

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

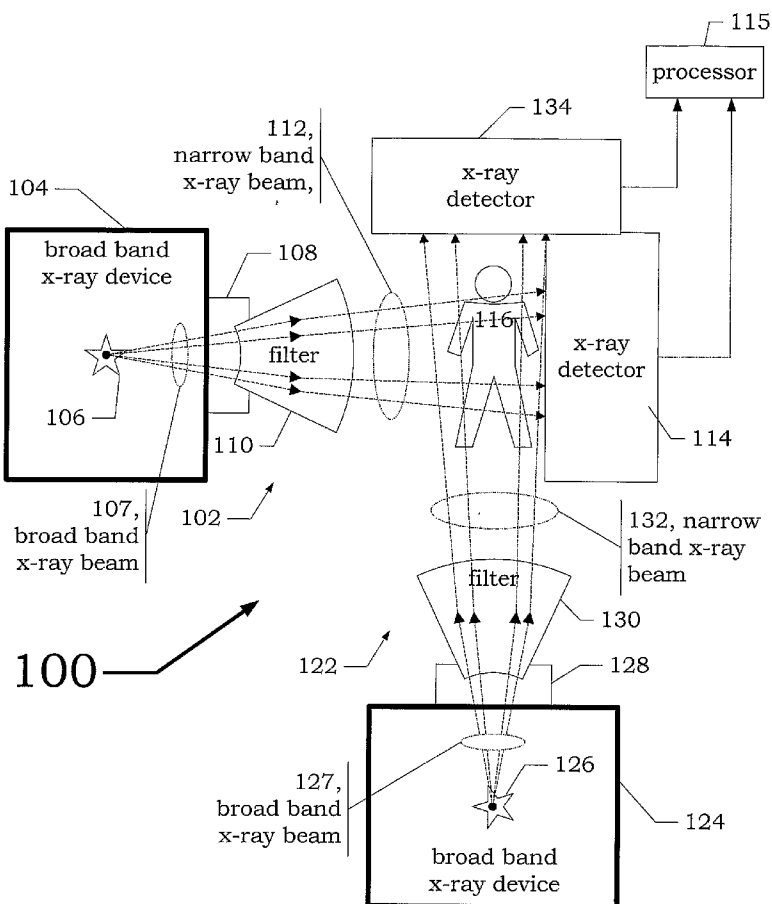
PCT

(10) International Publication Number
WO 2005/010893 A2

- (51) International Patent Classification⁷: **G21K** 20905 (US). **HAN, Daesoo** [US/US]; 16809 Excalibur Way, Sandy Spring, MD 20860 (US).
- (21) International Application Number: PCT/US2004/017131 (74) Agent: **AUCHTERLONIE, Thomas, S.**; Harness, Dickey & Pierce, P.L.C., P.O. Box 8910, Reston, VA 20195 (US).
- (22) International Filing Date: 2 June 2004 (02.06.2004)
- (25) Filing Language: English (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, 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, NA, 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, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (26) Publication Language: English
- (30) Priority Data: 10/452,508 3 June 2003 (03.06.2003) US
- (71) Applicant (for all designated States except US): **MEN-TOR TECHNOLOGIES, INC.** [US/US]; 7404 Executive Place, Suite 100, Lanham, MD 20706 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **CHO, Yong Min** [US/US]; 16605 Sea Island Court, Silver Spring, MD
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: NARROW BAND X-RAY SYSTEM AND FABRICATION METHOD THEREOF



(57) Abstract: A narrow band x-ray filter can include: a substrate; and a sheaf of one or more reflection units stacked upon each other on the substrate. Each reflection unit can include: a first set of at least two discrete spacers on a respective underlying structures, a reflector disposed on the first set of spacers so as to form a void between the respective underlying structure and the reflector; and a first set of at least two discrete shims disposed on the first set of at least two spacers, each shim being at least substantially the same thickness as the reflector. A first device to produce a narrow band x-ray beam may include such a filter or an x-ray telescope. A second device to make an x-ray image of a subject may include the first device.



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, IT, LU, 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:

— *without international search report and to be republished upon receipt of that report*

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.