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(21) International Application Number: PCT/US99/19991 (22) International Filing Date: 31 August 1999 (31.08.99) (30) Priority Data: 60/098,466 31 August 1998 (31.08.98) US (71) Applicant (for all designated States except US): HALLIBURTON ENERGY SERVICES, INC. [US/US]; 2601 Belt Line Road, Carrollton, TS 75006 (US). (72) Inventor; and (75) Inventor/Applicant (for US only): CHEN, Shilin [CN/US]; 15505 Hillcrest Road, #2003, Dallas, TX 75248 (US). (74) Agents: GROOVER, Robert et al.; Groover & Associates, pc, 17000 Preston Road, #230, Dallas, TX 75248 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: FORCE-BALANCED ROLLER-CONE BITS, SYSTEMS, DRILLING METHODS, AND DESIGN METHODS (57) Abstract Roller cone drilling wherein the bit optimization process equalizes the downforce (axial force) for the cones (as nearly as possible, subject to other design constraints). Bit performance is significantly enhanced by equalizing downforce.		