

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 August 2020 (27.08.2020)



(10) International Publication Number
WO 2020/171806 A1

(51) International Patent Classification:
F16K 7/12 (2006.01) *F16K 27/02* (2006.01)

(21) International Application Number:
PCT/US2019/018734

(22) International Filing Date:
20 February 2019 (20.02.2019)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **ITT MANUFACTURING ENTERPRISES LLC** [US/US]; 1105 N. Market Street, Wilmington, DE 19801 (US).

(72) Inventors: **MATALON, Louis Emmanuel**; 104 Knight Lane, Lancaster, PA 17602 (US). **KOVACS, Richard**; 710 Orchard Lane, Lancaster, PA 17603 (US). **LINDT, David**; 111 Bentley Lane, Lancaster, PA 17603 (US). **YODER, Michael David**; 130 Northview Lane, Quarryville, PA 17565 (US).

(74) Agent: **SHAPIRO, Bret P.**; Moritt Hock & Hamroff LLP, 400 Garden City Plaza, Ste. 202, Garden City, NY 11530 (US).

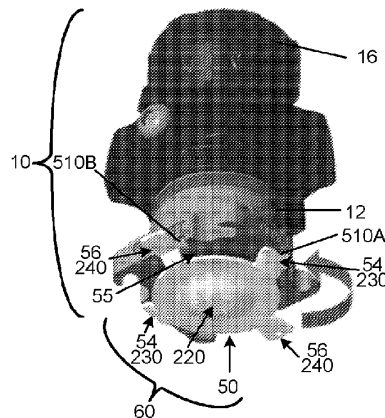
(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, 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, 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, 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,

(54) Title: DIAPHRAGM ASSEMBLY

Fig. 5B

500



(57) Abstract: Technologies are described for a diaphragm. The diaphragm may comprise a structure. The structure may be a disc shape with a top and bottom side. The top and bottom sides may be circular in outline. The diaphragm may comprise a diaphragm stud at a center point on the top side. The diaphragm stud may be configured to couple with a connector of a bonnet assembly. The diaphragm may comprise a diaphragm bead on the bottom side. The diaphragm bead may be along a first axis. The diaphragm may comprise at least one tab which may extend radially from the structure along an outer edge of the structure. The at least one tab may engage with a bonnet notch of a bonnet assembly to align the diaphragm to the bonnet assembly.

[Continued on next page]

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))*