BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

A		B		C	X

File Number: T 787/91 - 3.2.1

Application No.: 85 901 633.9

Publication No.: 0 175 747

Title of invention: SHOCK-ABSORBER

Classification: F16F 9/50, B60G 17/08

D E C I S I O N
of 19 January 1993

Applicant: ÖHLINS RACING AB

Opponent: 01) Monroe Auto Equipment Company
02) Robert Bosch GmbH

Headword:

EPC Articles 113, 84 and 56; Rule 67

Keyword: "Clarity of claims (yes)"
"Inventive step (yes)"
"Procedural violation (no)"
"Reimbursement of the appeal fee (no)"

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 787/91 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 19 January 1993

Appellant : (Opponent 02)
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Decision under appeal :
Interlocutory decision of the Opposition Division of the European Patent Office dated 12 August 1991 concerning maintenance of European patent No. 0 175 747 in amended form.

Composition of the Board :

Chairman : F. Gumbel
Members : P. Alting van Geusau
W.M. Schar

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 175 747 based on patent application No. 85 901 633.9, which was filed as the International application No. PCT/SE85/00120 on 14 March 1985, was published on 29 June 1988.

II. In notices of opposition filed on 25 and 28 March 1989 respectively, the Appellant (Opponent 02) and other party (Opponent 01) requested revocation of the patent for the reasons of non-compliance with the provisions of Article 100(a) (Opponents 01 and 02) and 100(b) EPC (Opponent 01).

In respect of an alleged lack of novelty and inventive step the oppositions were supported in particular by the following documents:

D11: JP-A-57 182 506 (with a translation in the English language filed by Opponent 01 on 29 March 1989);
D12: DE-B-1 505 417;
D13: FR-A-1 095 506; and
D20: US-A-4 030 580.

III. By their decision of 12 August 1991 the Opposition Division maintained the patent in amended form.

The Opposition Division held that Claim 1 as amended was formally admissible and that, when starting from the closest prior art as disclosed in D11, the cited documents could not give the skilled person any teaching enabling him to arrive in an obvious manner at the subject-matter of the amended Claim 1.

IV. An appeal was lodged against this decision on 8 October 1991 and the appeal fee was paid on the same day. The

Statement of Grounds of Appeal was filed on 12 December 1991.

V. In accordance with auxiliary requests submitted by the Appellant and the Respondent the Board summoned the parties to oral proceedings. In a communication notified with the summons for oral proceedings the Board expressed the provisional opinion that further amendment of Claim 1 appeared to be necessary in order to more clearly define the invention. Further, the question was raised whether the non-return valves contained in the single embodiment of the invention disclosed in the patent were essential for the functioning of the claimed subject-matter so that their inclusion in the independent claim would be required under Article 84 EPC. Considering D12, it appeared that the subject-matter of the main claim differed therefrom in that the **same** pair of valves were used for controlling the flow in the **same** two separate channels in both directions of movement of the piston and that **both** valves were fully located within the piston.

In this respect D20 was not considered to be pertinent because the valves shown therein were located outside of the cylinder and piston and these valves did not appear to be suitable for incorporation in a piston.

The further document, D13, referred to by the Appellant in the Statement of Grounds of Appeal did not appear to be of greater relevance than D12.

VI. At oral proceedings held on 19 January 1993 the Respondent filed new Claims 1 to 8 and an amended description as a main request. In respect of subsidiary requests I and II, he submitted pages with further features to be inserted into Claim 1 of the main request.

He requested that the appeal be dismissed and that the patent be maintained on the basis of the documents filed in respect of his main request together with the drawings as granted and auxiliarily on the basis of subsidiary request I or II.

