

(12) **United States Patent**
Sekiya et al.

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(54) **IMAGE DISPLAY APPARATUS**

JP 10-319908 12/1998
 WO 98/33165 7/1998

(75) Inventors: **Mitsunobu Sekiya**, Tokyo (JP); **Akira Yumoto**, Kanagawa (JP)

* cited by examiner

(73) Assignee: **Sony Corporation**, Tokyo (JP)

Primary Examiner—Dennis-Doon Chow

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 212 days.

(57) **ABSTRACT**

The invention provides an image display apparatus which increases the degree of freedom in designing of an active element of a pixel to allow good designing and can adjust the display brightness freely and simply. Each pixel includes a light emitting element (OLED) with a brightness value which varies depending upon an amount of current supplied thereto, a first TFT controlled by a scanning line for writing brightness information given thereto from a data line into the pixel, and a second TFT for controlling the amount of current to be supplied to the OLED corresponding to the brightness information written. Writing of the brightness information into each pixel is performed by applying an electric signal corresponding to the brightness information to the data line while the scanning line is selected. The brightness information written in each pixel is held by the pixel also after the scanning line is placed into a non-selected state so that the OLED can continue lighting with a brightness value corresponding to the brightness information held by the pixel. A stopping control line compulsorily extinguishes the OLEDs of the pixels connected to the same scanning line at least in a unit of a scanning line so that the OLEDs are placed into an extinguished state from a lit state within a period of one scanning cycle after the brightness information is written into the pixels until new brightness information is written into the pixels subsequently.

(21) Appl. No.: **09/594,087**

(22) Filed: **Jun. 15, 2000**

(30) **Foreign Application Priority Data**

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 Jun. 2, 2000 (JP) 2000-166170

(51) **Int. Cl.⁷** **G09G 3/30**

(52) **U.S. Cl.** **345/76; 345/77; 345/82**

(58) **Field of Search** 345/92, 87, 76, 345/77, 80, 82, 55; 315/169.4, 169.3, 169.1; 340/815.45

