

Veröffentlichung im Amtsblatt	Ja/Nein
Publication in the Official Journal	Yes/No
Publication au Journal Officiel	Oui/Non

Aktenzeichen / Case Number / N° du recours : T 607/88 - 3.2.1

Anmeldenummer / Filing No / N° de la demande : 84 302 407.6

Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 122 143

Bezeichnung der Erfindung: Rear wheel bearing arrangement

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : B60B 27/02

### ENTSCHEIDUNG / DECISION

vom / of / du 6 August 1990

Anmelder / Applicant / Demandeur : Ford Motor Company

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (confirmed after amendment of claim) "

Leitsatz / Headnote / Sommaire

Europäisches  
Patentamt

Beschwerdekammern

European Patent  
Office

Boards of Appeal

Office européen  
des brevets

Chambres de recours



Case Number : T 607/88 - 3.2.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.1  
of 6 August 1990

**Appellant :** Ford Motor Company et al  
Eagle Way  
Brentwood  
Essex CM13 3BW (GB)

**Representative :** Messulam, Alec Moses  
A. Messulam & Co.  
24 Broadway  
Leigh-on-Sea  
Essex SS9 1BN (GB)

**Decision under appeal :** Decision of Examining Division 075  
of the European Patent Office  
dated 3 August 1988 refusing European  
patent application No. 84 302 407.6  
pursuant to Article 97(1) EPC

**Composition of the Board :**

**Chairman :** F. Gumbel  
**Members :** P. Alting van Geusau  
W. Moser

## Summary of Facts and Submissions

- I. European patent application No. 84 302 407.6, filed on 9 April 1984 and published on 17 October 1984 under No. 0 122 143, was refused by a decision of the Examining Division dated 3 August 1988.
- II. The decision was based on Claims 1 to 4 filed on 21 April 1988 with letter of 12 April 1988.

The reason given for the refusal was that the subject-matter of Claim 1 did not involve an inventive activity in view of the disclosures of FR-A-2 379 729 (D1) and the book Fahrwerktechnik 1 by Jörnsten Reimpell, Vogel-Verlag, Würzburg, 5. 1982 Edition on page 304 in Figure 3.1./51b (D2).

- III. An appeal was lodged against this decision on 8 October 1988, together with the submission of the Statement of Grounds of Appeal. The appeal fee was paid on the same day.
- IV. In a communication of 14 May 1990, the Board expressed a provisional opinion in that the subject-matter of Claim 1 filed on 21 April 1988 did not appear to involve an inventive activity whilst an amended claim containing further features considered essential for the definition of the invention would probably be acceptable. Appropriate amendment of the description and claims was suggested.
- V. By letter of 29 May 1990, received on 2 June 1990, the Appellant filed new Claims 1 to 3 and new pages 1 to 4 of the description. (In a telephone call dated 2 August 1990 some amendments to the description were agreed upon).

The Appellant, by implication, requests grant of a patent on the basis of these documents, together with the original drawings.

- VI. The Appellant's arguments in support of his request can be summarised as follows:

The problem which the invention is intended to solve is that of reducing the difficulties arising from servicing of the rear wheels and in particular of the brake components.

Both documents D1 and D2 show arrangements which are reasonably advantageous in this respect. However, in D1, the wheel must be removed before the brake drum and wheel bearing can be taken off by undoing the bolts fixing the bearing to the wheel bracket.

In D2, wheel servicing is done in the conventional way by removing the wheel and brake drum but leaving the wheel hub in place. It is clear that D2 has the disadvantage, as far

as brake servicing is concerned, that the hub flange prevents access to the shoe and retention means. Although in principle, possible, the construction of D2 does not suggest that brake servicing can be carried out by undoing the bolts from behind the wheel.

Therefore, combination of the teachings of D1 and D2 does not lead to the arrangement as set out in Claim 1, which arrangement provides unprecedented further advantages not only with respect to easy servicing but also with respect to reduced service time and, since the wheel, the drum and the bearing are taken off as a unit, the brake drum and bearing will be protected from damage by being secured inside the central hollow space of the wheel.

VII. Current Claim 1 reads as follows:

"1. A rear wheel bearing arrangement incorporating a drum braking mechanism, the arrangement comprising a bracket (14) for mounting to the vehicle, a back plate (22) carrying brake shoes and brake actuating components, a brake drum (16) with an internal braking surface, and a bearing (20), the bearing having one race (28, 30) fast with a cylindrical internally extending spigot (18) fixedly attached to the drum and the other race (30, 28) detachably secured to the bracket by bolts (24) accessible from behind the back plate, characterised in that the back plate (22) is secured to the bracket (14) by means (32) independent of the bolts (24) and in that the brake drum (16) is adapted to carry a rear road wheel of the vehicle."

Reasons for the Decision

1. The appeal is admissible.
2. The current version of the claims does not give rise to objections under Article 123(2) EPC.

In substance, Claim 1 is based on the original Claims 1, 3 and 6 and includes further details with respect to the attachment of the back plate and the spigot which are clearly derivable from the description of the embodiment of the invention and are shown in the drawings.

Claim 2 is identical with original Claim 2. Claim 3 is based on the original Claims 4 and 5.

