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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 May 2010 (06.05.2010)

PCT

(10) International Publication Number
WO 2010/050900 A1

(51) International Patent Classification:
G11B 5/012 (2006.01) *G11B 5/68* (2006.01)

(21) International Application Number:
PCT/SG2009/000399

(22) International Filing Date:
2 November 2009 (02.11.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/193,177 3 November 2008 (03.11.2008) US

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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, 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).

Declarations under Rule 4.17:

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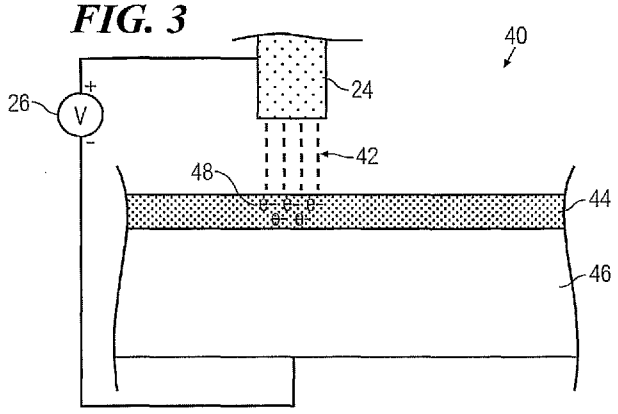
— *of inventorship (Rule 4.17(iv))*

Published:

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

(54) **Title**: TRAPPING ELECTRON ASSISTED MAGNETIC RECORDING SYSTEM AND METHOD

FIG. 3



(57) **Abstract**: A system and method for trapping electron assisted magnetic recording is disclosed. A magnetic recording system comprises a magnetic storage media, a read/write head, and a power supply for applying a negative DC electrical bias to the magnetic storage media in order to reduce the media switching field during the writing process. Recording is performed by applying an AC magnetic field produced by a write pole and a DC electrical field to assist in the writing. An embodiment of the invention uses a high electrical field to trap free electrons into an unfilled electronic shell of magnetic particles of the magnetic storage media, in particular, (3d) shell of transition elements, (4f) shell of rare earths of lanthanides series, and (5f) shell of actinides series. The trapped electron decreases anisotropy of magnetic particles due to reduced number of Bohr magnetron. As a result, a conventional head is able to write very high anisotropy magnetic storage media.

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