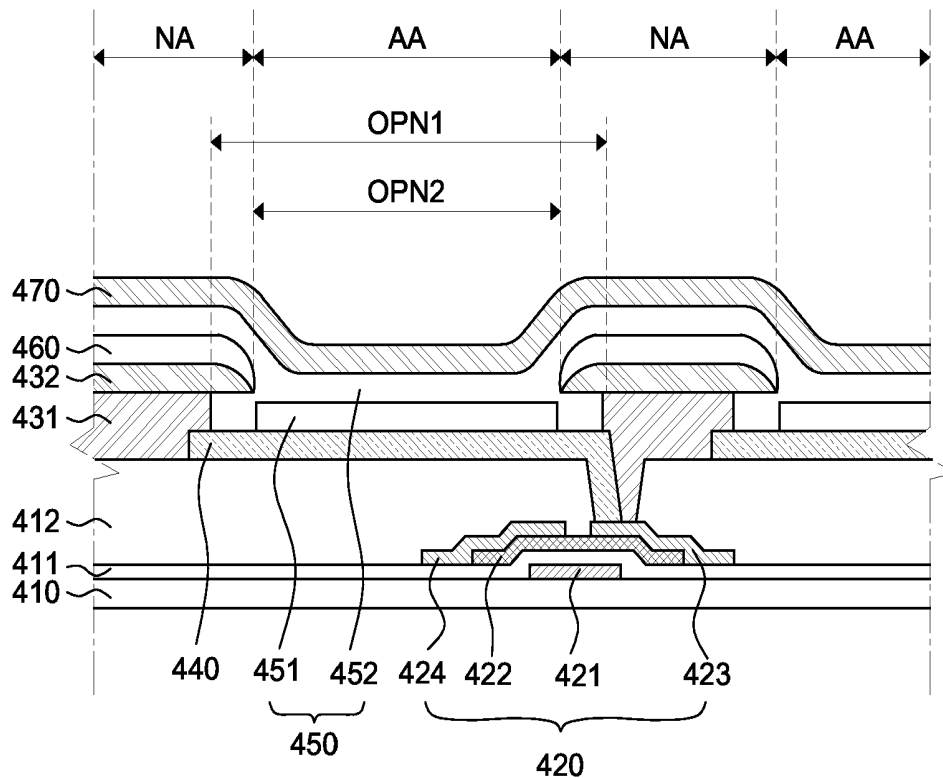


(43) **Pub. Date:** Dec. 10, 2015

Disclosed is an organic light emitting display device including an anode, a cathode, a plurality of organic layers and a partition member. The plurality of organic layers is disposed between the anode and the cathode, where at least one layer is separated to minimize current leakage into neighboring pixels. The partition member is disposed between the neighboring pixels and configured to separate the plurality of organic layers. The least one separated layer includes a charge generation layer. Because at least one layer is separated, current leakage into neighboring pixels can be minimized. Accordingly, defects resulting from light leakage and the mixing of colors of light from neighboring pixels may be reduced and display quality is enhanced.



