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**Datasheet for the decision
of 29 September 2011**

Case Number: T 0376/10 - 3.2.04

Application Number: 98124196.1

Publication Number: 0928900

IPC: F04D 25/08, H02K 5/22,
H02K 5/14

Language of the proceedings: EN

Title of invention:

An electric fan assembly for vehicle air conditioning systems

Applicant:

Denso Thermal Systems S.p.A.

Opponent:

Behr GmbH & Co. KG

Headword:

-

Relevant legal provisions:

EPC Art. 123

Relevant legal provisions (EPC 1973):

EPC Art. 54, 56

Keyword:

"Late filed amendments - not admitted (auxiliary request 1a)"

"Novelty - denied (main auxiliary requests 1 and 3)"

"Inventive step - denied (auxiliary request 2), approved
(auxiliary request 4)"

Decisions cited:

T 0421/09, T 0087/05

Catchword:

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Case Number: T 0376/10 - 3.2.04

D E C I S I O N
of the Technical Board of Appeal 3.2.04
of 29 September 2011

Appellant: Behr GmbH & Co. KG
(Opponent) Mauserstr. 3
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Respondent: Denso Thermal Systems S.p.A.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 26 January 2010
rejecting the opposition filed against European
patent No. 0928900 pursuant to Article 101(2)
EPC.

Composition of the Board:

Chairman: M. Ceyte
Members: M. Poock
C. Heath

Summary of Facts and Submissions

- I. This appeal is against the decision of the opposition division posted 26 January 2010 in which the opposition against European patent 0 928 900 was rejected.

The opposition division held that the subject-matter of granted claim 1 was new and inventive having regard to the following documents:

D8: DE-C-3 341 391,
D9: DE-U-8 803 357.

The opposition division also held that a cited prior use (documents D5 to D7) was not sufficiently substantiated and therefore was not considered in the further opposition procedure.

- II. The opponent lodged the appeal on 23 February 2010 and paid the prescribed fee simultaneously. The statement of grounds of appeal was received on 25 May 2010.

With the summons to the oral proceedings, the board informed the parties about its provisional opinion, in particular that the cited prior use did not appear to be more relevant than the other documents on file.

Oral proceedings before the board were held on 29 September 2011.

- III. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requested dismissal of the appeal or in the alternative, cancellation of the decision under appeal and maintenance of the patent on the basis of the set of claims filed as auxiliary requests 1 or 1a filed during the oral proceedings before the board, or on the basis of any of the sets of claims of the auxiliary requests 2 to 4 submitted with letter of 6 October 2010 as auxiliary requests 1 to 3.

IV. Claim 1 as granted (main request) reads as follows:

"1. An electric fan assembly for vehicle air conditioning systems including:

- an electric motor having a rotating shaft;
- an impeller fitted to the said shaft;
- a casing (30) including a section (42) for conveying an air stream produced by the impeller and a seat (32) for housing the electric motor;
- an electric connector including first and second sections (24, 40) cooperating with each other in a coupling configuration in which the first section (24) is electrically connected to the electric motor and the second section (40) is connected to an electric supply cable;

characterised in that the said first section (24) of the connector is fixed to the electric motor and cooperates with a connector-carrying seat (38) formed integrally in the aforesaid housing seat (32) provided on the casing (30) for receiving the said second connector section (40), said housing seat (32) having a guide channel (34) in correspondence with a wall portion, capable of enabling the axial sliding of the first connector section (24) fixed to the electric

motor when this latter is mounted in the housing seat (32)."

Claim 1 of auxiliary request 1 is as in the main request except for the last feature which now reads:

"said housing seat (32) also having a guide channel (34) in correspondence with a wall portion and projecting transversely from said housing seat, said guide channel being capable of enabling the axial sliding of the first connector section (24) fixed to the electric motor when this latter is mounted in the housing seat (32)" (added features underlined by the board).

