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**Datasheet for the decision
of 30 July 2015**

Case Number: T 1180/12 - 3.3.05

Application Number: 04792936.9

Publication Number: 1676622

IPC: B01D39/20, B01D53/94,
B01J32/00, B01J35/04

Language of the proceedings: EN

Title of invention:
HONEYCOMB STRUCTURE BODY

Patent Proprietor:
IBIDEN CO., LTD.

Opponents:
Saint-Gobain Centre de Recherches et
d'Etudes Européen
Young Thought Limited

Headword:

Relevant legal provisions:
EPC Art. 123(2), 54(1), 54(2)

Keyword:
Amendments - added subject-matter (no)
Novelty - (yes)
Remittal to the department of first instance - (yes)

Decisions cited:
T 0025/03, T 1067/97, T 0284/94, T 0714/00, T 0017/86

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 1180/12 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 30 July 2015

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 20 March 2012
revoking European patent No. 1676622 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman	G. Raths
Members:	A. Haderlein
	P. Guntz

Summary of Facts and Submissions

- I. The present appeal lies from the decision of the opposition division to revoke European patent EP 1 676 622. The patent in suit concerns a honeycomb structure body.
- II. The opposition division found that the subject-matter of claim 1 of the then pending main request and second auxiliary request lacked novelty in view of document D10: WO 03/020407.
- The other auxiliary requests were found to be in contravention of Article 123(2) EPC.
- III. In the course of the proceedings before the opposition division, the opponents also cited the following documents in relation to lack of novelty:
- E1: WO 02/32545
E2: US 2003/0041730
E3: EP 1 502 639 A1
E4: EP 1 676 620 A1.
- IV. The opposition by opponent 1 was withdrawn before the opposition division took its decision.
- V. The patent proprietor (appellant) filed notice of appeal. With the statement setting out the grounds of appeal dated 20 July 2012 it filed an amended main request and three auxiliary requests.
- VI. In a communication, the board informed the parties of its preliminary opinion that the main request met the requirements of Article 123(2) EPC and that the

subject-matter of the sole independent claim 1 of the main request was novel.

VII. In reply to the board's communication, opponent 2 (now the respondent) raised objections under Article 123(2) EPC against all pending requests.

VIII. Under cover of its letter dated 29 June 2015, the appellant submitted fourth and fifth auxiliary requests.

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

"1. A pillar-shaped honeycomb structural body (20) mainly made of porous ceramics, in which a plurality of through holes (21) are placed in parallel with one another in the length direction with a partition wall (23) interposed therebetween, wherein
said plurality of through holes (21) comprises:
a group of large capacity inlet-side through holes (21a), whose ends are sealed by plugs (22) at the outlet side such that the total sum of areas on cross sections perpendicular to the length direction is made relatively greater; and
a group of small capacity outlet-side through holes (21b), whose ends are sealed by plugs (22) at the inlet side such that the total sum of areas on the cross sections thereof is made relatively smaller, the inlet-side through holes (21a) having an octagonal cross-sectional shape and the outlet-side through holes (21b) having a square shape, which are arranged alternately, the numbers of through holes of the two types being the same,
supposing that the aperture rate on the inlet side is X (%) and that the total sum of thermal capacities of

the plugs which seal the group of inlet-side through holes at 500°C per 11.8 cm² of the end face on the outlet side containing the group of the outlet-side through holes is represented by Y (J/K), the relationship indicated by the following inequalities (1) and (2) being satisfied.
0.0157X - 0.0678 < Y < 1.15X - 5 ... (1)
35 ≤ X ≤ 60 ... (2)"

Dependent claims 2 to 5 relate to particular embodiments of the subject-matter of independent claim 1.

X. The arguments of the appellant may be summarised as follows:

Claim 1 of the main request was based in particular on paragraph 0049 of the application as filed. It was not essential that the ratio of aperture rates be set to a specific value which was clearly derivable from paragraph 0045. The description as a whole taught that this ratio could take various values. Moreover, the object of the present invention was to prevent cracks during regeneration in a filter having a high aperture rate. Thus, the subject-matter of the patent was not directly related to pressure loss as asserted by the respondent.

The requirement of novelty was also met for the subject-matter of claim 1. In particular, E10 disclosed neither large-capacity octagonal through holes nor small-capacity square through holes arranged alternately.

