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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
8 March 2007 (08.03.2007)

PCT

(10) International Publication Number
WO 2007/027686 A3

(51) International Patent Classification:
*H01L 21/033* (2006.01) *H01L 21/321* (2006.01)
*H01L 21/308* (2006.01) *H01L 21/027* (2006.01)

(21) International Application Number:
PCT/US2006/033703

(22) International Filing Date: 28 August 2006 (28.08.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/219,346 1 September 2005 (01.09.2005) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

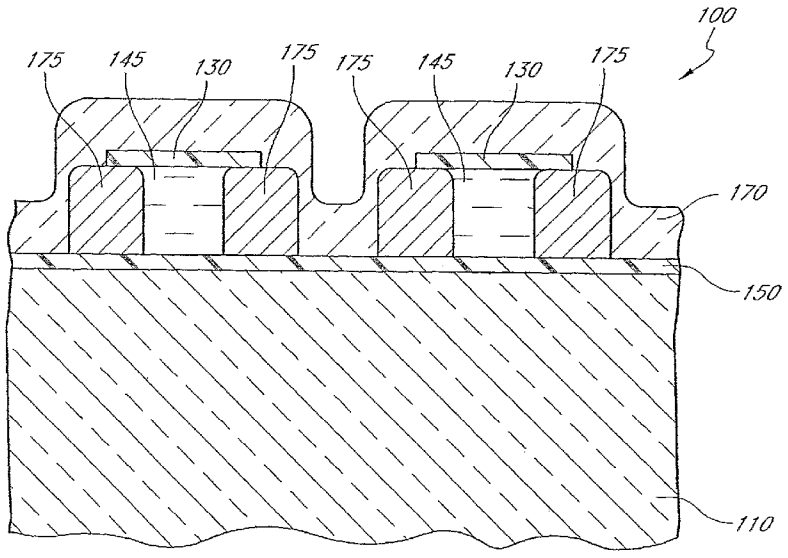
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
3 May 2007

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: MASK PATTERNS WITH SPACERS FOR PITCH MULTIPLICATION AND METHODS OF FORMING THE SAME




(57) Abstract: Spacers (175) in a pitch multiplication process are formed without performing a spacer etch. Rather, mandrels (145) are formed over a substrate (110) and then the sides of the mandrels (145) are reacted, e.g., in an oxidization, nitridation, or silicidation step, to form a material that can be selectively removed relative to the unreacted portions of the mandrel (145). The unreacted portions are selectively removed to leave a pattern of free- standing spacers (175). The free-standing spacers (175) can serve as a mask for subsequent processing steps, such as etching the substrate (110).

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