

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 371/88 - 3.2.1

Anmeldenummer / Filing No / N° de la demande : 80 304 241.5

Veröffentlichungs-Nr. / Publication No / N° de la publication : 30 120

Bezeichnung der Erfindung: Transmission apparatus for four-wheel drive motor
Title of invention: vehicle
Titre de l'invention :

Klassifikation / Classification / Classement : F16H 1/38, B60K 17/34, B60K 5/04

ENTSCHEIDUNG / DECISION

vom / of / du 29 May 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

FUJI JUKOGYO KABUSHIKI KAISHA

Einsprechender / Opponent / Opposant :

Steyr-Daimler-Puch

Stichwort / Headword / Référence : Transmission apparatus

EPÜ / EPC / CBE Articles 123(3), 69, 56

Schlagwort / Keyword / Mot clé :

"Extension of the protection conferred by
amending a claim during opposition
proceedings; - Inventive step (yes)"

Leitsatz / Headnote / Sommaire

Headnote follows



Case Number : T 371/88 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal
of 29 May 1990

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Decision under appeal : Interlocutory decision of the Opposition Division of
the European Patent Office dated 24 May 1988
concerning maintenance of European patent No. 30 120
in amended form.

Composition of the Board :

Chairman : F. Gumbel
Members : F.J. Pröls
J.-C. Saisset

Summary of Facts and Submissions

I. European patent No. 0 030 120 was granted on 2 January 1985 on the basis of European patent application No. 80 304 241.5, filed on 26 November 1980.

II. A notice of opposition to this patent was filed on 2 October 1985 by the Appellant requesting that the patent be revoked in its entirety. The opposition was based on

D1: DE-C-801 249

D2: GB-A-887 849

D3: FR-A-2 185 285

D4: US-A-3 400 777

and at a later stage of the opposition proceedings

D5: DE-C-1 455 885

was cited.

III. By an interlocutory decision dated 24 May 1988 the Opposition Division maintained the patent in amended form on the basis of the documents specified in a communication pursuant to Rule 58(4) EPC dated 20 October 1987.

IV. The Appellant lodged an appeal against this decision on 25 July 1988 and paid the appeal fee on the same date. In the Statement of Grounds of Appeal received on 22 September 1988 he substantiated his opinion according to which the subject-matter of Claim 1 did not involve an inventive step having regard to D1 and D2.

- V. With a communication of 13 September 1989 the Board gave its provisional opinion about an amendment to Claim 1 in respect of the requirement of Article 123(3) EPC and raised objections against further amendments carried out in Claim 1.
- VI. In the oral proceedings subsidiarily requested by both parties and held on 29 May 1990, the parties defended their cases, whereby D1 and D2 were dealt with in detail.
- VII. The Appellant's arguments set forth in his written and oral statements can be summarised as follows:
- (a) Present Claim 1 (main request) does not fulfil the requirements according to Article 123(3) EPC, since its scope is unduly broadened by replacing the feature "transmission (4) disposed in parallel with the engine" of granted Claim 1, limiting the protection of Claim 1 to one of two embodiments of the description, by the feature "transmission (4) which is also transversely disposed" including both embodiments according to which the transmission is either disposed in parallel or in alignment with the engine. Contrary to the present feature "transversely disposed", the feature of Claim 1 of the patent "in parallel with" does not include the first embodiment (Figures 1 and 2) concerning the "in-line arrangement". Therefore, Claim 1 is not acceptable for formal reasons.
- (b) The object to be solved by the invention cannot be clearly seen, since D2 as used for the formulation of the generic part of Claim 1 already shows a propeller shaft disposed longitudinally along the centreline of the vehicle and this disposition is already mentioned in the generic part of Claim 1.

Furthermore, the construction of the transfer device 34 as set out in the characterising part of Claim 1 (main and auxiliary request) is almost completely known from the further document D1 so that only the following two minor differences are left:

- (a) the gear 49 is freely rotatably mounted on the supporting shaft 48;
- (b) the gear 49 can be coupled with the supporting shaft 48 by means of slidable clutch 50.

