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File Number: T 965/90 - 3.2.1

Application No.: 87 306 056.0

Publication No.: 0 253 568

Title of invention: Pneumatic tyre

Classification: B60C 15/024

D E C I S I O N
of 12 December 1991

Applicant: SP Tyres UK Ltd.

Headword:

EPC Articles 52(1), 54 and 56

Keyword: "Novelty and inventive step (yes, after amendment)"

Headnote



Case Number : T 965/90 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 12 December 1991

Appellant : SP Tyres UK Limited
Fort Dunlop
Erdington
Birmingham B24 9QT (GB)

Representative : Stewart, Charles Geoffrey
SP Tyres UK Limited
Tyre Technical Division
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Decision under appeal : Decision of Examining Division 2.3.06.075 of the
European Patent Office dated 9 August 1990
refusing European patent application
No. 87 306 056.0 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : F. Gumbel
Members : S. Crane
M. Schar

Summary of Facts and Submissions

- I. European patent application No. 87 306 056.0 filed on 8 July 1987 with priority claimed from United Kingdom application GB 8 617 412 dated 16 July 1986 was refused by a decision of the Examining Division dated 9 August 1990.
- II. The reason given for the decision was that the subject-matter of original Claim 1 lacked novelty with respect to LU-A-65 919.
- III. A Notice of Appeal against this decision was filed on 9 October 1990, the appeal fee being paid on the same day. The Statement of Grounds of Appeal was filed on 6 December 1990.
- IV. In a communication pursuant to Article 110(2) EPC dated 30 August 1991 the Board expressed the provisional opinion that the findings of the impugned decision with respect to the subject-matter of Claim 1 were essentially correct. The Board also indicated, as had the Examining Division in its communication dated 18 January 1990, that a combination of the features of original Claims 1 and 2 would lead to subject-matter that was both novel and involved an inventive step.
- V. In response to this communication and to a telephone call from the Rapporteur of the Board on 17 October 1991 the Appellants filed on 28 October 1991 a new set of documents on the basis of which they request the grant of a patent. These documents consist of Claims 1 to 6, pages 1 to 4 of the description and one sheet of drawings.

Claim 1 (with the correction of a clerical error, see point 6 below) reads as follows:

"A tyre comprising a tread portion, sidewalls and a pair of beads each containing a substantially inextensible annular bead core (1), having bead seats (2) and an extended toe portion (4) comprising elastomeric materials, extending lengthwise from the bead core (1) in a direction radially and axially inwards thereof, the toe (4) being of a rigidity in the direction of its length such that in use of the tyre on a wheel rim having a groove complementary to the toe (4) and engaging the toe (4) when an axially inward force is applied to the tread portion an axially outwardly directed force is generated at the bead core (1) to affect bead retention characterised in that a single substantially continuous circumferentially extending cut (6) is arranged at the junction (P) of the tyre bead seats (2) and the toe (4), the single cut (6) being not more than 1mm in width and extending into the toe axially inwardly and radially outwardly of the tyre whereby the toe (4) is effectively decoupled from the bead in bending of the toe (4) axially inwards of the tyre."

Dependent Claims 2 to 6 relate to preferred features of the tyre according to Claim 1.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.
2. Formal allowability of the amendments

Present Claim 1 is based on a combination of the features of original Claims 1 and 2. Present dependent Claims 2 to 6 correspond in essence to original Claims 3,4,7,8 and 9.

The description has been adapted to the new claims, in particular by restriction to the preferred embodiment of Figures 1 and 2.

There are therefore no objections to the amended documents under Article 123(2) EPC.

3. State of the Art

- 3.1 The document GB-A-1 584 553, which is discussed in the introductory description, discloses a tyre having an axially and radially inwardly projecting bead toe. This bead toe is made of a hard rubber composition or is reinforced or both such that it has considerable form stiffness in the direction of the length of the toe but exhibits a reasonable degree of flexibility perpendicular to its length to allow fitting and stripping of the tyre to and from a one piece wheel rim. In use the toe engages in a groove in the wheel rim and resists separation of the bead from the wheel rim under lateral forces if the tyre has become deflated or the like.
- 3.2 LU-A-65 919 also discloses a tyre with an axially and radially inwardly projecting bead toe which engages in a groove in the wheel rim. The toe can take one of many forms ranging from a tapering lip to a more block-like configuration which is wider at its free end than at its junction with the body of the bead. The bead toe is stated to improve the seal of the bead against the rim and to resist to a certain extent displacement of the bead from the rim in the event of a puncture.
- 3.3 The other documents cited in the Search Report are less relevant than the above and need not be considered in detail.

4. Novelty

The tyre according to present Claim 1 is distinguished from the tyres disclosed in GB-A-1 584 553 and LU-A-65 919, both of which disclose a tyre corresponding to the preamble of the claim, by the features specified in its characterising clause, that is the provision of a cut of a particular form between the toe and the bead to facilitate bending of the toe axially inwards of the tyre.

The tyre according to present Claim 1 is accordingly novel.

5. Inventive Step

In view of the stiffness of the bead toe of the tyre according to GB-A-1 584 553, which in the view of the Board is the best starting point for the evaluation of inventive step, that tyre has been unusable on normal wheel rims, i.e. wheel rims without the groove for receiving the bead toe, because the degree of flexibility in bending obtainable with retention of sufficient form stiffness was not such as to allow the tyre to be correctly fitted. Accordingly wheel rims and tyres of this type were specially configured to avoid mismatch.

This problem is solved in the tyre according to present Claim 1 by the provision of a narrow cut at the junction between the bead toe and the bead seats. In view of its narrowness it has virtually no effect on the stiffness of the toe when stressed along its length between the groove in the wheel rim and the bead. On the other hand, it is manifest that such a cut will considerably facilitate bending of the toe with respect to the bead. Thus the tyre according to Claim 1 can be fitted to a wheel rim without a groove for receiving the toe, the toe, as shown in

Figure 2, now being sufficiently flexible to lie against the substantially flat surface of the wheel rim.

As already recognised by the Examining Division, there is nothing in any of the documents cited in the Search Report which could suggest the provision of a cut as defined in Claim 1 in a tyre according to GB-A-1 584 553.

Accordingly, the Board comes to the conclusion that the subject-matter of Claim 1 cannot be derived in an obvious manner from the state of the art and constitutes a patentable invention (Articles 52(1) and 56 EPC). This claim together with dependent Claims 2 to 6, which relate to preferred embodiments of the tyre according to Claim 1 can accordingly serve as the basis for the grant of a patent.

6. The following clerical errors need correction:

In Claim 1, line 12 and at page 2, paragraph 3, line 12 of the description "and" should read "an";

In Claim 3, line 3 "tyre" should read "toe";

At Page 2, paragraph 3, line 1 the words "one aspect of" should be deleted;

At Page 3, paragraph 4, line 4 of the description "cute" should read "cut";

At Page 4, paragraph 3, line 2 of the description the reference letter "P" should be inserted after the word "point".

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

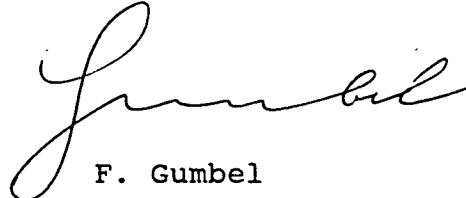
2. The case is remitted to the Examining Division with the order to grant a patent on the basis of the documents filed on 28 October 1991, with the correction of the clerical errors mentioned in point 6 above.

The Registrar:



N. Maslin

The Chairman:



F. Gumbel