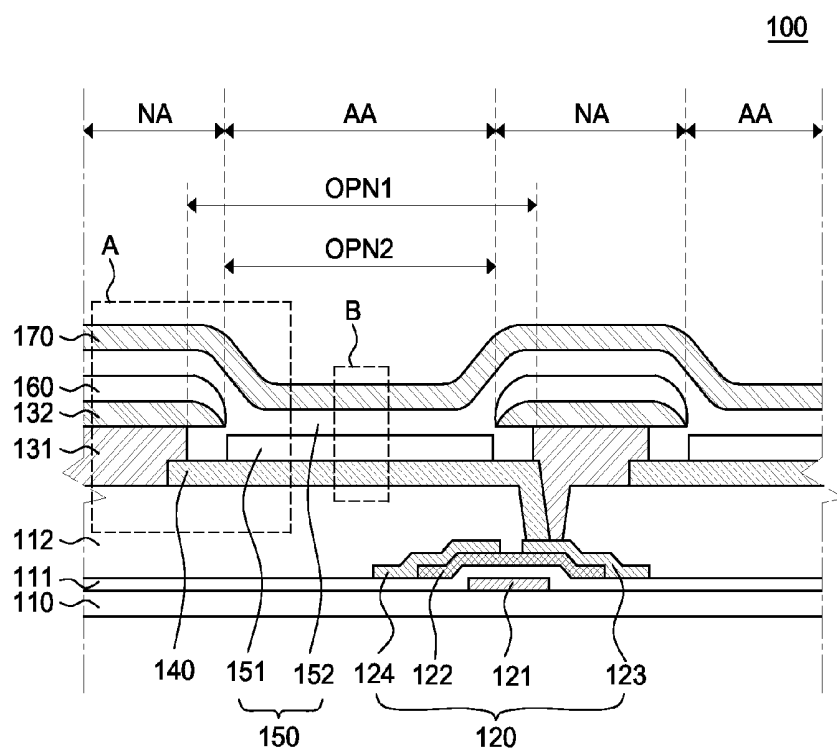


FIG. 1

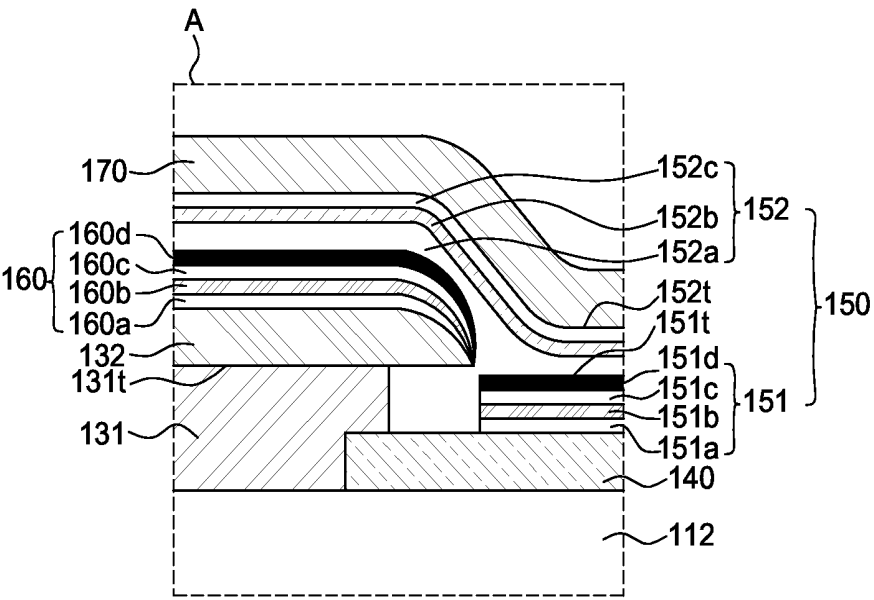


FIG. 2

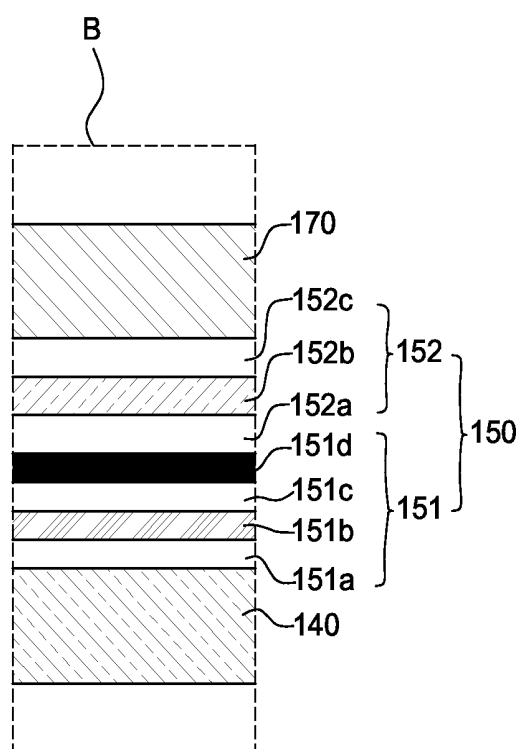


FIG. 3

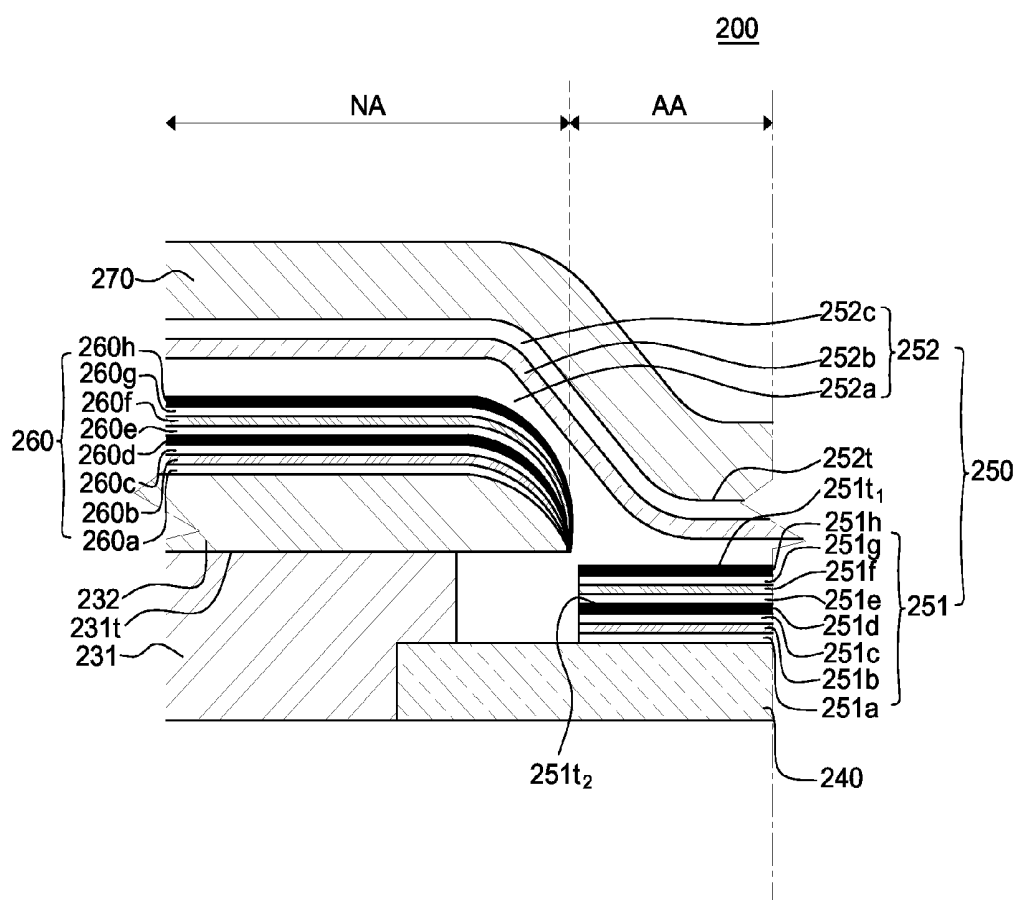


FIG. 4

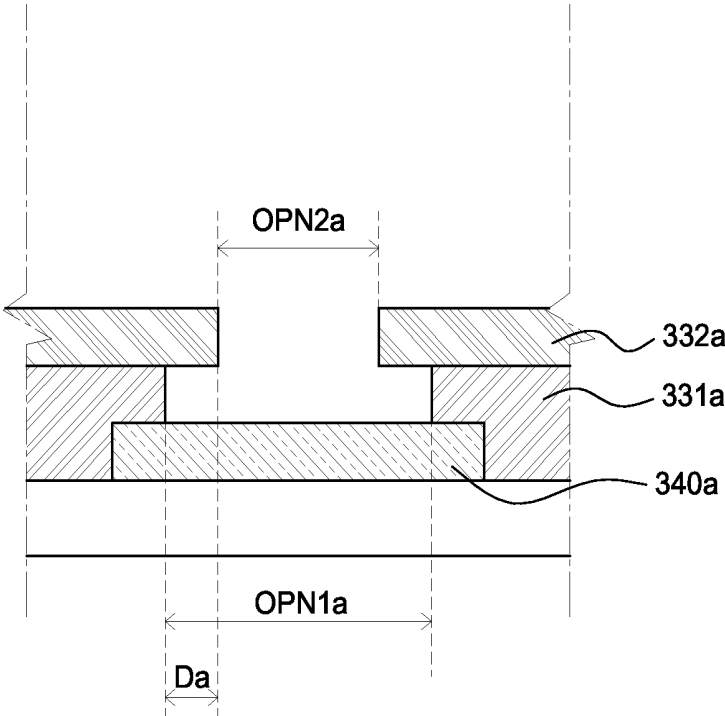


FIG. 5A

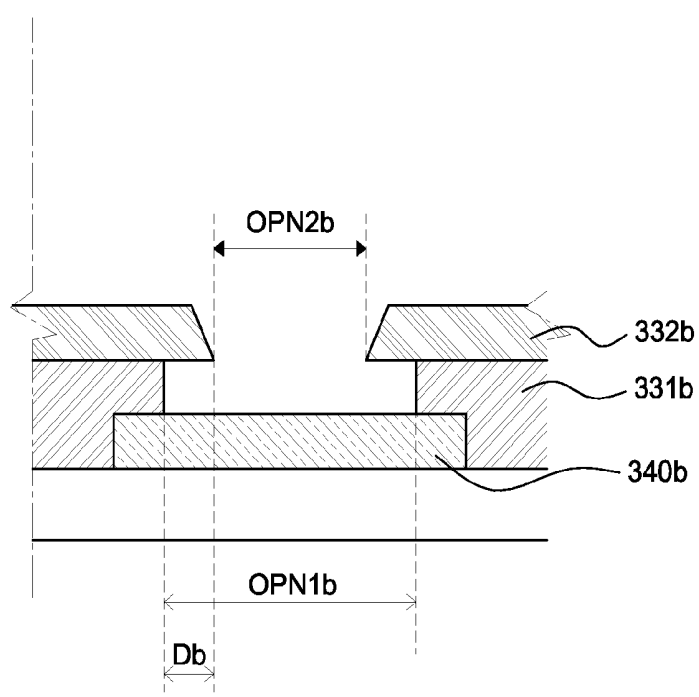


FIG. 5B

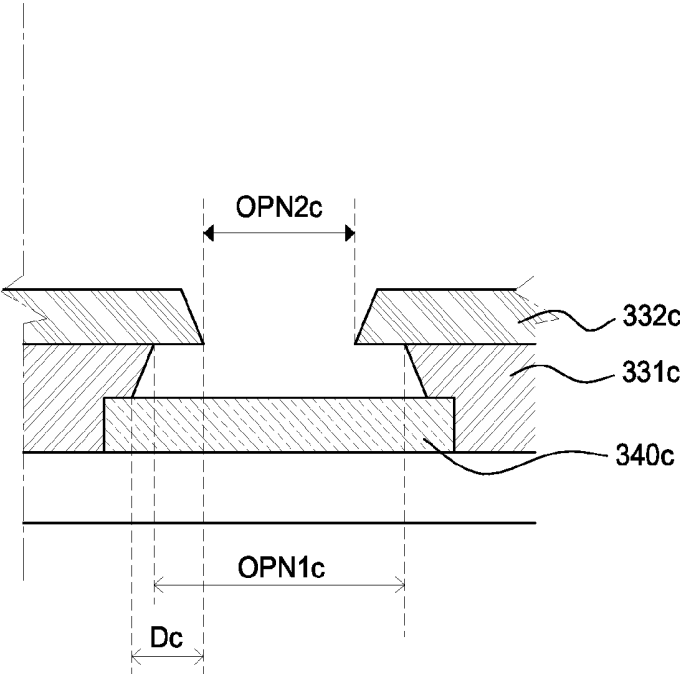


FIG. 5C

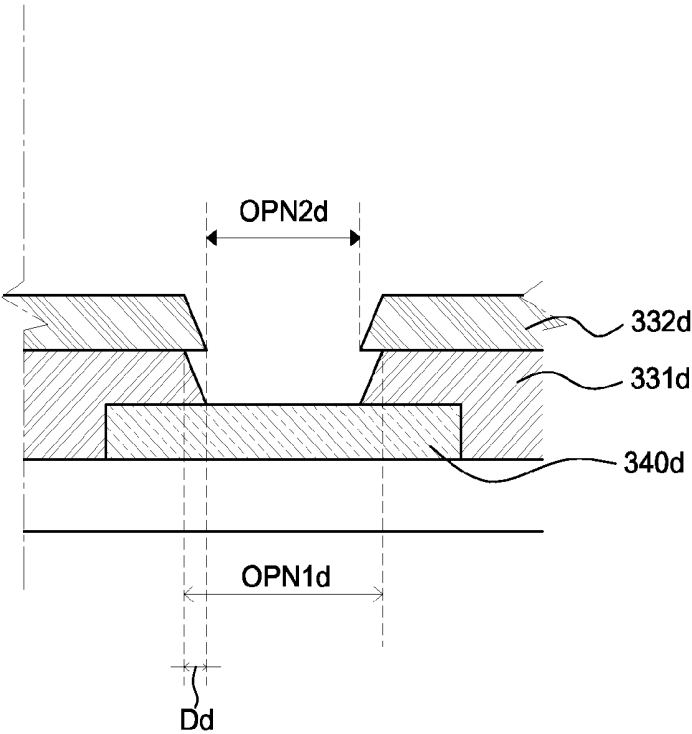