This means that the second clutch 50 as already mentioned in the generic part of Claim 1 and already known from D1 and D2 must be simply mounted on the supporting shaft 48. This, however, cannot be considered as involving an inventive step.

The Appellant requested revocation of the patent in its entirety.

- VIII. The Respondent challenged whether the feature "transmission disposed in parallel with the engine" in fact does exclude, in the interpretation by a skilled person, the possibility of one of the shafts of the transmission actually being in alignment with the engine, since in any case, at least the output shaft of the transmission is certainly parallel with the engine even in Figures 1 and 2. It is considered to be a well established principle of patent law that in the case of any doubt about the possible meaning of a term in a claim, one must refer to the description to establish what was intended to be protected. The wording of Claim 1 as set out in the patent specification clearly was intended to include both of the embodiments of the invention. Since the characterising part of Claim 1 relates to the arrangement

and construction of "the second clutch 50", and clearly reads onto both embodiments, the fact that a term in its literal meaning could possibly exclude one of the embodiments would simply prove that such term must be erroneous. In the present case, it would be clear from the description that the expression "in parallel with ..." was intended also to include the possibility that the engine and the transmission are in alignment. Therefore, the redrafting of Claim 1 (main request) does not constitute an impermissible broadening simply because it now encompasses all embodiments.

As concerns patentability, the Respondent rejected the Appellant's approach and argued for the existence of an inventive step concerning the subject-matter of Claim 1, which Claim 1 (main request) was, during the oral proceedings, slightly modified with respect to Claim 1 on which the impugned decision was based in order to meet the requirements of Articles 84 and 123(3) EPC and also of Rule 29(1), in particular. In detail, the Respondent argued that nothing could be found in D1 to suggest to the skilled man to combine the teachings of D1 and D2 and even if he did, this artificial combination would not lead to the claimed solution.

According to the main request, the Respondent requested that the patent be maintained on the basis of Claim 1 presented at the oral proceedings, Claim 2 and description as amended during the opposition proceedings and drawings as granted.

According to a subsidiary request, he requested maintenance of the patent with Claim 1 restricted to the disposition of the transmission "in parallel to the engine" and the description including a disclaimer concerning Figures 1 and 2.

IX. Claim 1 according to the main request reads as follows:

"A transmission apparatus for a motor vehicle having an internal combustion engine (1) transversely disposed in said vehicle, a transmission (4) which is also transversely disposed and connected to a crankshaft (5) of said engine through a first clutch (2), a final reduction gear (36) operatively connected to said transmission, a differential (37) having a rotatable casing (38) secured to one side of said final reduction gear so as to be disposed adjacent a longitudinal centreline of said motor vehicle, and axles (45) connected to the differential, a transfer device (34) including a first bevel gear (53) engaged with a second bevel gear (54) and connected to said final reduction gear for selectively transmitting the output of said transmission to other axles via a second clutch (50) slidably mounted on a shaft (48) and a propeller shaft (57) and disposed adjacent said differential, said propeller shaft (57) is connected to said other axles so as to provide four-wheel drive, and is disposed substantially longitudinally along the centreline of the vehicle, characterised in that said shaft of the transfer device (34) is a transversely disposed supporting shaft (48), a gear (49) is rotatably mounted on said supporting shaft and engaged with the final reduction gear (36), said second clutch (50) is slidably mounted on the supporting shaft so as to operatively couple the gear (49) with the supporting shaft, said first bevel gear (53) is secured to the supporting shaft; and said propeller shaft (57) is connected to said second bevel gear."

