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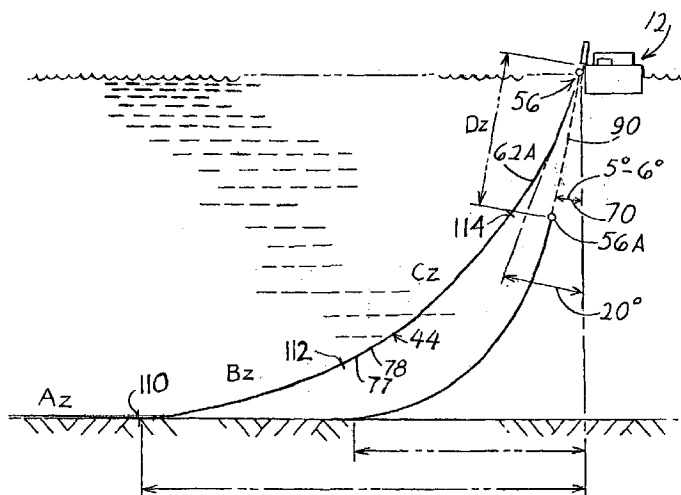
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(54) Title: OFFSHORE PIPE STRING WITH DIFFERENT PIPE JOINTS



(57) Abstract: A pipe string (44) is pulled out by a tug boat (30) from a floating structure (12) such as a production vessel, as pipe sections (54, 56) are connected in series on the vessel, to eventually lay the pipe string in a catenary curve from the vessel to the sea floor and then along the sea floor to a distant subsea well head (86). To save time and cost in coupling the pipe sections, lower fatigue resistant pipe couplings, such as non weld-on couplings (120) that include a threaded sleeve (134), are used to connect pipe sections that will lie in a quiescent zone such as on the sea floor (zone Az), and in a zone (Cz) lying along the middle of the catenary curve. Higher fatigue resistant pipe couplings such as weld-on couplings (150) are used along active zones such as top and bottom zones (Dz, Bz) of the catenary curve.

WO 2008/063345 A3

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/22512

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - F16L 1/12 (2008.04) USPC - 405/166 According to International Patent Classification (IPC) or to both national classification and IPC																
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) USPC: 405/166 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 405/154.1, 158, 164, 166, 167, 169, 170, 184.5; 166/350, 367, 242.2; search terms below Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Delphion [German (Applications - Full text), German (Granted - Full text), European (Applications - Full text), European (Granted - Full text), INPADOC, Abstracts of Japan, US (Granted - Full text), WIPO PCT Publications (Full text), US (Applications - Full text)]; Google Scholar; catenary riser, pipes, series, connection																
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>																
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>US 6,364,022 B1 (KODAISSI et al.) 02 April 2002 (02.04.2002), abstract, fig 1-3, col 3, ln 10-36, col 4, ln 54-67.</td> <td>1-8</td> </tr> <tr> <td>Y</td> <td>US 2005/0063788 A1 (CLAUSEN) 24 March 2005 (24.03.2005), abstract, para [0008], [0012], [0021].</td> <td>1-8</td> </tr> <tr> <td>A</td> <td>US 2004/0244984 A1 (KJELLAND-FOSTERUD) 09 December 2004 (09.12.2004), abstract, fig 1-10.</td> <td>1-8</td> </tr> <tr> <td>A</td> <td>US 2005/0254900 A1 (PIONNETTI) 17 November 2005 (17.11.2005), abstract, fig 1-7.</td> <td>1-8</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 6,364,022 B1 (KODAISSI et al.) 02 April 2002 (02.04.2002), abstract, fig 1-3, col 3, ln 10-36, col 4, ln 54-67.	1-8	Y	US 2005/0063788 A1 (CLAUSEN) 24 March 2005 (24.03.2005), abstract, para [0008], [0012], [0021].	1-8	A	US 2004/0244984 A1 (KJELLAND-FOSTERUD) 09 December 2004 (09.12.2004), abstract, fig 1-10.	1-8	A	US 2005/0254900 A1 (PIONNETTI) 17 November 2005 (17.11.2005), abstract, fig 1-7.	1-8	
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"P" document published prior to the international filing date but later than the priority date claimed																
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774															