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**Datasheet for the decision
of 11 January 2023**

Case Number: T 1005/21 - 3.2.01

Application Number: 13157354.5

Publication Number: 2634022

IPC: B60H1/00, B60H1/24

Language of the proceedings: EN

Title of invention:

Air conditioning system for motor vehicles

Patent Proprietor:

Hanon Systems

Opponent:

VALEO SYSTEMES THERMIQUES

Headword:

Relevant legal provisions:

EPC Art. 100(a), 56, 100(b)

Keyword:

Inventive step - main request (no) - auxiliary request 1 (yes)
Grounds for opposition - insufficiency of disclosure (no)

Decisions cited:

Catchword:



Beschwerdekammern

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Case Number: T 1005/21 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 11 January 2023

Appellant:

(Opponent)

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(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 3 May 2021
rejecting the opposition filed against European
patent No. 2634022 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman	G. Pricolo
Members:	S. Mangin
	P. Guntz

Summary of Facts and Submissions

I. The appeal was filed by the appellant (opponent) against the decision of the opposition division to reject the opposition filed against the patent in suit (hereinafter "the patent").

II. In particular, the opposition division held that
(1) the patent disclosed the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
and
(2) the subject-matter of the claims as granted was novel and involved an inventive step.

III. Oral proceedings were held before the Board on 11 January 2023.

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

The respondent (patent proprietor) requested that the appeal be dismissed or, in the alternative, that the patent be maintained on the basis of the 1st or 2nd auxiliary request as submitted in opposition proceedings and resubmitted with the statement of grounds of appeal.

V. The independent claim 1 of the main request reads as follows with the feature numbering used in opposition proceedings:

a) An air conditioning system for motor vehicles comprising:

b) an air conditioner case (10); a cold air path (14) defined within the air conditioner case (10) to allow a cold air passing through an evaporator (12a) to flow through the cold air path (14);

c) a warm air path (16) defined within the air conditioner case (10) to allow a warm air passing through a heater core (16a) to flow through the warm air path (16);

d) a temperature control door (18) arranged to swing between the cold air path (14) and the warm air path (16), the temperature control door (18) configured to control an opening degree of the cold air path (14) and an opening degree of the warm air path (16) to thereby adjust an amount of the cold air flowing through the cold air path (14) and an amount of the warm air flowing through the warm air path (16);

e) and a defrost vent (20) arranged to discharge therethrough the cold air and the warm air toward an upper region of a vehicle room, wherein the air conditioning system is further comprising:

f) a bypass duct (30) arranged to bypass a part of the warm air flowing through the warm air path (16) toward the defrost vent (20), the bypass duct (30) including an inlet (34) aligned with the warm air path (16) and an outlet (36) aligned with the defrost vent (20);

g) a cold air introducing means arranged in at least one of the inlet (34) and the outlet (36) of the bypass duct (30) such that a part of the cold air flowing through the cold air path (14) is introduced into the bypass duct (30) through the cold air introducing means;

characterized by

h) a cold air introduction amount control means arranged to control the amount of the cold air introduced from the cold air path (14) into the inlet (34) of the bypass duct (30);

and

wherein the cold air introduction amount control means includes

i) a cold air guide baffle (40) arranged on the temperature control door (18) in an opposing relationship with the inlet (34) of the bypass duct (30), the cold air guide baffle (40) configured to move together with the temperature control door (18) to thereby increase or decrease the amount of the cold air introduced from the cold air path (14) into the bypass duct (30).

VI. Claim 1 of auxiliary request 1 corresponds to claim 1 of the main request with the additional following feature:

"wherein the cold air introducing means includes a cold air introducing cutout portion (50) formed in the outlet (36) of the bypass duct (30) in an opposing relationship with the cold air path (14), the cold air introducing cutout portion (50) configured to introduce therethrough a part of the cold air from the cold air path (14) into the outlet (36) of the bypass duct (30)".

VII. In the present decision, reference is made to the following documents:

E1: KR 10 2005-0111251 A

E6: KR 2008 0102732 A

E7: US 7 775 451 B2

E8: US 4 452 301 A

VIII. The parties' arguments insofar as relevant for the present decision are referred to in the following section.

Reasons for the Decision

1. Main request - inventive step - Articles 100(a) and 56 EPC

The subject-matter of claim 1 does not involve an inventive step starting from the air conditioning system of E1 in combination with common general knowledge.

- 1.1 E1 discloses features a) to f) of claim 1. This is not disputed by the parties.

The Board judges that E1 and in particular the air conditioning system in figure 1 further discloses features g) and h).

- 1.2 Feature g) reads as follows:

g) "a cold air introducing means arranged in at least one of the inlet (34) and the outlet (36) of the bypass duct (30) such that a part of the cold air flowing through the cold air path (14) is introduced into the bypass duct (30) through the cold air introducing means".

- 1.2.1 According to the respondent E1 does not disclose, neither explicitly nor implicitly, that cold air flows through the bypass duct. In their view even when the control door 120 is in one of the positions represented by the dotted lines in figure 1, cold air will not flow in the bypass duct 130. The cold air flow will take the shortest and less resistant path towards the vent and will not therefore pass through the bypass duct. Furthermore, the cold air flow will be prevented by the warm air flow to enter the bypass duct.

1.2.2 The appellant argues that on the contrary the cold airflow in the air conditioning system of figure 1 of E1 will inevitably pass through the bypass duct for the following reasons:

- the bypass duct has an increased inlet opening distanced from the heater H which will enable the cold air to flow through the bypass duct and potentially even create a venturi effect thereby sucking the cold air, and
- the guide wall 124 in the vicinity of the bypass duct 130 directs at least part of the cold airflow in the bypass duct.

1.2.3 The Board does not agree with the respondent. In figure 1 of E1, when the control door 120 is sufficiently opened, cold air will flow into the bypass duct due to the geometry of the air conditioning system. While the figures are schematics, the operating principles can be derived from the drawing in figure 1 and in particular, if the control door is opened to its maximum (position of the door against the heater H represented by dotted lines), it can be derived directly and unambiguously that cold air will flow into the bypass duct. Indeed, when the control door is open to its maximum the air flow is prevented to pass through the heater such that the air flow is entirely or almost entirely a cold air flow which is not hindered, but rather guided by the wall 124 to flow through the bypass duct 130.

1.3 Feature h) reads as follows: *"a cold air introduction amount control means arranged to control the amount of the cold air introduced from the cold air path (14) into the inlet (34) of the bypass duct (30)".*

1.3.1 The respondent is of the opinion that feature h) is not disclosed in E1 for the following reasons:

- E1 does not disclose that cold air is introduced into the bypass duct from the cold air path into the inlet of the bypass duct.

- Even if cold air flows through the bypass duct coincidentally, there is no control of an amount of cold air flowing through the bypass duct.

- The amount control means cannot be considered the control door. It has to be an additional means.

1.3.2 Referring to paragraph [0027], the appellant argues that the control door 120 on figure 1 can be considered as the cold air introduction amount control means of feature h) as it determines the amount of cold air introduced into the inlet of the bypass duct.

1.3.3 The Board follows the view of the appellant, the door 120 in the air conditioning system of figure 1 of E1 controls the amount of the cold air introduced from the cold air path (14) into the inlet (34) of the bypass duct (30). Indeed, its inclination will determine the proportion of warm air and cold air and the amount of the cold air flow that passes through the bypass duct.

1.4 The subject-matter of claim 1 therefore differs from E1 by feature i) only, reading:

"a cold air guide baffle arranged on the temperature control door in an opposing relationship with the inlet of the bypass duct, the cold air guide baffle configured to move together with the temperature control door to thereby increase or decrease the amount of the cold air introduced from the cold air path into the bypass duct".

1.5 The respondent considers that the control door will control the amount of cold air flowing through the cold path and the amount of warm air flowing through the

warm air path and that the baffle will control the amount of the cold air path introduced into the bypass duct. The respondent also brought forward that the baffle facilitates mixing of cold air with the warm laminar airflow.

In their view, the problem to be solved is to prevent that the temperature of the upper region of the vehicle room increases too high and the vehicle room becomes unpleasant.

Starting from E1, the skilled person has no incentive to add a baffle on the door. The respondent disputes that the baffles in document E6-E8 can be considered as common general knowledge and holds that these documents do not disclose a bypass duct, such that there is no reason to combine their teaching with the air conditioning system of E1 which comprises a bypass duct.

1.6 The appellant is of the opinion that the cold air guide baffle arranged on the temperature control door has no effect since its position and its size (height, width, depth) are not defined. Claim 1 does not therefore involve an inventive step over the whole scope of the claim.

The appellant further argues that even if the baffle were to have an effect, it would be to control the temperature gradient to obtain a more homogeneous temperature distribution in the vehicle. In their view, the use of a baffle on a temperature control door to alter the cold air flow and provide a more homogeneous temperature distribution is well known as can be seen from documents E6-E8. Such a baffle would therefore be arranged on the temperature control door of the conditioning system of E1 by the skilled person without inventive skills.

1.7 The Board considers that in E1 the temperature control door (18) together with the cold air baffle (40) form the "*cold air introduction amount control means*" and enable to increase or decrease the amount of the cold air introduced into the bypass duct.

The baffle arranged on the temperature control door will direct the cold air flow in a certain direction, depending on its size, shape, and location. Increasing and decreasing the amount of cold air introduced into the bypass duct is already achieved by the door itself. The baffle will however change the proportion of cold air and warm air flowing through the bypass duct depending on its arrangement.

The position of the baffle on the temperature control door, and the size and shape of the baffle are not defined in claim 1, such that the resulting orientation of the cold air flow is not defined and the increase or decrease of cold air passing through the bypass duct not specified.

