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**Yumoto**

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(54) **CURRENT DRIVE CIRCUIT AND DISPLAY DEVICE USING THE SAME, PIXEL CIRCUIT, AND DRIVE METHOD**

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§ 371 (c)(1),  
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Jul. 14, 1999 (JP) ..... P11-200843

(51) **Int. Cl.**<sup>7</sup> ..... **G09G 3/32**

(52) **U.S. Cl.** ..... **345/82; 345/204; 315/169.3**

(58) **Field of Search** ..... 345/82, 76, 204,  
345/55, 83, 84, 62; 315/169.3, 169.1, 169.4;  
313/498-500, 505

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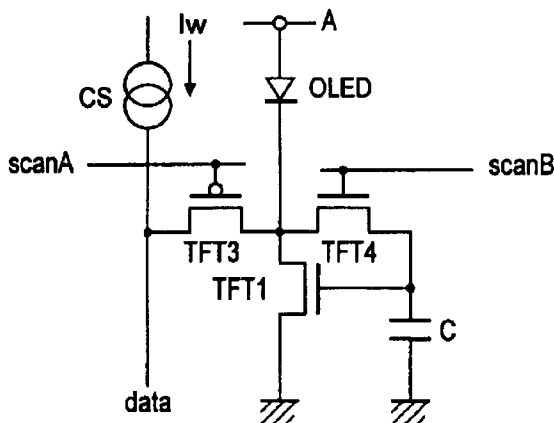
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(57) **ABSTRACT**

A display including a current drive circuit capable of supplying a desired current to a light-emitting element in each pixel stably and accurately irrespective of the characteristic variations of active elements in the pixel, thereby providing a high-definition image. Each pixel is composed of a receiving transistor (TFT3) for receiving a signal current (Iw) from a data ine (data) when a scanning line (scanA) is selected, a converting transistor (TFT1) for converting the current level of the received signal current (Iw) to a voltage level and holding the voltage level, and a driving transistor (TFT3) for allowing a drive current having a current level corresponding to the held voltage level to flow through light-emitting element (OLED). The converting thin film transistor (TFT1) generates the converted voltage level at its gate by allowing the signal current (Iw) through its channel, and a capacitor (C) holds the voltage level at the gate of the transistor (TFT1). The transistor (TFT2) allows the drive current having a current level corresponding to the voltage level held by the capacitor (C) to flow through the light-emitting element (OLED).

**22 Claims, 19 Drawing Sheets**



# FIG. 1

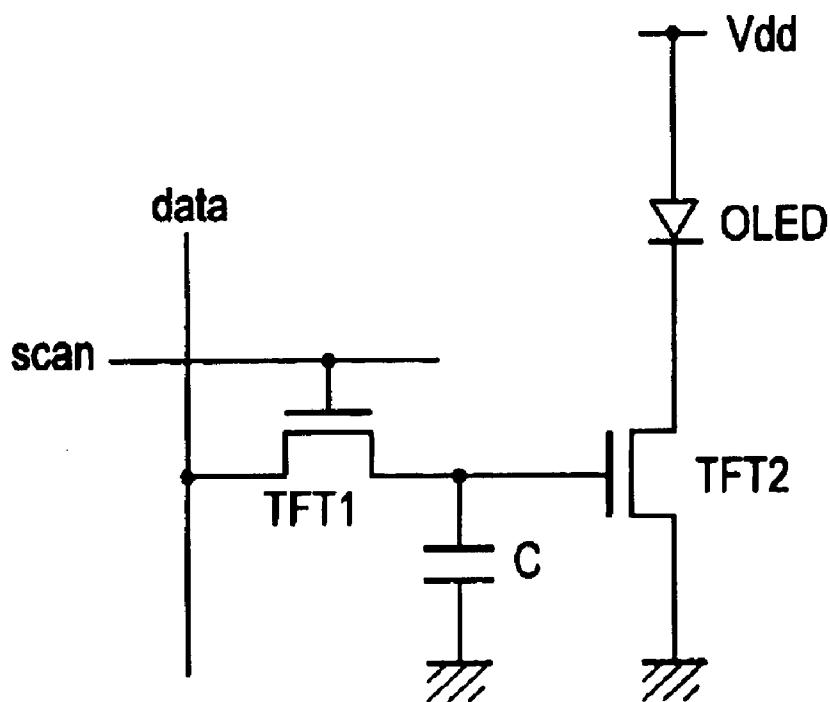


FIG.2

