(11) **EP 1 103 988 A3** 

(12)

## **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: **02.01.2002 Bulletin 2002/01** 

(51) Int Cl.<sup>7</sup>: **H01B 17/28** 

(43) Date of publication A2: **30.05.2001 Bulletin 2001/22** 

(21) Application number: 00107732.0

(22) Date of filing: 11.04.2000

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:

AL LT LV MK RO SI

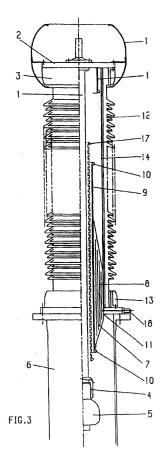
(30) Priority: 26.11.1999 IT MI992481

(71) Applicant: PASSONI E VILLA FABBRICA ISOLATORI E CONDENSATORI S.p.A. 20162 Milan (IT)

(72) Inventors:

- Villa, Giorgio 20124 Milan (IT)
- Villa, Giancarlo 20124 Milan (IT)
- (74) Representative: Klausner, Erich et al c/o Ufficio Internazionale Brevetti Ing. C. Gregorj S.p.A. Via Dogana 1 20123 Milano (IT)
- (54) SEmi-capacitance graded bushing insulator of the type with insulating gas filling, such as SF6
- (57)A semi-capacitance graded bushing comprises a conductor (1) fixed in the upper part to a plate (2) of the head (3) and in the lower part by way of a movable contact (4) to the fixed electrode (5) of the gas-insulated bus-duct (6), an insulating capacitance body (7) formed by a winding of insulating material in which are inserted the conductive or semiconductive foils (8), and a tube (9) which is prolonged with respect to the insulating capacitance body (7) to function as an electrode which is duly screened with end rings (10), the insulating capacitance body (7) being supported by the flange (11) which is fixed with respect to the external porcelain (12) by way of a cemented collar (13). A glass fibre-reinforced resin tube (14) is disposed in the interior of the porcelain (12). The whole assembly is filled with insulating gas under pressure, generally SF<sub>6</sub>.

The capacitance, having as armatures the conductor (1) and the electrode (9) and as dielectric the gas, is in cascade relationship with the capacitance of the insulating capacitance body (7).



EP 1 103 988 A3



## **EUROPEAN SEARCH REPORT**

Application Number EP 00 10 7732

| Category  | Citation of document with i<br>of relevant pass   | ndication, where appropriate,<br>sages  | Relevant<br>to claim                            | CLASSIFICATION OF THE APPLICATION (Int.CI.7) |
|---|---|---|---|--|
| Α   | US 3 647 938 A (GRI<br>7 March 1972 (1972-  | MMER ELMER J)   | 1-6   | H01B17/28                                    |
| A   | EP 0 488 764 A (NGK<br>STAR CHEMICAL CORP<br>3 June 1992 (1992-0<br>* page 3, line 45 -<br>claims 1,9; figure   | 6-03)<br>page 5, line 57;   | 1-6   |  |
|   |   |   |   | TECHNICAL FIELDS<br>SEARCHED (Int.CI.7)      |
|   |   |   |   | H01B   |
|   |   |   |   |  |
|   |   |   |   |  |
|   |   |   |   |  |
|   |   |   |   |  |
|   | The present search report has   | peen drawn up for all claims  |   |  |
| <del>,</del>  | Place of search   | Date of completion of the search  | 1   | <u>Examiner</u>                              |
|   | THE HAGUE   | 12 November 20  | 01 Dem  | older, J                                     |
| X : part<br>Y : part<br>docu<br>A : tech<br>O : non | ATEGORY OF CITED DOCUMENTS<br>icularly relevant if taken alone<br>icularly relevant if combined with anot<br>ment of the same category<br>nological background<br>-written disclosure<br>mediate document | E : earlier paten<br>after the filin<br>her D : document ci<br>L : document cit | ted in the application<br>led for other reasons | ished on, or                                 |

EPO FORM 1503 03.82 (P04C01)

## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 00 10 7732

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-11-2001

| Patent document cited in search report |         | Publication date                        |            | Patent family<br>member(s)                               | Publication date   |  |
|--|---------|---|------------|--|--|--|
| US                                     | 3647938 | A                                       | 07-03-1972 | JP   | 50026158 B   | 29-08-1975   |
| EP                                     | 0488764 | А                                       | 03-06-1992 | JP<br>JP<br>JP<br>AT<br>CA<br>DE<br>DE<br>EP<br>ES<br>US | 1992501 C<br>4209421 A<br>7027739 B<br>135845 T<br>2056651 A1<br>69118122 D1<br>69118122 T2<br>0488764 A2<br>2086499 T3<br>5654047 A | 22-11-1995<br>30-07-1992<br>29-03-1995<br>15-04-1996<br>31-05-1992<br>25-04-1996<br>05-09-1996<br>03-06-1992<br>01-07-1996<br>05-08-1997 |
|  |         | a anna alaph eilen allet Maya agus alla |            |  |  | 01-07-1996<br>05-08-1997<br>   |
|  |         |   |            |  |  |  |
|  |         |   |            |  |  |  |
|  |         |   |            |  |  |  |
|  |         |   |            |  |  |  |
|  |         |   |            |  |  |  |
|  |         |   |            |  |  |  |
|  |         |   |            |  |  |  |
|  |         |   |            |  |  |  |

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82