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is admissible.
2. Concerning formal aspects of the claims, the following is to be observed:
 - 2.1 Claims 1 and 2 meet the requirements of Article 123(2) EPC, since Claim 1 differs from the original independent Claim 2 by the introduction of features clearly described in the original description (see e.g. page 3, line 25 - page 4, line 1 and page 4, lines 23 - page 5, line 1) and shown in the drawings, whilst Claim 2 corresponds essentially to original Claim 3.
 - 2.2 Claim 1 according to the main request differs from Claim 1 as granted in the sense, among others, that its feature in lines 3 and 4

"... a transmission (4) which is also transversely disposed ..."

replaces the feature of Claim 1 as granted, column 4, lines 9 and 10

"a transmission disposed in parallel with the engine ...".
 - 2.3 In order to answer the question whether the above-mentioned amendment has modified this claim in such a way as to extend the protection conferred (Article 123(3) EPC) it is necessary first to determine the extent of the protection conferred by Claim 1 as granted.

The feature "disposed in parallel" in a strict geometric sense clearly defines the geometric relationship between two lines or axes. However, if the geometric relationship

between two three-dimensional units such as an engine and a transmission is concerned, further information is necessary to determine the respective centrelines or the main axis of the units to which the feature "parallel" relates. Claim 1 as granted mentions the engine crankshaft which shall be connected to the transmission and so the crankshaft may be considered as representing a main axis of the engine. Claim 1, however, does not mention anything from which could be derived what part of the transmission shall represent the transmission main axis. Furthermore, it is difficult to decide what shaft or axis of a transmission should be considered as the main axis, if the transmission comprises at least two shafts (as is shown in both embodiments of the invention) which are disposed in spaced parallel relationship to each other. Even if the transmission is connected to the engine so that one of the transmission shafts is in alignment with the engine crankshaft at least one further shaft clearly will be disposed in spaced parallel relationship to the engine crankshaft.

Therefore, the Board does not consider the term "... transmission (4) disposed in parallel with the engine ..." in Claim 1 of the patent to be so clear in its technical meaning in the given context that it can be used as a sufficient basis to determine the extent of the protection conferred by the patent. Hence, the description and the drawings must be used to interpret the afore-mentioned term of Claim 1 pursuant to Article 69 EPC and the protocol related thereto. It is quite clear from the description and the drawings of the patent that the invention not only concerns the embodiment of Figure 3, wherein the engine and the transmission are arranged side by side so that all shafts 5, 8 and 16 of both units and accordingly the alleged main axes are clearly parallel to each other, but also the embodiment according to Figures 1

and 2 wherein the crankshaft 5 of the engine and the main drive shaft 8 (input shaft) of the transmission are disposed in alignment.

Furthermore, it is perfectly clear from the proceedings up to grant that it was never required or intended to restrict the invention to the embodiments of Figure 3. On the contrary, it follows from the Applicant's submissions during the examination proceedings that the term "transversely disposed" now used in Claim 1 had been used there clearly to include both solutions.

2.4 As defined by Article 69(1) EPC, the protection conferred is determined by the terms of the claims. Nevertheless, the description and the drawings shall be used to interpret the claims. Further, it is clear from the Protocol on the Interpretation of Article 69 EPC, which shall be an integral part of the EPC pursuant to Article 164(1) EPC, that during the determination of the extent of protection, the description and the drawings should not only be limited to the purpose of removing an ambiguity found in the claims.

2.5 In the light of these provisions of the EPC, the Board whilst it recognises that it is not in every case permissible under Article 123(3) and 69(1) EPC to amend a claim in the sense that a term which in principle only embraces one embodiment of the description, is replaced by a broader term, which also covers an additional embodiment set out in the description, takes the view that the amendment of a granted claim to replace a restrictive term, which in its strict literal meaning does not clearly embrace a further embodiment of the description, by a less restrictive term clearly embracing also this embodiment, is permissible under Article 123(3) EPC, if the

examination of the extent of protection conferred by the granted claim results in the following conclusions:

- (a) The restrictive term in the granted claim is not so clear in its technical meaning in the given context that it could be used to determine the extend of protection without interpretation by reference to the description and the drawings of the patent;
- (b) It is quite clear from the description and the drawings of the patent and also from the examination procedure up to grant that the further embodiment belongs to the invention and that it was never intended to exclude it from protection conferred by the patent.