XI. The arguments of the respondent may be summarised as follows:

In claim 1 of the main request essential features were missing. In particular, claim 1 was unrestricted in terms of the ratio of the aperture rates, even though a specific ratio of aperture rates was specified for each of the specific structures of Figures 3(a) to (d). In accordance with T 25/03, it was not admissible to extract isolated features from a set of features which had originally been disclosed in combination for a specific embodiment. As set out in T 1067/97, such an amendment would only be justified in the absence of any clearly recognisable functional or structural relationship among said features. In the case at hand, it was evident that there was such a structural relationship among all the features of the structures of Figures 3(a) to (d). Further, according to T 284/94, the introduction of a feature taken in isolation from the description of a specific embodiment was not allowable if it was not clear beyond any doubt that the subject-matter thus amended provided a complete solution to a technical problem unambiguously recognisable from the application as filed. In the case at hand, this problem was the reduction of pressure loss as stated in paragraph 0048. The combination of features in claim 1 was however not a complete solution of this problem. Moreover, none of the octagonal cross-sections shown in Figure 3 had a regular shape. As claim 1 also covered octagonal cross-sections having a regular shape, the subject-matter of claim 1 was not disclosed in the application as filed.

XII. Requests

The appellant requested that the decision under appeal be set aside and that the European patent be maintained in amended form on the basis of the claims of the main request as submitted under cover of its letter of 20 July 2012 or, alternatively, on the basis of one of the auxiliary requests 1 to 3 or 4 or 5, as submitted under cover of its letters of 20 July 2012 and 29 June 2015, respectively.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. Main request - amendments (Article 123(2) EPC)
 - 1.1 Claim 1 is based on originally filed claim 1 and includes the features that the "large capacity inlet-side through holes" have "an octagonal cross-sectional shape", that the "small capacity outlet-side through holes" have "a square shape" and that these "are arranged alternately, the numbers of through holes of the two types being the same". The respondent does not contest that these features are disclosed in particular in paragraphs 0048 and 0049 in combination with Figure 3(a) to (d) of the application as filed. According to the respondent, claim 1 however included neither the feature of a specific ratio of aperture rates nor that the octagonal shape disclosed in these figures was irregular. Such an omission was contrary to the requirements of Article 123(2) EPC.
 - 1.2 The board observes in this respect that, according to paragraphs 0048 and 0049 and in particular the passage

on page 23, lines 4 and 5, the ratio of aperture rates can be varied by changing the cross-sectional area of the small-capacity through holes and by changing the cross-sectional shape of the large-capacity through holes. It is therefore directly and unambiguously derivable from the application as filed that the ratio of aperture rates can be varied and, thus, the specific ratios of aperture rates mentioned in paragraph 0048 are not inextricably linked with the other features disclosed in Figure 3(a) to (d) (see T 714/00, reasons 3.3).

1.3 The board notes that according to the case law of the boards of appeal cited by the respondent, if a claim is restricted to a preferred embodiment, it is normally not admissible under Article 123(2) EPC to extract isolated features from a set of features which have originally been disclosed in combination for that embodiment. Such kind of amendment would only be justified in the absence of any clearly recognisable functional or structural relationship among said features (T 1067/97, reasons 2.1.3, cited in T 25/03, reasons 3.3, second paragraph).

1.4 The board is of the opinion that the case at hand is substantially different from the case underlying decision T 1067/97 cited by the respondent. In the latter case, a feature was isolated from other features disclosed in combination in a single embodiment that was said to be particularly preferred (see reasons 2.1.2). Likewise, in T 25/03 the amendments were based on a single embodiment (see reasons 3.3). In contrast, in the case at hand the features now included in claim 1 are disclosed in each of a total of four embodiments, i.e. Figures 3(a) to (d). Therefore, the board is of the opinion that the conclusions drawn in

T 1067/97 and T 25/03 cannot be applied to the case at hand.

1.5 The respondent has also cited T 284/94.

In the case underlying decision T 284/94, the amendments were based on a single embodiment (see reasons 2.1.2). In this decision the then competent board, referring to decision T 17/86, stated: "For a claim directed to a device, it should thus 'be ascertained whether the application as filed indisputably disclosed all the technical features of the device covered by the amended claim and whether it is clear beyond any doubt to a skilled person that the device can function independently of any other added element to achieve the object of the invention as now claimed'" (see reasons 2.1.3).

