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Case Number: T 1171/11 - 3.2.06

Application Number: 01956107.5

Publication Number: 1309775

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Language of the proceedings: EN

Title of invention:
EXHAUST SYSTEM FOR ENHANCED REDUCTION OF NITROGEN OXIDES AND PARTICULATES FROM DIESEL ENGINES

Patent Proprietor:
BASF Corporation

Opponents:
HJS Emission Technology GmbH & Co. KG
Umicore AG & Co. KG
Johnson Matthey Public Limited Company

Headword:

Relevant legal provisions:
EPC Art. 123(2), 123(3)

Keyword:

Decisions cited:
G 0001/03, T 0190/99

Catchword:

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Case Number: T 1171/11 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 24 February 2015

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Appellant: (Opponent 1)	HJS Emission Technology GmbH & Co. KG Dieselweg 12 58706 Menden (DE)
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Appellant: (Opponent 2)	Umicore AG & Co. KG Rodenbacher Chaussee 4 63457 Hanau-Wolfgang (DE)
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Appellant: (Opponent 3)	Johnson Matthey Public Limited Company 5th Floor 25 Farringdon Street London EC4A 4AB (GB)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted on 25 March 2011 concerning maintenance of the European Patent No. 1309775 in amended form.**

Composition of the Board:

Chairman M. Harrison
Members: M. Hannam
W. Ungler

Summary of Facts and Submissions

I. An appeal was filed by the appellant (proprietor) against the interlocutory decision of the opposition division in which it found that European patent No. 1 309 775 in an amended form met the requirements of the EPC. The proprietor requested that the decision be set aside and that the patent be maintained according to a main request, auxiliarily according to one of auxiliary requests 1 to 5.

II. Appeals against the above interlocutory decision were also filed by each of opponents I, II and III, requesting that the patent be revoked.

III. The Board issued a summons to oral proceedings including a communication containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 1 of each of the main request, auxiliary request 1 and auxiliary request 2 appeared not to meet the requirement of Article 123(2) EPC. Regarding the subject-matter of claim 1 of each of the auxiliary requests 3 to 5 the Board provisionally held that the requirement of Article 123(3) EPC was not met.

IV. Oral proceedings were held before the Board on 24 February 2015.

The appellant/proprietor requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the main request or on the basis of one of the auxiliary requests 1 to 5, all as filed with letter dated 2 August 2011. Furthermore the appellant declared that dismissal of the opponents' appeals was not requested.

The appellant/opponents each requested that the decision under appeal be set aside and the patent be revoked.

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

"An emission purification system for treating exhaust gases produced by a vehicle powered by a diesel engine (15) comprising:

a) a catalyzed soot filter (12) comprising a catalyzed surface and being adjacent and in direct fluid communication with said engine (15) without intervening catalysts therebetween, said catalyzed soot filter (12) of the wall-flow type having gas permeable walls formed into a plurality of axially extending channels, each channel having one end plugged with any pair of adjacent channels plugged at opposite ends thereof, said exhaust gases passing through said channel walls as said gases travel from an entrance to an exit of said soot filter (12), both channels open to the entry side of the exhaust and channels closed to the entry side of the exhaust being catalyzed to oxidise NO to NO_2;

b) a valve (18,74) downstream of said catalyzed soot filter's exit in fluid communication with a nitrogen reductant and with said exhaust gases after exiting said soot filter (12);

c) means for regulating said valve (18,74) to control the quantity of said nitrogen reductant admitted to said exhaust gases; and,

d) a nitrogen reductant SCR catalyst (14) downstream of said valve (18,74) and said catalyzed soot filter (12) in direct fluid communication with said catalyzed soot filter (12)."

Claim 1 of auxiliary requests 1 and 2 read as for claim 1 of the main request except for feature d) reading as follows:

"a nitrogen reductant zeolite SCR catalyst (14)

downstream of said valve (18,74) and said catalyzed soot filter (12) in direct fluid communication with said catalyzed soot filter (12)."

