(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 March 2009 (26.03.2009)

PCT

(10) International Publication Number
WO 2009/037591 A3

(51) **International Patent Classification**:
E21B 17/01 (2006.01)

(21) **International Application Number**:
PCT/IB2008/003483

(22) **International Filing Date**:
2 June 2008 (02.06.2008)

(25) **Filing Language**: English

(26) **Publication Language**: English

(30) **Priority Data**:
11/760,301 8 June 2007 (08.06.2007) US

(71) **Applicant and**
(72) **Inventor**: **BARNES, David** [GB/BR]; Rua 145 Quadra 300A, Lote 9, Camboinhas, 24340-000 Niteroi (BR).

(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

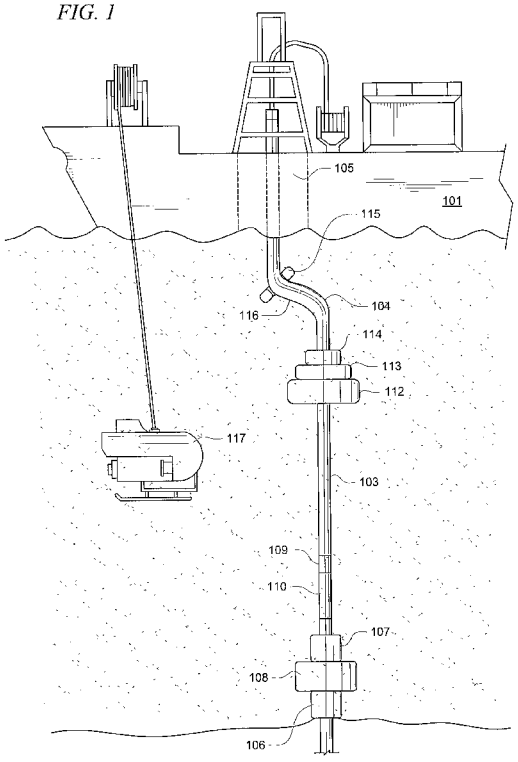
Published:

— *with international search report (Art. 21(3))*

(88) **Date of publication of the international search report**:
7 January 2010

(54) **Title**: SUBSEA INTERVENTION RISER SYSTEM

FIG. 1



(57) **Abstract**: The invention comprises a multi-component system for subsea intervention. The system comprises a lower riser component which is held vertical by a buoyance element and an upper riser system. The upper riser system is a continuous, enjoined conduit with sufficient flexibility to absorb the motion of the deployment vessel without adversely affecting the function of the intervention system.

WO 2009/037591 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 08/03483

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - E21B 17/01 (2009.01)
USPC - 166/367
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)

USPC: 166/367

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 166/339, 335, 336, 348, 345, 363

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (USPT, PGPB, EPAB, JPAB); Google/Patents; Google/Scholar
Search Terms: underwater, subsea, sea, submerge, ocean, marine, well, bore, wellbore, drill, riser, Christmas, xmas, tree, oil, gas, fuel, flexible, pliant, complaint, bend, adapt, float, buoyant, buoyancy, motion, movement, compensate, compensation, liner, etc

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,042,303 A (HEAD) 28 March 2000 (28.03.2000), col 2, lns 7-9; col 3, lns 25-36, 62-66; col 4, lns 6-9, 54-61; col 6, lns 18-23; Fig. 3	10, 11, 13-16, 21 --- 1-9, 12, 17-20
Y	US 2003/0026663 A1 (GUESNON et al.) 06 February 2003 (06.02.2003), para [0004], [0022], [0023]; Fig. 1, 2	1-9, 12, 17
Y	US 4,634,314 A (PIERCE) 06 January 1987 (06.01.1987), col 1, lns 6-11	7, 9, 18, 20
Y	US 4,719,937 A (ROCHE et al.) 19 January 1988 (19.01.1988), col 1, lns 6-12; col 2, lns 67-68; col 3, lns 1-7	8, 19

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 May 2009 (14.05.2009)	26 MAY 2009
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

Form PCT/ISA/210 (second sheet) (April 2007)