Title (en)

METHOD AND ELECTRON GUN FOR GENERATING AN ELECTRON BEAM, PARTICULARLY OF HIGH CURRENT DENSITY AT THE SURFACE OF ITS UTILISATION

Publication

EP 0138199 A3 19850522 (EN)

Application

EP 84112226 A 19841011

Priority

PL 24415483 A 19831014

Abstract (en)

[origin: EP0138199A2] The electrons emitted from a cylindrical cathode (1) by the method as per this present invention are formed in the electric field at the cathode into a beam with divergent paths being on the surface of coaxial cones the apex angles whereof are contained in an interval varying within the limits of 0-0.5 radian around their central angle (15) of 0.1-1.5 radians. Next, electrons with a narrow energy interval are separated from the beam by means of a cylindrical mirror analyser (4, 7) after curving the electron paths therein and selecting them with the application of slits (8, 9). These electrons are then converged in a set of electron lenses (117). The electron gun has a cylindrical cathode (1) having a part of the surface in the form of a 0.01-10 mm wide ring coated with emission paste (2). Electrodes (4, 7) of the cylindrical narrow analyser are mounted around the cathode (1). An inlet slit (5) of the internal electrode (4) is shifted horizontally in relation to the active cathode surface coated with emission paste (2) so that the angle between the electron beam in the region of that slit (5) and the axis (0) of the system is contained within an interval of 0-0.5 radian around their central angle (15) of 0.1-1.5 radians. The electron gun comprises an electrode (12) placed between the analyser (4, 7) and the set of electron lenses (11) and co-forming equipotential lines (10) with a coaxial circular ring-shaped slit (9).

IPC 1-7

H01J 3/02

IPC 8 full level

H01J 29/48 (2006.01)

CPC (source: EP)

H01J 29/488 (2013.01)

Citation (search report)

- [Y] US 3805057 A 19740416 - YANAGISAWA A, et al
- [Y] US 3013179 A 19611212 - HARRIS LAWRENCE A
- [A] DE 548917 C 19320421 - WALTER ROGOWSKI DR ING
- [A] US 3005926 A 19611024 - HORNER CLIFFORD E, et al

Cited by

US2013112870A1

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EP 0138199 A2 19850424; **EP 0138199 A3 19850522**; **EP 0138199 B1 19880824**; CS 250672 B2 19870514; DD 232785 A5 19860205; DE 3473683 D1 19880929; HU 189940 B 19860828; HU T36610 A 19850930; PL 146420 B1 19890228; PL 244154 A1 19850424

DOCDB simple family (application)

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