Claim 1 of auxiliary request 3 reads as follows:
"An emission purification system for treating exhaust gases produced by a vehicle powered by a diesel engine (15) comprising:
a) a catalyzed soot filter (12) comprising a catalyzed surface and being adjacent said engine (15), said catalyzed soot filter (12) of the wall-flow type having gas permeable walls formed into a plurality of axially extending channels, each channel having one end plugged with any pair of adjacent channels plugged at opposite ends thereof, said exhaust gases passing through said channel walls as said gases travel from an entrance to an exit of said soot filter (12), both channels open to the entry side of the exhaust and channels closed to the entry side of the exhaust being catalyzed to oxidise NO to NO_2;
b) a valve (18,74) downstream of said catalyzed soot filter's exit in fluid communication with a nitrogen reductant and with said exhaust gases after exiting said soot filter (12);
c) means for regulating said valve (18,74) to control the quantity of said nitrogen reductant admitted to said exhaust gases; and,
d) a nitrogen reductant SCR catalyst (14) downstream of said valve (18,74) and said catalyzed soot filter (12) in direct fluid communication with said catalyzed soot filter (12)."

Claim 1 of auxiliary requests 4 and 5 read as for claim 1 of the auxiliary request 3 except for feature d) reading as follows:
"a nitrogen reductant zeolite SCR catalyst (14)

downstream of said valve (18,74) and said catalyzed soot filter (12) in direct fluid communication with said catalyzed soot filter (12)."

VI. The appellant/proprietor's arguments may be summarised as follows:

Main request

Both Fig. 1 and Fig. 14a were schematic representations of the claimed system and clearly showed that nothing was located between the engine and the catalyzed soot filter (CSF). In addition claim 16 as originally filed stated that the gases generated by the engine immediately passed through a CSF. Consequently, the added feature 'without intervening catalysts therebetween' was to be considered an implicit disclaimer and found basis in the originally filed application, this also being the clear teaching of the disclosure as a whole.

The term 'adjacent' would be interpreted as 'directly next to in the gas flow' by the skilled reader of the originally filed application. The addition of 'and in direct fluid communication with said engine without intervening catalysts therebetween' was simply a clarification of how this term was to be understood.

As found in T190/99, the claim should be construed by a mind willing to understand in order to arrive at an interpretation which is technically sensible and takes into account the whole disclosure of the patent.

Auxiliary request 3

Deletion of the two expressions 'in direct fluid

communication with' and 'without intervening catalysts therebetween' from claim 1 did not extend the protection conferred by the patent (Article 123(3) EPC) since the CSF was stated to be adjacent the engine and the deleted expressions were thus effectively redundant. Adjacent should be interpreted as there being nothing inbetween as regards the flow of exhaust gases.

VII. The appellant/opponents' arguments may be summarised as follows:

Opponent I
In the main request, the expression 'without intervening catalysts therebetween' was an undisclosed disclaimer without basis in the originally filed documents.
Auxiliary request 3 extended the protection conferred due to the deletion of the expression 'in direct fluid communication with', allowing embodiments in which no direct fluid communication was necessary between the engine and the CSF.
The subject-matter of claim 1 as found allowable by the opposition division did not meet the requirement of Article 123(2) EPC at least due to the introduction of the expression 'without passing said gases through any catalyzing device prior to entering said catalyzed soot filter'.

Opponent II
There was no basis for specifically disclaiming further catalysts between the engine and the CSF in the main request. The figures were not a suitable source for extracting a negative technical feature.
The expression 'adjacent' did not exclude all intervening elements such that auxiliary request 3 offended Article 123(3) EPC.

Opponent III
Regarding the main request, the figures were schematic drawings concentrating on specific features included in the invention; they were specifically not directed to features not intended to be included in the invention. The deletion of 'in direct fluid communication with' in auxiliary request 3 offended Article 123(3) EPC.

Reasons for the Decision

1. Main request

Claim 1

1.1 Article 123(2) EPC

The subject-matter of claim 1 fails to meet the requirement of Article 123(2) EPC.

1.2 The introduction of the expression 'without intervening catalysts therebetween' to feature a) of claim 1 has no direct and unambiguous basis in the originally filed documents such that this amendment offends Article 123(2) EPC.

The introduced expression disclaims specifically the presence of any catalytic component between the engine and the CSF and takes the form of a 'negative' technical feature. Without an explicit basis for this in the originally filed documents, the Board finds this expression to be a non-disclosed disclaimer. The proprietor's contention that the expression presented an 'implicit disclaimer' is unconvincing since no suggestion, implicit or otherwise, is to be found in the

originally filed documents that specifically no other catalyst elements are to be found between the engine and the CSF. Whilst the Board can agree with the proprietor that no exhaust system elements, not even catalysts, are discussed or depicted in any of the figures 1 or 14 as being located between the engine and the CSF, this does not provide a basis for disclaiming exhaust system elements, let alone specifically catalysts, from this location of the claimed exhaust system. An 'implicit disclaimer' of 'without intervening catalysts therebetween' can thus not be recognised in the originally filed documents.

