

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
22 December 2022 (22.12.2022)



(10) International Publication Number
WO 2022/266282 A1

- (51) **International Patent Classification:**
E21B 49/08 (2006.01) *G01N 1/02* (2006.01)
- (21) **International Application Number:**
PCT/US2022/033722
- (22) **International Filing Date:**
16 June 2022 (16.06.2022)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/211,973 17 June 2021 (17.06.2021) US
17/841,111 15 June 2022 (15.06.2022) US
- (71) **Applicant: HALLIBURTON ENERGY SERVICES, INC.** [US/US]; 3000 N. Sam Houston Parkway E., Houston, Texas 77032-3219 (US).
- (72) **Inventors: MURRAY, Fraser;** 11 Tuas South Ave. 12, Singapore 637131 (SG). **YU, Shanshan;** 11 Tuas South Ave. 12, Singapore 637131 (SG). **VU, Thanh Nam;** 11 Tuas South Ave. 12, Singapore 637131 (SG).
- (74) **Agent: PARKER, Greg, H.** et al.; 14241 Dallas Parkway, Suite 620, Dallas, Texas 75254 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.
- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH,

(54) **Title:** MATERIAL TEST SUB INCLUDING ONE OR MORE RETAINER ASSEMBLIES FOR DOWNHOLE ENVIRONMENTAL EXPOSURE

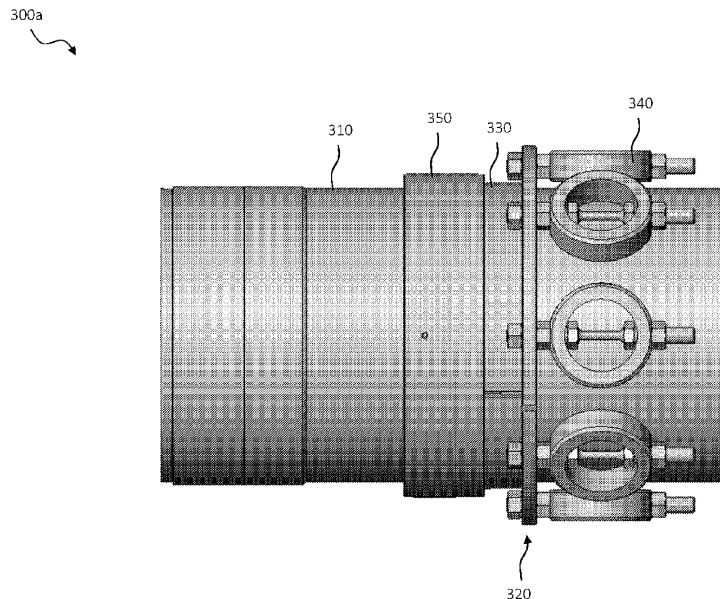


FIG. 3A

(57) **Abstract:** Provided is a downhole material test sub assembly, a well system including the same, and a method for using the same. The downhole material test sub assembly, in one aspect, includes a flange for coupling to a mandrel, and one or more retainer assemblies coupled to the flange, the one or more retainer assemblies configured to accept a test specimen for running within a wellbore on the mandrel. The downhole material test sub assembly, according to another aspect, includes a mandrel and one or more grooves or pockets located in an outer surface of the mandrel, the one or more grooves or pockets configured to accept a test specimen for running within a wellbore on the mandrel.

WO 2022/266282 A1

[Continued on next page]

GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

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