3. Novelty.

3.1 Considering the subject-matter of Claim 1, the nearest prior art, in the Board's view, is disclosed in "Fahrwerktechnik 1" by Jörnsten Reimpell, Vogel-Verlag Würzburg, 5. 1982 Edition on page 304 in Figure 3.1/51b (D2). This known rear wheel bearing arrangement discloses the combination of features of the precharacterising part of Claim 1.

3.2 The rear wheel bearing arrangement according to Claim 1 differs from this known arrangement by its characterising features and is therefore deemed novel in the sense of Article 54 EPC.

4. Inventive step.

4.1 Starting from the disclosure of the above cited nearest prior art, the characterising features of Claim 1 under consideration lead to easy servicing of brake components and bearings.

When undoing the bolts holding the wheel bearing arrangement fixed to the bracket, the wheel, the brake drum with the hub and bearing are all taken off as a unit with the back plate, brake shoes and brake actuating components staying fixed to the bracket.

4.2 The general objective problem to be solved by the present invention relates therefore to an improvement in order to make the brake servicing operation easier.

4.3 In the Board's opinion, the above cited nearest prior art in D2 does not give a lead to the characterising features of Claim 1. Brake servicing is considered to be carried out by the dismantling of the brake drum from the hub, for

which operation it is necessary to take off the wheel. Although it would be possible by undoing the bolts which attach the hub bearing to the bracket, to take off the wheel, brake drum, hub and bearing as a unit, the back plate with brake mechanism would then also be no longer attached to the bracket and, therefore, a separation of the brake drum from the brake shoes and brake mechanism would, in practice, be difficult or at least inconvenient.

In view of these apparent drawbacks, the latter possibility is, in the Board's opinion, clearly not envisaged for service purposes in this prior art.

- 4.4 The document FR-A-2 379 729 (D1), also cited by the Examining Division, discloses a wheel bearing arrangement incorporating a drum braking mechanism, the arrangement comprising a bracket for mounting to the vehicle, a back plate secured to the bracket and carrying brake actuating components, a brake drum adapted to carry a road wheel of the vehicle, and a bearing, the bearing having one race fast with a cylindrical internally extending spigot forming part of the drum and the other race detachably secured to the bracket by bolts.

In D1, the bolts securing the outer race of the bearing 2 to the bracket 1 are accessible from the outside only after removing the road wheel and no means independent of the bolts 5 are shown to keep the back plate fixed to the bracket after the bolts 5 are undone, such as is defined in Claim 1 under consideration.

In view of these differences, this document cannot, in the Board's opinion, give a lead to the skilled man to adapt the arrangement of the nearest prior art as referred to above to include all the features of Claim 1 under consideration, in particular since the braking arrangement

of D1 is on the outside of the drum and does not comprise brake shoes which would need dismantling of the brake drum for servicing (see page 1, last paragraph and page 2, lines 1, 2).

- 4.5 Also when considering D1 to represent the nearest prior art, which line of argument was taken by the Examining Division, a combination with the teachings of D2 does not lead to the arrangement of current Claim 1. Both documents fail to show a back plate fixed to the bracket by means independent of the bolts.

Although fixing of the back plate by separate means is, in the Board's opinion, in itself a relatively simple measure, the skilled man had no reason to provide such extra fixing means because the back plate both in D1 and D2 is fixed by clamping it between the outer bearing race and bracket.

Only after realizing that servicing could be improved by taking off the wheel, brake drum, hub and bearing as a unit, which idea can also not be derived from any of the cited documents, the inventor arrived at the claimed solution and at a number of advantageous effects, namely easier service operation, reduction of service time by undoing fewer parts with the avoidance of the risk of faulty assembly later and protection of drum and bearings by the attached wheel.

- 4.6 The further documents cited in the search report all lie further away from the claimed arrangement and the Board is satisfied that none of these documents contains a lead to adapt the arrangement of the nearest prior art (D2) to include all the features of Claim 1 of the present application.

In view of the surprising improvement of the service operation by a relatively simple modification of a known construction, the subject-matter of Claim 1 is thus regarded as involving an inventive step.

- 5. It follows that Claim 1 is acceptable under Article 52(1) EPC. The same applies to dependent Claims 2 and 3 which concern particular embodiments of the invention according to independent Claim 1 (Rule 29(3) EPC).
- 6. The description including the amendments agreed over the telephone on 2 August 1990 and the drawings are in agreement with the actual wording and scope of the claims. The description also complies with Rule 27(1)(c) and 27(1)(d) EPC. Hence, these documents appear to be suitable for the grant of a patent.

Order

For these reasons, it is decided that:

- 1. The decision under appeal is set aside.
- 2. The case is remitted to the first instance with the order to grant a patent on the basis of the following documents:
  - Claims: 1 to 3 filed on 2 June 1990
  - Description: pages 1 to 4 filed on 2 June 1990 with the corrections as agreed over the telephone on 2 August 1990
  - Drawings: as originally filed.

The Registrar:

The Chairman:

*S. Fabiani*

S. Fabiani

*F. Gumbel*

F. Gumbel

03203

*03.9.90 13.9.90 15.10.90*