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(54) **Organic electro luminescence display**

Organische elektrolumineszente Anzeigevorrichtung

Dispositif d'affichage électroluminescent organique

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Description

CLAIM OF PRIORITY

Background of the Invention

Field of the Invention

[0001] The present invention relates to an organic electroluminescence display and, more particularly, to an active matrix organic electroluminescence display in which two opposite pixels are formed in one pixel portion to achieve a high aperture ratio and to facilitate a fabrication process.

Description of the Related Art

[0002] A cathode ray tube (CRT) as one of normally used display devices is primarily used for televisions (TVs) as well as monitors of measurement instruments, information terminals, and the like. However, the cathode ray tube cannot satisfy a need for compact and lightweight electronic products because of its weight and size.

[0003] Flat panel display devices having compact and lightweight features have been attracted attention as substitutes for the CRT. The flat panel display devices include a liquid crystal display (LCD), an organic electro luminescence display (OELD), and the like.

[0004] Of these flat panel display devices, the organic electroluminescence display is an electro luminescence display that emits light when excitons are transitioned from an excited state to a ground state. The excitons are created when respective electrons and holes from an electron injection electrode (i.e., a cathode) and a hole injection electrode (i.e., an anode) are injected into an emission layer and the injected electrons and holes are combined.

[0005] This principle eliminates a need for a separate light source, which is needed for a conventional thin film liquid crystal display device. It is, therefore, possible to reduce the volume and weight of the device.

[0006] The organic electroluminescence display may be classified into a passive matrix manner and an active matrix manner according to a driving manner.

[0007] The passive matrix organic electroluminescence display may be easily fabricated because of its simple configuration. However, there are disadvantages of high power consumption and a difficulty in making a large-sized display device. Also, in making the passive matrix organic electroluminescence display, the aperture ratio is reduced as the number of lines are increased.

[0008] For these reasons, the passive matrix organic electroluminescence display is used for a small-sized display device while the active matrix organic electroluminescence display is used for a large-sized display device.

[0009] The conventional organic electroluminescence display has a problem in that the thickness of the organic emission layer is not uniform in a stepped portion of the opening corresponding to each pixel, which makes it impossible to achieve uniform luminescence properties.

[0010] A method of forming an opening in a stripe manner to solve the aforementioned problem was introduced, as disclosed in Korean Laid-open Patent No. 2002-0077241. A method of forming an opening in a delta manner was also introduced.

[0011] There is, however, a problem that when the stripe or delta type is used to increase an aperture ratio, visibility of the organic electroluminescence display is degraded due to optical interference between adjacent pixels.

[0012] Further, in the case of forming the opening in the dot manner, the stripe type and the delta type in the organic electroluminescence display, R, G, B pixels are arranged to have the same form in uniform positions. That is, the pixels are arranged uniformly. Since the minuteness of a pattern is inversely proportional to a high aperture ratio, there is a problem associated with the manner of increasing the aperture ratio of the pixel in a stripe or delta type for a high quality data processing that requires a minute pattern as well as a high aperture ratio. European patent application no. 0 935 229 discloses a display apparatus having pairs of pixels arranged on both sides of a common power feed line in order to reduce the number of power feed lines. U.S. patent application no. 6,011,531 discloses a display device in which two adjacent pixels share one single gate line. Furthermore, European patent application no. 0 293 048 and U.S. patent application no. US 5,977,562 disclose a display device in which two adjacent pixels share at least one common line. Furthermore, U.S. patent application 2002/0021268 A1 discloses an organic electroluminescence display comprising pixel regions defined by the gate lines, the data lines and the power lines, wherein the emission layer is shared by all the pixels in the same row.

SUMMARY OF THE INVENTION

[0013] It is therefore an object of the present invention to provide an improved organic electroluminescence display.

[0014] It is also an object of the present invention to solve aforementioned problems associated with conventional devices by providing an active matrix organic electroluminescence display.

[0015] It is further an object of the present invention to provide an organic electroluminescence display in which two opposite pixels are formed in one pixel portion to achieve a high aperture ratio and facilitate a fabrication process.

[0016] In order to achieve the above and other objectives, an exemplary embodiment of the present invention includes: gate lines, data lines, and power lines formed on an insulating substrate; and pixel regions defined by the gate lines, the data lines, and the power lines, so that each of the pixel regions is integrally arranged between two adjacent gate lines (420, 510) and between a data

line (430, 520) and a power line (440, 530) crossing the gate lines (420, 510), wherein each of the pixel regions includes a first pixel and a second pixel, and the pixel regions being arranged in a matrix form. The first and second pixels share the same emission layer. The first and second pixels are arranged adjacent to each other so that their components are symmetrically arranged with respect to the adjoined side. It is preferable that the two opposite pixels emit light of the same color. The emission regions in different pixel regions from each other that emit light of the same color may be arranged to be equally biased.

[0017] The pair of emission regions in the pixel regions use emission layers as common layers, and the pair of emission regions emit light of the same color.

[0018] Preferably, each of the first pixel and the second pixel comprises: a driving transistor for adjusting the amount of emitted light by adjusting the amount of current supplied to an organic emission portion; a switching transistor turned on by a signal applied from the gate line to apply a signal on the data line to the driving transistor; and the organic emission portion, wherein the directions of the currents applied from the switching transistors of the first pixel and the second pixel to the organic emission portions are opposite to each other.

[0019] It is preferable that each of the organic emission portions includes a pixel electrode, an organic emission layer and an upper electrode, and the first and second pixels use the organic emission layers as common layers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] A more complete appreciation of the present invention, and many of the above and other features and advantages of the present invention, will be readily apparent as the same becomes better understood by reference to the following detailed description when considered in conjunction with the accompanying drawings in which like reference symbols indicate the same or similar components, wherein:

FIG. 1 is a top view of a conventional organic electroluminescence display;

FIG. 2 is a cross-sectional view of a conventional organic electroluminescence display;

FIG. 3 is a top view illustrating the arrangement of R, G and B pixels of a conventional organic electroluminescence display;

FIGS. 4 and 5 are top views illustrating the arrangement of R, G, B pixels of an organic electroluminescence display according to an exemplary embodiment of the present invention; and

FIGS. 6 to 8 are top views illustrating a unit pixel structure of an organic electroluminescence display according to other exemplary embodiments which are not part of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] A conventional organic electroluminescence display will be hereinafter described with reference to the accompanying drawings.

[0022] FIG. 1 is a top view of a conventional organic electroluminescence display, and FIG. 2 is a cross-sectional view of a conventional organic electroluminescence display. In FIG. 1, the display is shown only with a capacitor, a driving transistor, and an organic electroluminescence element connected to the driving transistor.

[0023] Referring to FIG. 1, the conventional organic electroluminescence display includes a plurality of gate lines 110 insulated from one another and arranged in one direction; a plurality of data lines 120 insulated from one another and arranged in a direction intersecting with the gate lines 110; common power lines 130 insulated from one another and arranged to intersect with the gate lines 110 and to be in parallel with the data lines 120; a plurality of pixel regions 140 formed by the gate lines 110, the data lines 120 and the common power lines 130; and a plurality of pixel electrodes 150 each arranged per pixel region 140.

[0024] R, G, B unit pixels are arranged in each of the pixel regions 140. Each of the unit pixels includes an organic electroluminescence element having two thin film transistors 160 and 180, one capacitor 170, and the pixel electrode 150. Here, a reference numeral 189 denotes a via-hole for connecting a drain electrode 187 of the driving transistor 180 to the pixel electrode 150.

[0025] The switching transistor 160 of the two thin film transistors 160 and 180 includes an active layer 161 having source and drain regions, a gate electrode 163 connected to the gate line 110, and source and drain electrodes 165 and 167 connected to the source and drain regions in the active layer 161 through a contact hole. Further, the driving transistor 180 includes an active layer 181 having source and drain regions, a gate electrode 183, and source and drain electrodes 185 and 187 connected to the source and drain regions in the active layer 181 through a contact hole.

[0026] Meanwhile, the capacitor 170 includes a lower electrode 171 connected to a gate electrode 183 of the driving transistor 180 and to the drain electrode 187 of the driving transistor 180 through a contact hole, and an upper electrode 173 connected to the common power line 130 to which the source electrode 185 of the driving transistor 180 is connected through a contact hole. The pixel electrode 150 is connected to the drain electrode 187 of the driving transistor 180 through the via-hole 189.

[0027] Referring to FIG. 2, a buffer layer 210 is formed on an insulating substrate 200. An active layer 220 having source and drain regions 221 and 225 is formed on the buffer layer 210. A gate electrode 241, a lower electrode 245 of a capacitor C, and a gate line 247 are formed on a gate insulating layer 230. Source and drain electrodes

263 and 265 connected to the source and drain regions 221 and 225 through contact holes 251 and 255, an upper electrode 285 of the capacitor C connected to one of the source and drain electrodes 263 and 265, for example, the source electrode 263, and a data line 267 are formed on an interlayer insulating layer 250.

[0028] A passivation layer 270 is formed on the entire surface of the insulating substrate 200. A lower electrode 281 which is formed on the passivation layer 270 is a pixel electrode of an organic electroluminescence element E connected to one of the source and drain electrodes 263 and 265, for example the drain electrode 265 through a via-hole 275. A pixel defining layer (PDL) 290 is formed which has an opening 295 formed to expose a portion of the lower electrode 281. An organic emission layer 283 is formed on the lower electrode 281 in the opening 295, and an upper electrode 285 is formed on the entire surface of the insulating substrate 200, resulting in the organic electroluminescence element E.

[0029] Meanwhile, FIG. 3 is a top view illustrating the arrangement of R, G, B pixels of a conventional organic electro luminescence display. There is shown a structure in which each pixel is a dot matrix type.

[0030] Referring to FIG. 3, an organic electroluminescence display 300 is composed of a plurality of pixels 310 that are arranged in a matrix form. Each of the pixels 310 includes a switching transistor and a driving transistor, such as thin film transistors. The organic electroluminescence element emits light as the switching transistor of each pixel 310 is driven by voltages applied to a gate line corresponding to a row and a data line corresponding to a column. An R pixel, a G pixel and a B pixel may be arranged variously. As shown in FIG. 3, for example, the R pixel, the G pixel, and the B pixel may be arranged in the form of a straight line or a stripe (on the column).

[0031] There is, however, a problem associated with the organic electroluminescence display as described above that the thickness of the organic emission layer is not uniform in a step of the opening corresponding to each pixel shown in FIG. 3, which makes it impossible to achieve uniform luminescence properties.

[0032] Hereinafter, exemplary embodiments of the present invention will be described with reference to the accompanying drawings.

[0033] FIG. 4 is a top view illustrating the arrangement of R, G, B pixels of an organic electroluminescence display according to an exemplary embodiment of the present invention. There is shown a structure in which two adjacent pixels are arranged in a non-uniform manner.

[0034] Referring to FIG. 4, in an organic electroluminescence display 400 of the present invention, two pixels 410 for each of the R, G, B pixels are formed adjacent and opposite to each other. Each of the pixels 410 is composed of a switching thin film transistor, a capacitor, a driving thin film transistor, and an organic electroluminescence element connected to the driving thin film transistor. The organic electroluminescence element emits light as the switching thin film transistor and the driving thin film transistor are driven with a gate line 420 corresponding to a row of each pixel 410, a data line 430 corresponding to a column thereof, and a power line 440. The R, G, B pixels may be arranged variously. The pixels may be arranged, for example, in the form of a straight line (i.e., a column), as shown in FIG. 4.

[0035] The respective R, G, B pixels 410 are arranged in a non-uniform manner, unlike the pixels of the conventional organic electroluminescence display that are arranged in a uniform manner. In other words, the respective pixels are not formed in the same position and form, but two adjacent pixels are formed opposite to each other (i.e., a mirror image). The device has a structure in which the two opposite pixels are repeated.

[0036] FIG. 5 is a top view illustrating an organic electroluminescence display according to a first exemplary embodiment of the present invention, in which each of the two adjacent pixels opposite to each other in FIG. 4 is shown only with a switching transistor, a capacitor, a driving transistor, and an organic electroluminescence element connected to the driving transistor.

[0037] Referring to FIG. 5, the organic electroluminescence display of the present invention has a structure in which two pixels are formed opposite to each other within a pixel region defined by a data line 520, a power line 530, and two gate lines 510, namely, a non-uniform arrangement structure in which the pixels are formed in different positions from each other. In other words, when an organic emission layer is formed on a pixel electrode 550, the organic emission layer is integrally formed on one pixel electrode as well as on the opposite pixel electrode, namely, in the pixel region defined by the data line 520, the power line 530, and two gate lines 510.

[0038] One pixel includes a switching thin film transistor 560, a driving thin film transistor 580, a capacitor 570, and an emission region emitting light, wherein an organic electroluminescence element connected to the driving thin film transistor 580 is formed in the emission region.

[0039] A drain electrode 567 of the switching thin film transistor 560 is connected to the data line 520, a source electrode 565 is connected to a lower electrode 571 of the capacitor 570, and the gate electrode 563 is connected to the gate line 510.

[0040] A source electrode 585 of the driving thin film transistor 580 is connected to the power line 530, a drain electrode 587 is connected to the pixel electrode 550 through a via hole 589, and a gate electrode 583 is connected to an upper electrode 573 of the capacitor 570.

[0041] In each of the pixels of the organic electroluminescence display formed as described above, the data line 520 delivers an image signal, the gate line 510 delivers a selection signal, the switching thin film transistor 560 delivers data to the capacitor 570 in response to the selection signal of the gate line 510, and the capacitor 570 stores and holds the applied data. The driving thin film transistor 580 supplies current to the pixel electrode

550 to drive the organic electroluminescence element.

