is threaded onto said first end of said skewer (5), such that both the primary locking system (22, 82, 58) and

the secondary retention system (54, 58, 53, 44) are adapted to be operated for wheel removal from the dropouts (2) by operations done only from the quick release side of the wheel corresponding to said second end of said wheel skewer (5).

IV. In a communication of the board of appeal pursuant to Article 15(1) RPBA (Rules of Procedure of the Boards of Appeal) accompanying the summons to oral proceedings and dated 14 September 2015, the Board indicated its provisional opinion that the subject-matter of claim 1 is not patentable having regard to the teaching of prior art document D1: US-A-5 567 020 and indicated the reasons therefore (lack of inventive step).

V. In a letter dated 6 November 2015, the applicant replied to the board, asking it to reconsider its position on the basis of the arguments presented in the letter. The arguments of the appellant can be summarized as follows:

D1 contains no figure and no description of a system which can be operated from only the quick release side of the wheel. In fact, no mention of one-side or one-hand operation is made anywhere in D1. According to the board, it would have been obvious to a skilled person to equip the assembly of Fig. 15 with the alternative quick release shown in Fig. 16-18 and configured to be pushable to cause the translation of skewer 18. More particularly, the board states in respect of the cam design of Fig. 16-18 that the "starting from the position of Fig. 17, a pushing action on the integrally formed quick release arm 5M will be translated to the skewer 18...resulting in an axial translation of the skewer 18 and of the adjusting nut 11...".

This opinion of the board is not correct because a pushing on the quick release arm 5M will not be translated to the skewer 18 as the board contends. Exhibit A attached to the letter dated 6 November 2015 is a sequence from left to right, showing what happens when quick release arm 5M of Fig. 17 of D1 is pushed. As shown, quick release arm 5M is free to rotate causing cam 1M to move upward in cam chamber 23, but not causing skewer 18 to move inward as contended by the board. As shown in the right side figure, quick release lever 5M will eventually hit safety slide 15 further preventing any movement of skewer 18 inward. Thus, combining embodiments of fig. 15 and figs 16-18 would certainly not have been obvious to those skilled in the art, as it does not work. Pushing on sliding sleeve 21 does also not produce movement of skewer 18 as required. In the same way, cam enclosure 22 encased in sliding sleeve 21 is not easily accessible to be pushed. It is therefore not reasonable to conclude that one of ordinary skill in the art would find it obvious that the quick release shown in Fig. 17 of D1 could be substituted for the quick release in Figure 15 of D1 to make a system capable of being simultaneously pushed and pulled on one side of the wheel.

Indeed, every quick release lever shown in D1, in all figures, would not be suitable for a pushing action, as required in combination with Figure 15 for the following reasons. The design common to all embodiments of D1 uses a quick release lever configured such that, when in the open position, it rests rotatably dangling from the cam pivot mount, with only gravity acting on it. As shown in Exhibit B attached to the letter dated 6 November 2015, a rotatably hanging quick release is not conducive to a pushing action as it will often tend to roll or rotate away from the pushing action rather

than move axially along the skewer. All embodiments in D1 lack any means to resist rotation of the quick release during the pushing required by the present application.

Exhibit C attached to the letter dated 6 November 2015 graphically explains this point. The left side of Exhibit C shows the quick release from the present invention Figure 47. The outboard cradle has a corresponding shape to the cam surface when the quick release is (as shown) in the open position. The outboard cradle is biased toward the quick release cam by a spring and thus the quick release lever resists rotation in the open position, and therefore may be easily pushed. It has been stabilized. Contrary to this, on the right side of Exhibit C, D1 shows the lack of any outboard cradle (cam follower) or any other stabilizing element, and so nothing prevents the D1 lever from freely rotating. It is simply dangling. Therefore, when pushed, it will likely roll or rotate rather than push in axially along the skewer. The method of simultaneously pushing on the cam quick release while pulling out on slide 15 which is mounted inside, and very close to, the cam quick release, is not obvious, and not particularly easy to do. The benefits of one-side/one-hand operation are clear to a person skilled in the art. Therefore, claim 1 fulfils the requirement of inventive step, and the patent should be allowed.

VI. Oral proceedings took place on 10 December 2015 to which the applicant did not attend, as indicated in his letter dated 27 November 2015. After deliberation, the board decided to dismiss the appeal.

Reasons for the Decision

1. The appeal is admissible.
2. Inventive step
 - 2.1 Claim 1 has been delimited with respect to the prior art document US-A-5 567 020 (D1), which discloses in Fig. 15 a manually operated wheel fastening system having all the features of the preamble of claim 1 (see also column 4, line 65 to column 5, line 8 of D1). This has not been disputed by the appellant.
 - 2.2 The board does not share the view of the appellant that the features of the characterising portion are not obvious from the content of document D1.

The manually operated wheel fastening system disclosed in Fig. 15 of D1 is explicitly mentioned as being "a single lever design" and is shown with "a single safety slide 15 for maximum convenience" (column 4, lines 65-67). Moreover, the release lever shown in Figure 15 provides for a cam variation of said variable cam body which exceeds the combined height of the two dropout restraining surfaces (see D1: column 5, lines 3 to 7: "the cam is designed with enough range to provide releasing clearance of both ends of the fastener from the coupling surface of both safety drop-outs, when the slide(s) are pulled outward with the fingers").

After having described the single lever design of Fig. 15, D1 discloses in Fig. 16 to 18 an "alternate cam design" (column 3, line 12) and, for the reader of D1, it is obvious that this "alternate cam design" can be used as an alternative to the single lever design of Fig. 15. It is further obvious that this cam design

offers enough range to provide releasing clearance from both safety drop-outs.

- 2.3 Considering the "alternate cam design" shown in Fig. 16 to 18, if, starting from the position of Fig. 17, the user wants to quickly remove the wheel, he will then first pull the safety slide 15 outward to release it from the dropout 47, as indicated in column 5, lines 3-7 of D1. Then, the assembly consisting of the quick release arm 5M, the slide 15, the sliding sleeve 21 and the cam enclosure 22 has to be axially translated to the left to release the adjusting nut 11 from the dropout 47 at the other end of the skewer 18. This translation can only occur if the releasing clearance is maintained and an axial force is applied on the skewer 18. The user, having no grip on the relatively small adjusting nut 11, can here only push the whole assembly from the lever side and, at the same time, maintain the vertical orientation of the arm 5M, since any rotation of the cam arm would reduce the clearance and prevent the nut 11 and the safety slide 15 from overcoming their dropouts. Thus, this cam design, used as an alternative to the single lever design of Fig. 15 as suggested by D1, provides for a quick release which is manually operable to disengage the hub axle from the wheel mounts by operations done from the lever side only.

- 2.4 In his letters dated 6 November 2015 and 27 November 2015 the appellant mentioned some advantages (pushing force easily transmitted to the skewer, single hand operation, ...) and "improvements" that the wheel fastening device of the invention offered over the prior art devices. The features providing these advantages and improvements are,

however, not present or cannot be derived from the wording of the claim.

- 2.5 The board therefore concludes that the subject-matter of claim 1 is rendered obvious by the content of document D1 and, therefore, lacks an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated