

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/033742 A3

(51) International Patent Classification⁷: **C23C 14/34**,
B44C 1/22, B31B 1/60

(21) International Application Number:
PCT/US2003/022107

(22) International Filing Date: 11 July 2003 (11.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/396,543 16 July 2002 (16.07.2002) US

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, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, 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, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant: **HONEYWELL INTERNATIONAL INC.**
[US/US]; Law Department AB2, 101 Columbia Road, Po Box 2245, Morristown, NJ 07962 (US).

(72) Inventor: **KIM, Jaeyeon**; 1018 N. Simpson Road, Liberty Lake, WA 99019 (US).

(74) Agents: **LATWESEN, David, G.**, et al.; Wells, St. John P.S., 601 W. 1st Avenue, Spokane, WA 99201 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

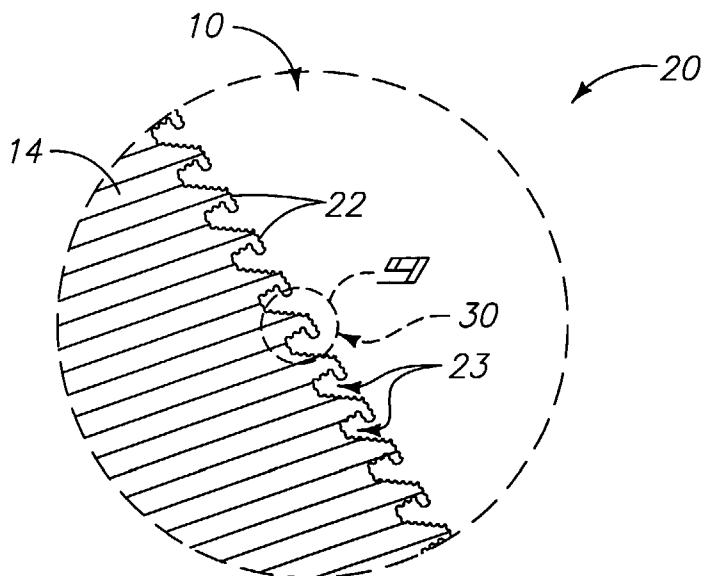
Published:

- 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:
18 November 2004

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: PVD TARGET AND METHOD OF TREATING TARGET



(57) Abstract: The invention includes PVD targets having non-sputtered regions (such as, for example, sidewalls (14)), and particle-trapping features formed along the non-sputtered regions. In particular aspects, the particle-trapping features can comprise a pattern of bent projections (22) forming receptacles, and can comprise microstructures on the bent projections. The targets can be part of target/backing plate constructions (10), or can be monolithic. The invention also includes methods of forming particle-trapping features along sidewalls of a sputtering target or along sidewalls of a target/backing plate construction. The features can be formed by initially forming a pattern of projections along a sidewall. The projections can be bent and subsequently exposed to particles to form microstructures on the bent projections. The target has expanded regions (20 and 30) and cavities (23).