



(51) International Patent Classification:

H01L 41/09 (2006.01) B81B 3/00 (2006.01)
H01L 41/277 (2013.01)

(21) International Application Number:

PCT/SG2012/000493

(22) International Filing Date:

31 December 2012 (31.12.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

201109781-3 30 December 2011 (30.12.2011) SG
201204837-7 28 June 2012 (28.06.2012) SG

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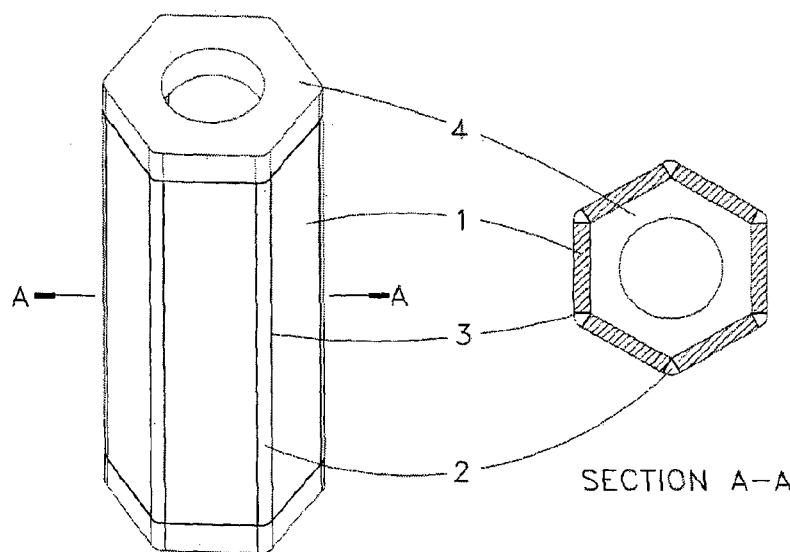
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, ML, MR, NE, SN, TD, TG).

Published:

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

(54) Title: COST-EFFECTIVE SINGLE CRYSTAL MULTI-STAKE ACTUATOR AND METHOD OF MANUFACTURE



(57) Abstract: This invention pertains to piezoelectric actuators made of single crystal active elements which not only exhibit uniform and superior displacement in the axial direction but also of lower cost to produce than full single crystal ring or tube actuators. Said multi-stake actuator is made up of multiple longitudinal (d33) or transverse (d31 or d32) mode piezoelectric single crystal active elements, bonded together by epoxy with the aid of shaped edge- and top and bottom washer-stiffeners which are configured to suit various application needs.