Apart from the fact that in the case at hand the amendments are based on four embodiments and not only a single one (see at 1.4 *supra*), the object to be achieved by the subject-matter of claim 1 of the main request may be considered to be a pillar-shaped honeycomb structural body in which the ratio of aperture rates can be varied desirably (see page 23, lines 4 and 5). This may result in an optimised pressure loss (see in particular page 22, lines 22 to 28), but other means of reducing pressure loss are also disclosed in the application as filed (see for instance page 21, lines 2 and 3). Moreover, the overall object of the application as filed resides in preventing crack formation, which is said to be achieved by increasing the thermal capacity of the outlet-side sealing portions (see paragraph 0010). This overall object is said to be achieved by the inequalities which are present in claim 1 (see paragraph 0012). Thus, it is

clear beyond any doubt to the skilled person that the structural body of claim 1 can function independently of a specific ratio of aperture rates to achieve the object of the invention as now claimed.

- 1.6 According to another of the respondent's arguments, none of the octagonal cross-sections shown in Figure 3 had a regular shape. Claim 1 as amended however also covered octagonal cross-sections having a regular shape.

The board cannot identify any passage in the application documents as filed that would indicate that the octagonal cross-sections needed to have an irregular shape; nor would the skilled person conclude that the object of the invention claimed in claim 1 cannot be achieved by a structural body wherein the octagonal cross-sections are of regular shape.

- 1.7 The board thus concludes that the requirements of Article 123(2) EPC are met by independent claim 1.

Likewise, the subject-matter of dependent claims 2 to 5 does not extend beyond the content of the application as filed, these claims being based on originally filed claims 2 to 4 and 6.

2. Main request - novelty

- 2.1 The board notes that the respondent did not object to the main request for lack of novelty.

- 2.2 The opposition division was of the opinion that document E10, and in particular the embodiment depicted in Figures 2 and 3 thereof, was novelty-destroying for the subject-matter of claim 1 of the then pending main

and second auxiliary requests.

E10 does not disclose that the inlet-side through holes have an octagonal cross-sectional shape. The subject-matter of claim 1 of the main request is therefore novel over the disclosure of E10.

2.3 Among the documents relied on by the opponents in arguing lack of novelty in the proceedings before the opposition division, i.e. E1 to E4 and E10, only E3 and E4 disclose embodiments comprising inlet-side through holes having an octagonal cross-sectional shape and outlet-side through holes having a square shape (see E3, Figure 9; and E4, Figure 3(a) to (d)).

2.3.1 E3 discloses certain dimensions of the embodiment comprising inlet-side through holes having an octagonal cross-sectional shape. The plug (or "sealing portion") is made of a material which is similar to the one used for manufacturing the honeycomb structure (paragraphs 0033 and 0037), i.e. porous silicon carbide (see paragraph 0037). While the cross-sectional area of the plug in Figure 9 can be calculated based on the values given in Table 3 of E3, there is no disclosure of the thickness of the plug. The thickness of the plug is however needed to calculate the mass of the plug, which is needed to calculate the thermal capacities of the plugs per 11.8 cm^2 of the end face on the outlet side. E3 therefore fails to disclose that the relationship (1) for the Y value called for in claim 1 is satisfied. The subject-matter of claim 1 is therefore novel over the disclosure of E3.

2.3.2 E4 discloses honeycomb structural bodies having the configuration depicted in Figures 3(a) to (d) of the patent in suit (see Figure 3(a) to (d) of E4) and

having X values falling within the range called for in claim 1 of the main request (see Table 2 on pages 27 and 28 of E4). E4 discloses that the plugs are made of the same material as the raw moulded product of the honeycomb body (see paragraph 0110 of E4), i.e. porous silicon carbide (see paragraph 0109), but is silent about the thickness of the plugs. E4 therefore fails to disclose that the relationship (1) for the Y value called for in claim 1 is satisfied. The subject-matter of the sole independent claim 1 is therefore novel over the disclosure of E4.

- 2.4 In conclusion, the subject-matter of claim 1 of the main request is novel (Article 54(1), (2) EPC).
3. As the claims of the main request are in compliance with Article 123(2), (3) EPC and with the requirement of Article 54 EPC, the auxiliary requests do not need to be addressed by the board.
4. Remittal

In the notices of opposition, objections on the grounds of lack of sufficiency of disclosure (Article 100(b) EPC) and lack of inventive step (Article 100(a) in combination with Article 56 EPC) had been raised.

However, the impugned decision was based solely on the grounds of lack of novelty (Article 54(1), (2) EPC) and added-subject matter (Article 123(2) EPC).

In view of the above, the board remits the case to the opposition division for further prosecution (Article 111(1) EPC).

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 for further prosecution.

The Registrar:

The Chairman:



C.Vodz

G. Rath

Decision electronically authenticated