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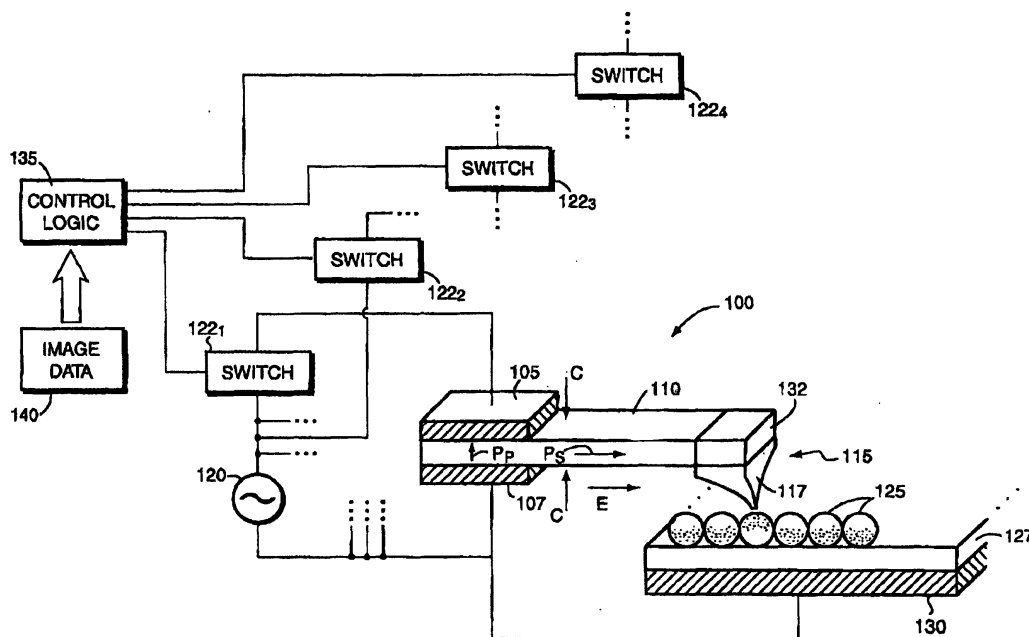
(30) Priority: **10.07.1998 US 113681**

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(54) **Apparatus and methods for selective imaging in nonemissive display systems**

(57) A writing head (100) capable of rapidly and efficiently generating high field gradients while remaining amenable to low-voltage control utilises a piezoelectric (110) or Rosen transformer. A one- or two- dimensional array of such writing heads may be used to address a

substrate (127) bearing an arrangement of electrically responsive, nonemissive display elements (125), applying an image pattern thereto. Similarly, the array of writing heads can be used to remove an image, returning the substrate (127) to its original unimaged state.



**FIG. 1A**



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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 5485

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.7)
A	CHIANG ET AL.: "A stylus writable electrophoretic display device" SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS, May 1979 (1979-05), pages 44-45, XP002102514 Coral Gables, FL, USA * the whole document *	1,16	G09G3/34
A	EP 0 186 519 A (EPID INC) 2 July 1986 (1986-07-02) * page 1, line 1 - page 4, line 13 *	1,16	
A	WO 93 06585 A (COPYTELE INC) 1 April 1993 (1993-04-01) * page 5, line 9 - page 7, line 33 *	1,16	
A	US 5 394 048 A (YAMASHITA TETSUJI ET AL) 28 February 1995 (1995-02-28) * abstract *	1,16	
A	US 3 694 674 A (INOUE KEIJI) 26 September 1972 (1972-09-26) * figure 1 * * abstract *	1,16	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 4 046 456 A (BONNE ULRICH) 6 September 1977 (1977-09-06)		G09G H01L G09F
A	US 3 591 939 A (PAYNE ERROL G ET AL) 13 July 1971 (1971-07-13)		
-The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>1 November 1999</b>	Examiner <b>FARRICELLA, L</b>
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04001)



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### CLAIMS INCURRING FEES

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

- ☐ Only part of the claims 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 claim(s):
- ☐ 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 requirements 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.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ 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 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 invention first mentioned in the claims, namely claims:

1-9, 16-22



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**LACK OF UNITY OF INVENTION**  
**SHEET B**

Application Number  
EP 99 30 5485

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

1. Claims: 1-9,16-22

Apparatus and method for addressing a non emissive bistable display using a piezoelectric transformer.

2. Claims: 10-12,23-25

Apparatus and method for addressing a non emissive bistable display using a chage receptor

3. Claims: 13-15

An electronic camera comprising a charge receptor and sensng means

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 5485

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-11-1999

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No 12/82