04/12/02
200207539

162162

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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 December 2001 (20.12.2001)

PCT

(10) International Publication Number
WO 01/96706 A1

(51) International Patent Classification[7]: E21B 19/00

(21) International Application Number: PCT/US01/19371

(22) International Filing Date: 14 June 2001 (14.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/211,652 15 June 2000 (15.06.2000) US

(71) Applicant: CONTROL FLOW, INC. [US/US]; 9201 Fairbanks N. Houston Road, Houston, TX 77064 (US).

(72) Inventor: REYNOLDS, Graeme, E.; 2053 Western Village, Houston, TX 77043 (US).

(74) Agent: MATHENY, Anthony, F.; Andrews & Kurth L.L.P., 600 Travis, Suite 4200, Houston, TX 77002 (US).

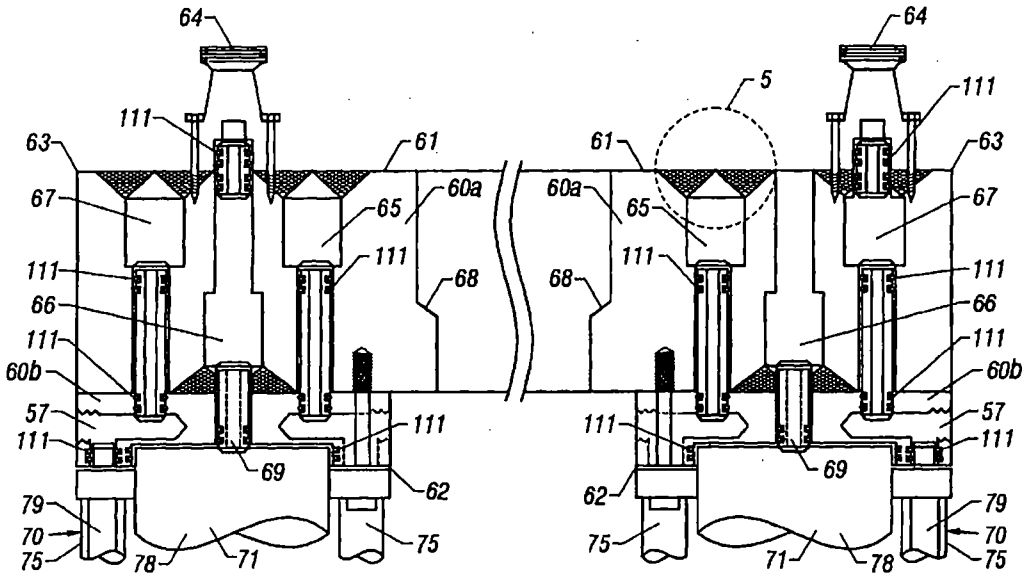
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD,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

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, 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*

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.

(54) Title: TENSIONER/SLIP-JOINT ASSEMBLY



(57) Abstract: The invention is directed to a tensioner/slip-joint module for providing a conduit from a floating vessel at the surface of the ocean to the blowout preventer stack, or production tree, which is connected to the wellhead at the sea floor. The tensioner/slip-joint module (30) compensates for vessel motion induced by wave action and heave and maintains a variable tension to the riser string alleviating the potential for compression and thus buckling or failure of the riser string. The tensioner/slip-joint module (30) of the present invention preferably includes at least one mandrel (40) having at least one hang-off donut (45); at least one upper flexjoint swivel assembly (50), at least one radially ported manifold (60), at least one tensioning cylinder (70), and at least one slip-joint assembly (90) combined in a single unit.

WO 01/96706 A1

ACTION