Claim 1 of auxiliary request 1a is as in auxiliary request 1 except for the first characterising feature which now reads:

"said first section (24) of the connector is fixed to a brush holder base (12) of the electric motor and protrudes transversely beyond the outer perimeter of the motor," (added features underlined by the board).

Claim 1 of auxiliary request 2 is as in the main request except for the following added feature:

"wherein the said seat (32) for housing the electric motor is substantially cylindrical in shape with its longitudinal axis coincident with the shaft of the motor when mounted in the housing seat (32) and wherein said connector-carrying seat (38) projects outwardly at one end of the guide

channel (34) and has a retaining element (46) intended to engage a corresponding flange (48) formed integrally on the said second connector section (40)".

Claim 1 of auxiliary request 3 is as in the main request except for the following added feature:

"wherein the said first section (24) of the connector includes a body (22) and at least one pair of electric terminals (20) housed within the said body (22)".

Claim 1 of auxiliary request 4 is as in the previous auxiliary request 3 except for the following added feature:

", said body (22) of the first section (24) of the connector including integral coupling means for the snap-engagement to the electric motor".

V. The appellant submitted that the subject-matter of claim 1 of the main and auxiliary requests 1 and 3 is not new in view of the disclosure of document D8.

The subject-matter of claim 1 of auxiliary request 2 does not involve an inventive step starting from the electric fan assembly of document D8 in view of the teaching of document D9, particularly its connector 11, 15 which ensures a more reliable and rigid connection.

Although the last feature of claim 1 of auxiliary request 4 is not disclosed in documents D8 or D9, it could not impart an inventive step to the claimed

subject-matter because it is a trivial consideration for the skilled person to connect different parts by snap-engagement means. Such connection is standard technology in the automotive industry. Therefore, the skilled person could provide such engagement means to the electric fan assembly of document D8.

Auxiliary request 1a should not be admitted into the proceedings because it was late filed without any justifying reasons. Moreover, the amendment that the first connector section is fixed to a brush holder base is not supported by the original application documents.

VI. The respondent disagreed and argued that the subject-matter of claim 1 of all requests was new and involved an inventive step.

In document D8, the connector is part of the electric motor 20, whereas it is a separate part according to the invention. This document does not disclose a guide channel, i.e. a channel intended to guide something. Since the electric terminals 26 of the electric connector of document D8 do not protrude transversely beyond the outer perimeter of the electric motor, there is no need for such a guide channel. Nor does document D8 mention any guiding structures or anything that could carry out such a function.

There is no suggestion in the prior art for the retaining element mentioned in claim 1 of auxiliary request 2 which insures a simplified manufacture of the fan assembly and the additional features in claim 1 of auxiliary request 4, although commonly known as such, are not trivial because there is no information in the

prior art to use them in this context; thus they cannot be regarded as the result of obvious considerations.

Auxiliary request 1a should be admitted into the proceedings because its claim 1 is clearly supported in the drawings and in paragraphs 9 and 18 of the published application.

Reasons for the Decision

1. The appeal is admissible.
2. Admissibility - auxiliary requests 1 and 1a
 - 2.1 These requests were filed only at the oral proceedings before the board, that is well after filing of the grounds of appeal. Consequently, they constitute an amendment to the appellant's case in the sense of Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA). Under that article the board is afforded discretion in admitting and considering such an amendment. The article stipulates that this 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".

An approach frequently adopted by the boards when exercising their discretion in admitting amendments filed shortly before or in the course of oral proceedings can be summarised as follows:

Unless good reasons exist for filing amendments so late in the procedure - this may be the case when amendments are occasioned by developments during the proceedings -, they are only admitted if they are obviously clearly allowable (see T 421/09 of 13 April 2010; not published in OJ EPO). This means that it must be immediately apparent to the board, with little or no investigative effort on its part (i.e. prima facie), that amendments successfully address the issues raised without giving rise to new ones, see for example T 87/05 of 4 September 2007, reasons 2; not published in OJ EPO).

