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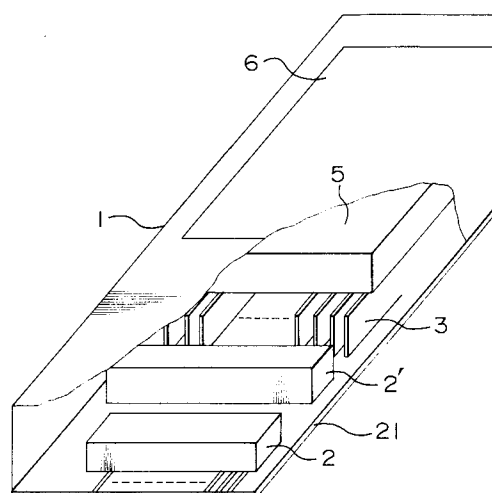
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W-8000 München 2(DE)(54) **Flat tube display apparatus.**

(57) A flat tube display apparatus wherein a row of many electron beam generators (2) is arranged transversely in a thin flat vacuum tube body (1) to generate a number of beams in parallel with each other which travel in parallel with an image screen (6) and to deflect the beams toward the image screen at a predetermined position. The beams are guided without being widely diverged due to the provision of a number of side walls arranged in parallel with each other to confine beams and due to the provision of alternately strong and weak magnetic fields along the side walls. Image brightness can be further increased by a frit-glass-laminated structure of a multiplier or microchannel (5).

FIG. 1





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Application Number

EP 90 10 9841

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)
D,X	EP-A-0 281 191 (PHILIPS ELECTRONIC AND ASSOCIATED IND. LTD) * Abstract; figures 1-5; column 3, line 27; column 11, line 28 - column 12, line 18 *	1	H 01 J 31/12 H 01 J 43/24 H 01 J 9/12
A	---	2,3,5,8,9	
A	EP-A-0 070 060 (N.V. PHILIPS' GLOEILAMPENFABRIEKEN) * Abstract; figure; page 12, lines 4-15; claim 1 *	8,9	
A	---		
A	US-A-4 158 157 (J.W. SCHWARTZ) * Abstract; figure 7; column 4, line 62 - column 5, line 51 *	8,9	
A	---		
A	WO-A-8 505 491 (SRI INTERNATIONAL) * Abstract; figure 2; page 8, line 19 - page 9, line 23 *	10	
E	---		
E	JP-A-2 250 232 (MATSUSHITA ELECTRIC IND. CO., LTD)(08-10-1990) & PATENT ABSTRACTS OF JAPAN, vol. 14, no. 576 (E-1016)[4519], 21st December 1990	12,13	TECHNICAL FIELDS SEARCHED (Int. Cl.5) H 01 J
A	---		
A	PATENT ABSTRACTS OF JAPAN, vol. 13, no. 68 (E-716)[3416], 16th February 1989; & JP-A-63 252 349 (SEIKO INSTR. & ELECTRONICS LTD) 19-10-1988	12,13	
A	---		
A	US-A-4 780 395 (SAITO et al.) * Abstract; column 1, lines 32-37 * --- -/-	14,15	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26-02-1992	Examiner CLARKE N.S.
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			



CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

See sheet -B-

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims: 1-10, 12-16
- ☐ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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EUROPEAN SEARCH REPORT

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Application Number

EP 90 10 9841

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	JOURNAL OF PHYSICS D. APPLIED PHYSICS, vol. 16, no. 10, October 1983, pages 2023-2032, The Institute of Physics, Dorking, GB; B. JACHYM et al.: "The use of three-component polymeric composites in preparing a channel electron multiplier" * Abstract; figure 8 *	12	
A	US-A-3 627 550 (M. MONNERAYE) * Abstract; column 2, lines 41-50; column 3, lines 11-21 *	14,15	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26-02-1992	Examiner CLARKE N.S.
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			



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LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims 1-10: Flat display tube apparatus with periodic lens focussing of electron beam by magnetic or electrostatic means.
2. Claims 11+20: A flat display tube comprising (interalia) electron beam guides and an electron multiplier.
3. Claims 12-16: Electron multiplaying material.
4. Claims 17-19: Design of electron multiplier.