[0042] the two adjacent pixels also have the respective opposite current directions. In other words, a signal begins to be delivered through the gate lines 510 formed at both sides of the pixel portion and arrives at the organic electroluminescence element, which is similar to a direction when viewed in front of a mirror.

[0043] Further, the emission regions are equally biased, wherein in the emission regions, light emitted from each pixel in different pixel portions from each other, i.e., the pixel composed of the switching and driving thin film transistors, the capacitor, and the organic emission layer is taken out.

[0044] One pixel of the organic electroluminescence display of the present invention includes a driving thin film transistor having an active layer which is formed on an insulating substrate having a buffer layer and which has source and drain regions, a gate electrode formed on a gate insulating layer, and source and drain electrodes electrically connected to the source and drain regions through a contact hole. The pixel also includes an organic electroluminescence element composed of a lower electrode electrically connected to the thin film transistor, an organic emission layer, and an upper electrode.

[0045] the first pixel and the second pixel which are adjacent to each other are opened with the organic emission layer being shared therewith, and are formed opposite to each other. In other words, the two pixels face each other and have a structure in which respective components are arranged opposite to each other.

[0046] FIG. 6 is a top view illustrating an organic electroluminescence display according to a second exemplary embodiment, which is not part of the present invention.

[0047] Referring to FIG. 6, a pixel structure of the organic electroluminescence display in the second exemplary embodiment which is not part of the present invention has the same components as those in the first exemplary embodiment except that there is a difference in the arrangement of the components. In the first exemplary embodiment, two pixels 540 are integrally arranged between two gate lines 510 and are formed adjacent and opposite to each other while in the second exemplary embodiment, two gate lines 510 are formed adjacent to each other and the pixels 540 are formed symmetrically about the gate line 510.

[0048] FIG. 7 is a top view illustrating an organic electroluminescence display according to a third exemplary embodiment which is not part of the present invention.

[0049] Referring to FIG. 7, a pixel structure of the organic electroluminescence display in the third exemplary embodiment has the same components as those in the first exemplary embodiment except that there is a difference in the arrangement of the components. In the first exemplary embodiment, the two pixels 540 are arranged integrally between the two gate lines 510 and are formed adjacent and opposite to each other while in the third exemplary embodiment, two pixels 540 share the gate line 510 and face each other about the common power line. Further, in the second exemplary embodiment, the two gate lines 510 are formed adjacent to each other and the two pixels 540 are formed to face each other about the gate lines 510 while in the third exemplary embodiment, the two pixels 540 share one gate line 510 and face each other about the common power line, as described above.

[0050] Fig. 8 is a top view illustrating an organic electroluminescence display according to a fourth exemplary embodiment, which is not part of the present invention.

[0051] Referring to FIG. 8, a pixel structure of the organic electroluminescence display in the fourth exemplary embodiment is similar with that in the third exemplary embodiment except that there is a difference in its arrangement. In the third exemplary embodiment, the two pixels 540 are arranged to face each other about the common power line while in the fourth exemplary embodiment, the two data lines 520 are adjacent to each other and the two pixels 540 face each other about the data lines 520. Here, the gate line 510 is shared by the two pixels.

[0052] In the above-described exemplary embodiments of the present invention, because two opposite adjacent pixels of the same color share the organic emission layers and the organic emission layers are opened simultaneously, it is possible to obtain a higher aperture ratio compared to the method of forming the opening of the pixel in the conventional dot manner.

[0053] Further, it is possible to achieve the visibility of the organic electro luminescence display, because a more precise pattern is obtained as compared to the method of forming the opening of the pixel in the conventional stripe or delta manner.

[0054] As described above, according to the present invention, it is possible to provide an active matrix organic electro luminescence display in which two opposite pixels are formed in one pixel portion to achieve a high aperture ratio and to facilitate a fabrication process.

[0055] Although the preferred embodiments of the present invention have been described, it will be appreciated by those skilled in the art that various modifications and variations may be made to the present invention without departing from the scope the present invention set forth in the appending claims.

Claims

1. An organic electroluminescence display (400), comprising:

   gate lines (420, 510), data lines (430, 520), and power lines (440, 530) formed on an insulating substrate; and

   pixel regions defined by the gate lines (420, 510), the data lines (430, 520) and the power lines (440, 530) so that each of the pixel regions

is integrally arranged between two adjacent gate lines (420, 510) and between a data line (430, 520) and a power line (440, 530) crossing the gate lines (420, 510), each of the pixel regions comprising a first pixel (410, 540) and a second pixel (410, 540),
the pixel regions being arranged in a matrix form, and
characterized in that
the first and second pixels (410, 540) are adjacent to each other so that their components are symmetrically arranged with respect to the adjoined side, and
the emission layer of the first pixel (410, 540) and the second pixel (410, 540) is integrally formed so that the emission layer is shared by the first and second pixels (410, 540).

2. The device according to claim 1, wherein each pixel (410, 540) includes a switching thin film transistor (560), a driving thin film transistor (580), a capacitor (570), and an organic electroluminescence element, the organic electroluminescence element comprising a lower electrode electrically connected to the driving thin film transistor (580), an organic emission layer, and an upper electrode.

3. The device according to any of claims 1 and 2, wherein the first pixel (410, 540) and the second pixel (410, 540) emit light of the same color.

4. The device according to one of the preceding claims, each of said first pixel (410, 540) and said second pixel (410, 540) comprising:

a driving transistor (580) adjusting the amount of emitted light by adjusting the amount of current supplied to an organic emission portion;
a switching transistor (560) turned on by a signal applied from the gate line (420, 510) to apply a signal on the data line (430, 520) to the driving transistor (580); and
an organic emission portion;
wherein the switching transistors (560) of the first pixel (410, 540) and the second pixel (410, 540) are adapted to apply currents of opposite directions to the organic emission portion.

5. The device according to claim 4, wherein each of the organic emission portions includes a pixel electrode (550), an organic emission layer, and an upper electrode, and wherein the first pixel and the second pixel share the organic emission layer.

Patentansprüche

1. Organische elektrolumineszente Anzeigevorrichtung (400), aufweisend:

Gate-Leitungen (420, 510), Datenleitungen (430, 520) und Energieleitungen (440, 530), die auf einem Isoliersubstrat ausgebildet sind; und
Pixelbereiche, die durch die Gate-Leitungen (420, 510), die Datenleitungen (430, 520) und die Energieleitungen (440, 530) definiert sind, so dass jeder der Pixelbereiche einstückig zwischen zwei benachbarten Gate-Leitungen (420, 510) und zwischen einer Datenleitung (430, 520) und einer Energieleitung (440, 530), die die Gate-Leitungen (420, 510) kreuzen, angeordnet ist, wobei jeder der Pixelbereiche einen ersten Pixel (410, 540) und einen zweiten Pixel (410, 540) aufweist,
wobei die Pixelbereiche in einer Matrixform angeordnet sind, und
dadurch gekennzeichnet, dass
der erste und zweite Pixel (410, 540) zueinander benachbart sind, so dass ihre Komponenten bezüglich der angrenzenden Seite symmetrisch angeordnet sind, und
die Emissionsschicht des ersten Pixels (410, 540) und des zweiten Pixels (410, 540) einstückig ausgebildet ist, so dass die Emissionsschicht vom ersten und zweiten Pixel (410, 540) gemeinsam verwendet wird.