Claim 1 of the main request reads as follows:

"A shock absorber (1) including means for controlling the damping rate at any given moment in dependence on external control signals (i_1) applied to the shock absorber, and comprising a cylinder (2), a piston (3) arranged within the cylinder and provided with a passageway of variable area for controlling flow of a working fluid from one side of the piston to the other side thereof, and a member (17) incorporated within the piston and controlled by said external control signals to vary the area of said passageway, said external control signals (i_1) being supplied by a control unit (40) which receives input signals (i_2) from a sensor (37,38,51) associated with the shock absorber (1), said input signals being related to the instantaneous parameter information obtained from the piston about the relative movement of the piston (3) and the cylinder (2), the value of said external control signals (i_1) varying during the stroke of the piston at least in part as a function of said input signals (i_2) characterised in that said controllable member (17) within the piston (3) is the only member provided for controlling the damping rate in dependence on said external control signals (i_1) and acts in both directions of movement of the piston in the cylinder, that in each of the directions of flow (32, 32' and 33, 33') through the piston as occurring in both directions of movement of the piston (3), fluid is capable of being conducted in the directions of flow as occurring in both directions of movement of the piston (3) via a second channel (24, 25) and via a first channel (26, 27) in two separate streams, that the

controllable member (17) forms part of an electrically actuated servo valve (31) for determining the flow of the fluid in the first channel (26,27) for determining the position of an organ, that a valve member (30) connected to the organ forms part of another valve for determining the flow of the fluid in the second channel (24,25), and that both the servo valve (31) and the valve including the valve member (30) are located within the piston."

VII. The Appellant requested that the decision under appeal be set aside and the patent be revoked. At the oral proceedings he further requested reimbursement of the appeal fee for the reason of a substantial procedural violation committed by the Opposition Division.

In support of these requests the Appellant essentially submitted the following arguments:

The subject-matter of the new independent Claim 1 is not clear and does not specify all the necessary features for the solution of the stated problem. Therefore the amended Claim 1 does not comply with Article 84. In particular the definition of the servo valve is not complete because the restriction 27 is essential for the functioning of the pilot valve. Moreover, the flow directions through the channels are insufficiently clearly described.

As regards inventive step of the subject-matter of Claim 1 of the main request, D11 already discloses a shock absorber with a controllable electrically actuated valve within the piston and is therefore also a relatively "quick acting" arrangement.

The characterising features of Claim 1 of the main request add, in fact, nothing more than that the known valve is replaced by a servo valve which usually comprises a pilot valve which is directly controlled and a main valve

controlled in accordance with the pilot valve. Servo valves for use in shock absorbers are known from D20 and D12.

In D20 the valve arrangement is positioned outside of the piston but this is immaterial because the skilled person easily recognises that this valve arrangement may be integrated in the shock absorber piston. Moreover, D12 already discloses a servo valve arrangement mounted in a shock absorber piston with most of the features of the characterising portion of Claim 1 of the main request and the skilled person would combine the teachings of D11 and of D12 or D20 in an obvious manner if he wanted to improve compactness, energy consumption of the arrangement of D11 and achieve fluid control in both directions of the movement of the piston.

Since the features added to the claims by both auxiliary requests are already known from D20 the combination of D11 and D20 would also deprive the subject-matter of Claims 1 of the auxiliary requests from any inventive activity.

At the end of the oral proceedings the Appellant submitted that the omission of the feature "obtained from the piston" from the claim filed by the Respondent at the oral proceedings in the opposition procedure amounted to a procedural violation and since this feature was now reintroduced into the current main claim, reimbursement of the appeal fee should be considered equitable.

VIII. In support of his requests the Respondent essentially argued as follows:

The teaching of Claim 1 of the main request must be considered sufficiently clear and complete to be immediately understood by a skilled person. It has been set out in the description of the application and patent

that the detailed embodiment is only a non-limiting example and, as will be apparent from the examples shown in two drawings filed at the oral proceedings showing possible examples of other servo valve arrangements in accordance with the wording of Claim 1, no additional features are necessary to arrive at a functionally satisfactory arrangement. Therefore, it is not reasonable to require further restrictions to the claims.

D11 may be considered to disclose the closest prior art. However, attention is drawn to the fact that in this known arrangement the fluid flow is controlled both by valves in the piston and further valves in a reservoir connected by means of a fluid line to the shock absorber. This known arrangement is therefore rather complicated, more difficult to control and, because the main valves are directly actuated by solenoids, requires high control energies. Moreover, the electric control of the valve in the piston relates to one direction of flow through the piston only.

