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Datasheet for the decision of 3 December 2013

Case Number: T 2363/11 - 3.2.08

Application Number: 06827794.6

Publication Number: 1948966

IPC: F16H19/00

Language of the proceedings: EN

Title of invention:
ACTUATOR WITH INTEGRATED DRIVE MECHANISM

Applicant:
BorgWarner, Inc.

Headword:

Relevant legal provisions:
EPC Art. 84
RPBA Art. 13(1)

Keyword:
Claims - clarity- main request and first and second auxiliary request (no)
Late-filed auxiliary requests - admitted (no)

Decisions cited:

Catchword:

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Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 2363/11 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 3 December 2013

Appellant: (Applicant)	BorgWarner, Inc. 3850 Hamlin Road Auburn Hills, MI 48326-2872 (US)
Representative:	Lerwill, John A.A. Thornton & Co. 235 High Holborn London, WC1V 7LE (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 12 July 2011 refusing European patent application No. 06827794.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: T. Kriner
Members: M. Alvazzi Delfrate
D. T. Keeling

Summary of Facts and Submissions

I. By decision posted on 12 July 2011 the examination division refused the European patent application No. 06 827 794.6.

II. The appellant (applicant) lodged an appeal against this decision on 12 September 2011, paying the appeal fee on the same day. The statement setting out the grounds for appeal was filed on 13 October 2011

III. Oral proceedings before the Board of appeal were held on 3 December 2013.

IV. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request or the first auxiliary request, both filed with letter dated 13 October 2011, or in accordance with the second auxiliary request filed with letter of 4 November 2013 or in accordance with one of the third to eight auxiliary request filed at the oral proceedings.

V. Claim 1 of the **main request** reads as follows:

"An actuator assembly for operating a valve assembly (12) in a vehicle, comprising:
a valve member (74);
an actuator device (26) operably associated with a housing (14, 16);
one or more rotating gear members (44, 48, 52) operably associated with said actuator device; and
a bearing member (76) operably associated with said one or more rotating gear members and carried on a valve stem (72) of said valve member (74);
characterised in that

a cam slot (66) is formed in one of said one or more rotating gear members which receives said bearing member (76) so that rotation of said one or more rotating gear members (76) causes the bearing member to move in an axial direction of the valve stem (72) as said bearing member moves along said cam slot, and said cam slot has a contour that determines the rate of axial position versus rotation of the one or more rotating gear members and provides a continuously variable rate of axial position of said bearing member through the rotation of said one or more rotating gear members, whereby when said actuator device (26) is actuated, said one or more rotating gear members rotate, causing said bearing member (76) to move along said cam slot (66) and the valve stem (72) to move axially for opening and closing the valve assembly"

Claim 1 of the **first auxiliary request** reads as follows (amendments in respect of the main request emphasised):

"An actuator assembly for operating a valve assembly (12) in a vehicle, comprising:
a valve member (74) having a valve stem (72) with two ends;
an actuator device (26) operably associated with a housing (14, 16);
one or more rotating gear members (44, 48, 52) operably associated with said actuator device; and
a bearing member (76) operably associated with said one or more rotating gear members and carried on the first end of the valve stem (72) of said valve member (74) and held thereon by a pin;
characterised in that
a cam slot (66) is formed in one of said one or more rotating gear members, the bearing member (76) being received by or engaging with the cam slot (66) ~~which~~

~~receives said bearing member (76)~~ so that rotation of said one or more rotating gear members (76) causes the bearing member to move in an axial direction of the valve stem (72) as said bearing member moves along said cam slot, and said cam slot has a contour that determines the rate of axial position versus rotation of the one or more rotating gear members and provides a continuously variable rate of axial position of said bearing member through the rotation of said one or more rotating gear members, whereby when said actuator device (26) is actuated, said one or more rotating gear members rotate, causing said bearing member (76) to move along said cam slot (66) and the valve stem (72) to move axially for opening and closing the valve assembly"

Claim 1 of the **second auxiliary request** reads as follows (amendments in respect of the main request emphasised):

"A fluid control valve or a control mechanism in a vehicle comprising a valve assembly (12) and an actuator assembly for operating the valve assembly (12), the actuator assembly comprising:

a valve member (74) for a fluid control valve or control mechanism used on turbochargers;
an actuator device (26) operably associated with a housing (14, 16);
one or more rotating gear members (44, 48, 52) operably associated with said actuator device; and
a bearing member (76) operably associated with said one or more rotating gear members and carried on a valve stem (72) of said valve member (74);
characterised in that

a cam slot (66) is formed in one of said one or more rotating gear members which receives said bearing member (76) so that rotation of said one or more rotating gear members (76) causes the bearing member to move in an axial direction of the valve stem (72) as said bearing member moves along said cam slot, and said cam slot has a contour that determines the rate of axial position versus rotation of the one or more rotating gear members and provides a continuously variable rate of axial position of said bearing member through the rotation of said one or more rotating gear members, whereby when said actuator device (26) is actuated, said one or more rotating gear members rotate, causing said bearing member (76) to move along said cam slot (66) and the valve stem (72) to move axially for opening and closing the valve assembly."

The **third, fourth and fifth auxiliary requests** are based on respectively the main, first and second auxiliary request with the difference that (emphasis added)

"said cam slot has a contour that determines the rate of axial movement ~~position~~ versus rotation of the one or more rotating gear members and provides a continuously variable rate of axial movement ~~position~~ of said bearing member through the rotation of said one or more rotating gear members"

The **fifth, sixth and seventh auxiliary requests** are based on respectively the main, first and second auxiliary request with the difference that (emphasis added)

"said cam slot has a contour that determines the rate of axial movement ~~position~~ versus rotation of the one

or more rotating gear members and provides a continuously variable rate ~~of axial position of said bearing member~~ through the rotation of said one or more rotating gear members"

VI. The arguments of the appellant can be summarised as follows.

Main request and first and second auxiliary requests.

