

(19) World Intellectual Property Organization
International Bureau



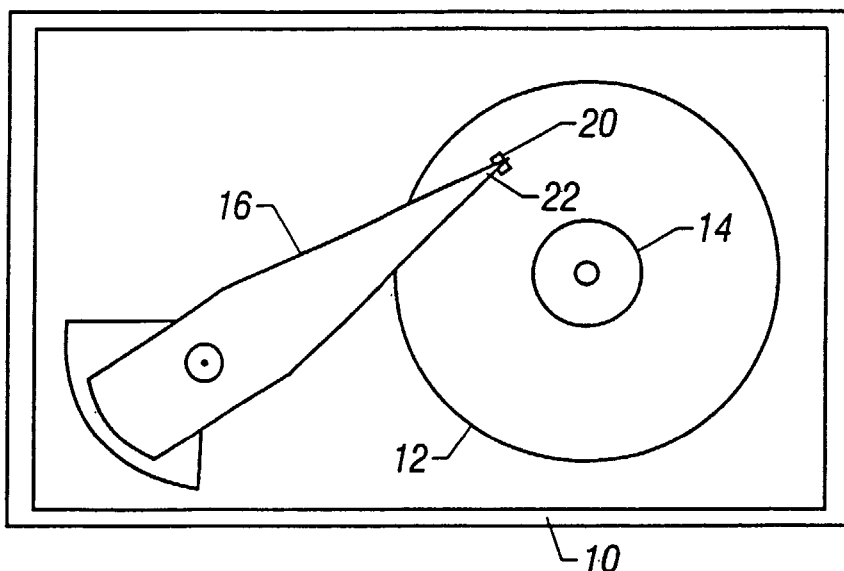
(43) International Publication Date
13 March 2003 (13.03.2003)

PCT

(10) International Publication Number
WO 03/021577 A2

- (51) International Patent Classification⁷: **G11B 5/187**, 5/31 // 5/012
- (74) Agent: **Dr. KAUFFMANN, Wolfgang**; IBM Deutschland GmbH, Intellectual Property, 70548 Stuttgart (DE).
- (21) International Application Number: PCT/EP02/08826
- (22) International Filing Date: 7 August 2002 (07.08.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/944,648 31 August 2001 (31.08.2001) US
- (71) Applicant: **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, NY 10504 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for LU only*): **IBM DEUTSCHLAND GMBH** [DE/DE]; Pascalstrasse 100, 70569 Stuttgart (DE).
- Published:**
— without international search report and to be republished upon receipt of that report
- (72) Inventors: **DINAN, Thomas**; 389 Primavera Drive, San Jose, CA 95111 (US). **HSIAO, Richard**; 6601 Neptune Ct, San Jose, Santa Clara, CA 95120 (US).
- 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: NARROW WRITE HEAD POLE TIP FABRICATED BY SIDEWALL PROCESSING



(57) Abstract: The magnetic head includes a P2 pole tip in which the P2 pole tip material is electroplated upon a sidewall of the P2 pole tip photolithographic trench. To accomplish this, a block of material is deposited upon a write gap layer, such that a generally straight, vertical sidewall of the block of material is disposed at the P2 pole tip location. Thereafter, an electroplating seed layer is deposited upon the sidewall. A P2 pole tip trench is photolithographically fabricated such that the sidewall (with its deposited seed layer) is exposed within the P2 pole tip trench. Thereafter, the P2 pole tip is formed by electroplating pole tip material upon the seed layer and outward from the sidewall within

the trench, The width of the P2 pole tip is thus determined by the quantity of pole tip material that is deposited upon the sidewall.