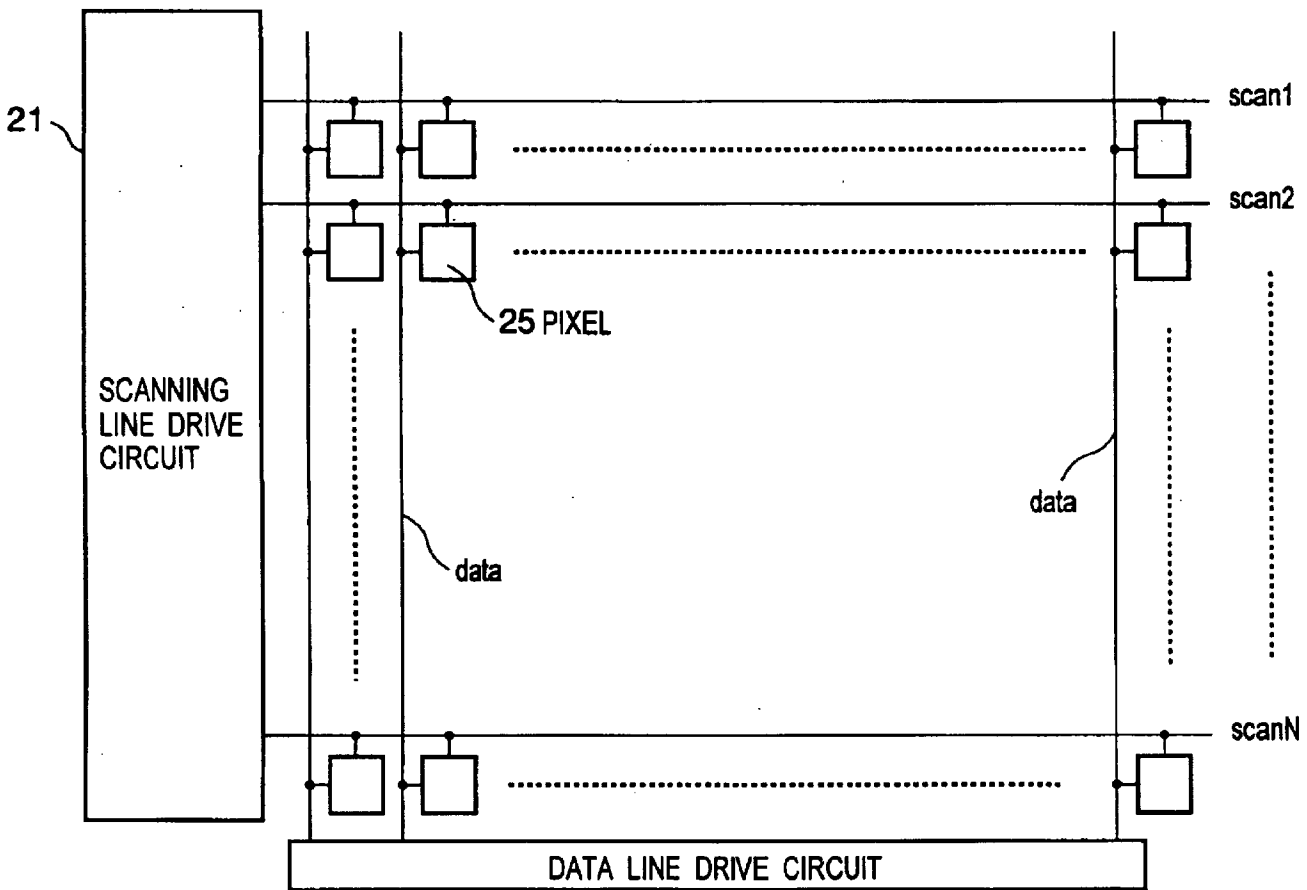


FIG. 3

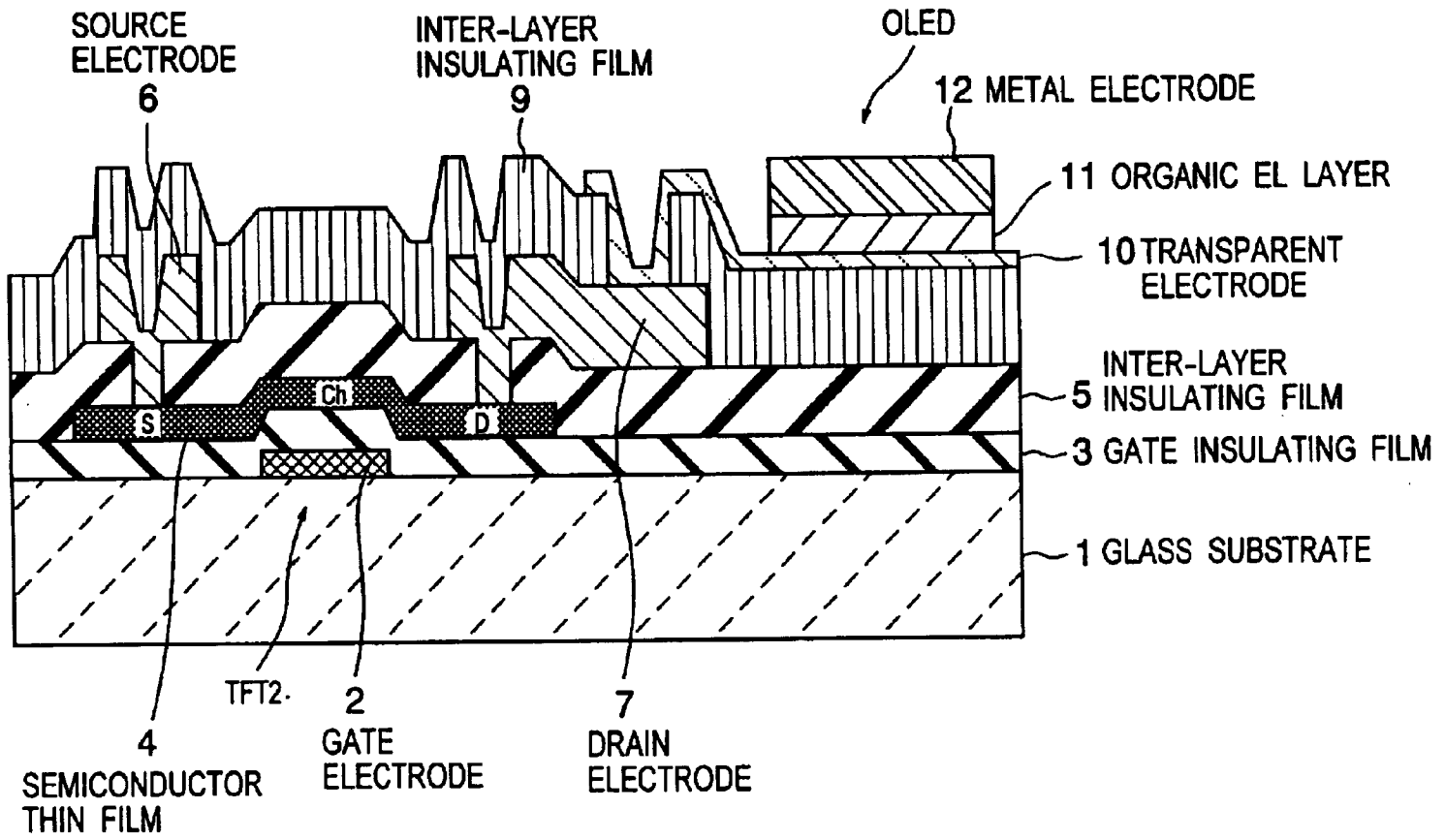
