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File Number: T 242/91 - 3.2.1

Application No.: 86 200 786.1

Publication No.: 0 201 139

Title of invention: A wedge brake arrangement for heavy road vehicles

Classification: F16D 65/22

D E C I S I O N
of 22 January 1992

Proprietor of the patent: Garphyttan Haldex AB

Opponent: Bendix France S.A.

Headword:

EPC Articles 56 and 123(2)

Keyword: "Inadmissible extension of subject-matter by claim broadening (yes, main request)" - "Inventive step (yes, auxiliary request)"

Headnote



Case Number : T 242/91 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 22 January 1992

Appellant :
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Decision under appeal : Decision of Opposition Division of the European
Patent Office dated 18 January 1991 revoking
European patent No. 0 201 139 pursuant to
Article 102(1) EPC.

Composition of the Board :

Chairman : F. Gumbel
Members : S. Crane
 J.-C. de Preter

Summary of Facts and Submissions

- I. European patent No. 0 201 139 was granted on 2 November 1988 on the basis of European patent application No. 86 200 786.1 filed on 5 May 1986, priority being claimed from Swedish application No. SE 8 502 335 dated 10 May 1985.
- II. The patent was opposed by the Respondent primarily on the ground that its subject-matter extended beyond the content of the application as originally filed (Article 100(c) EPC). As subsidiary grounds were put forward lack of inventive step (Article 100(a) EPC) and insufficiency of disclosure (Article 100(b) EPC). The following documents were cited in support of the objection of lack of inventive step:
- D1: FR-A-2 435 376
D2: GB-A-1 447 360
D3: EP-A-0 139 445
- III. With a decision dated 18 January 1991 the Opposition Division revoked the patent.

In the decision, the question of inadmissible extension of subject-matter was held in abeyance since it was found that the subject-matter of Claim 1, both in its granted form and in a notional form amended to remove the generalisation objected to in the grounds of opposition, lacked inventive step particularly with regard to the teachings of document D3 and the general knowledge of the man skilled in the art.

- IV. The Appellants (Proprietors of the patent) lodged an appeal against this decision on 15 March 1991. The appeal

fee was paid and the Statement of Grounds was filed on the same day.

The Appellants requested that the impugned decision be set aside and the patent maintained in its granted form.

- V. In a communication of the Board dated 16 September 1991 pursuant to Article 110(2) EPC the provisional view was expressed that the objection to inadmissible extension of subject-matter would be a bar to maintenance of the patent in its granted form. The Board also expressed its opinion that the subject-matter of Claim 1 as originally filed could not be derived in an obvious manner from the cited state of the art.
- VI. In a response dated 14 October 1991 to this communication, the Appellants upheld as their main request that the patent be maintained in granted form. Subsidiarily, they requested that the patent be maintained in amended form with granted Claim 1 replaced by Claim 1 as originally filed.

Claim 1 as granted reads as follows:

"A wedge brake arrangement, especially for heavy road vehicles, including a brake cylinder push rod (29) axially movable in a housing (25), plungers (26) axially movable in the housing substantially perpendicularly to the push rod, and force transmitting rollers (32) between parallel wedge surfaces (31, 26) at the end of the push rod and on the respective plunger, so that the plungers are pushed apart at the axial movement of the push rod, characterized in that the push rod (29) is guided by the housing (25) in the plane of the plungers (26) - for complete control over the reaction forces from the plungers - by means of at least one guide roller (35), arranged between plane

surfaces (33, 34) at the end of the push rod and in the housing, respectively, the surfaces being parallel with each other and with the axis of the push rod."

Claim 1 as originally filed corresponds to the granted Claim 1 except that the term "at least one guide roller" in the characterising clause of the claim reads "guide rollers."

Dependent Claims 2 to 4 relate to preferred embodiments of the wedge brake arrangement according to Claim 1.

VII. In support of their requests, the Appellants have put forward in essence the following arguments:

As mentioned in the description, the wedge brake arrangement claimed was particularly intended for heavy road vehicles. In normal use, such vehicles were driven overwhelmingly in the forwards direction so that for practical purposes, single-sided guiding of the push rod for reacting the forces arising in forward use was sufficient. Although no explicit mention of single-sided guiding was made in the original application, it would be clear to the skilled man on reading it that the stated object of the invention, to obtain complete control over the reaction forces from the plungers, would in the circumstances described above be achieved by the use of a single guide roller. Since this was the case, it would be unfair to the Appellants if this construction could not be claimed.

