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(54) Title: PLUGGING METHODS AND APPARATUS FOR PARTICULATE FILTERS

(57) Abstract: Methods and apparatus for plugging cells of honeycomb structures (10). A first method covers the honeycomb structure's end face with a mask (28) having a plurality of sized openings opposing certain cell channels, wherein the outer edge of the body extends radially outwardly from the end face. A film (42) also extends outwardly of the end face, and plugging material (44) is provided upon the film. The mask and film material are sealed, a force is applied to the film forcing the material through the mask and into the cells. Also disclosed is adhering a mask (28) to a first end face of the honeycomb structure (10) such that the mask has an outer portion extending radially beyond an outer edge of the honeycomb; providing a volume of plugging material (44); clamping the outer portion between a first and a second clamping portion; and transferring the plugging material into the honeycomb. Also disclosed are methods and apparatus for cutting the plugging material between the mask and a pre-plugging chamber to form a planar surface thereon.

WO 2006/068767 A3

# INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. B29C70/76 B28B11/00  
ADD. B01D46/24

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category*  | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                      | Relevant to claim No.                                           |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| X<br><br>A | US 4 557 773 A (BONZO ET AL)<br>10 December 1985 (1985-12-10)<br>cited in the application<br>column 6, line 47 - column 8, line 4;<br>figures 1-5<br><br>column 9, line 61 - column 10, line 19<br>column 10, line 45 - line 61<br>column 12, line 30 - column 13, line 20;<br>figure 9 | 12,<br>19-21,<br>25,40,43<br>1-11,<br>13-18,<br>22-24,<br>26-30 |
| E          | -----<br>EP 1 640 068 A (NGK INSULATORS, LTD)<br>29 March 2006 (2006-03-29)<br><br>paragraph [0022] - paragraph [0032];<br>figures 4-9<br>paragraph [0040] - paragraph [0046];<br>figures 10A-13B<br><br>-/--                                                                           | 31,<br>33-35,<br>40,41,44                                       |

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                        | Relevant to claim No.     |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| X         | -& WO 2004/085059 A (NGK INSULATORS LTD;<br>MUROI, YUMI; WATANABE, ATSUSHI)<br>7 October 2004 (2004-10-07)<br>-----                                                                                                       | 31,<br>33-35,<br>40,41,44 |
| A         | US 4 715 576 A (MONTIERTH ET AL)<br>29 December 1987 (1987-12-29)<br>column 7, line 67 - column 10, line 50;<br>figures 1-5a<br>column 17, line 5 - line 57; figure 9<br>column 18, line 14 - line 39; figure 10<br>----- | 1-30                      |
| A         | US 4 573 896 A (BONZO ET AL)<br>4 March 1986 (1986-03-04)<br>column 13, line 57 - column 14, line 45;<br>figures 11,12<br>-----                                                                                           | 1-30                      |
| A         | US 4 557 682 A (MONTIERTH ET AL)<br>10 December 1985 (1985-12-10)<br>cited in the application<br>column 7, line 47 - column 9, line 13;<br>figures 2,2a,4<br>-----                                                        | 1-30                      |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|---|---------------------|----------------------------|---------------------|
| US 4557773                                | A | 10-12-1985          | DE 3273955 D1              | 04-12-1986          |
|                                           |   |                     | EP 0070203 A1              | 19-01-1983          |
|                                           |   |                     | EP 0159063 A2              | 23-10-1985          |
|                                           |   |                     | JP 1626180 C               | 28-11-1991          |
|                                           |   |                     | JP 2045481 B               | 09-10-1990          |
|                                           |   |                     | JP 58037480 A              | 04-03-1983          |
| EP 1640068                                | A | 29-03-2006          | JP 2004290766 A            | 21-10-2004          |
|                                           |   |                     | WO 2004085059 A1           | 07-10-2004          |
| WO 2004085059                             | A | 07-10-2004          | EP 1640068 A1              | 29-03-2006          |
|                                           |   |                     | JP 2004290766 A            | 21-10-2004          |
| US 4715576                                | A | 29-12-1987          | NONE                       |                     |
| US 4573896                                | A | 04-03-1986          | NONE                       |                     |
| US 4557682                                | A | 10-12-1985          | NONE                       |                     |