2.2 Auxiliary request 1:

The amendments in claim 1 of this request were filed during the oral proceedings in response to the appellant's objection to the term "groove" in the previously filed auxiliary request 1. Since the amendment brings the wording in line with the wording of claim 1 filed in response to the statement of grounds of appeal, it was admitted by the board.

2.3 Auxiliary request 1a

In addition to the amendments made in claim 1 of auxiliary request 1, claim 1 of this request contains the underlined amendments that the first connector section is fixed to a brush holder base of the electric motor and protrudes transversely beyond the outer perimeter of motor.

2.3.1 These amendments were proposed by the respondent for the first time at the beginning of the oral proceedings

before the discussion had started. However, no new facts or evidence were revealed in the procedure after the reply to the grounds of appeal, neither by the appellant nor the board. Hence, the filing of these amendments cannot have been occasioned by developments during the procedure. Moreover, the cited prior art and the objections derived therefrom remained unchanged from the beginning of the opposition procedure.

2.3.2 The application as originally filed does not literally mention that the first section of the connector is "fixed" to a brush holder base. What is disclosed is that the first section of the connector body is provided with means for the direct snap-engagement onto the brush-holder assembly of the electric motor itself (see column 1, lines 45 to 48) and that the first connector section 24 is pre-assembled on the electric motor (see column 2, lines 45, 46).

The verb "to fix" according to the Oxford Dictionary means: "to fasten (something) securely in a place or position". In its normal use, this means that something is permanently or releasably secured in a position.

The application as filed originally only discloses that the first connector section is releasably fastened to the brush holder assembly. Since no basis for a permanent fastening of the first connector section to the brush holder assembly was identified, and the board is unable to find such basis, it has to be concluded that this amendment contravenes the requirements of Article 123(2) EPC.

2.3.3 Moreover, these amended features are also known.

Figure 1 of document D9 clearly discloses that the electrical contacts 14 protrude transversely beyond the outer perimeter of the motor 10 and it is implicit to the skilled person that these contacts are fixed to the brush holder base of the electric motor. It also appears that document D8 discloses this feature because due to the position of contact 70 in the second connector section 60 (figure 8: 77 and figure 6: 76), it appears that the connector terminals 26 must protrude into the guide channel formed by the lateral axial extension 90 of the housing seat 32.

Since, thus, these amendments do not successfully address the raised issues, they were not clearly allowable.

2.3.4 Consequently, auxiliary request 1a was not admitted into the proceedings.

3. Novelty

3.1 The subject-matter of claim 1 of the main and auxiliary requests 1 and 3 is not new in view of document D8.

3.2 Main request

3.2.1 Document D8 discloses, for instance in figure 1, an electric fan assembly for vehicle air-conditioning systems including an electric motor 20 having a rotating shaft 18, an impeller 14 fitted to said shaft, and a casing 30 including a section for conveying an

airstream produced by the impeller and a seat 32 for housing the electric motor 20.

An electric connector includes a first section (figure 1: terminals 26) and a second section 60 (see figures 6 to 8) co-operating with each other in a coupling configuration in which the (terminals 26 of the) first section are electrically connected to the electric motor 20, and the (terminals 70 of the) second section 60 are connected to an electric supply cable 72 (see in particular column 4, lines 10 to 24).

Thus, all features of the preamble of claim 1 of the main request are known from this document.

3.2.2 The electric motor 20 has a cylindrical ring 22 surrounding two half-housings 24 which carry the electric terminals 26 of the first connector section. The half-housings ensure the correct position of the electric terminals 26 such that the terminals 70 of the second connector section 60 can be slid on the terminals 26 as described in column 4, lines 20 to 24. Although it is accepted that the terminals 26 may have some flexibility, this does not exclude that this arrangement is covered by the wording of claim 1, i.e. the first connector section is fixed to the electric motor.