2. Vorrichtung nach Anspruch 1, wobei jeder Pixel (410, 540) einen Schalt-Dünnfilmtransistor (560), einen Ansteuer-Dünnfilmtransistor (580), einen Kondensator (570) und ein organisches elektrolumineszentes Element aufweist, wobei das organische elektrolumineszente Element eine untere Elektrode, die mit dem Ansteuer-Dünnfilmtransistor (580) elektrisch verbunden ist, eine organische Emissionsschicht und eine obere Elektrode aufweist.

3. Vorrichtung nach einem der Ansprüche 1 und 2, wobei der erste Pixel (410, 540) und der zweite Pixel (410, 540) Licht derselben Farbe emittieren.

4. Vorrichtung nach einem der vorhergehenden Ansprüche, wobei jeder des besagten ersten Pixels (410, 540) und des besagten zweiten Pixels (410, 540) aufweist:

einen Ansteuertransistor (580), der die Menge des emittierten Lichts durch Regulieren der Menge des Stroms, mit dem ein organischer Emissionsabschnitt versorgt wird, reguliert;
einen Schalttransistor (560), der durch ein Signal eingeschaltet wird, das von der Gate-Leitung (420, 510) angelegt wird, um ein Signal auf der Datenleitung (430, 520) an den Ansteuertransistor (580) anzulegen; und
einen organischen Emissionsabschnitt;

wobei die Schalttransistoren (560) des ersten Pixels (410, 540) und des zweiten Pixels (410, 540) angepasst sind, um Ströme entgegengesetzter Richtungen an den organischen Emissionsabschnitt anzulegen.

5. Vorrichtung nach Anspruch 4, wobei jeder der organischen Emissionsabschnitte eine Pixelelektrode (550), eine organische Emissionsschicht und eine obere Elektrode aufweist, und wobei der erste Pixel und der zweite Pixel die organische Emissionsschicht gemeinsam verwenden.

Revendications

1. Écran organique à électroluminescence (400), comprenant :

des lignes de grille (420, 510), des lignes de donnée (430, 520) et des lignes d'alimentation (440, 530) formées sur un substrat isolant ; et
des régions de pixels définies par les lignes de grille (420, 510), les lignes de donnée (430, 520) et les lignes d'alimentation (440, 530) de façon que chacune des régions de pixels soit agencée d'un seul tenant entre deux lignes de grille adjacentes (420, 510) et entre une ligne de donnée (430, 520) et une ligne d'alimentation (440, 530) croisant les lignes de grille (420, 510), chacune des régions de pixels comprenant un premier pixel (410, 540) et un second pixel (410, 540),
les régions de pixels étant agencées en une forme de matrice, et
caractérisé en ce que :

les premier et second pixels (410, 540) sont adjacents l'un à l'autre de façon que leurs composants soient agencés symétriquement par rapport au côté par lequel ils sont contigus ; et
la couche d'émission du premier pixel (410, 540) et du second pixel (410, 540) est formée d'un seul tenant de sorte que la couche d'émission est partagée par les premier et second pixels (410, 540).

2. Dispositif selon la revendication 1, dans lequel chaque pixel (410, 540) inclut un transistor à couches minces (560) de commutation, un transistor à couches minces (580) d'attaque, un condensateur (570) et un élément organique à électroluminescence, l'élément organique à électroluminescence comprenant une électrode inférieure connectée électriquement au transistor à couches minces (580) d'attaque, une couche organique d'émission, et une électrode supérieure.

3. Dispositif selon l'une quelconque des revendications 1 et 2, dans lequel le premier pixel (410, 540) et le second pixel (410, 540) émettent de la lumière de la même couleur.

4. Dispositif selon l'une quelconque des revendications précédentes, chacun dudit premier pixel (410, 540) et dudit second pixel (410, 540) comprenant :

un transistor (580) d'attaque ajustant la quantité de lumière émise en ajustant la quantité de courant délivrée à une partie organique d'émission ;
un transistor (560) de commutation rendu conducteur par un signal appliqué à partir de la ligne de grille (420, 510) pour appliquer, au transistor (580) d'attaque, un signal sur la ligne de donnée (430, 520) ; et
une partie organique d'émission,
dans lequel les transistors (560) de commutation du premier pixel (410, 540) et du second pixel (410, 540) sont aptes à appliquer, à la partie organique d'émission, des courants de sens contraires.

5. Dispositif selon la revendication 4, dans lequel chacune des parties organiques d'émission inclut une électrode (550) de pixels, une couche organique d'émission et une électrode supérieure, et dans lequel le premier pixel et le second pixel partagent la couche organique d'émission.

FIG. 1
(PRIOR ART)