The arrangement of D20 indeed discloses a servo valve for a shock absorber but clearly this known valve is not compatible with the arrangement of D11. Firstly, the valve elements are not situated in the piston so that long fluid lines are necessary which limit response time and secondly, the valve arrangement itself is not suitable for integration in a piston.

Therefore, the attempt of combining features of documents D11 and D20 would require a skilled person to go beyond routine and thus would require an inventive activity. Also D12 cannot give the skilled person a hint in the direction of the solution defined in Claim 1 of the main request. The valve arrangement in D12 is partly attached to the piston but not integrated in the piston, the control is by means of a mechanical control member which is clearly not

acting sufficiently fast enough for controlling the damping rate at any given moment. Moreover, for each direction of movement of the piston a separate pair of valves is installed.

IX. The other party (Opponent 01) did not file any response and did not attend the oral proceedings.

Reasons for the Decision

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

2. Amendments

2.1 Claim 1 of the main request comprises all the features of the granted Claim 1 in its precharacterising part and contains in its characterising portion features defining the position and functioning of the valve means in the piston. Claim 1 of the main request is therefore limited in scope when compared to the granted claims and therefore no objections arise under Article 123(3) EPC.

2.2 Although the features of the characterising part in their present form have not been claimed in the granted patent they are sufficiently clearly disclosed in the description and drawings of the application as filed or patent as granted.

The features of the characterising part are in fact acceptable generalisations of the valve arrangement disclosed with respect to Figures 1a and 1b and their control disclosed with respect to Figure 2.

No objection arises therefore under Article 123(2) EPC either.

2.3 Concerning clarity of Claim 1 of the Appellant was of the opinion that the restricted passage 27, the two pairs of non-return valves 20 to 23 and the direction of flow through the valves were essential elements for the definition of the subject-matter claimed and should therefore be included in the independent claim in order to meet the requirement of Article 84 EPC according to which claims shall clearly define the matter for which protection is sought.

In this respect it is to be noted that these further details are disclosed in relation to a preferred embodiment of the invention shown in Figures 1a and 1b. Only if indeed they were necessary, from a technical point of view, in order to carry out the invention thus forming indispensable elements of the invention would it be justified to incorporate them into Claim 1.

However, fluid control valves may have many different configurations and nevertheless may function substantially identical. Considering the features of Claim 1 of the main request the control valves are defined such that at least the general principle of the servo valve, their main constituents, as well as the interaction of the fluid flows to arrive at a servo action of the valves, become clear.

At the oral proceedings the Respondent referred to two alleged possible valve arrangements all following the definition of the subject-matter of Claim 1 and achieving a servo function. Although these submissions are not considered fully convincing taking account of the Appellant's reservations as to the proper functioning of the arrangements of these particular examples, the Board considers that the skilled person acquainted with hydraulic servo valves would not have undue difficulties in finding servo valve arrangements meeting the

requirements set out in the claim while not necessarily including the features referred to above. For these reasons the Board considers that Claim 1 of the main request meets the requirements of Article 84 EPC.

3. Prior art

3.1 In the appeal procedure the Appellant referred only to D11, D12, D13 and D20. Since the further documents cited in the opposition procedure have not been taken up again by the Appellant and in view of the fact that these documents are clearly less relevant than these former specifications the Board sees no reason to discuss this further prior art.

3.2 D11 discloses a shock absorber in which the dampening characteristics are continuously controlled by a micro-computer into which outside signals, for instance a car speed signal and/or a manual operator signal, and internal signals relating to the movement of the piston in the cylinder of the shock absorber are fed and from which control signals are issued. This known shock absorber system comprises two controllable means for adjusting the dampening characteristics. One of said controllable means is provided in the end wall of a pressurised container connected with one of the fluid chambers in the cylinder of the shock absorber. Said controllable means contains electrically actuable valve means by which the passage area for fluid flow between the pressure container and the chamber in the cylinder of the shock absorber can be varied. The other controllable means is arranged in the piston of the shock absorber and is designed as an electrically adjustable spring load for a disc valve, by the adjustment of which the passage area characteristics of the fluid passage through the piston from one chamber of the cylinder to the other chamber of the cylinder in

one flow direction (rebound direction of piston) may be varied.

