

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 December 2002 (27.12.2002)

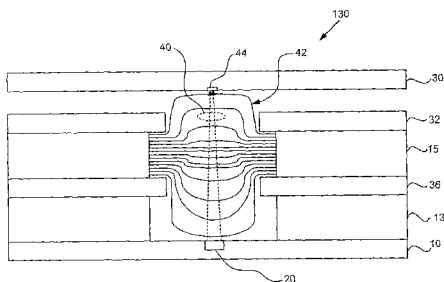
PCT

(10) International Publication Number
WO 02/103740 A3

- (51) International Patent Classification⁷: **H01J 3/02**, G11B 9/10
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- (21) International Application Number: PCT/US02/18474
- (22) International Filing Date: 10 June 2002 (10.06.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 09/882,933 14 June 2001 (14.06.2001) US
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- (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, LU, 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, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

(54) Title: FOCUSING LENS FOR ELECTRON EMITTER



(57) Abstract: An electron lens is used for focusing electrons from a cathode (10) to an anode (30). The lens includes a first conductive layer (36) with a first opening (38) at a first distance (48) from the cathode (10). The first conductive layer (36) is held at a first voltage. The lens also includes a second conductive layer (32) with a second opening (34) at a second distance (46) from the first conductive layer (36) and a third distance (24) from the anode (30). The second conductive shield layer (32) is held at a second voltage substantially equal to the voltage of the anode (30). The first (38) and second (34) openings are chosen based on the first voltage, the second voltage, the first distance (48), the second distance (46) and the third distance (24). The opening focuses the electrons emitted from the cathode (10) onto the anode (30) to a spot size preferably less than 40 nanometers. The force created between the cathode (10) and anode (30) is minimized by the structure of the lens.

An electron lens is used for focusing electrons from a cathode (10) to an anode (30). The lens includes a first conductive layer (36) with a first opening (38) at a first distance (48) from the cathode (10). The first conductive layer (36) is held at a first voltage. The lens also includes a second conductive layer (32) with a second opening (34) at a second distance (46) from the first conductive layer (36) and a third distance (24) from the anode (30). The second conductive shield layer (32) is held at a second voltage substantially equal to the voltage of the anode (30). The first (38) and second (34) openings are chosen based on the first voltage, the second voltage, the first distance (48), the second distance (46) and the third distance (24). The opening focuses the electrons emitted from the cathode (10) onto the anode (30) to a spot size preferably less than 40 nanometers. The force created between the cathode (10) and anode (30) is minimized by the structure of the lens.



(88) Date of publication of the international search report:
14 August 2003

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