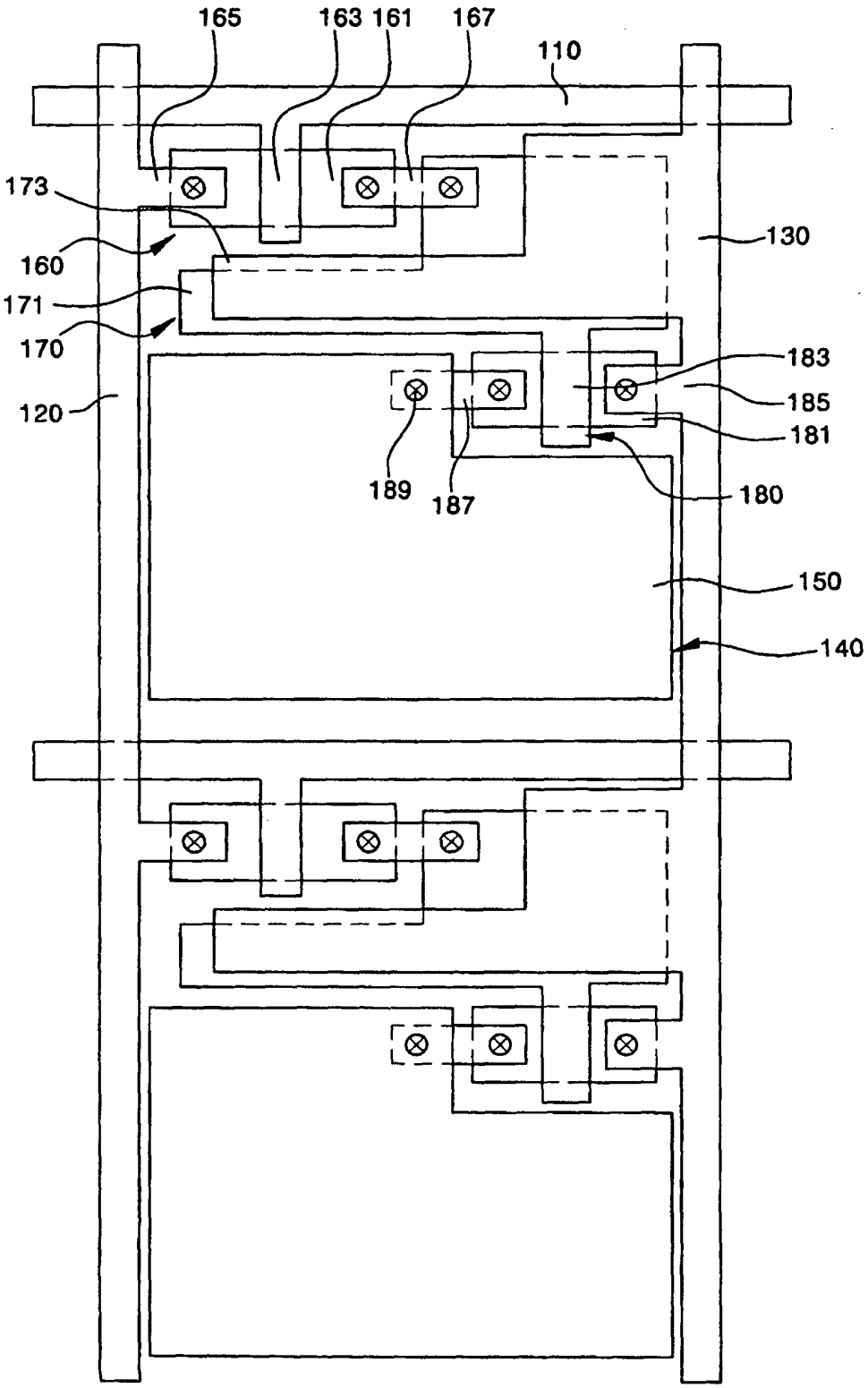

FIG. 2
(PRIOR ART)

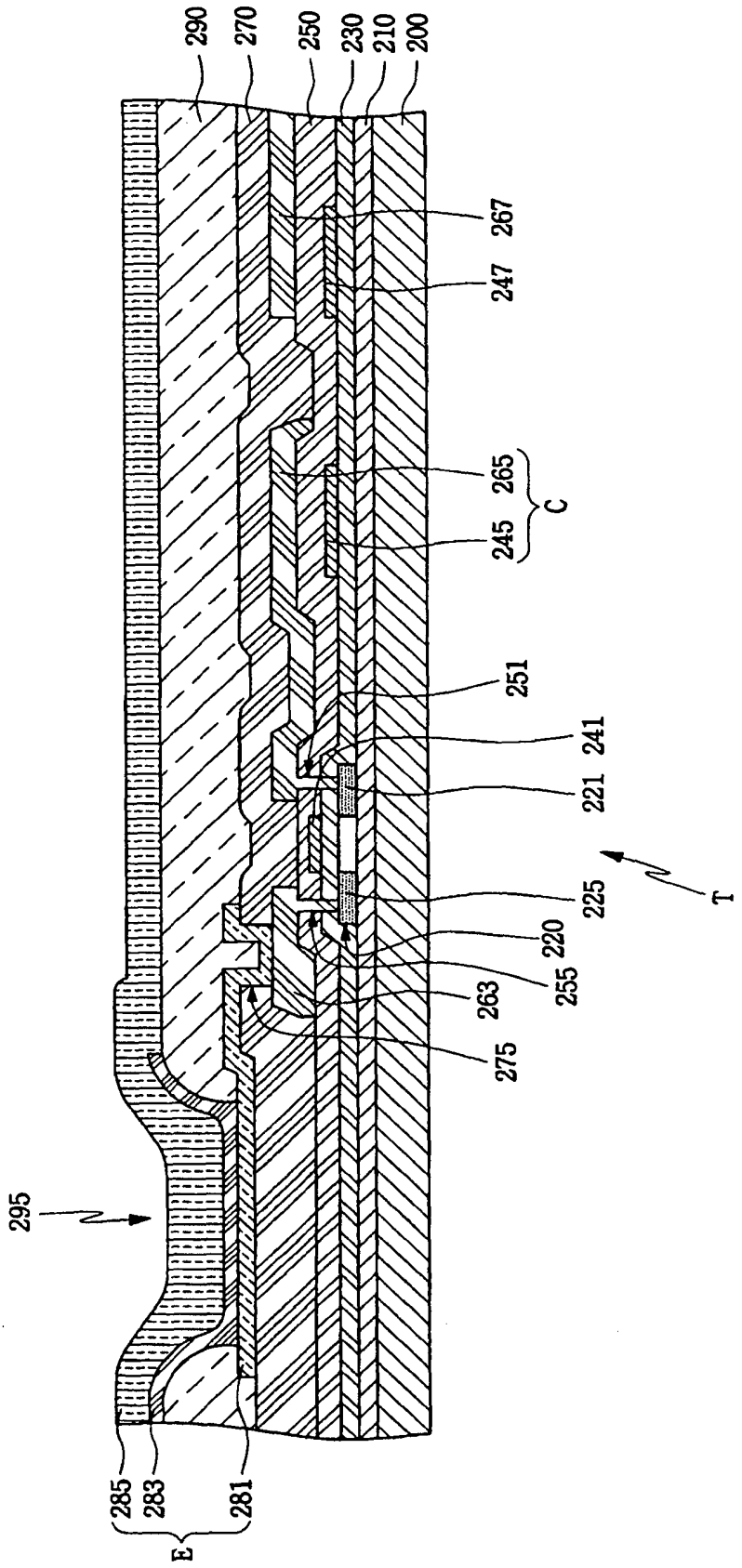

FIG. 3
(PRIOR ART)

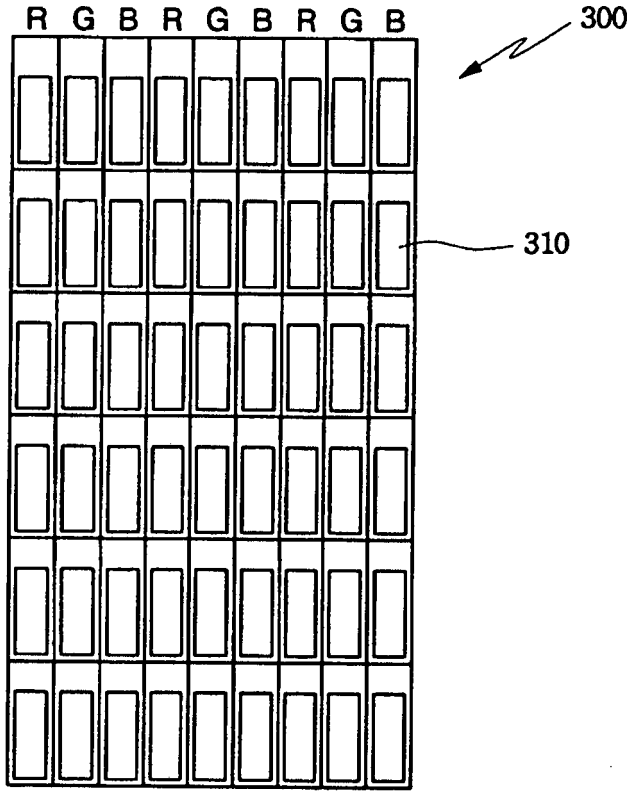

FIG. 4

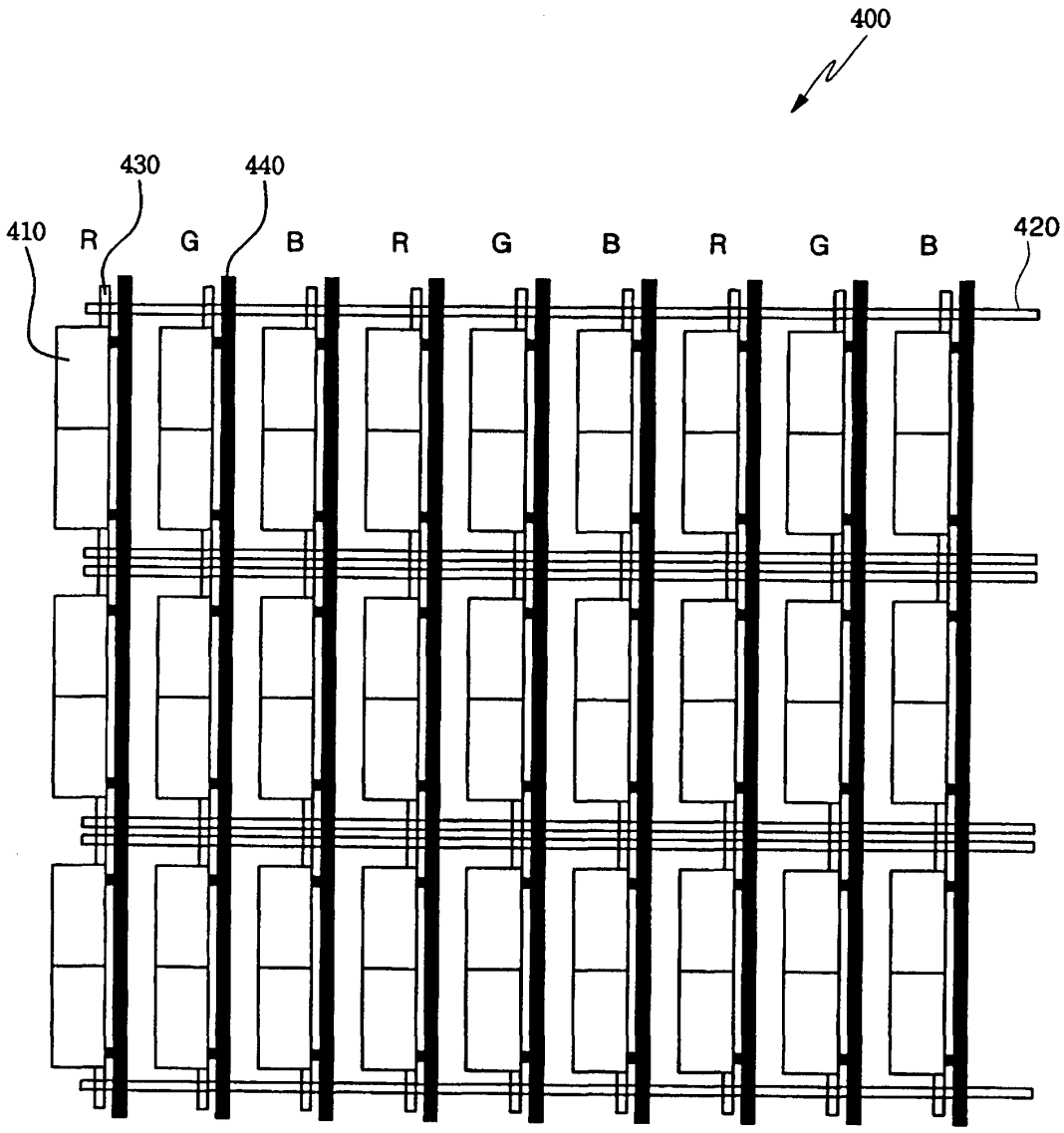

FIG. 5

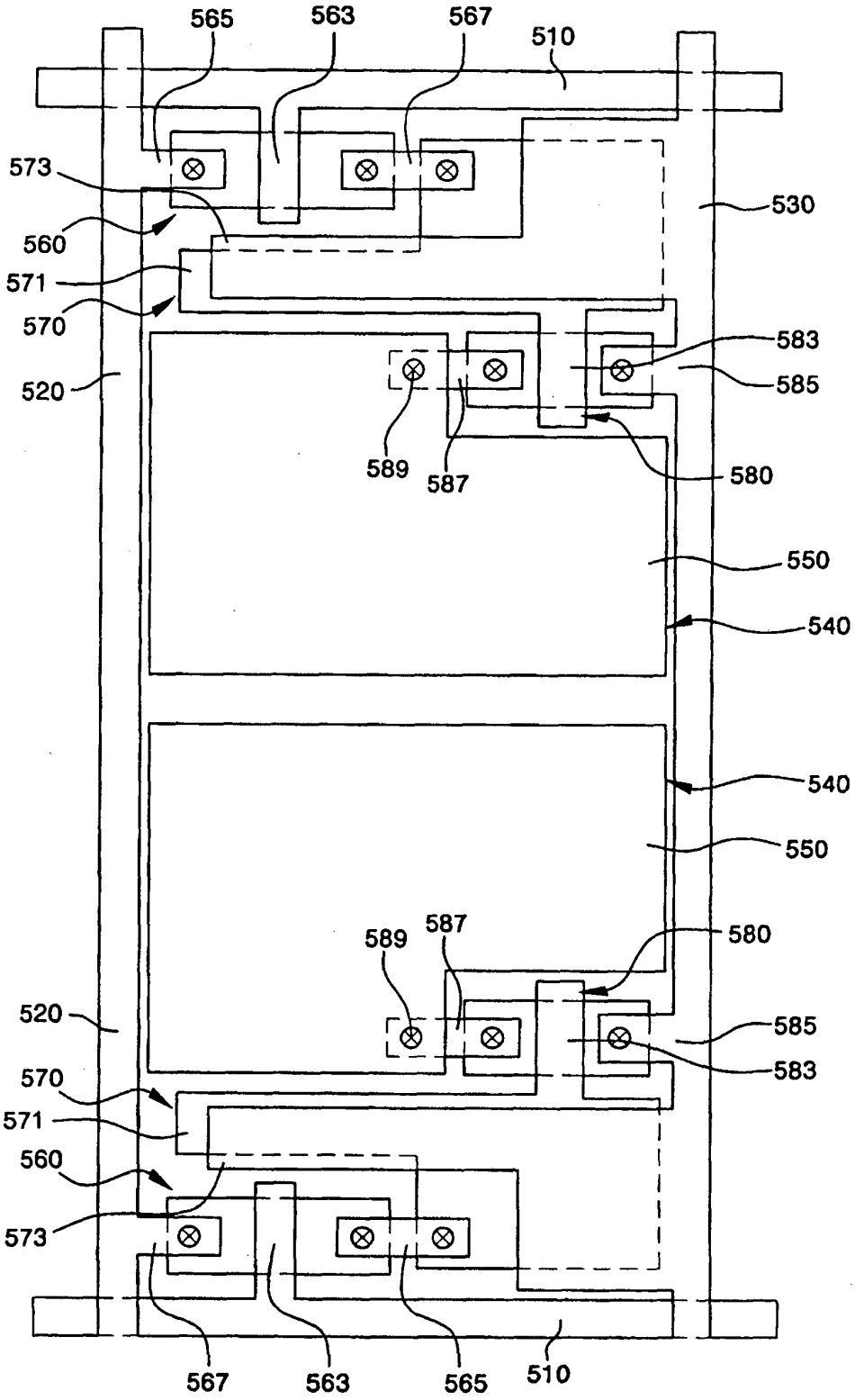
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FIG. 6