Each of the two controllable valve means is effective with respect to a controlled passage area variation in one direction of piston movement and thus in one direction of fluid flow only, the two controllable valve means being provided with different control signals.

3.3 The arrangement of D12 also relates to an adjustable shock absorber. In the bore of the piston rod there is provided an axially shiftable valve element for controlling a first fluid flow through the piston. For both directions of movement of the piston there is a different first fluid flow line. On each side of the piston a spring plate valve is provided which covers the opening of one of two axial main fluid flow channels. The extent to which pressure is exerted on the respective spring plate to allow fluids to pass from one end of the piston to the other is controlled by the first fluid flow which determines the fluid pressure in a chamber formed in an auxiliary piston biassing the spring plate in the direction of closing the spring plate valve.

This known control arrangement functions in both directions of movement of the piston but for each direction of movement there are different first and second fluid flow lines through the piston. Furthermore, the manner of control is not referred to in D12.

3.4 D13 discloses a single electrically actuated valve in a shock absorber piston for controlling the fluid flow through the piston in both directions of movement thereof.

3.5 D20 concerns an electrically-controlled damping device for shock absorbers which comprises an electrically operated

servo valve arrangement. This known damping device is situated outside of the shock absorber and connected to the shock absorber chambers by means of fluid lines. The servo valve arrangement comprises a pilot and a main valve, and works in both directions of movement of the piston and comprises non-return valves.

4. Novelty

4.1 In view of the above comments with respect to the most relevant prior art documents it is evident that the subject-matter of Claim 1 of the main request is novel. None of the cited documents discloses a unique double acting electrically controlled servo valve arrangement in a shock absorber piston.

5. Inventive step

5.1 The closest prior art is considered to be disclosed in D11 which document shows the combination of precharacterising features of Claim 1.

When comparing a shock absorber of this kind further comprising the characterising features of Claim 1 to the shock absorber arrangement of D11 the characterising features provide a more compact and technically simple shock absorber with the ability to achieve quick response to varying driving and road conditions and a lower energy consuming control in both directions of movement of the piston (see also column 2, lines 23 to 37 and column 3, lines 37 to 45 of the amended patent specification).

The problem objectively solved by the present invention was therefore the provision of an improved shock absorber to achieve these wanted properties.

5.2 Considering the cited prior art, the skilled person could not, in the Board's opinion, find sufficient information herein to arrive in an obvious manner at the subject-matter of Claim 1 of the main request in order to solve that problem.

D12, considered to be pertinent by the Appellant, is obviously not suitable for the required quick response of the valve and in this respect not compatible with the arrangement of D11. Although D12 might be considered to disclose a servo valve arrangement, this servo valve is of substantially different construction as the one claimed, in particular as regards its size and functioning so that it cannot directly be integrated within the piston of a shock absorber. Moreover, D12 discloses two pairs of valves and two different sets of flow channels for each direction of movement of the piston. Hence, a combination of the teachings of D11 and D12 would not lead to the subject-matter of Claim 1.

D13 does not relate to servo valves and as such cannot give the skilled person a hint to its use in the arrangement in accordance with D11.

It is true that D20 discloses the use of an electrically controlled servo valve arrangement for damping control of a shock absorber. Nevertheless the Appellant's argument that since it was already known from D11 to place a control valve in the piston it would be obvious to replace this valve arrangement by the one disclosed in D20 cannot be followed by the Board.

The skilled man searching for a solution to the above problem would not have considered such a replacement.

In view of the relatively long fluid lines from the ends of the cylinder to the valve which is situated outside of

the cylinder the known control arrangement clearly is not sufficiently responsive to give a solution to this part of the problem posed. Moreover, the known servo valve is relatively complex. Thus without substantial modification, to which no lead can be derived from D20, it is not suitable for integration in the piston. Therefore, D20 cannot be considered to give the skilled person a suggestion or incentive to replace the two single acting control valves in the piston and in the reservoir according to D11 by one double-acting servo valve in the piston.

5.3 Summarising, in the Board's judgment, the proposed solution to the technical problem underlying the patent in suit as defined in the independent Claim 1 of the main request is inventive and therefore this claim as well as its dependent Claims 2 to 8 relating to particular embodiments of the invention in accordance with Rule 29(3) EPC, can form the basis for maintenance of the patent (Article 52(1) EPC).