1.3 G1/03 provides criteria (see Order, points 2.1 to 2.3) for assessing whether a disclaimer which is not disclosed in the application as filed may nonetheless meet the requirement of Article 123(2) EPC. In the present case, the proprietor presented no arguments to suggest that the disclaimer was introduced in accordance with any one of these criteria, nor does the Board see this to be the case. Consequently, the criteria for the present disclaimer to be allowable as set out in G1/03 are not met. Although not decisive to this issue, it is noted that the International Search Report dated 29 January 2002 cites *inter alia* two 'Y-category' documents. The introduction of the feature 'without intervening catalysts therebetween' made to the original claims under Article 19 PCT thus appears to have been precipitated by prior art which would have been relevant for the purposes of considering inventive step.

1.4 The proprietor's argument that both Fig. 1 and Fig. 14a were schematic representations of the claimed system and thus provided a general teaching excluding an intervening catalyst between the engine and the CSF was not convincing. The absence of a particular element in a

figure alone cannot be taken as an implicit, deliberate disclosure of such an element never being present in the depicted system. Indeed, if this line were not followed, it would be reasonable to consider any element absent from a figure to have been deliberately omitted, which is clearly incorrect. Consideration of the description in order to interpret the figures is thus necessary for any such negative technical feature to be derived from a figure. In the present case, the description is silent as to a lack of intervening catalysts between the engine and the CSF and there is also no indication that the absence of a catalyst in this position in the figures is a conscious part of the disclosure, such that the figures cannot be interpreted as directly and unambiguously disclosing an absence of intervening catalysts between the engine and the CSF.

1.5 The proprietor's further argument that claim 16 as originally filed indicated the gases generated by the engine 'immediately' passing through a CSF also failed to convince. It is noted that originally filed claim 16 is a method claim, such that the expression 'immediately' can be interpreted as having a chronological significance i.e. the exhaust gases pass through the CSF without a time delay after having left the engine. This, however, does not provide a basis for an assertion that no further exhaust elements are arranged between the engine and the CSF, let alone that specifically no intervening catalysts are to be found therebetween.

1.6 As regards the proprietor's reference to T190/99, this does not lead the Board to a different conclusion than that above. Use of a mind willing to understand, which the Board has anyway done, does not alter the original disclosure; the skilled person is in exactly the same

position regarding the existence of a direct and unambiguous disclosure of the negative technical feature included in claim 1. As explained above, the presence of a negative technical feature in the figures cannot be interpreted as a deliberate disclosure of the same without an indication elsewhere in the description that this is a deliberate aspect of (i.e. omission in the content of) the figures.

1.7 Regarding the proprietor's argument that the addition of 'in direct fluid communication with said engine without intervening catalysts therebetween' was simply a clarification of how the term 'adjacent' was to be understood, this is not convincing as regards the requirement of Article 123(2) EPC being met by the amended claim. As originally filed, the CSF was simply claimed to be adjacent said engine which, in its broadest interpretation can indicate both a spatial location of the CSF adjacent (i.e. directly next to) the engine and a positioning of the CSF in the exhaust gas flow adjacent the engine. While the introduction of the expression 'in direct fluid communication with said engine without intervening catalysts therebetween' qualifying the term 'adjacent' does indeed restrict the interpretation of the term 'adjacent' to the positioning of the CSF in the exhaust gas flow directly next to the engine, and thus provide a clarification of the scope of the claim, there is still no basis in the originally filed documents for this amendment. As already indicated in points 1.2 to 1.4 above, neither the description nor the figures provide a direct and unambiguous basis for the introduction of the disclaimer 'without intervening catalysts therebetween' into claim 1.

1.8 From the above it follows that the introduction of the disclaimer 'without intervening catalysts therebetween'

into claim 1 has no basis in the originally filed documents such that the subject-matter of claim 1 fails to meet the requirement of Article 123(2) EPC. The main request is thus not allowable.

2. Auxiliary requests 1 and 2

2.1 Claim 1 of these requests still include the disclaimer 'without intervening catalysts therebetween' found for the main request not to meet the requirement of Article 123(2) EPC. The proprietor provided no additional arguments in defence of auxiliary requests 1 and 2, nor does the Board see any reason as to why its conclusion in regard to the main request would be altered by claim 1 of these requests, such that the subject-matter of claim 1 of these requests is also found not to meet the requirement of Article 123(2) EPC. Auxiliary requests 1 and 2 are thus not allowable.

3. Auxiliary request 3

3.1 Article 123(3) EPC

Claim 1 has been amended in such a way as to extend the protection it confers relative to that of claim 1 as granted, contrary to the requirement of Article 123(3) EPC.

3.2 Claim 1 as granted qualified the CSF being adjacent the engine with the further features that it was 'in direct fluid communication with said engine without intervening catalysts therebetween'. The terminology 'in direct fluid communication with' is found to be a limitation of the scope of the claim as it requires a direct, uninterrupted link between the engine and the CSF, as depicted for example in Fig. 14a with a simple

connecting pipe. Conversely, Figs. 14b and 14c are not considered to show direct fluid communication between the engine and the CSF due e.g. to the merging of a pipe supplying reductant from the mixing station into the pipe connecting the engine and the CSF; a direct fluid communication between the engine and the CSF is thus considered not to be given at least in Figs. 14b and 14c.

In the present claim 1, deletion of at least the terminology 'in direct fluid communication with' removes the above identified limitation on the nature of the connection between the engine and the CSF. The sole limitation is now that the CSF is adjacent the engine, leaving open whether the engine and the CSF are in direct fluid communication or not. As a consequence, the protection conferred by claim 1 now includes embodiments where no direct fluid communication between the engine and the CSF is necessary (such as, for example, the CSF to engine arrangements shown as part of the exhaust systems in Figs. 14b and 14c) which were not included in the protection conferred by claim 1 as granted. The requirement of Article 123(3) EPC is thus not met by claim 1.

3.3 The proprietor's argument that the word 'adjacent' encompassed the deleted expressions such that these were redundant and their deletion did not extend the protection conferred by the patent is not convincing. The word 'adjacent' could be assigned two meanings in the context of elements in an exhaust system: the first relating to being adjacent as regards the flow of exhaust gases; the second as regards the spatial positioning of the elements relative to one another. The proprietor's assertion that solely the first of these options was intended does not find support in the

originally filed documents. Indeed, with respect to the occurrence of the word 'adjacent' in the originally filed documents, other than in originally filed claim 7 from which the wording in present claim 1 is adopted, the word 'adjacent' is to be found solely with reference to adjacent channels of the CSF (see page 31, line 23; claim 7; claim 12). Without any guidance from the originally filed documents as to how the word 'adjacent' is to be interpreted as regards the engine being 'adjacent' the CSF, a broad interpretation encompassing both of the above two options is appropriate. However, as a consequence of this broad interpretation of the word 'adjacent', the deletion of 'in direct fluid communication with', which limited the scope of protection, results in a broader protection conferred by the present claim 1 than that conferred by claim 1 as granted.

3.4 Claim 1 thus fails to meet the requirement of Article 123(3) EPC. Auxiliary request 3 is thus not allowable.

4. Auxiliary requests 4 and 5

4.1 Claim 1 of each of these auxiliary requests includes the deletion of the feature 'in direct fluid communication with' relative to claim 1 as granted. The proprietor provided no additional arguments in defence of auxiliary requests 4 and 5 nor can the Board see any reason as to why its conclusion reached with regard to the third auxiliary request should be altered by the claims of these requests, such that the subject-matter of claim 1 of these requests is also found not to meet the requirement of Article 123(3) EPC. Auxiliary requests 4 and 5 are thus not allowable.

5. The proprietor declared that it did not request dismissal of the opponents' appeals and provided no defence of the request which was found allowable by the opposition division. Claim 1 of this request, which is directed to a method, includes the terminology 'without passing said gases through any catalyzing device prior to entering said catalyzed soot filter'. This subject-matter contravenes Article 123(2) EPC for the same reasons as apply to claim 1 of the main request. Thus, in accordance with the requests of the appellant/ opponents, the patent must be revoked.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

N. Schneider M. Harrison

Decision electronically authenticated