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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
18 January 2007 (18.01.2007)

PCT

(10) International Publication Number
WO 2007/008742 A1

(51) International Patent Classification:
*G01N 21/88* (2006.01)

(21) International Application Number:
PCT/US2006/026649

(22) International Filing Date: 7 July 2006 (07.07.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/697,904 8 July 2005 (08.07.2005) US

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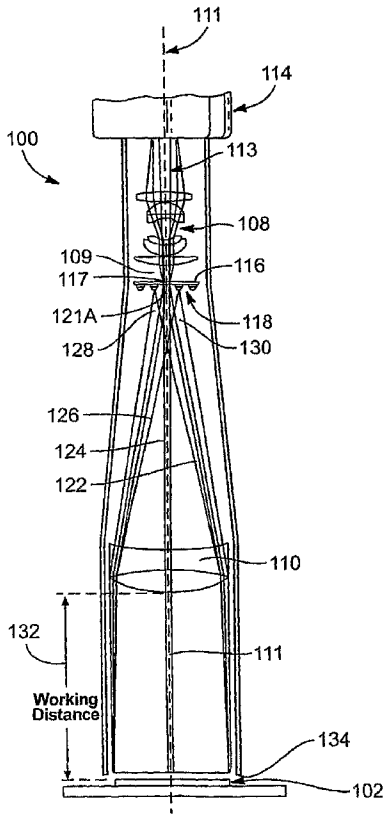
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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, 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, HU, IE, IS, IT, LT, LU, LV, 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).

*[Continued on next page]*

(54) Title: OPTIMIZING USE AND PERFORMANCE OF OPTICAL SYSTEMS IMPLEMENTED WITH TELECENTRIC ON-AXIS DARK FIELD ILLUMINATION




(57) Abstract: Systems and methods are provided for imaging a planar specular object (102) such as a semiconductor wafer. In one embodiment, an imaging system (100) for imaging a defect on a planar specular object (102) includes a telecentric lens (110) having a sufficiently aspherical surface such that the telecentric lens (110) is substantially corrected for an optical aberration. The imaging system (100) also includes a telecentric stop (116) including an aperture therein to block light reflected from the planar specular object (102) while allowing light reflected from the defect to pass through the aperture. The imaging system (100) further includes a lens group (108) having a system stop positioned between the telecentric stop (116) and the lens group (108). The lens group (108) is substantially corrected for the optical aberration independent of the telecentric lens (110).

WO 2007/008742 A1

**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*

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