

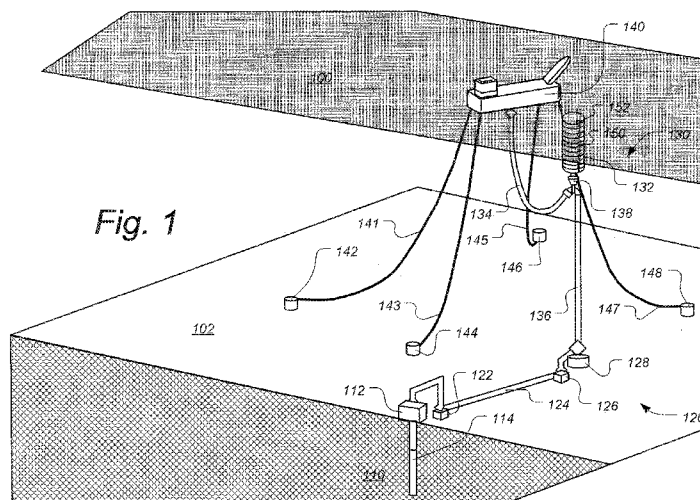


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[Continued on next page]

(54) Title: NON-INVASIVE ACOUSTIC MONITORING OF SUBSEA CONTAINERS



(57) Abstract: Systems and methods are described for non-invasively acoustically monitoring containers to distinguish gas contents from liquid contents. In some embodiments the container is part of a buoyancy tank (132) in a subsea pipeline network (102) used to transport production fluid from a subsurface wellhead (112) to surface facilities, and the systems and methods are used to detect water ingress into the buoyancy tank (132) and to transmit alert signals to the surface relating thereto.

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
E21B F16L G01F

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 practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 128 326 A (ITT IND LTD) 26 April 1984 (1984-04-26)	1-3,5-7, 9,10, 14-18, 20-22,25
Y	the whole document	11-13, 23,24
X	----- GB 2 281 622 A (BP CHEM INT LTD [GB]; PROCESS ANALYSIS & AUTOMATION [GB]) 8 March 1995 (1995-03-08) the whole document	1,2, 4-10,17, 19,20,25
X	----- GB 2 137 348 A (ATOMIC ENERGY AUTHORITY UK) 3 October 1984 (1984-10-03) the whole document	1-3,7,9, 14-18, 20-22,25
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"&" document member of the same patent family

Date of the actual completion of the international search 16 July 2014	Date of mailing of the international search report 30/07/2014
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Maukonen, Kalle
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International application No
PCT/IB2013/056115

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 848 863 B2 (KARAYAKA METIN [US] ET AL) 1 February 2005 (2005-02-01) figure 8A column 8, lines 31-37 column 10, lines 56-59 -----	11-13, 23,24
A	US 3 855 656 A (BLENKARN K) 24 December 1974 (1974-12-24) claim 4; figure 3 -----	11,23
A	US 4 653 960 A (CHUN JOONG H [US]) 31 March 1987 (1987-03-31) claim 17; figures 12-14 -----	11,23

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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