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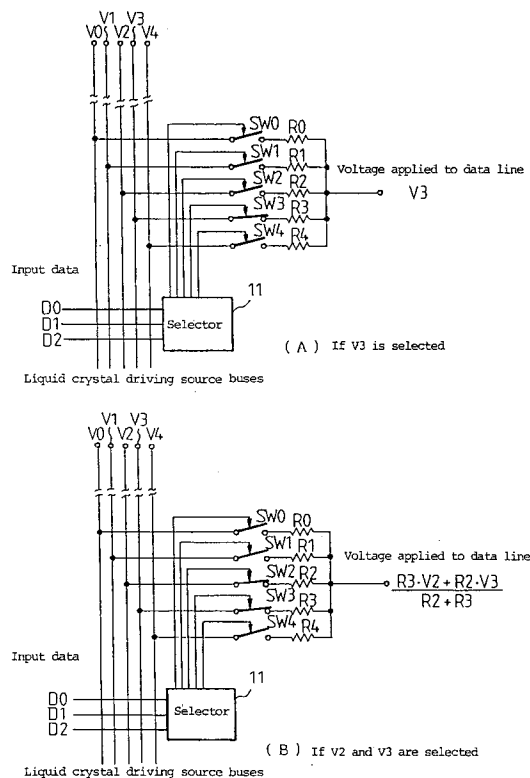
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(54) **Method and apparatus for displaying gray-scale levels.**

(57) A liquid crystal matrix display has plural picture elements (PELs) arranged in an X-Y matrix. Each PEL includes a thin film transistor (TFT) and a display electrode. Data lines are formed in the X direction and gate lines in the Y direction. To display one of eight gray-scale levels for each PEL, one of eight voltage levels is selectively applied to the data line. The voltage levels are applied through a combination of switches which operate under the control of a selector which translates a three bit address into the selection of one or more switches. By this means the number of voltage sources and switches to operate a cell is less than the number of gray-scale values.

**FIG. 1**



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
Y	EP-A-0 391 655 (SHARP K.K.) 10 October 1990 * Abstract * * page 7, line 2 - line 39; figures 1-3 * ---	1,2,4-8	G09G3/36
Y	PATENT ABSTRACTS OF JAPAN vol. 12, no. 402 (E-673)25 October 1988 & JP-A-63 141 414 (MATSUSHITA ELECTRIC IND.CO.LTD.) 13 June 1988 * abstract * ---	1,2,4-8	
A	US-A-3 560 957 (T.MIURA ET AL.) 2 February 1971 * column 7, line 52 - column 9, line 22; figures 9,10 * ---	1,2,5,7	
X,P	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 33, no. 6B, November 1990, NEW YORK US pages 384 - 385; 'Driving method for TFT/LCD gray scale' * whole article * -----	1-8	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G09G G06J H04N
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26 AUGUST 1992	Examiner CORSI F.
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	