3.2.3 Document D8 discloses two alternatives for the connection of the power supply to the electric motor. Figures 4 and 5 show an axial connection and figures 2 and 3 show a radial connection in which the second connector section 60 is inserted radially into the openings 86. In the latter case, the electric terminals

26 of the first connector section are bent for about 90° (see column 4, lines 2 to 9).

The openings 86 are integrally formed in a flat wall 88 of a lateral axial extension 90 of the housing seat 32 (see figures 2 and 3 and column 3, lines 35 to 47). Thus, in the wording of claim 1, the first connector section co-operates with a connector carrying seat 86 formed integrally in the aforesaid housing seat 32 provided on the casing 30 for receiving the said second connector section 60.

- 3.2.4 The last feature of claim 1 requires that "said housing seat (32) having a guide channel (34) in correspondence with a wall portion, capable of enabling the axial sliding of the first connector section (24) fixed to the electric motor when this latter is mounted in the housing seat (32)."

The board understands the wording in this feature "capable of enabling the axial sliding of the first connector section (24) fixed to the electric motor when this latter is mounted in the housing seat (32)" as meaning that the guide channel has to be suitable to allow the axial sliding of the first connector section when the electric motor is mounted in the housing seat and has laterally protruding terminals. However, claim 1 does not require that the terminals 26 of the first connector section actually protrude transversely or radially beyond the outer perimeter of the motor so that the channel guides this section. It is only necessary that the channel is suitable for this.

Since the guide channel of document D8 is provided in the housing seat 32 and has a lateral axial extension 90 (see in particular figure 3), it is certainly suitable to allow the axial sliding of the first connector section of an electric motor having terminals protruding transversely or radially beyond the outer perimeter of the motor (which might be the case when the first connector sections are bent for about 90 according to column 4, lines 2 to 9) when the motor is mounted in the housing seat.

3.2.5 Thus, also the characterising features of claim 1 are known from this document.

3.3 Auxiliary request 1

3.3.1 Also the additional feature of claim 1 that the guide channel projects transversely from the housing seat 32 is known from document D8. Such guide channel is represented by the lateral axial extension 90 of the housing seat 32 (see figures 2 and 3 and column 3, lines 35 to 47) in which the second connector section 60 is inserted.

3.4 Auxiliary request 3

The added feature of this claim 1 is also known from document D8 which discloses that the first connector section includes a body (half-housings 24) and at least one pair of electric terminals 26 housed within said body 24 (see column 2, lines 7 to 13).

3.5 Therefore, all features of claim 1 of the main request and auxiliary requests 1 and 3, are known from document

D8 so that its subject-matter does not meet the requirements of Article 54(1), (2) EPC 1973.

4. Inventive step

4.1 The subject-matter of claim 1 of auxiliary request 2 does not involve an inventive step.

4.1.1 Document D8 also discloses that the housing seat 32 is substantially cylindrical in shape (see column 2, line 23) with its longitudinal axis coincident with the shaft of the motor when mounted in the housing seat 32 (see figure 1).

The connector carrying seats 86 for the second connector section 60 are formed integrally in wall 88 of the lateral axial extension 90 of the housing seat (see figures 2 and 3 and column 3, lines 35 to 47). Since the guide channel is formed by the inner surface of this extension, in the wording of claim 1, the connector carrying seat 86 projects outwardly at one end of the guide channel.

Also a retaining element 92 for the second connector section 60 is provided (see column 3, lines 43 to 47), however it is not part of the connector-carrying seat 86 in wall 88 but extends from the housing seat 32.

4.1.2 The subject-matter of claim 1 is thus distinguished from this electric fan assembly by the feature that the connector-carrying seat is provided with the retaining element 92, which, according to the respondent, is easier to manufacture.

Therefore, the electric fan assembly of claim 1 solves the technical problem that it can be manufactured more easily.

4.1.3 Obviousness:

- (a) The skilled person in the field of electric fan assemblies for vehicle air conditioning systems knows well electric connectors which are secured with respect to each other by retaining elements co-operating with respective flanges.