The claim was directed to the person skilled in the art. In case that its wording was difficult to understand its meaning could be interpreted with the aid of the description.

In the present case, the rate of axial position versus rotation mentioned in claim 1 of the main request related to the movement as function of the rotation. Page 5, lines 9 to 10 made clear that the rate to be considered was that of axial movement versus gear rotation, since it disclosed that this rate was determined by the contour of the cam slot. Furthermore, on lines 16 to 28 of the same page the application disclosed that the contour of the cam slot is configured to provide a continuously variable rate through the rotation of the output gear. It was clear to the reader that the same rate was meant since the sole two rates mentioned on page 5 were the rate of axial movement versus gear rotation and the rate of flow of the valve, the latter being linked to the axial movement.

Moreover, it was clear to the reader that the rate of axial movement versus rotation mentioned was intended to indicate the derivative of the movement as function

of the rotation, since this was the sole sensible interpretation of this wording.

Accordingly, claim 1 of the main request was clear. For the same reasons, the same conclusion applied to claim 1 of each of the first and second auxiliary request.

Third to eighth auxiliary requests

In the event that the main, the first and the second auxiliary requests were considered not to be allowable, the third to eighth auxiliary requests should be admitted into the proceedings.

It was true that these requests were filed at a late stage of the proceedings. However, this was caused by the fact that their wording had been agreed by the appellant only now. The third to fifth auxiliary requests corresponded to the main, first and second auxiliary requests, wherein the rate of axial position versus rotation had been replaced by a rate of axial movement versus rotation. This was intended to further clarify the claim.

In the fifth to eighth auxiliary requests a similar amendment had been carried out but, when reference was made to a continuously variable rate, the axial position had been deleted without replacing it, in order to follow more exactly the wording of the originally filed description.

Hence, the third to eighth auxiliary request departed from the requests on file only in minor aspects, so that they could be considered without problems. Therefore, they should be admitted into the proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. Main request and first and second auxiliary requests

2.1 In the claimed device a cam slot is formed in one rotating gear member which receives or engages with the bearing member so that rotation of the rotating gear member causes the bearing member to move in an axial direction of the valve stem as the bearing member moves along the cam slot.

The person skilled in the art, knowing that a cam slot is used to translate a rotary movement in a reciprocating motion, would expect that the contour of the cam slot determines the axial position of the bearing member as a function of the angular position of the rotating gear member.

2.2 However, according to claim 1 of each of the main, first and second auxiliary requests the cam slot has a contour that determines the "rate of axial position versus rotation" of the one or more rotating gear members and provides a "continuously variable rate of axial position" of said bearing member through the rotation of said one or more rotating gear members.

Hence, the claim stipulates that the contour of the cam slot determines a relationship between a position (the axial position of the bearing member) and a movement (the rotation of the gear member). However, the reader is left in the dark as to what this relationship may be, since the claim does not define what is to be understood as "rate of axial position versus rotation"

of the one or more rotating gear members and as a "continuously variable rate of axial position". Therefore, the wording of the claim does not provide a clear definition of the claimed device.

2.3 The appellant submitted that the claim should be interpreted in the light of the description, which clarifies its meaning. However, the claims must be clear in themselves when read by the person skilled in the art, without any reference to the description (see Case Law of the Boards of Appeal of the European Patent Office, 7th edition 2013, II.A.3.1, first paragraph).

Moreover, the description does not mention a rate of axial position versus rotation but merely a rate of axial movement versus output gear rotation (see page 5, lines 9 to 10) or a not further defined continuously variable rate (see page 5, lines 15 to 18). Therefore, even the description would not be of any help in clarifying the meaning of the rate mentioned in claim 1.

2.4 Therefore, claim 1 of each of the main request and the first and second auxiliary request lacks clarity.

3. Third to eighth auxiliary requests

3.1 According to Article 13(1) of the Rules of Procedure of the Boards of Appeal any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject matter submitted, the current state of the proceedings and the need for procedural economy.

3.2 In the present case the third to eighth auxiliary requests were submitted at a very late stage of the proceedings, namely at the oral proceedings before the Board of Appeal. There was no objective reason for this delay, since the issue that they are meant to address, i.e. the lack of clarity related to the feature concerning the rate of axial position versus rotation, was already raised in the decision under appeal (see point 12 of the decision under appeal) and brought again to the appellant's attention in the communication of the Board of 16 May 2013.

3.3 Moreover, the third to fifth auxiliary requests do not prima facie comply with the requirements of Article 123(2) EPC, because they refer in claim 1 to a continuously variable rate of axial movement of the bearing, whereas the application as originally filed discloses a continuously variable rate without defining which entity this rate relates to (see page 5, lines 16 to 18).

As to the sixth to eighth auxiliary requests, their claim 1 is even more unclear than claim 1 of the main request, because it refers to "a continuously variable rate" without specifying whether this rate is the same as the rate of axial movement mentioned previously in the claim or is another unspecified rate. Therefore, claim 1 of each of these requests prima facie lacks clarity.

Therefore, the third to eighth auxiliary requests are prima facie not allowable and the submission of such claims at this late stage could not be conducive to an efficient procedure.

3.4 Under these circumstances the Board decided not to admit the third to eighth auxiliary requests into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

V. Commare T. Kriner

Decision electronically authenticated