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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 August 2003 (14.08.2003)

PCT

(10) International Publication Number
WO 2003/067017 A3

(51) International Patent Classification[7]: E21B 29/12, 23/00, 33/12

(21) International Application Number: PCT/US2003/002720

(22) International Filing Date: 30 January 2003 (30.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/354,544	6 February 2002 (06.02.2002)	US
10/340,122	10 January 2003 (10.01.2003)	US

(71) Applicant: **ABB VETCO GRAY INC.** [US/US]; 3010 Briarpark, Houston, TX 77042 (US).

(72) Inventors: **DEZEN, Francisco**; 1415 Eldridge Parwkway, Houston, TX 77077 (US). **SOLLIE, Lars-Petter**; 2777 Woodland Park Drive #1207, Houston, TX 77082 (US). **FENTON, Stephen, P.**; 2500 Woodland Park Drive, Houston, TX 77077 (US). **HED, Jon, E.**; 11726 Moorcreek Drive, Houston, TX 77070 (US).

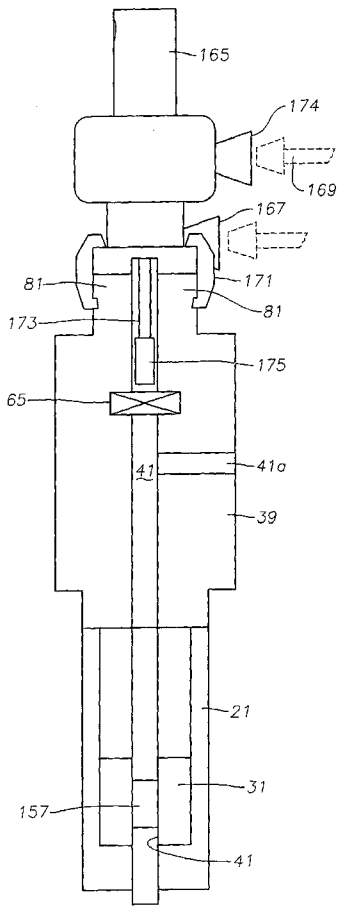
(74) Agent: **BRADLEY, James, E.**; Bracewell & Patterson, L.L.P., P.O. Box 61389, Houston, TX 77208-1389 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: PLUG INSTALLATION SYSTEM FOR DEEP WATER SUBSEA WELLS



(57) Abstract: Plug retrieval and installation tool (165) is used with a subsea well having a production tree (39), a tubing hanger (31), a passage (41) that extends vertically through the tubing hanger and the tree, and a plug (159)located within a plug profile in the passage within the tubing hanger. The plug retrieval device (165) has a housing and connector that is lowered on a lift line onto the upper end of the tree. An axially extensible stem (173) in the housing is driven by a drive mechanism into the production passage of the tubing hanger. A retrieval member (175) mounted to the stem engages the plug and pulls it upwardly in the passage while the stem is being moved upward. The connector, drive mechanism and retrieval member are powered by the ROV (169).

WO 2003/067017 A3

ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
18 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.