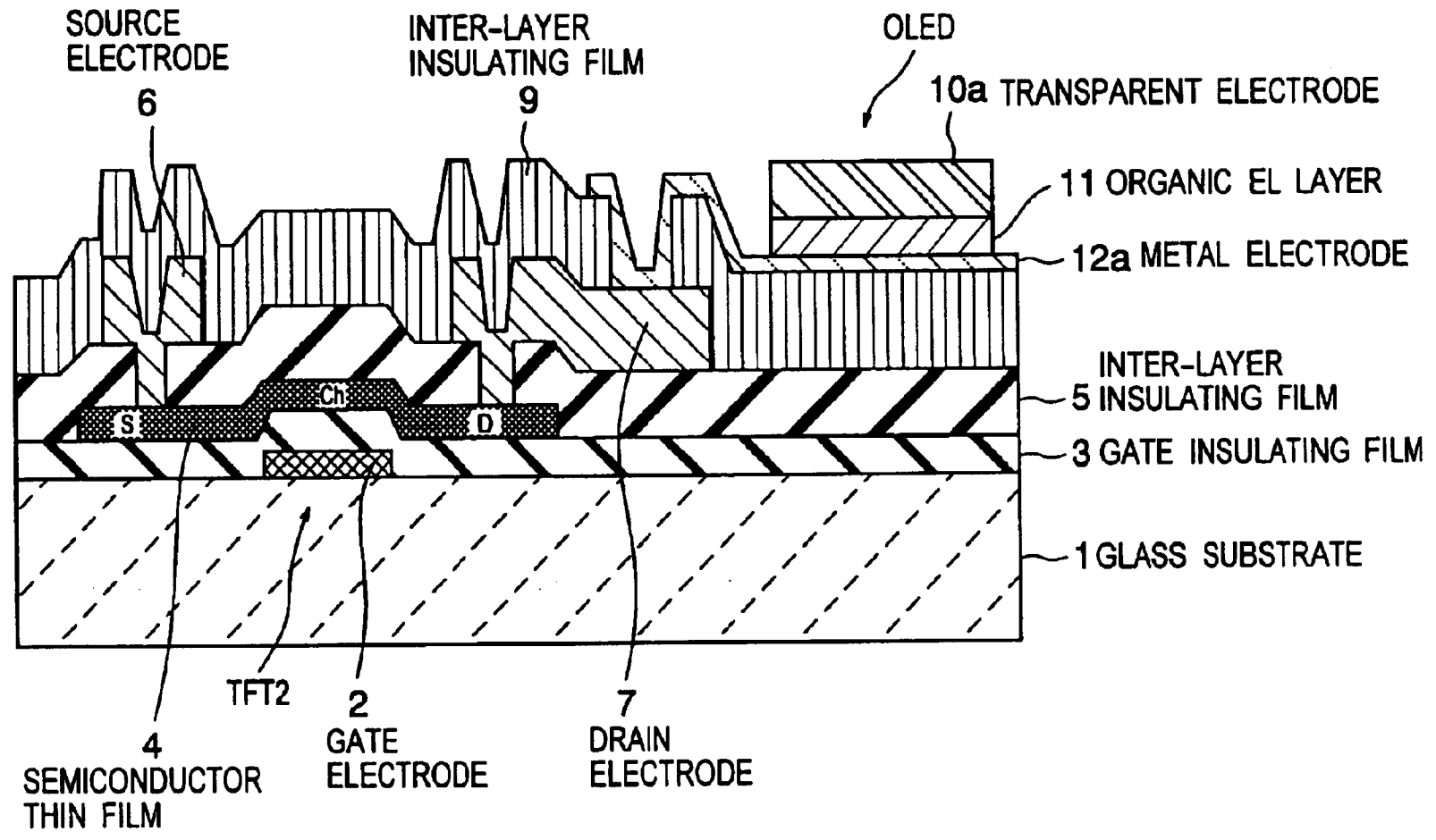


FIG. 4



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