FIG. 5D

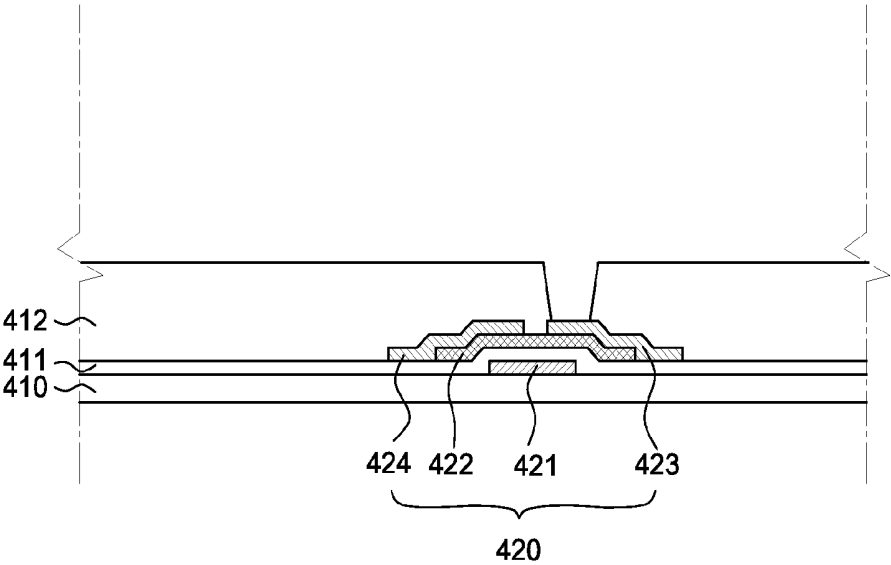


FIG. 6A

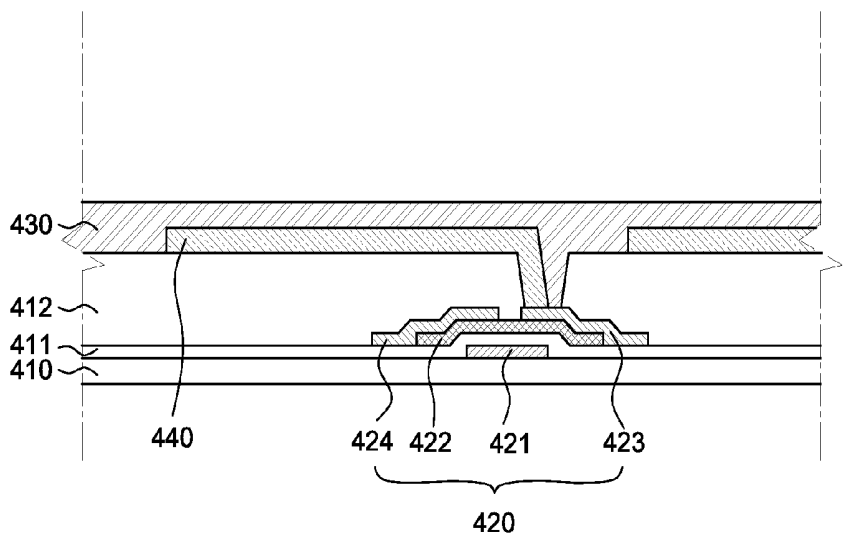


FIG. 6B

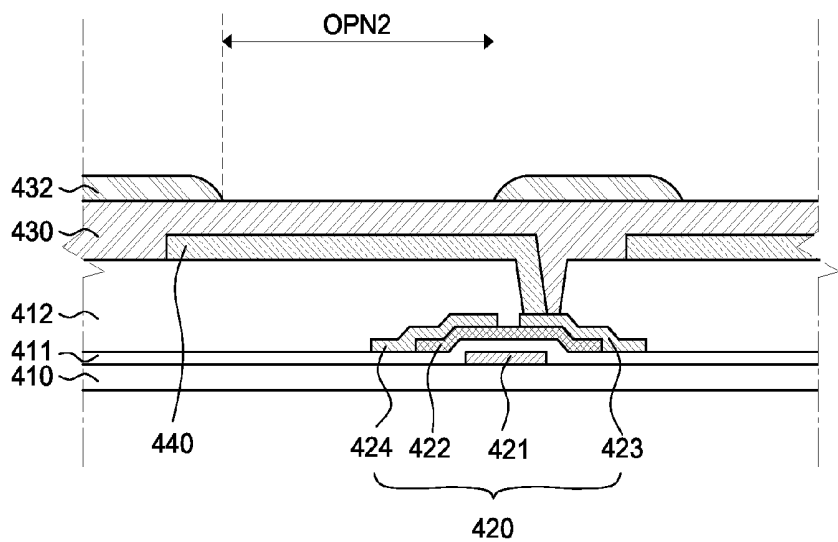


FIG. 6C

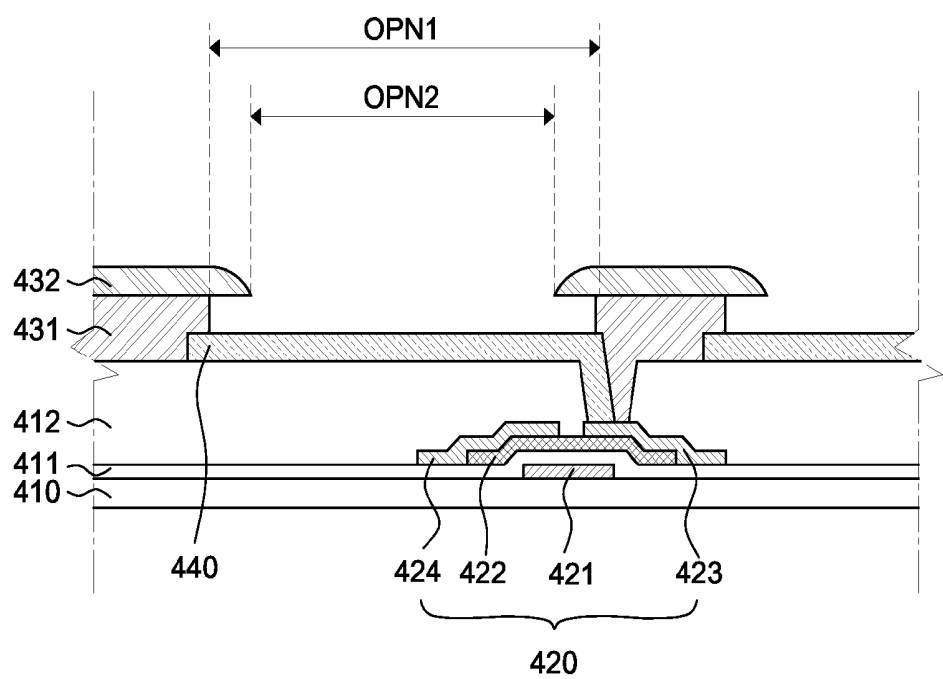