2.6 Since, as set out above both requirements (a) and (b) are met in the present case, amended Claim 1 also complies with Article 123(3) EPC.

2.7 The revision of the preamble of Claim 1 was put forward in accordance with Rule 29(1)(a) EPC, in view of the disclosure in D2, and is considered to be correct.

2.8 Accordingly, no formal objection to the current version of the claims arises.

3. None of the available documents discloses a transmission apparatus comprising all the features specified in Claim 1. In fact, novelty of the subject-matter of Claim 1 was never disputed by the Appellant, the Opposition Division or the Board so that in fact no further discussion of this item appears to be necessary.

4. The allowability of Claim 1 depends, therefore, on the answer to the question whether or not an inventive step

was necessary to arrive at the subject-matter of Claim 1 when starting on the base of a transmission apparatus known from the nearest prior art according to D2.

- 4.1 The transmission apparatus for a motor vehicle according to D2 comprises in essence an internal combustion engine transversely disposed in the vehicle and a transmission which is also transversely disposed and connected to a crankshaft of the engine through a first clutch. The transmission is further connected by means of a final reduction gear to a differential with axles and a transfer device which is disposed adjacent the differential and includes a first bevel gear engaged with a second bevel gear. A selective transmission of the output torque to other axles is possible via a second clutch slidably mounted on a shaft and a propeller shaft which is disposed adjacent the differential and substantially longitudinally along the centreline of the vehicle.

Regarding the arrangement as shown in D2, a skilled person may recognise that the disposition of the propeller shaft along the longitudinal centreline requires the output member of the transmission which is operatively connected to the final reduction gear to be placed at a certain position in transverse direction. This, however, is not always possible, since on the one hand the output member of the transmission cannot be placed at will at any part of the housing and, on the other hand, the disposition of the drive unit within the vehicle is further dependent on construction conditions. Therefore, it may sometimes be difficult to position the transversely arranged engine-transmission unit so that a disposition of the propeller shaft along the centreline of the vehicle, as shown in D2, can be guaranteed.

4.2 It is the object of the invention, see the present description as amended by the insertion in column 1, line 28, to further develop and to simplify the known transmission apparatus according to D2 in which the propeller shaft may be disposed along the longitudinal centreline of the vehicle.

4.3 This object is achieved to the Board's conviction by the features of Claim 1.

Starting from a transmission apparatus according to the precharacterising part of Claim 1, based on the prior art according to D2, the present problem is solved by the further application of the following features as set out in the characterising part of Claim 1:

- (a) the shaft of the transfer device (34) is a transversely disposed supporting shaft (48),
- (b) a gear (49) is rotatably mounted on said supporting shaft and engaged with the final reduction gear (36),
- (c) the second clutch (50) is slidably mounted on the supporting shaft so as to operatively couple the gear (49) with the supporting shaft,
- (d) the first bevel gear (53) is secured to the supporting shaft; and
- (e) the propeller shaft (57) is connected to said second bevel gear.

Comparing the transmission disclosed in D2 with the subject-matter of Claim 1, a skilled man is aware that the use of a transversely disposed supporting shaft clearly makes it still easier for a propeller shaft to be

longitudinally disposed along the centreline of the vehicle quite independent from the actual arrangement of the final reduction gear operatively connected to the output means of the transversely disposed engine-transmission assembly. It is true, as the Appellant argues, that a symmetrically arranged propeller shaft can be reached (as shown in D2) also without an additional transversely disposed intermediate shaft, but it is clear that the mounting of the engine-transmission assembly into the vehicle can be more freely designed if a symmetrical disposition of the propeller shaft does not strictly necessitate a strictly determined mounting position of the engine within the vehicle. Thus, the claimed solution clearly further develops the known transmission apparatus as concerns the arrangement of the propeller shaft along the longitudinal centreline of the vehicle and clearly simplifies the construction of the engine and transmission unit and its assembly within the vehicle.

