



- (51) International Patent Classification:
E21B 10/62 (2006.01) *E21B 12/00* (2006.01)
- (21) International Application Number:
PCT/US2013/071229
- (22) International Filing Date:
21 November 2013 (21.11.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
13/766,118 13 February 2013 (13.02.2013) US
- (71) Applicant: VAREL INTERNATIONAL IND., L.P.
[US/US]; 1625 West Crosby, Suite 124, Carrollton, TX
75006 (US).
- (72) Inventor: LEBECK, Alan, Otto; 1006 Tramway Lane
NE, Albuquerque, NM 87122 (US).
- (74) Agents: DENNINGTON, Taylor, S. et al.; Gardere
Wynne Sewell LLP, 1601 Elm Street, Suite 3000, Dallas,
TX 75201-4761 (US).
- (81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,

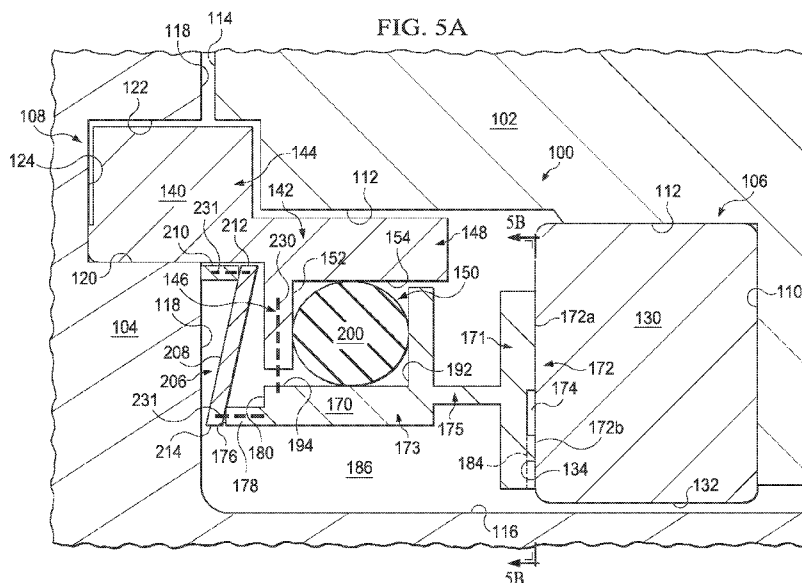
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,
ZW.

- (84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, 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))

- (54) Title: ROCK BIT HAVING A FLEXIBLE METAL FACED SEAL



- (57) Abstract: A sealing system includes a first gland in a cone and a second gland in a shaft region. A first ring is mounted in the first gland, a second ring is mounted in the second gland and a third ring is positioned between the first and second rings. The first and third rings present a pair of opposed metal seal faces. A biasing spring is configured to exert an axial force against the third ring so as to keep the metal seal faces in sealing contact. A third gland is formed between the second and third rings, with an o-ring seal member installed within the third gland and compressed in a sealing relationship between the second and third rings. The third ring includes a sealing region supporting the metal seal face and a body region supporting the third gland, with the sealing region pivotally coupled to the body region.

