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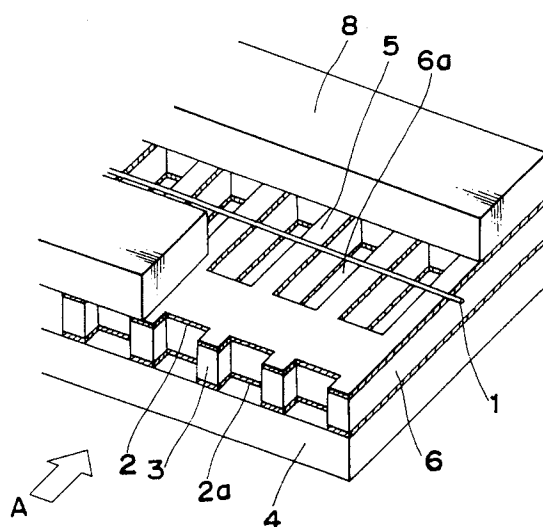
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(54) **Electron source drive device employing an improvement of an electron source unit.**

(57) Further automatic control systems (11 and 31, look at Fig. 3 and Fig. 6) are described to keep constant potential differences between the cathode (1) and the conductive member (3) or the cathode (1) and a second conductive member (30, look at Fig. 6), respectively. These automatic control systems (11 and 31) maintain constant brightness. The system (31, look at Fig. 6) detects external noises.

In an electron source drive device, a cathode support member (6) arranged in contact with a cathode (1) is constructed by a conductive member (3) and an insulation member (2) interposed between the conductive member (3) and a contacting portion of the cathode, and the insulation member (2) is made of a material having a resistivity and a specific dielectric constant such that the electric discharge time constant τ of electrons on the surface of the insulation member depending on the insulation resistance and the electrostatic capacity between the surface of the insulation member and the conductive member is set in a visually permissible range of not too much in excess of one cycle of emission T_f of the cyclical electron from the cathode without bringing forth intermittent electron emission.

Fig . 1 (a)**EP 0 517 146 A3**



DOCUMENTS CONSIDERED TO BE RELEVANT			EP 92109239.1														
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ⁵)														
D,A	US - A - 4 804 887 (MIYAMA) * Column 7, lines 6-16, 42-65; column 9, lines 27-38; column 10, lines 41-50 * --	1,2	H 01 J 31/12 H 01 J 29/50														
A	JP - A - 2-33 838 (MATSUSHITA) * Fig. 9 * & PATENT ABSTRACTS OF JAPAN, unexamined applications, E section, vol. 14 THE PATENT OFFICE JAPANESE GOVERNMENT page 105 E 916 + No. JP-2-33 838 (MATSUSHITA) + --	1															
A	DE - A - 3 432 877 (NITSCH) * Page 1, claim 1; page 5, lines 15-27 * --	1	TECHNICAL FIELDS SEARCHED (Int. Cl. ⁵)														
A	PATENT ABSTRACTS OF JAPAN, unexamined applications, E field, vol. 8, no. 277, December 18, 1984 THE PATENT OFFICE JAPANESE GOVERNMENT page 81 E 285 * JP-A-59-146 139 (MATSUSHITA) * & JP-A-59-146 139 + Fig. 3 + --	3	H 01 J H 04 N														
A	GB - A - 2 127 616 (PHILIPS) * Page 3, line 112 - page 4, line 114; page 5, claim 1; fig. 3,5 * ----	5-8															
The present search report has been drawn up for all claims																	
Place of search VIENNA		Date of completion of the search 19-04-1994	Examiner HAWEL														
<table border="0"><tr><td>CATEGORY OF CITED DOCUMENTS</td><td>T : theory or principle underlying the invention</td></tr><tr><td>X : particularly relevant if taken alone</td><td>E : earlier patent document, but published on, or</td></tr><tr><td>Y : particularly relevant if combined with another</td><td>after the filing date</td></tr><tr><td>document of the same category</td><td>D : document cited in the application</td></tr><tr><td>A : technological background</td><td>L : document cited for other reasons</td></tr><tr><td>O : non-written disclosure</td><td>& : member of the same patent family, corresponding</td></tr><tr><td>P : intermediate document</td><td>document</td></tr></table>				CATEGORY OF CITED DOCUMENTS	T : theory or principle underlying the invention	X : particularly relevant if taken alone	E : earlier patent document, but published on, or	Y : particularly relevant if combined with another	after the filing date	document of the same category	D : document cited in the application	A : technological background	L : document cited for other reasons	O : non-written disclosure	& : member of the same patent family, corresponding	P : intermediate document	document
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P : intermediate document	document																



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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.

X 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:

- a) The claims 1 and 2 refer to an electron source unit with an insulation (2) between the cathode member (1) and a first conductive member (3). This insulation (2) has a thickness and consists of a material which results in an electric discharge time constant t which is smaller than one cycle T_f of the cyclical electron emission from the cathode member (1).
- b) The claims 3 and 4 refer to an electron source unit with a first conductive member (3) and electric potential applying means (11,13) whose maintain a constant potential difference between the first conductive member (3) and the cathode member (1).
- c) The claims 5 to 8 refer to an electron source unit with two conductive members (3,30) and electric potential applying means (31) for detecting entrance of external noise into first conductive member (3) and for suppressing the electric potential at second conductive member (30) lower than at the first conductive member (3).

- ☒ 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:
- ☐ 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: