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D E C I S I O N
of 20 May 1999

Case Number: T 0043/98 - 3.2.1

Application Number: 92200587.1

Publication Number: 0520523

IPC: B60J 7/02

Language of the proceedings: EN

Title of invention:
Open roof construction for a vehicle

Patentee:
Vermeulen-Hollandia Octrooien II B.V.

Opponent:
Webasto Karosseriesysteme GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0043/98 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 20 May 1999

Appellant: (Opponent)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 24 November 1997 concerning maintenance of European patent No. 0 520 523 in amended form.**

Composition of the Board:

Chairman: P. Alting van Geusau
Members: S. Crane
J. H. P. Willems

Summary of Facts and Submissions

I. European patent No. 0 520 523 was granted on 26 June 1996 on the basis of European patent application No. 92 200 587.1.

Claim 1 of the granted patent reads as follows:

"Open roof construction for a vehicle, comprising a frame (4), a movable roof element (3), adjusting means (8) for supporting and moving the roof element (3), actuating means (16) for actuating the panel (3), and a flexible drive cable (15) between the actuating means (16) and the adjusting means (8), which drive cable (15) runs within a guide tube (17) having a curved portion, characterized in that at least the curved portion of the guide tube (17) is formed of a flexible low friction wear resistant plastic material unable to absorb the drive forces of the drive cable (15), the frame being provided with support means (18-21) to support the guide tube in several positions in the curved portion."

Dependent claims 2 to 7 relate to preferred embodiments of the construction according to claim 1.

II. The granted patent was opposed by the present appellants on the ground that its subject-matter lacked novelty and/or inventive step (Article 100(a) EPC).

The following pre-published documents were relied upon as representing the state of the art:

(D2) DE-A-1 068 128

(D3) DE-A-2 900 499

(D4) JP-U-5 764 577

(D5) JP-U-5 765 811

(D6) DE-A-3 532 103

(D7) DE-B-1 931 472

III. In its decision posted on 24 November 1997 the Opposition Division held that the patent could be maintained in amended form. The only amendment made for granted claim 1 was to replace the reference numerals "18-21" for the support means by the reference numeral "20".

IV. An appeal against this decision was filed on 13 January 1998 and the fee for appeal paid at the same time. The appellants requested that the decision under appeal be set aside and the patent revoked in its entirety. The statement of grounds of appeal was received on 16 March 1998.

V. In a communication of the Board dated 17 February 1999 pursuant to Article 11(2) RPBA it was pointed out that in the description of the preferred embodiment there was only one support element 20 in the curved portion of the guide tube. It was therefore not clear where the basis for the present claim was to be found in the original application.

VI. Oral proceedings before the Board were held on 20 May 1999.

VII. The arguments put forward by the appellants in support of their request can be summarised as follows:

The basic layout of the vehicle open roof construction set out in the preamble of claim 1 was well known in the art, as could be seen from documents D4, D5 and D6. It was also generally known that for ease of manufacture and assembly the guide tube for a drive cable of the type involved could be made of a flexible plastics material, see documents D2 and D3, the latter relating to the very closely neighbouring field of actuators for vehicle windows. It was plainly obvious that such a flexible guide tube, especially the curved portion thereof, would need to be adequately supported in order to take up the drive forces of the drive cable. To achieve this by way of a plurality of support means in or in the vicinity of the curved portion of the guide tube was a measure not going beyond the routine competence of the person skilled in the art.

VIII. The respondents (proprietors of the patent) replied with essentially the following arguments in support of their request that the appeal be dismissed:

The reference in claim 1 to the support means supporting the guide tube "in several positions in the curved portion" was not to be understood as meaning that there had to be a plurality of support elements located in the curved portion of the guide tube. The support elements 18, 19 and 21 shown in the drawing of the preferred embodiment also served to support the curved portion of the guide tube, since they acted on straight portions of the guide tube immediately adjacent the curved portion, and thereby served to

prevent the guide tube being distorted by forces acting on the drive cable. To this extent therefore the amendment of claim 1 undertaken at the oral proceedings before the Opposition Division had been based on a misunderstanding of the true meaning of the claim and was unnecessary.

The replacement of the rigid guide tubes proposed in documents D4, D5 and D6 by flexible guide tubes of a low friction wear resistant plastics material would offer in principle considerable advantages in terms of manufacturing the assembly costs but these advantages could only be achieved if special measures were taken to support the guide tube against deformation as a result of the forces applied to the drive cable. There was nothing in the state of the art cited by the appellants which was comparable to the particular way the curved portion of a flexible guide tube was supported in the construction claimed. Document D3 did not relate to a flexible guide tube in the sense defined in present claim 1 since it was specifically intended to be inherently stiff enough to resist deformation once installed. Document D2 did show a flexible guide tube but did not propose providing proper support for this in the curved portion thereof. In any case, neither D2 nor D3 related to an open roof construction of the type claimed.

