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(54) Boron-10 Compounds for Neutron Capture Layer

(57) A neutron detector includes a shell bounding an interior volume. A portion of the neutron detector serves as a cathode. The detector includes a central structure located within the interior volume and serving as an anode. The detector includes a boron coating on the interior of the wall wherein at least some of the boron coating is heat diffused into the wall from a boron-containing powder to form the boron coating which is sensitive to neutrons. The detector includes an electrical connector operatively connected to the central structure for transmission of a signal collected by the central structure. An associated method of heat diffusing the boron includes subjecting boron-containing powder to an elevated temperature so that a quantity of the boron-containing powder heat diffuses.

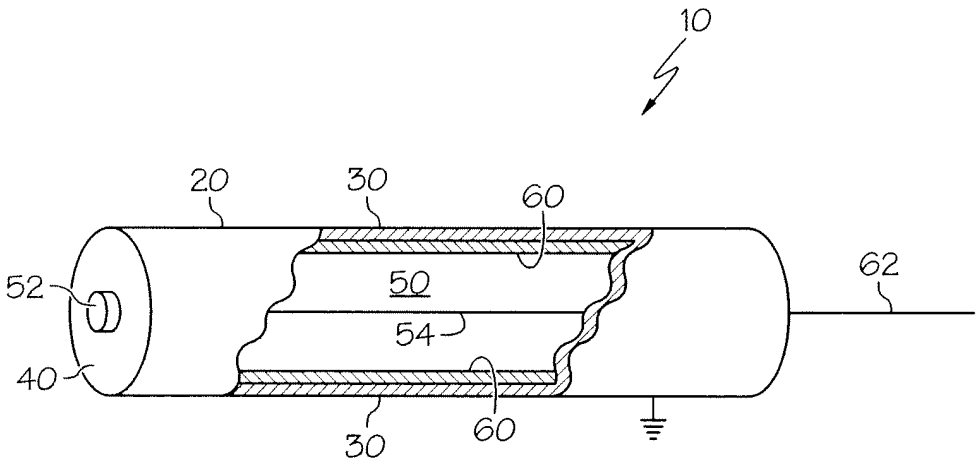

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 12 18 2190

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2011/116589 A1 (LUSTIG JAMES MICHAEL [US] ET AL) 19 May 2011 (2011-05-19) * paragraph [0021] - paragraph [0022] * * paragraph [0026] - paragraph [0027] * * paragraph [0045] - paragraph [0051] * -----	1-14	INV. G01T3/00
X	MARY ALEX ET AL: "Accelerated tests on gamma compensated boron lined ionisation chamber for reactor safety and control applications", RELIABILITY, SAFETY AND HAZARD (ICRESH), 2010 2ND INTERNATIONAL CONFERENCE ON, IEEE, 14 December 2010 (2010-12-14), pages 319-324, XP031871572, DOI: 10.1109/ICRESH.2010.5779568 ISBN: 978-1-4244-8344-0 * abstract; figures * * paragraph [II.A] * -----	1,2,8,9	
X	US 2003/213917 A1 (MENLOVE HOWARD O [US] ET AL) 20 November 2003 (2003-11-20) * paragraph [0015] - paragraph [0019] * -----	1,3-6	TECHNICAL FIELDS SEARCHED (IPC) G01T
A	JP S52 135993 A (TOKYO SHIBAURA ELECTRIC CO) 14 November 1977 (1977-11-14) * abstract; figures * -----	1,8	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 July 2013	Eberle, Katja

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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10-07-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2011116589 A1	19-05-2011	NONE	
US 2003213917 A1	20-11-2003	NONE	
JP S52135993 A	14-11-1977	NONE	

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