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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 July 2003 (03.07.2003)

PCT

(10) International Publication Number
WO 2003/053125 A3

(51) International Patent Classification[7]: E21B 29/12, 19/00, 33/035

(21) International Application Number: PCT/US2002/039638

(22) International Filing Date: 12 December 2002 (12.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/015,418 12 December 2001 (12.12.2001) US

(71) Applicant: **OCEANEERING INTERNATIONAL, INC.** [US/US]; 11511 F.M. 529, Houston, TX 77041 (US).

(72) Inventors: **REAUX, James, R.**; 2230 Apache Lane, Brookshire, TX 77423 (US). **BENSON, Dan, T.**; 15418 Winterhaven, Tomball, TX 77375 (US). **THORNE, Donald, L.**; 517 Interlaken Drive, New Iberia, LA 70562 (US).

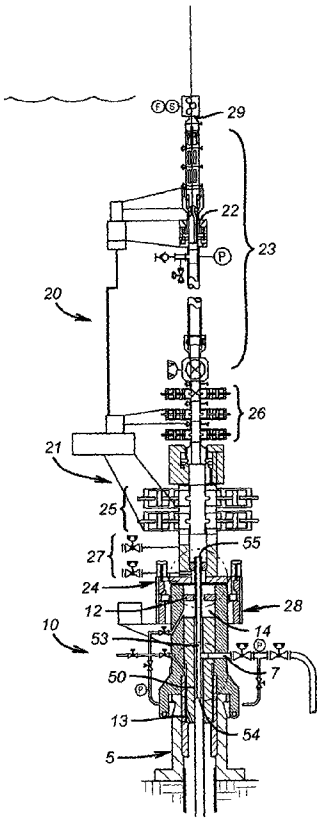
(74) Agents: **MAZE, Gary, R.** et al.; Duane Morris LLP, One Greenway Plaza, Suite 500, Houston, TX 77046 (US).

(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, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK,

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR LESSENING IMPACT ON CHRISTMAS TREES DURING DOWNHOLE OPERATIONS INVOLVING CHRISTMAS TREES



(57) Abstract: A system and method for lessening impact on Christmas trees (10) during downhole operations involving Christmas trees (10), by way of example and not limitation such as cementing processes. The system comprises an outer housing (20) defining a chamber, a lubricator (23) assembly disposed in the outer housing, and an inner sleeve slidably disposable within the chamber. The method uses the system of the present invention by inserting the inner sleeve (50) into the lubricator assembly (23); lowering the inner sleeve (50) into the Christmas tree (10) to a predetermined position extending into a tubing hanger (13) associated with the tree; introducing fluids through a fluid line coupled to the lubricator assembly, the fluids passing through a conduit (53) within the inner sleeve (50) into the wellbore; and retrieving the lubricator assembly upon completion of fluid introduction into the wellbore. In alternative embodiments, the inner sleeve (50) may be retracted and withdrawn with the lubricator (23) assembly upon completion of fluid introduction into the wellbore.

WO 2003/053125 A3

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:
17 June 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.