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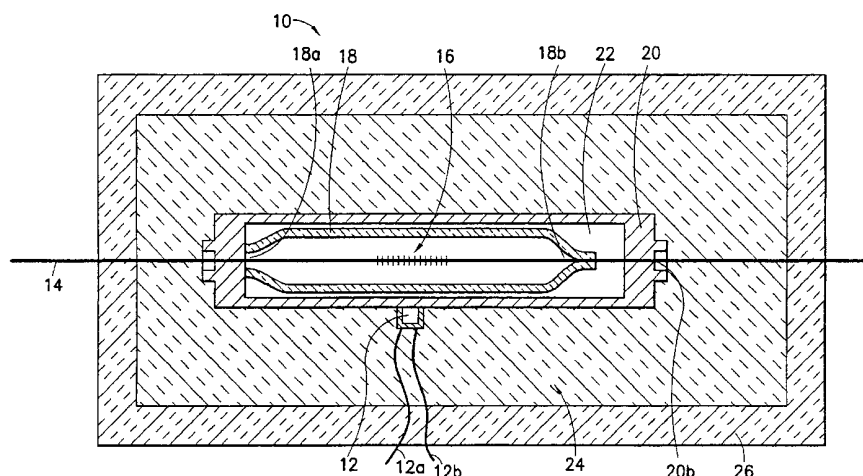
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(54) Title: FIBER BRAGG GRATING REFERENCE SENSOR FOR PRECISE REFERENCE TEMPERATURE MEASURE-
MENT



(57) Abstract: A fiber Bragg grating reference module provides a precise temperature reference for a temperature probe, including a thermistor, located in close proximity thereto, and includes an optical fiber having a fiber Bragg grating therein, a glass element and a reference housing. The fiber Bragg grating has two ends and with a coefficient of thermal expansion. The glass element anchors the two ends of the fiber Bragg grating, and has a substantially similar coefficient of thermal expansion as the coefficient of thermal expansion of the fiber Bragg grating to ensure that the glass element does not substantially induce strain on the fiber Bragg grating as the ambient temperature changes. The reference housing has a cavity and also has a means for receiving and affixing one end of the fiber Bragg grating and for suspending the fiber Bragg grating in the cavity leaving the other end of the fiber Bragg grating free to move as the ambient temperature changes without inducing strain in the fiber Bragg grating. The glass element includes a glass tube collapsed over the entire length of the fiber Bragg grating.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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. |
|------------|--|-----------------------|
| A | US 5 877 426 A (PRUETT PHILLIP EDMUND ET AL) 2 March 1999 (1999-03-02) abstract; claim 1; figure 6 --- | 1-17 |
| A | EP 0 892 250 A (BRITISH AEROSPACE) 20 January 1999 (1999-01-20) column 2, line 16 -column 2, line 49; figure 1 --- | 1-17 |
| A | US 5 042 898 A (GLOMB WALTER L ET AL) 27 August 1991 (1991-08-27) claim 1 --- -/-- | 1-17 |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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|----------|---|-----------------------|
| A | <p>SONG E A: "SIMULTANEOUS MEASUREMENT OF TEMPERATURE AND STRAIN USING TWO FIBER BRAGG GRATINGS EMBEDDED IN A GLASS TUBE" OPTICAL FIBER TECHNOLOGY,US,ACADEMIC PRESS, LONDON, vol. 3, no. 2, 1 April 1997 (1997-04-01), pages 194-196, XP002083806 ISSN: 1068-5200 the whole document -----</p> | 1-17 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

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