6. The description and drawings are in agreement with the wording and scope of the current claims (Rule 27 EPC). Hence these documents are also suitable for maintenance of the patent in amended form.

Thus taking into account the amendments made by the Respondent, the patent and the invention to which it relates meet the requirements of the EPC and the patent as amended may be maintained in this form (Article 102(3) EPC).

7. Since the main request is allowable there is no need to consider the auxiliary requests.

8. Request for reimbursement of the appeal fee

8.1 In accordance with Rule 67 EPC reimbursement of the appeal fee shall be ordered when the Board deems an appeal allowable and if such reimbursement is equitable by reason of a substantial procedural violation.

8.2 In the present case the Appellant submitted that the Opposition Division violated Article 113 EPC when deleting the passage "obtained from the piston" from Claim 1 filed at the oral proceedings of 19 March 1990 in the opposition procedure contrary to the information given at the end of these proceedings and without granting the Appellant an opportunity to comment upon this amendment. Since this passage was now reintroduced in the independent claim at the oral proceedings of 18 January 1993 reimbursement of the appeal fee should be considered equitable considering that the appeal was inter alia necessary because of this undue broadening of the claim and was successful in this respect.

8.3 At the oral proceedings the Opposition Division expressed its intention to maintain the patent in amended form on the basis of a set of Claims including some amendments (but not deletion of the above mentioned passage) and accordingly invited the patentee to file a new set of Claims and amended description. After the patentee had filed his final set of Claims which included a further amendment, namely the deletion of the said passage, the amended documents and the brief explanations of the patentee were duly sent to the Appellant with a brief communication dated 2 July 1991.

In his explanations the patentee stated that he deleted the said passage in Claim 1 in view of statements made by the Opposition Division during the oral proceedings suggesting such a deletion.

About one month later the Oppostion Division, having not received any comment from the side of the Opponents, decided to maintain the patent on the basis of the amended set of Claims.

8.4 Since during the oral proceedings of 19 March 1991 the expression "obtained from the piston" had been dealt with, not only with regard to the Grounds of Opposition according to Article 100(b) EPC but also in respect of Article 100(c) and Article 123(3) EPC (see the minutes point 4) and since the invitation to file a new set of Claims and an adapted description (see minutes point 10) was not an invitation to the parties to continue proceedings in writing and to reopen pleadings, it is in the Board's opinion, immediately apparent that the Opposition Division considered that, at the time of sending the brief communication, no substantial points remained open for discussion and that the case could be decided on the basis of the last filed documents. In such a case it is fully appropriate to put a cross in the box "take note" in the brief communication of 2 July 1991 with which the amended documents and explanations were sent to the Appellant.

There is in the present case no reason to suppose that the Communication of 2 July 1991 misled the Appellant into believing that it was not necessary to defend his interest by filing observations in reply to the explanations given by the patentee had he had the intention to do so (see in this respect the decisions T 439/91 and T 669/90, OJ 1992/12 in which such was considered to be the case; see also T 190/90, point 8).

Had the Appellant wished to express his opinion against the proposed further amendment he could have seized the opportunity, which he did not.

8.5 Therefore, since there is nothing in the file which could lead to the conclusion that the obvious purpose of the brief communication of 2 July 1991, e.g. to enable the Appellant to file comments, was in any way unduly restricted and in view of the fact that he has also been given sufficient opportunity (see in this respect T 275/89, OJ 1992, 126, point 3.3), in the Board's judgment, the Opposition Division did not violate the Appellant's right to be heard in the meaning of Article 113(1) EPC.

Hence the request for reimbursement of the appeal fee has to be rejected.

Order

For these reasons, it is decided that:

1. The contested decision is set aside.

2. The case is remitted to the first instance with the order to maintain the patent with Claims 1 to 8 and the description presented as the main request at the oral proceedings of 19 January 1991 and the drawings as granted (see above point VI of the decision).

3. The request for reimbursement of the appeal fee is rejected.

The Registrar: The Chairman:

S. Fabiani F. Gumbel