9705280-7

IPOS's wpg.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : E21B 31/113, 31/107 — A1

(11) International Publication Number: WO 96/41064

(43) International Publication Date: 19 December 1996 (19.12.96)

(21) International Application Number: PCT/US96/08645

(22) International Filing Date: 3 June 1996 (03.06.96)

(30) Priority Data: 08/473,067 — 7 June 1995 (07.06.95) — US

(71) Applicant: DAILEY PETROLEUM SERVICES CORP. [US/US]; 2507 N. Frazier, Conroe, TX 77303 (US).

(72) Inventor: EVANS, Robert, W.; 13638 Leafy Arbor Drive, Montgomery, TX 78654 (US).

(74) Agent: HONEYCUTT, Timothy, M.; P.O. Box 4433, Houston, TX 77210 (US).

(81) Designated States: AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, 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 the receipt of amendments.

(54) Title: MECHANICAL-HYDRAULIC DOUBLE-ACTING DRILLING JAR

(57) Abstract

A mechanical-hydraulic double-acting drilling jar includes an inner tubular mandrel (12) telescopingly supported inside an outer tubular housing (14). The mandrel and the housing each consist of a plurality of tubular segments joined together, preferably by threaded inner connections. Upper (134) and lower (166) pressure pistons are slidably disposed within the housing, respectively closing upper and lower substantially sealed hydraulic chambers (132, 164). Longitudinal movement of the mandrel engages the collet (184), which in turn, translates either the upper piston (134) or the lower piston (166), depending on the direction of mandrel movement. As one of the pistons is moved, fluid pressure builds in the associated hydraulic chamber, retarding further movement of the mandrel, enabling potential energy to build in the drill string. The collet is restricted from expanding until the mandrel reaches a particular point in the housing, at which time the collet expands, releasing the mandrel to rapidly collide a hammer surface (32, 21) thereon with an anvil surface (44, 41) in the housing.

