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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 November 2010 (04.11.2010)

PCT

(10) International Publication Number
WO 2010/126629 A1

(51) International Patent Classification:
B63B 21/50 (2006.01)

(21) International Application Number:
PCT/US2010/022916

(22) International Filing Date:
2 February 2010 (02.02.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/174,284 30 April 2009 (30.04.2009) US

(71) Applicant *(for all designated States except US)*: **EXXONMOBIL UPSTREAM RESEARCH COMPANY** [US/US]; CORP-URC-SW-359, P.O. Box 2189, Houston, TX 77252-2189 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **BRINKMANN, Carl, R.** [US/US]; 4401 Jim West Street, Bellaire, TX 77401 (US). **BRUEN, Finbarr, J.** [US/US]; 35 Crescent View Court, The Woodlands, TX 77381 (US). **KOKKINIS, Theodore** [US/US]; 4010 Tennyson, Houston, TX 77005 (US). **YOUNAN, Adel, H.** [US/US]; 4603 Meadow Green Drive, Sugar Land, TX 77479 (US).

(74) Agents: **MARSH, Timothy, J.** et al.; Exxonmobil Upstream Research Company, CORP-URC-SW-359, P.O. Box 2189, Houston, TX 77252-2189 (US).

(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, CL, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

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

WO 2010/126629 A1

(54) Title: MOORING SYSTEM FOR FLOATING ARCTIC VESSEL

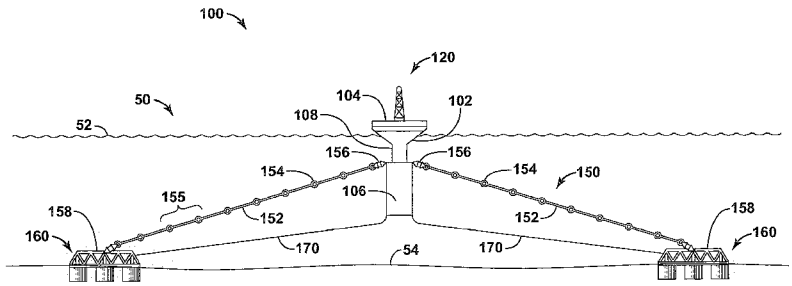

FIG. 1

(57) Abstract: A mooring system for a floating vessel such as a drilling unit is provided. The floating vessel has a platform for providing drilling, production or other operations in a marine environment, and a tower for providing ballast and stability below a water line in the marine environment. The mooring system generally includes a plurality of anchors disposed radially around the tower along a seabed, and a plurality of mooring lines. Each mooring line has a first end operatively connected to the tower, and a second end operatively connected to a respective anchor. Each mooring line further comprises at least two substantially rigid links joined together using linkages. Each joint is at least five meters in length. The mooring system is capable of maintaining station-keeping for the vessel greater than about 100 Mega-Newtons such that operations may be conducted when the marine environment is substantially iced over.