This advantageous effect of the installation of the transversely disposed supporting shaft (see feature (a) as afore-mentioned) is further increased by the second clutch being transferred from a position between the second bevel gear and the propeller shaft as shown in D2 onto the transversely disposed supporting shaft and being installed and constructed as defined by the afore-mentioned features (b) to (d) of Claim 1. By the claimed arrangement and construction of the second clutch, the apparent increase of space needed for such an additional transversely disposed supporting shaft can be limited, since the overall length of the transmission apparatus is shortened by omitting the intermediate shaft for the second clutch at the front of the propeller shaft in D2.

4.4 Document D1 already reveals a transversely disposed supporting shaft 8 arranged between a final reduction

gear 6 and a pair of bevel gears 9, 10. D1, however, neither shows a transversely disposed drive unit nor mentions for what purpose the transversely disposed supporting shaft is installed. Thus, neither D2 nor D1 disclose any direct recommendation for the solution of the problem underlying the present invention. Moreover, D1 shows front wheel axles having different lengths from the differential 30, contrary to what is aimed at by the invention.

A skilled person, therefore, would not necessarily consider the four wheel drive unit according to D1 when looking for an improvement of the construction according to D2.

However, even if the skilled person would consider the transversely disposed supporting shaft according to D1 and install it into the unit according to D2, such a combination clearly would not lead to the claimed solution. Both prior art documents D1 and D2 disclose a second clutch which, contrary to the invention, is arranged outside the transfer device, i.e. behind the second bevel gear at the front of the propeller shaft. Furthermore, the known clutches do not represent a construction realising the features (b) and (c) of Claim 1, i.e. a clutch operatively coupling a gear which is rotatably mounted on the supporting shaft with this shaft.

It cannot be expected from the skilled person that

- (a) in a first step, he considers a special feature disclosed amongst others by D1 and combines it with the teaching of D2, although this feature (i.e. the transversely disposed supporting shaft) is not

described in D1 as being useful for the solution of the problem concerned and

- (b) in a second step, he transfers the second clutch, contrary to the referring disclosure of D1, to the transversely disposed supporting shaft and
- (c) in a third step, he selects a special design of the second clutch which is not shown in D1 or D2.

Thus, contrary to the Appellant's argumentation, the inventivity cannot be judged simply by considering whether it is obvious or not to change the position of a clutch on the transmission line of a sequence of gears.

- 4.5 Therefore, in the Board's opinion, the Appellant's contentions are not convincing and since, as shown above, its subject-matter is not obvious regarding the documents on file, Claim 1 is considered to be based on an inventive activity and the patent can be maintained on the basis of this main claim.
- 5. Dependent Claim 2, concerning a particular embodiment of the invention in accordance with Rule 29(3) EPC, is likewise acceptable.
- 6. The present description and drawings take account of the requirements of the EPC and are suitable for maintenance of the patent in amended form.
- 7. For these reasons, the opposition grounds do not prejudice the maintenance of the patent in amended form on the basis of the main request after correction of an obvious inconsistency in the description page 1a, lines 10 to 12, under Rule 88 EPC.

8. Consideration of the subsidiary request is therefore redundant.

Order

For these reasons, it is decided that:

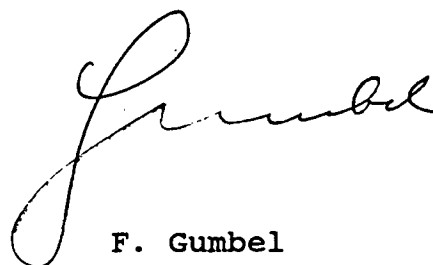
1. The impugned decision is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of Claim 1 according to the main request as presented at the oral proceedings, Claim 2 and description as amended during the opposition proceedings and further corrected on page 1a according to point 7 of the Decision, together with the drawings as granted.

The Registrar:



S. Fabiani

The Chairman:



F. Gumbel

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6.8.90
06.08.90 *[Signature]*