

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
19 June 2003 (19.06.2003)

PCT

(10) International Publication Number
WO 2003/050375 A3

(51) International Patent Classification⁷: **E21B 10/38**

(21) International Application Number:
PCT/US2002/034728

(22) International Filing Date: 28 October 2002 (28.10.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/006,877 5 December 2001 (05.12.2001) US

(71) Applicant: **HALLIBURTON ENERGY SERVICES, INC.** [US/US]; 10200 Bellaire Boulevard, Houston, TX 77072 (US).

(72) Inventors: **ODELL, Albert, C., III**; 2115 Wilderness Point, Kingwood, TX 77339 (US). **EPPINK, Jay, M.**; 25310 Hollybush, Spring, TX 77373 (US).

(74) Agents: **ROSE, Collin, A.** et al.; Conley Rose, P.C., P.O. Box 3267, Houston, TX 77253-3667 (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, SD, SE, SG, SI, 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, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

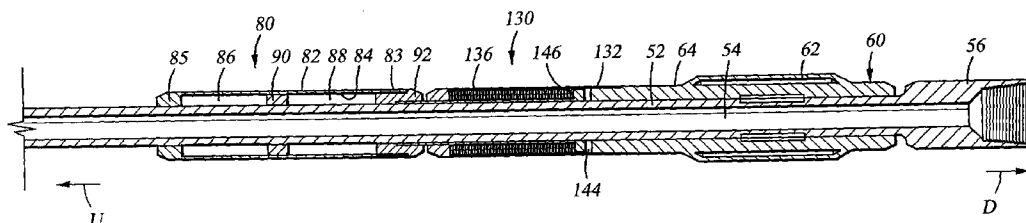
Published:

- 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.

(54) Title: THRUST CONTROL APPARATUS



(57) Abstract: A thrust absorber (130) is interposed between a thrusting means (80) and an anchoring means (60) that cooperate to axially displace another member (30). The thrust absorber (130) includes an enclosure (64) fixed to the anchor means (60) and a retainer (62) connected to the thrusting means (80). A biasing member (136) is operably associated with the retainer (62). During an overthrust condition, the thrusting means (80) imparts a thrust force to the member (30), but the member (30) is not substantially axially displaced. In such a condition, the biasing means (136) absorbs the thrust that the thrusting means (80) would otherwise impart to the member (30). A dampener (92) is also included to dampen the movement of the thrusting means (80) and anchoring means (60) when the anchoring means (60) is no longer anchoring the thrusting means (80).



WO 2003/050375 A3