Document D3, which was relied upon in the decision under appeal, showed a brake arrangement in which the wedge operated on a single plunger, the wedge being guided with respect to a housing part by means of rollers arranged on the side of the wedge opposite the plunger. This was a

wholly different arrangement to that claimed in which the wedge pushed two plungers apart. There was nothing in document D3 that would encourage the skilled man to include guide rollers supplemental to the force transmitting rollers present between the wedge and the plungers.

VIII. The Respondents requested that the appeal be rejected as inadmissible or in the alternative dismissed on substantive grounds. The arguments of the Respondents in support of their requests can be summarised as follows:

The Statement of Grounds of Appeal contained no arguments that had not already been considered by the Opposition Division and dealt with in the revocation decision. Furthermore, the Notice of Appeal did not contain the name and address of the Appellant as required by Rule 64(a) EPC.

The application as originally filed was specifically and exclusively directed to a wedge brake arrangement in which in order to achieve the stated object of obtaining complete control of the reaction forces from the plungers guide rollers are provided on opposite respective sides of the push rod. There was no suggestion anywhere in the original application that such complete control could be obtained by a means of a single guide roller. The broadening of Claim 1 by the replacement of the reference to guide rollers by a reference to at least one guide roller therefore constituted an inadmissible extension of subject-matter. Furthermore, as a corollary, since there was no teaching in the patent specification as to how the required complete control of the reaction forces from the plunger could be achieved with only one guide roller, as stated in granted Claim 1, the claimed invention was

insufficiently disclosed.

Documents D1 and D3 both showed a wedge brake arrangement where a guide roller was disposed between the push rod and the housing on the side of the push rod opposite the force transmitting roller between the push rod and the plunger. If the skilled man were to apply this teaching to a wedge brake arrangement with two plungers then the provision of two guide rollers as proposed by the contested patent would follow as a matter of course from elementary considerations of symmetry. Furthermore, the importance of guiding the push rod in a wedge brake arrangement with two plungers was known from document D2 in which the force transmitting rollers were supported in a cage guided in the housing for movement parallel to the axis of the push rod.

Reasons for the Decision

1. Admissibility of the Appeal

In the Statement of Grounds of Appeal, the Appellants have clearly indicated the reasons for which they are of the opinion that the analysis of the teaching of document D3 by the Opposition Division, which formed the essential basis of the impugned decision, was incorrect and that as a consequence the decision should be set aside. The objections of the Respondents in this respect cannot be followed.

Although the Notice of Appeal correctly contained the name of the Appellants, it did not contain their address as required by Rule 64(a) EPC. Once this deficiency had been pointed out by the Respondents it was however promptly remedied by the Appellants.

From Rule 65(2) EPC is evident that a deficiency under Rule 64(a) EPC can only lead to inadmissibility of the appeal if it is not remedied in good time, which is clearly not the case here.

All other formal requirements for the filing of an appeal have been met. The appeal is accordingly admissible.

2. Main Request

An essential characteristic of the invention as presented in paragraph 4, page 1 of the original description is that guide rollers are provided "for complete control over the reaction forces from the plungers". Clearly, complete control over these forces can only be achieved if there is provided at least one guide roller for each plunger. This is what is described in the single preferred embodiment of the invention. There is no suggestion anywhere in the original disclosure that in practice the reaction forces from one plunger can be effectively ignored so that a single guide roller is all that is needed.

Original Claim 1 does not explicitly state that the guide rollers referred to there in their plurality lie on opposite sides of the push rod as seen in the plane of the plungers. However this cannot fairly be interpreted, having regard to the totality of the disclosure and to the requirement stated in the claim for complete control over the reaction forces, as meaning that these plurality of rollers could be on one side of the push rod and that consequently the single-sided guiding now proposed by the Appellants, and even less the use of a single guide roller, was actually disclosed by the claim.

Therefore, on a proper interpretation of the totality of the original disclosure no suggestion can be found therein that there is only a single guide roller provided, as is now covered by the granted Claim 1. This teaching of granted Claim 1 accordingly constitutes subject-matter extending beyond the content of the application as filed so that the attack on the granted patent under Article 100(c) EPC succeeds and the main request of the Appellant must be refused.

In these circumstances, there is no need to consider the closely related objection to the patent for insufficiency of disclosure under Article 100(b) EPC.

3. Auxiliary Request

3.1 Formal allowability of the amendments

Claim 1 according to the auxiliary request corresponds to the originally filed Claim 1 and has been restricted with respect to the granted Claim 1 by the replacement of "at least one guide roller" by "guide rollers". Thus, there are no objections to Claim 1 of the auxiliary request under Articles 123(2) and (3) EPC.