The problem to be solved may therefore be regarded as to provide an alternative amount of cold air to be mixed with the hot air flowing through the bypass duct.

It is well known that to modify the cold airflow the shape of the temperature control door may be altered, which will influence the proportion of cold air and warm air flowing through the bypass duct. This is commonly carried out by using baffles. E6, figures 1 and 2 discloses a baffle 17 on the door 15, which alters the amount of cold air flowing and being mixed with the warm air. Documents E7 and E8 also disclose the use of baffles on doors to alter the airflow.

Baffles are indeed generally known as air flow deflectors and commonly placed on doors. While E6, E7 and E8 are patent documents that taken in isolation are not to be considered as common general knowledge, in the present case, these documents are taken together to illustrate that it is common general knowledge to use baffles on control doors to alter the airflow. Since no specific increase or decrease in the amount of cold air to be directed to the bypass duct is defined in claim 1 and no specific baffle associated (shape, size, position), it is obvious for the skilled person to add a baffle on the temperature control door which alters the proportion of cold air flowing into the bypass duct.

2. First auxiliary request

2.1 Sufficiency of disclosure - Article 100(b) and 83 EPC

The patent discloses the invention according to auxiliary request 1 in a manner sufficiently clear and complete for a skilled person to carry it out.

2.1.1 The appellant is of the opinion that the skilled person cannot carry out the invention for the following reasons:

(i) The skilled person does not know how to arrange the cold air guide baffle on the temperature control door in an opposing relationship with the inlet of the bypass duct (feature i of claim 1).

(ii) Claim 1 does not specify the location of the temperature control door relative to the inlet of the bypass duct.

(iii) The inlet of the bypass duct being aligned and spaced apart with a downstream end of the warm path (feature f) or claim 1 and claim 2) is in contradiction

with the figures and in particular figure 4, where the bypass duct forms an angle with the warm air path.

(iv) The skilled person is not taught how to provide a cutout portion in the outlet of the bypass duct configured to introduce therethrough a part of the cold air from the cold air path into the outlet of the bypass duct (30).

2.1.2 The Board does not agree with the appellant. As argued by the respondent, the above objections are clarity objections rather than objections of sufficiency of disclosure. The patent as a whole including the description provides enough examples illustrated by figures enabling the skilled person to carry out the invention.

In particular, figures 4, and 7-12 give examples of where to place the cold air guide baffle on the temperature control door. While the position "in an opposing relationship with the inlet of the bypass duct", read alone, might be unclear, the fact that the arrangement on the temperature control door should allow for an increase or decrease of the amount of the cold air introduced from the cold air path into the bypass duct - which is easily verified - enables the skilled person to find a proper arrangement.

- Similarly, the location of the temperature control door relative to the inlet of the bypass duct and the position of the inlet bypass duct in relation to the warm air flow path is further illustrated in figures 4 and 7-12, teaching the skilled person where to place the bypass duct in relation with the temperature control door and the warm air flow path.

- Finally, the cutout portion in the outlet of the bypass duct is to be configured to introduce therethrough a part of the cold air path into the outlet of the bypass duct. There are no particular

difficulties in cutting out a portion of the outlet of a bypass duct. While the exact position and size of the cutout is not defined, the skilled person is able to execute it such that a part of the cold air from the cold air path flows into the outlet of the bypass duct.

2.2 Inventive step - Article 56 EPC

The subject-matter of claim 1 of auxiliary request 1 is not rendered obvious starting from E1 in combination with the common general knowledge, E6, E7 or E8.

2.2.1 The appellant considers that the cutout portion formed in the outlet of the bypass duct has no effect over the whole scope of claim 1 such that the subject-matter of claim 1 does not involve an inventive step. In any event the provision of a cutout portion in the outlet of the bypass duct would be obvious.

2.2.2 The Board disagrees with the appellant. The cutout portion will enable the introduction therethrough of a part of the cold air from the cold air path into the outlet of the bypass duct.

The problem to be solved may be regarded as to further reduce the temperature of the airflow coming out of the bypass duct.

E1 does not disclose a cutout in the outlet of the bypass duct nor does any of the documents E6-E8. Starting from E1, the skilled person does not arrive at the subject-matter of claim 1 with the teaching of E6, E7 or E8 as these documents do not disclose the use of a bypass duct. Furthermore the appellant has not provided any evidence indicating that the provision of cutouts in the outlet of a bypass is a common measure. Starting from E1, the subject-matter of claim 1 is therefore not rendered obvious.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent in amended form on the basis of the following documents:
 - claims 1 to 9 according to the first auxiliary request;
 - description columns 1 to 11 as submitted during the oral proceedings before the Board;
 - figures 1 to 12 of the patent specification.

The Registrar:

The Chairman:



A. Voyé

G. Pricolo

Decision electronically authenticated