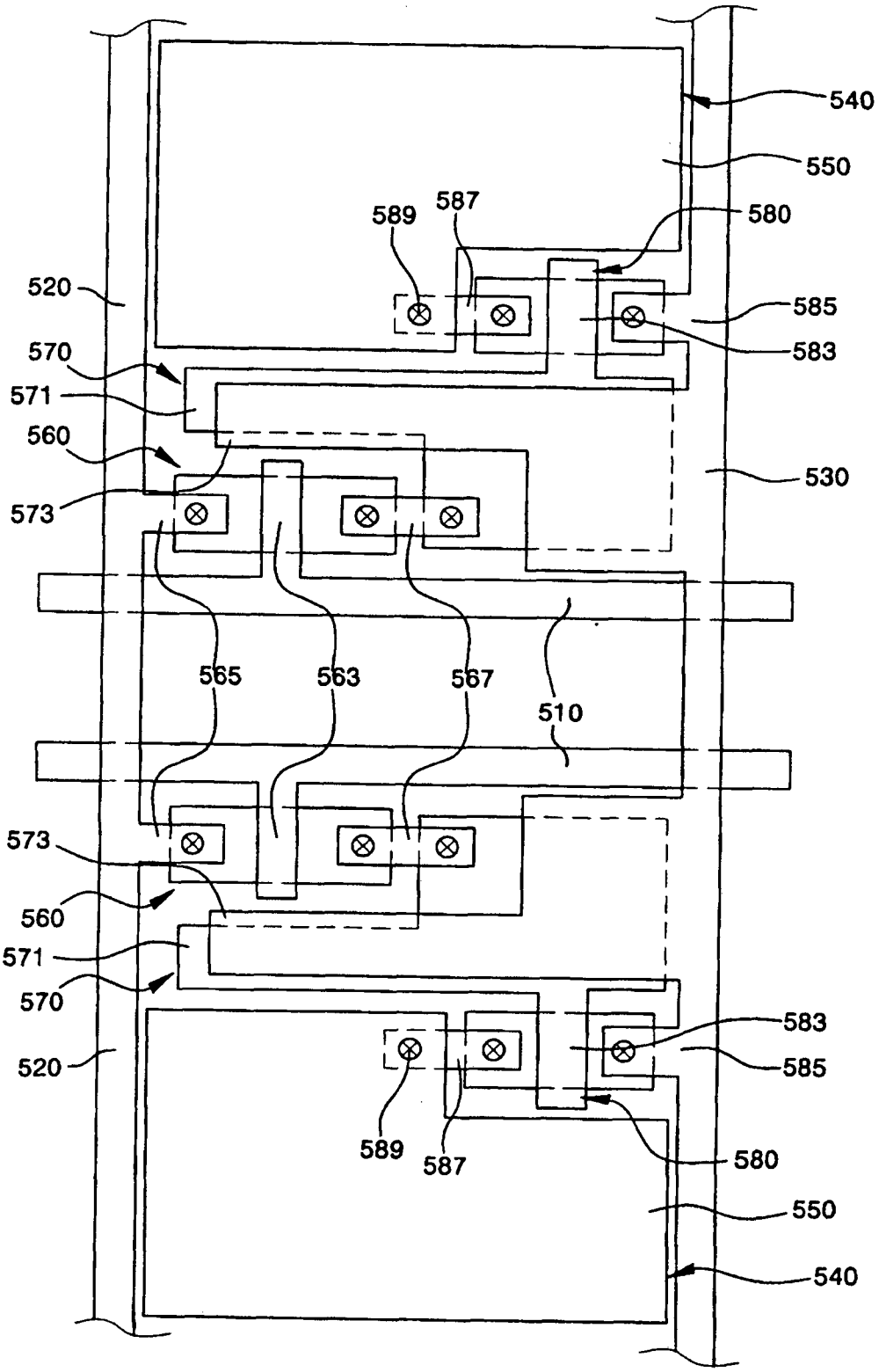
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FIG. 7