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EP 0 905 673 3/1999

26 Claims, 12 Drawing Sheets

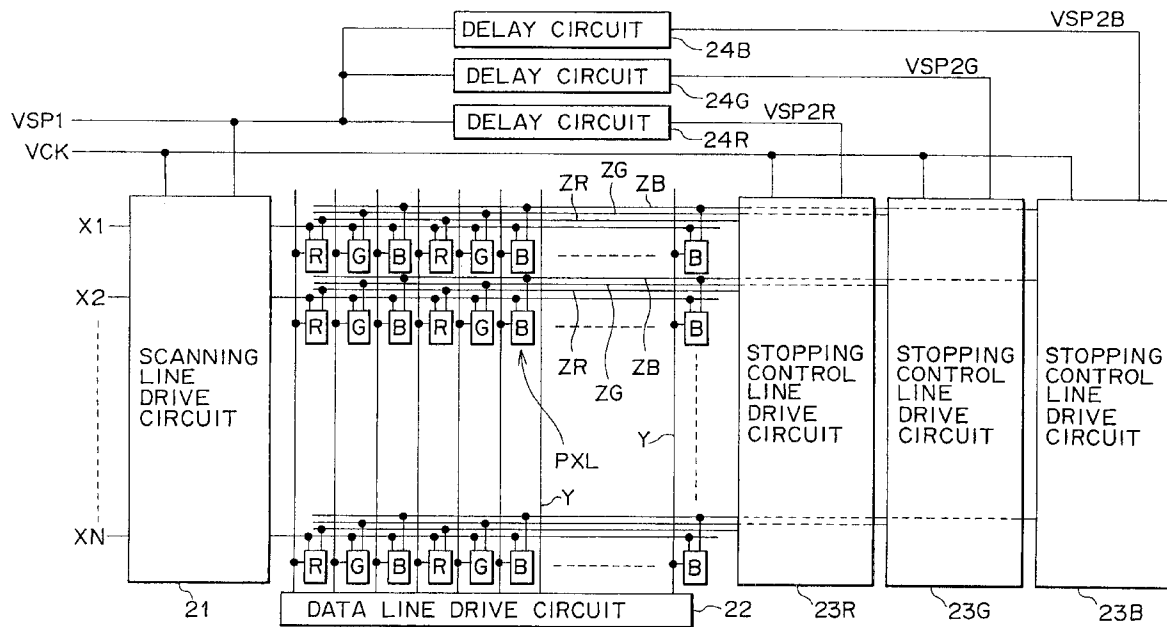