3.2 State of the Art

In Figures 1 to 4 of document D3 there is shown a wedge brake arrangement in which the push rod has a forked end with two legs straddling the plunger each leg having a wedge surface and opposite thereto a surface which is parallel to the axis of the push rod. The plunger is arranged for movement perpendicular to the axis of the push rod and has two wedge surfaces parallel to the corresponding wedge surfaces of the push rod. Force transmitting rollers are arranged between the respective

wedge surfaces of the push rod and the plunger. Guide rollers for the push rod are arranged between the surfaces of the push rod parallel to its axis and corresponding surfaces of the housing.

In the embodiment of Figures 5 to 8 of document D3, which is a wedge brake arrangement corresponding to the preamble of Claim 1, the push rod has opposed wedge surfaces which act via respective force transmitting rollers on corresponding wedge surfaces of a pair of opposed plungers. No separate guide rollers for the push rod are provided.

In the wedge brake arrangement of document D1, the push rod is fork-shaped with one leg disposed on either side of the plunger. Each leg of the push rod has a wedge surface which acts on a respective roller mounted on the plunger. Opposite the wedge surface on each leg is a surface parallel to the axis of the push rod that runs on a respective roller pivoted to the housing.

Document D2 relates to a wedge brake arrangement with two plungers of the type defined in the preamble of Claim 1. The force transmitting rollers are pivotally mounted in a cage that has opposed lugs extending into corresponding guiding slots in the housing, these slots being parallel to the axis of the push rod. The lugs can rock or tilt within the slots to permit sideways movement of the push rod to compensate for unequal movement of the plungers.

3.2 Novelty

As is apparent from the above description of the state of the art, the subject-matter of Claim 1 of the auxiliary request is novel. The wedge brake arrangement claimed is

distinguished from the closest prior art (document D2 or the embodiment of Figures 5 to 8 of document D3) by the features stated in the characterising clause of the claim.

3.3 Inventive Step

In a wedge brake arrangement with two plungers as disclosed for example in document D2 the push rod can "float" as a result of different forces applied to the plunger such as will arise when these plungers are associated with respective leading and trailing brake shoes. It is therefore not possible properly to control the distribution of forces to the plungers. This problem is solved according to the claimed invention in that the guide rollers provide a defined position of the push rod with respect to the housing.

In the wedge brake arrangements of document D1 and Figures 1 to 4 of document D3 where only one plunger is acted on by the push rod rollers are disposed between the push rod and the housing to guide the push rod in its movement and to react the force applied to the plunger against the housing. Thus, roller pairs are provided, one of each pair acting between the push rod and the plunger, the other between the push rod and the housing. These roller pairs can in effect be considered the equivalent of the pairs of force transmitting rollers that are to be found in the wedge brake arrangements of document D2 and Figures 5 to 8 of document D3 where the push rod acts to push apart two plungers, these rollers also constituting guide rollers for the push rod. Thus, the teachings of D1 and D3 relating to the provision of guide rollers in a single plunger arrangement cannot be considered as encouraging the skilled man to incorporate further guide rollers additional to the force transmitting rollers in a

two plunger arrangement, since the guide rollers in the single plunger arrangement are not additional but are in fact essential to the functioning of that arrangement.

Furthermore, the guiding means of the cage for the force transmitting rollers in the arrangement of document D2 are specifically such as to allow "floating" of the push rod so that no indication can be found here for the advisability of providing a defined position for the push rod.

Accordingly, the Board comes to the conclusion that the subject-matter of Claim 1 of the auxiliary request cannot be derived in an obvious manner from the cited state of the art and is therefore patentable, Articles 52(1) and 56 EPC. This claim together with dependent Claims 2 to 4 relating to preferred embodiments of the subject-matter of Claim 1 can therefore form the basis for the maintenance of the patent in amended form.

Order

For the above reasons, it is decided that:

1. The decision under appeal is set aside.
2. The Appellants' main request is rejected.
3. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

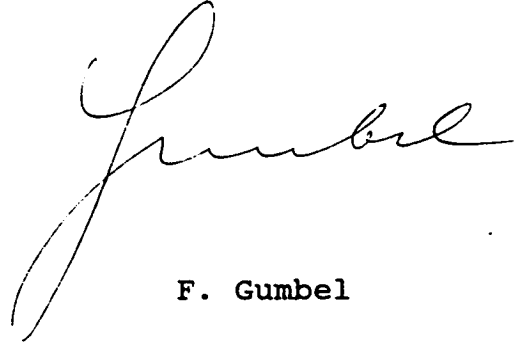
Claim 1 as originally filed
Claims 2 to 4 as granted
Description and drawings as granted.

The Registrar:



S. Fabiani

The Chairman:



F. Gumbel

