



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: **0 388 901 A3**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **90105263.9**

(51) Int. Cl.⁵: **H01J 29/50**

(22) Date of filing: **20.03.90**

(30) Priority: **23.03.89 JP 69320/89**
03.10.89 JP 257091/89

(43) Date of publication of application:
26.09.90 Bulletin 90/39

(84) Designated Contracting States:
DE FR GB

(88) Date of deferred publication of the search report:
28.08.91 Bulletin 91/35

(71) Applicant: **Kabushiki Kaisha Toshiba**
72, Horikawa-cho Saiwai-ku
Kawasaki-shi(JP)

(72) Inventor: **Shimoma, Taketoshi, c/o Intellectual**
Property Div.
Kabushiki Kaisha Toshiba, 1-1, Shibaura
1-chome
Minato-ku, Tokyo 105(JP)

Inventor: **Kamohara, Eiji, c/o Intellectual**
Property Div.

Kabushiki Kaisha Toshiba, 1-1, Shibaura
1-chome
Minato-ku, Tokyo 105(JP)

Inventor: **Sugawara, Shigeru, c/o Intellectual**
Property Div.

Kabushiki Kaisha Toshiba, 1-1, Shibaura
1-chome
Minato-ku, Tokyo 105(JP)

Inventor: **Shimokobe, Jiro, c/o Intellectual**
Property Div.

Kabushiki Kaisha Toshiba, 1-1, Shibaura
1-chome
Minato-ku, Tokyo 105(JP)

(74) Representative: **Henkel, Feiler, Hänzel &**
Partner
Möhlstrasse 37
W-8000 München 80(DE)

(54) **Color cathode-ray tube apparatus.**

(57) In an electron gun assembly, electron (BR, BG, BB) beams emitted from cathodes (KR, KG, KB) are focused in first cross-over (CO1) and accelerated and controlled by grids (G1, G2, G3) along three axes (ZR, ZG, ZB) arranged in-line. The controlled electron beams (BR, BG, BB) are weakly converged by unipotential lenses (ELS) and are converged in a vertical plane by a common single electron lens (VL1) having a lens power which is varied in accor-

dance with a horizontal or vertical deflection of the electron beams (BR, BG, BB). The converged electron beams (BR, BG, BB) form second cross-over on the axes (ZR, ZG, ZB) which are shifted along the axes (ZR, ZG, ZB) are diverged from the second cross-overs (ZR, ZG, ZB). The diverged electron beams (BR, BG, BB) are further focused and converged onto a screen (SCN) by a main lens (LEL).

EP 0 388 901 A3

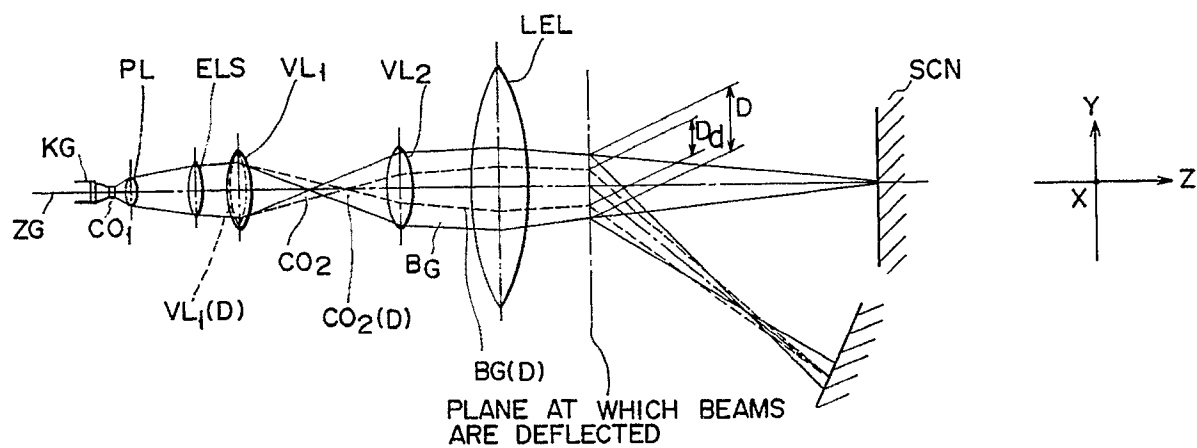


FIG. 6C



European
Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 10 5263

DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)		
A	EP-A-0 231 964 (N.V. PHILIPS GLOEILAMPEN-FABRIEKEN) * Abstract; figures 2,3; column 4, line 51 - column 5, line 18 * - - -	1-3,7,9, 11,13	H 01 J 29/50		
A	US-A-4 009 410 (C. POMMIER et al.) * Abstract; figure 1; column 2, line 57 - column 3, line 56 * - - -	1,2			
A	PATENT ABSTRACTS OF JAPAN, vol. 10, no. 244 (E-430)[2300], 22nd August 1986; JP-A-61 74 246 (TOSHIBA CORP.) 16-04-1986 - - -	1,8,11,13			
A	EP-A-0 104 674 (N.V. PHILIPS GLOEILAMPEN-FABRIEKEN) * Abstract; figure 2A * - - -	5			
A	US-A-4 528 476 (R.T. ALIG) * Abstract; figures 2-4,7,8, column 2, line 64 - column 4, line 26 * - - -	1,2,6,8,9			
A	US-A-4 737 682 (R.C. ALIG et al.) * Abstract; figures 2,3,4; column 2, line 65 - column 4, line 22 * - - - - -	4,10,12, 14			
The present search report has been drawn up for all claims					
Place of search The Hague		Date of completion of search 27 May 91	Examiner CLARKE N.S.		
<table><tr><td>CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention</td><td>E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document</td></tr></table>				CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention	E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention	E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document				