FIG. 1

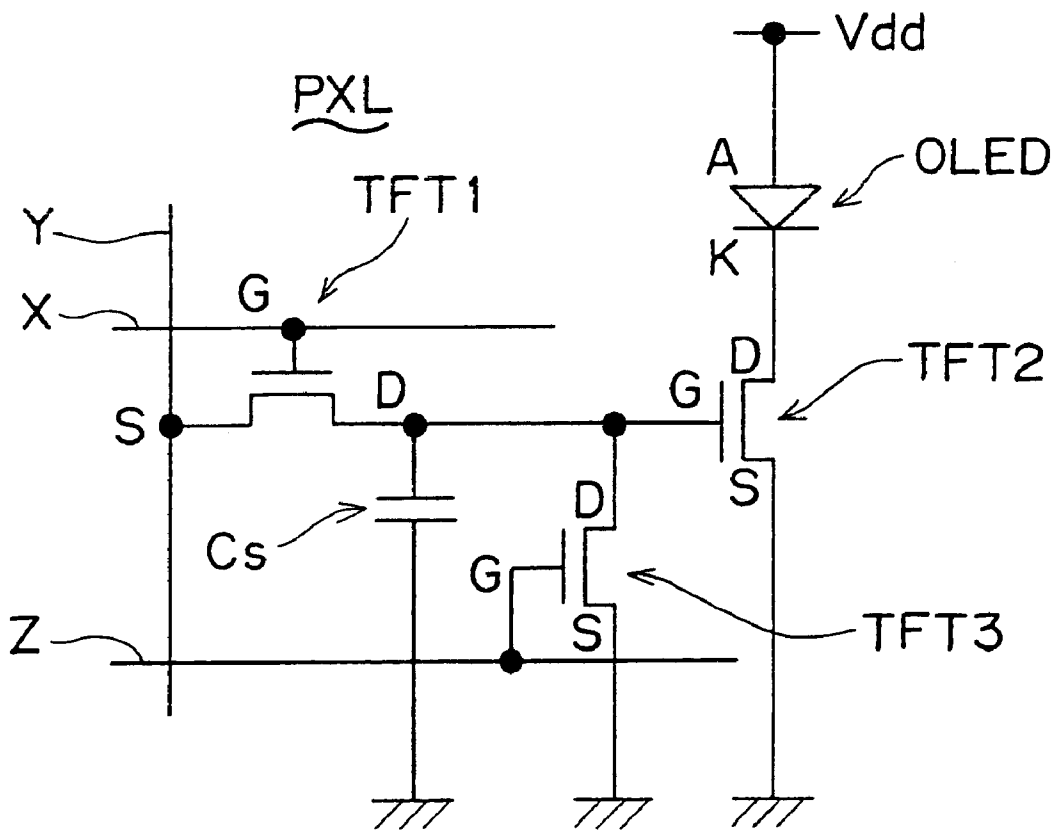


FIG. 2

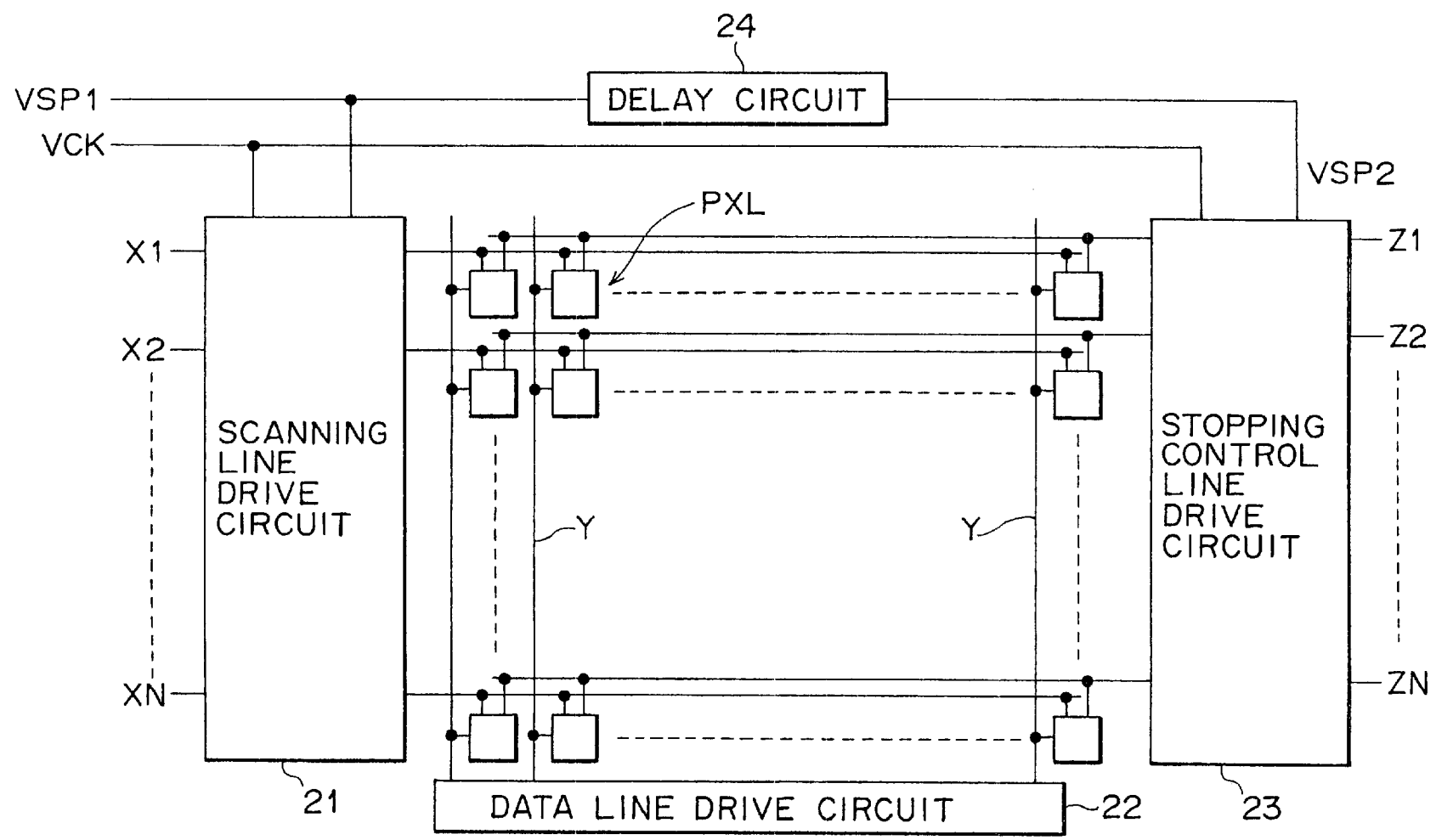


FIG. 3