Reasons for the Decision

1. The appeal complies with the formal requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is therefore admissible.

2. According to page 3, paragraph 3, of the minutes of the oral proceedings before the Opposition Division the appellants raised there for the first time an objection to the fact that the support elements 18, 19 and 21 of the preferred embodiment appeared to be located in straight portions of the guide tube rather than in the curved portion as claimed. Thereupon the respondents proposed amending the mention of the relevant reference numerals in granted claim 1 and various dependent claims so that there would only be a reference to "support means (20)". This amendment was accepted by the Opposition Division, which proceeded to hold that the patent could be maintained in this amended form. It was explained that a basis for the amendment was to be found in the reference to "guide members 20" (i.e. in the plural) in the original disclosure. There is no record of the objection raised by the appellants having been couched in terms of there being an infringement of Article 100(c) EPC. Instead, the appellants were concerned that the comparison with the prior art be put on a level footing.

The question of the appropriateness of the amendments to granted claim 1 was taken up by the Board in its communication of 17 February 1999. The Board pointed out that the reference to a plurality of "guide members 20" in column 4, line 46 of the original application was explained by the fact that there were two guide tubes, with only one guide member 20 each, as shown. At the oral proceedings before the Board the respondents explained that in retrospect the amendment made to granted claim 1 had been unnecessary. The actual wording of the claim merely required that there be adequate support for the curved portion of the guide

tube provided by support means located at a plurality of locations. In other words, it was not essential that all of the support means providing this support should be located in the curved portion of the guide tube; it was sufficient and within the terms of the claim if some of the support elements comprising the support means were located in straight portions of the guide tube but adjacent the curved portion since here they would also serve to give support to the curved portion. That interpretation of the wording of the granted (and present) claim 1 did not give rise to any further objection from the appellants and in the circumstances of the present case the Board finds if appropriate to base its further evaluation of inventive step on it.

3. A vehicle open roof construction as set out in the preamble of present claim 1 is disclosed in each of documents D4, D5 and D6. In the English translations of documents D4 and D5, which are of similar content, the guide tubes for the drive cable are referred to as "pipes". Each pipe is attached to the frame by a plurality of support elements, one of which is located in the curved portion of the pipe and another adjacent this curved portion. In the construction of document D6 the guide tubes or pipes ("Führungsrohre") are supported on the frame by support elements which are located in straight portions of the pipe, some distance away from the curved portion.

According to the claimed invention at least the curved portion of the guide tube is formed of a flexible low friction wear resistant plastics material. This results in low cost, easy to assemble and efficient guiding means for the drive cable. Since such a guide tube of

flexible plastics material is not stiff enough to absorb the drive forces applied to the drive cable it is necessary to provide support means with a plurality of support elements for supporting the curved porion of the guide tube (see discussion in point 2 above).

In the main the appellants have relied upon the state of the art according to documents D2 and D3 in order to demonstrate that the claimed invention does not involve an inventive step. Whereas document D2, like the claimed invention, is concerned with the drive arrangement for a vehicle open roof construction (sliding roof), document D3 is directed to a drive arrangement for raising and lowering a vehicle window. In this respect the Board shares the opinion of the appellants that the fields of vehicle windows and open roof constructions are closely related and that the person skilled in the art concerned with the design of the latter will have good knowledge of developments in the former.

In the drive arrangement of document D2 the drive cable runs in a "Schlauchführung", which term in itself would normally be understood as meaning that the guide tube involved is flexible. Indeed, "flexible tube" is the term used in the equivalent English language family member GB-A-890 103. The document contains no indication of what material the plain-walled flexible guide tube is made of. According to document D3 the guide tube has a corrugated wall and is made of a particular low friction wear resistant polymer (polyacetal). This combination is said to give the tube sufficient flexibility to allow it to be readily cold bent, but at the same time sufficient stiffness to

prevent unwanted deformations in service.

In the opinion of the Board the advantages associated with a flexible guide tube, particular in terms of ease of assembly, over substantially stiff guide pipes, which it can be assumed are being used in the constructions of documents D4, D5 and D6 - although nothing explicit is said about this there - and therefore require special measures to bend them into the required shape before attaching to the frame, will be readily apparent to the person skilled in the art.

The respondents have argued that what is said in document D3 about the flexibility of the guide tube meant that it was not made of a material "unable to absorb the drive forces of the drive cable" as required by claim 1. There may be something in this but it is not particularly relevant to the question of inventive step. More to the point is that the person skilled in the art wishing to use a more conventional and less costly, but also perhaps less stiff, plastics material for the flexible guide tube, for example nylon - as proposed in the present patent specification - will know that he might then need to pay attention to providing adequate support for any curved portion of the guide tube which could possibly be subject to deformation under the action of the drive forces applied to the drive cable. To this end he will provide as many support elements in the region of the curved portion of the guide tube as is necessary. In this context it must be noted that even with the guide pipes shown in documents D4 and D5 there is one support element provided within the curved portion of the pipe and another immediately adjacent this portion.

Having regard to the above the Board comes to the conclusion that the subject-matter of claim 1 derives in an obvious manner from the state of the art and therefore lacks inventive step (Article 56 EPC).

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:

S. Fabiani P. Alting van Geusau