



(51) International Patent Classification:
F16B 37/04 (2006.01)

(21) International Application Number:
PCT/US2009/063951

(22) International Filing Date:
11 November 2009 (11.11.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/116,863 21 November 2008 (21.11.2008) US

(71) Applicant (for all designated States except US): **PEM MANAGEMENT, INC.** [US/US]; 103 Foulk Road, Suite 108, Wilmington, Delaware 19803 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **MALONEY, Michael** [US/US]; 5480 Silo Hill Road, Doylestown, Pennsylvania 18902 (US).

(74) Agent: **GORE, Gregory J.**; 70 West Oakland Avenue, Suite 316, Doylestown, Pennsylvania 18901 (US).

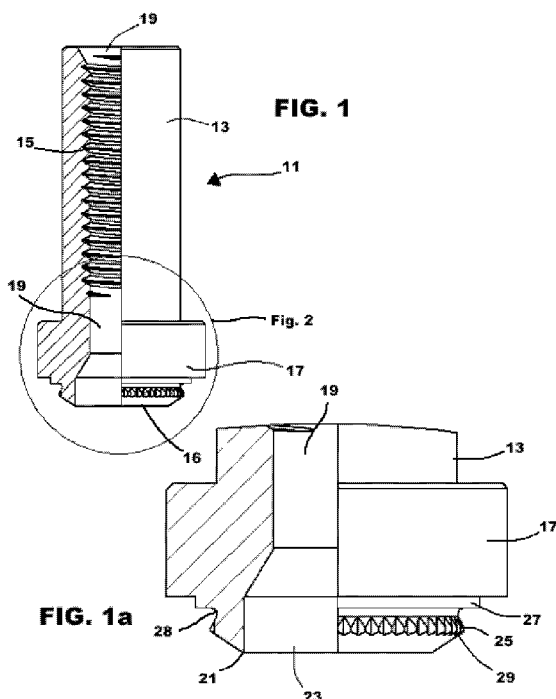
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

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

(54) Title: **PIERCING STANDOFF**



(57) Abstract: A piercing fastener is attachable to a panel without a hole by penetrating its surface. The fastener further includes means for attachment of a device to it so that the fastener acts as an intermediate component attaching the device to the panel. The fastener has either male or female attachment means and further includes an outside surface extending from a top end to a bottom end. Near the bottom end, a reinforcement collar includes an annular top surface for receiving a downward pressing force to install the fastener into the panel. A displacer and undercut are located immediately below the collar to effect and receive a cold flow of deformed panel material to secure the fastener to the panel. A plurality of axially extending circumferential teeth are located immediately below the undercut and comprise triangular knurls with sharp edges which penetrate the sheet as the fastener is applied. The bottom of the fastener terminates in a sharp circular cutting edge for penetrating the panel.