Document D8, for instance, discloses elastic tongs 92 provided with openings 94 to receive the nose 84 of elastic fingers 80. When the second connector section 60 is in its connector-carrying seat 86, it is retained in this position by the engagement of noses 84 in the openings 94.

Document D9 discloses a different retaining element. An intermediate connector 11 ("Deckel") is inserted into the connector-carrying seat 18 ("Kragen") and secured therein by retaining elements 19, 20 ("Klipflaschen") engaging with flanges 21 ("Aussparungen") in the connector-carrying seat 18, as described on page 5, lines 6-12 from the bottom.

- (b) From these alternatives, the skilled person selects the most appropriate connector securing means by evaluating their respective advantages and disadvantages. For example, the retaining elements of D8 may be difficult to manufacture and require complex dying forms because of their form

and position at the housing seat 32. For avoiding such effects, the skilled person knows different retaining elements, such as those of document D9 which are provided at the connector-carrying seat 18 and are easier to manufacture.

- (c) Therefore, the board considered the claimed solution to provide the connector-carrying seat with the retaining element is an obvious choice for the skilled person.

Consequently, the subject of claim 1 of auxiliary request 2 does not meet the requirements of Article 56 EPC 1973.

4.2 The subject-matter of claim 1 of auxiliary request 4 is new and involves an inventive step.

4.2.1 Claim 1 of this request corresponds to claim 3 as originally filed, including the features of originally filed claims 1 and 2. Thus, it is clearly supported by the original application.

Moreover, claim 1 of this request further limits the extent of protection of granted claim 1 with the features of claims 2 and 3 as filed originally.

Consequently, the amendments in claim 1 meet the requirements of Article 123 EPC.

4.2.2 In the electric fan assembly of document D8, the metal ring 22 surrounds and firmly fixes two half-housings 24 made of plastic materials carrying the electric terminals 26 of the electric motor. Hence, the two

half-housings 24 represent the body of the first connector section mentioned in claim 1.

The assembly of these parts is difficult and requires some skills because they have to be mounted altogether more or less at the same time.

- 4.2.3 The objective technical problem is therefore to improve the electric fan assembly known from document D8 such the electric motor, the first connector section and the motor casing can be easily fitted together at reduced costs and time as set out in paragraph 8 of the patent specification.

This problem inter alia is solved in the electric fan assembly according to claim 1 by the feature that the body of the first connector section includes integral coupling means for the snap-engagement to the electric motor. Thus, the first connector section is easily secured to the electric motor by snap-engagement, and the whole can be inserted into the casing, while the first connector section is aligned with a connector carrying seat provided on the casing.

- 4.2.4 Non-obviousness

- (a) In the fan assembly of document D8, the two half-housings 24 made of plastic materials and their surrounding metal ring that maintains them in position are an integral part of the electric motor (see column 2, lines 7 to 13). There is no disclosure or suggestion that the half-housings should be separate from the electric motor.

- (b) Snap-engagement means are generally known for connecting and securing the first and second sections of electrical connectors (see, e.g. D8: fig. 3: 80,92 and column 3, lines 30-34; D9: 11,18,19,20 and page 5, lines 6-12 from the bottom).

- (c) However, since neither the cited prior art nor the general technical knowledge gives the skilled person any incentive for using snap-engagement means for securing a first connector section to an electric motor, and in particular for removing the metal ring of the electric motor of D8 and replacing the two half-housings 24 carrying the electric terminals by a single separate first connector section which is secured to the electric motor by snap-engagement, the board is unable to conclude that the subject-matter of claim 1 is obvious.

- (d) Therefore claim 1 of auxiliary request 4 complies with the requirements of Article 56 EPC 1973.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of auxiliary request 4, filed with letter of 6 October 2010 as third auxiliary request with claims 1 to 9, and a description and drawings as granted.

The Registrar:

The Chairman:

G. Magouliotis

M. Ceyte