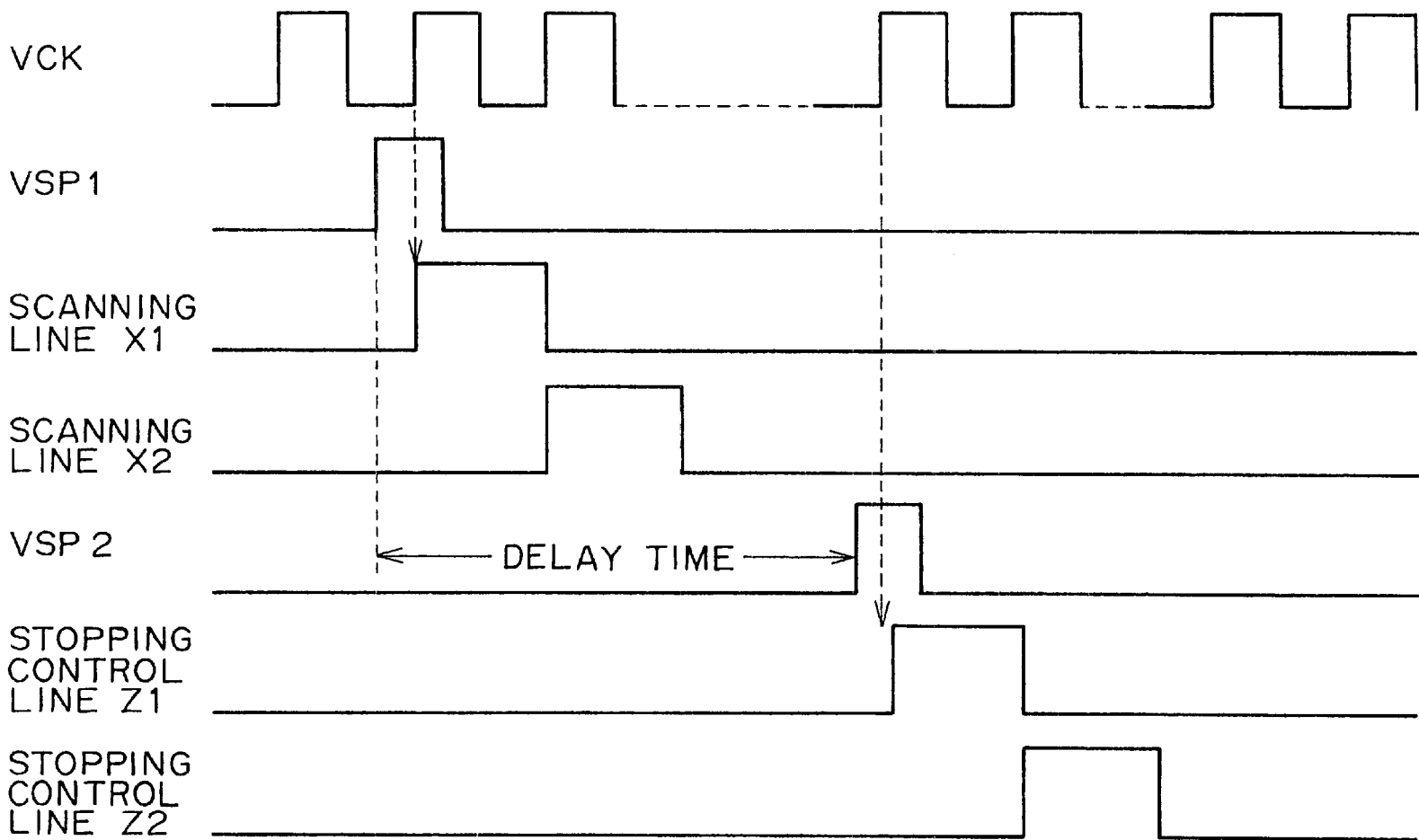
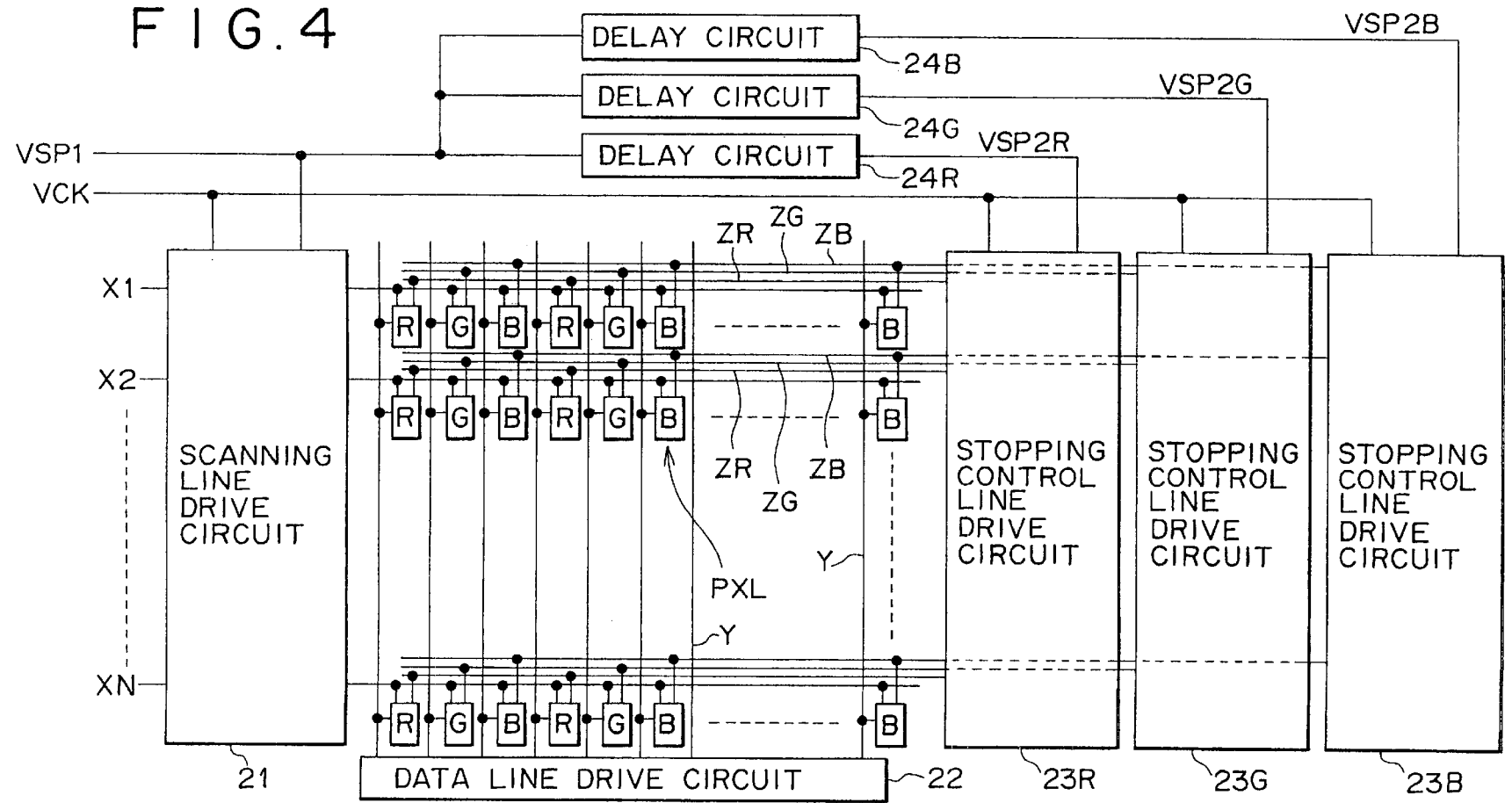


FIG. 4



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