

(51) International Patent Classification:
G11B 5/84 (2006.01)(21) International Application Number:
PCT/US2011/045190(22) International Filing Date:
25 July 2011 (25.07.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/368,538 28 July 2010 (28.07.2010) US(71) Applicant (for all designated States except US): **APPLIED MATERIALS, INC.** [US/US]; 3050 Bowers Avenue, Santa Clara, CA 95054 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BENCHER, Christopher, D.** [US/US]; 1251 Hazlett Court, San Jose, California 95131 (US). **GOUK, Roman** [UA/US]; 6333 Lillian Way, San Jose, California 95120 (US). **VERHAVERBEKE, Steven** [BE/US]; 139 Welsh Street, Unit 10, San Francisco, California 94107 (US). **XIA, Li-Qun** [US/US]; 10221 Western Drive, Cupertino, California95014 (US). **LEE, Yong-Won** [KR/US]; 1170 Forest Creek Drive, San Jose, California 95129 (US). **SCOTNEY-CASTLE, Matthew, D.** [GB/US]; 17045 John Telfer Drive, Morgan Hill, California 95037 (US). **HILKENE, Martin, A.** [GB/US]; 1353 Pheasant Drive, Gilroy, California 95020 (US). **PORSHNEV, Peter, I.** [BY/US]; 1255 Sierra Village Place, San Jose, California 95132 (US).(74) Agents: **PATTERSON, B., Todd** et al.; Patterson & Sheridan, L.L.P., 3040 Post Oak Blvd., Suite 1500, Houston, Texas 77056-6582 (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, 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,

[Continued on next page]

(54) Title: RESIST FORTIFICATION FOR MAGNETIC MEDIA PATTERNING

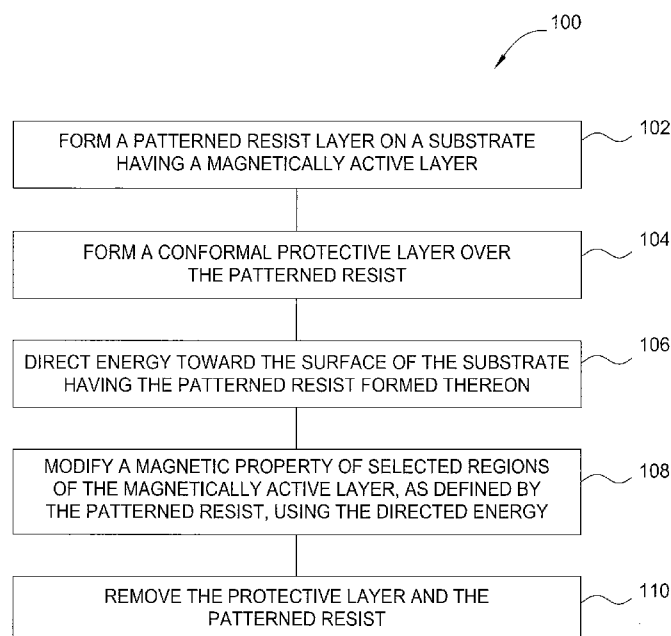


FIG. 1

(57) Abstract: A method and apparatus for forming magnetic media substrates is provided. A patterned resist layer is formed on a substrate having a magnetically susceptible layer. A conformal protective layer is formed over the patterned resist layer to prevent degradation of the pattern during subsequent processing. The substrate is subjected to an energy treatment wherein energetic species penetrate portions of the patterned resist and conformal protective layer according to the pattern formed in the patterned resist, impacting the magnetically susceptible layer and modifying a magnetic property thereof. The patterned resist and conformal protective layers are then removed, leaving a magnetic substrate having a pattern of magnetic properties with a topography that is substantially unchanged.



GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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).

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

19 April 2012

Published:

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