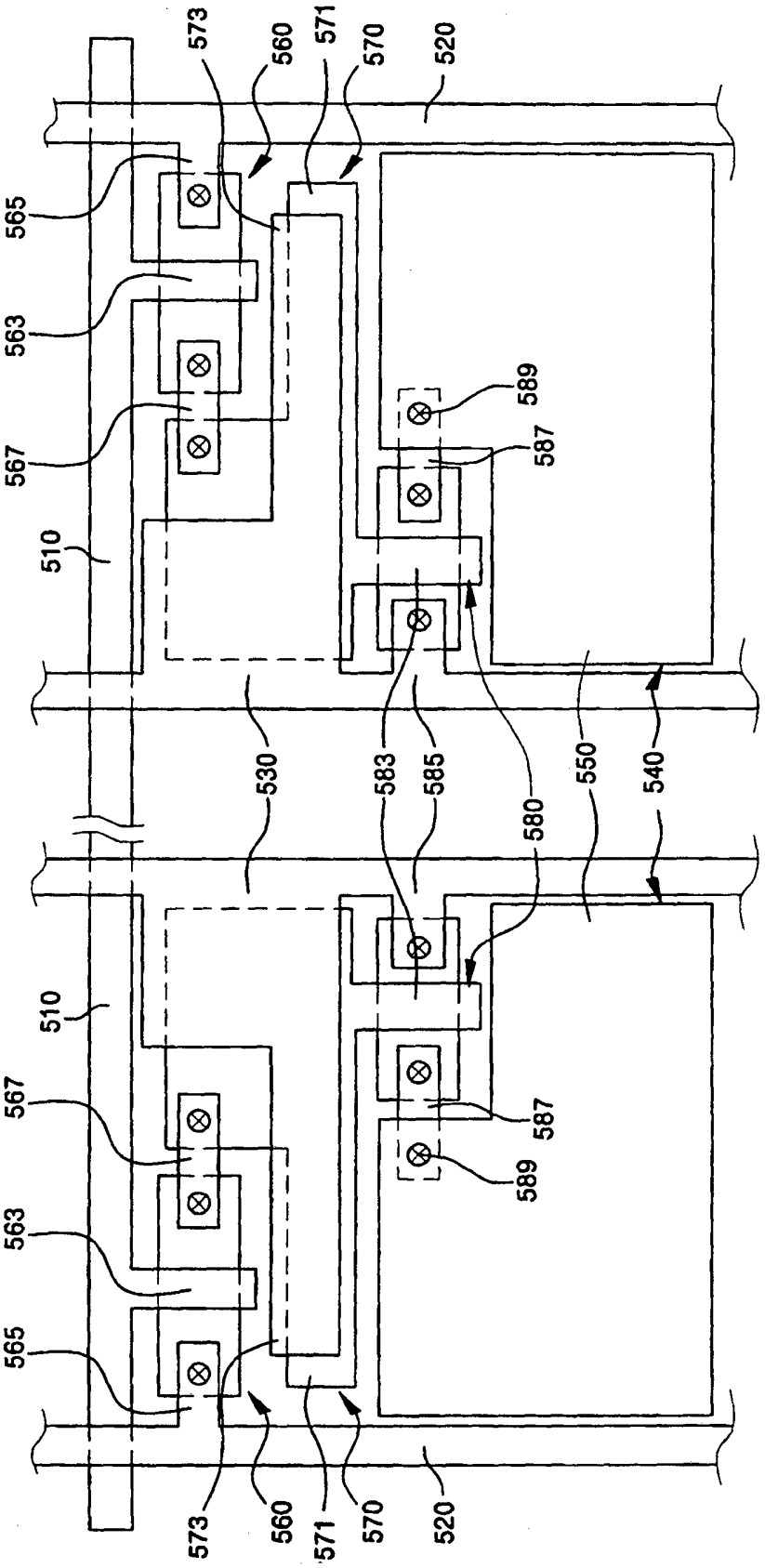
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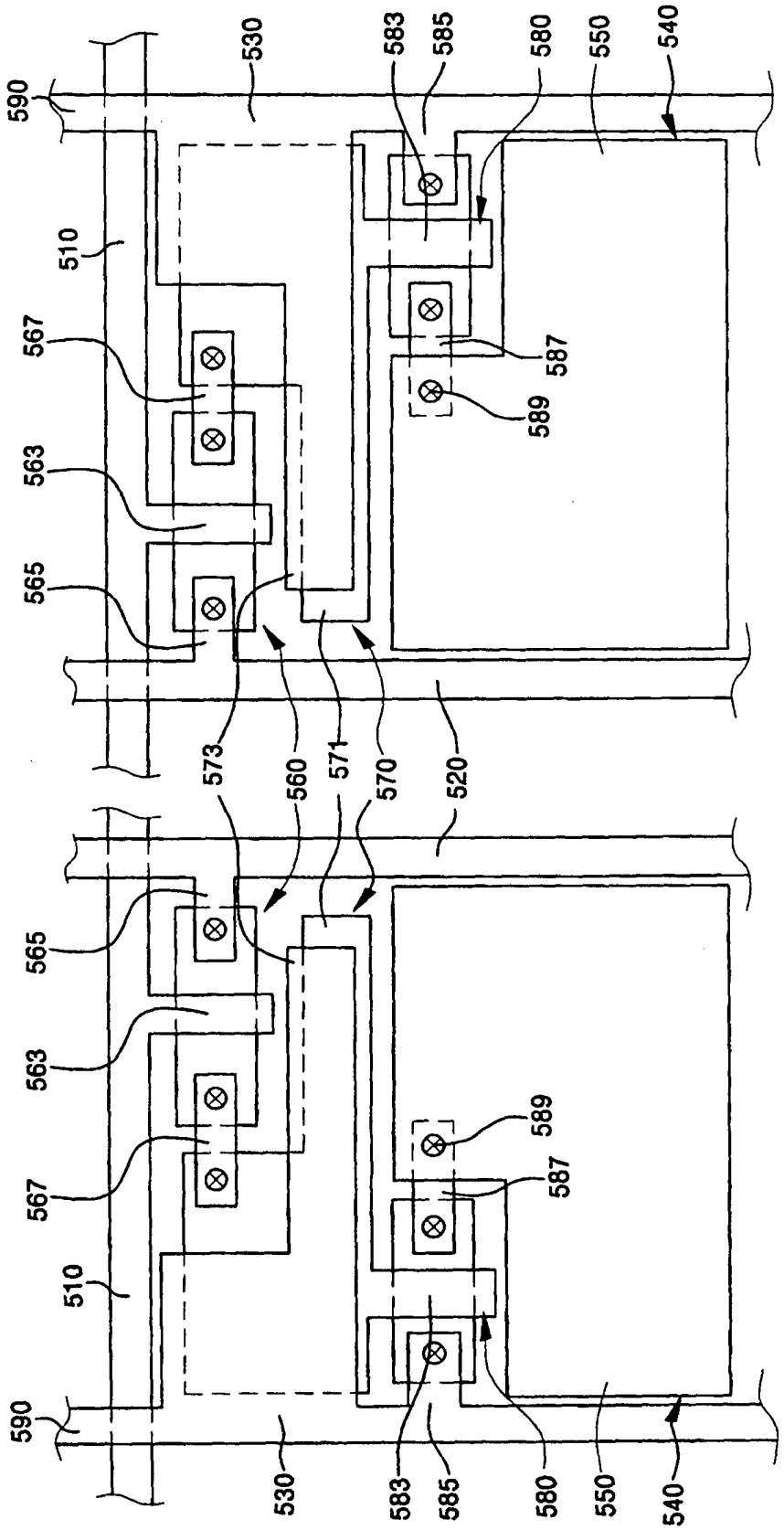
FIG. 8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REFERENCES CITED IN THE DESCRIPTION

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专利名称(译)	有机电致发光显示器		
公开(公告)号	EP1536495B1	公开(公告)日	2015-03-18
申请号	EP2004090475	申请日	2004-11-29
[标]申请(专利权)人(译)	三星斯笛爱股份有限公司		
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发明人	KIM, IEE-GON KIM, TAE-HYUNG		
IPC分类号	H01L27/32 H05B33/12 G09F9/30 G09G3/20 G09G3/30 G09G3/32 H01L51/50		
CPC分类号	H01L27/3276 H01L27/3244 H01L27/326 H01L51/5012 H01L2251/564		
优先权	1020030087797 2003-11-29 KR		
其他公开文献	EP1536495A2 EP1536495A3		
外部链接	Espacenet		

摘要(译)

一种有源矩阵有机电致发光显示器，其中在一个像素部分中形成两个相对的像素，以实现高孔径比并便于制造工艺。有机电致发光显示器由形成在绝缘基板上的栅极线，数据线和电源线以及由栅极线，数据线和电源线限定的像素区构成，其中每个像素区域包括两个相对的像素，并且像素区域以矩阵形式排列。