FIG. 6D

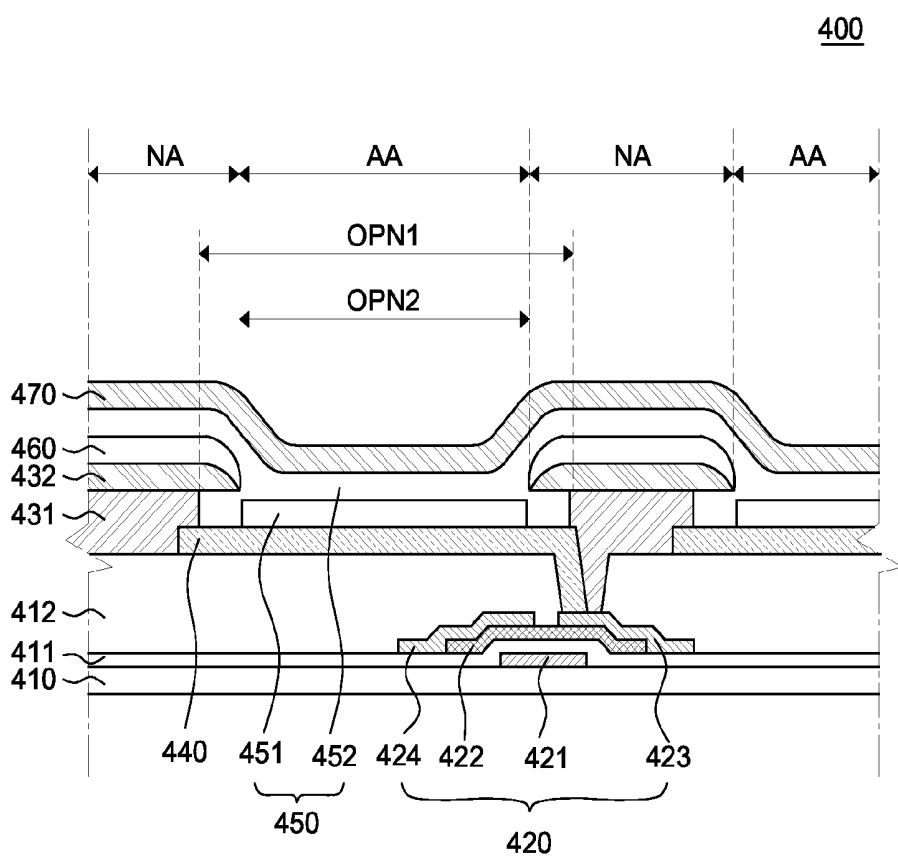


FIG. 6E

ORGANIC LIGHT EMITTING DISPLAY DEVICE AND METHOD FOR MANUFACTURING THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Korean Patent Application No. 2014-0069893 filed on Jun. 10, 2014, in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference for all purposes as if fully set forth herein.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present disclosure relates to an organic light emitting display device. More particularly, the disclosure relates to an organic light emitting display device that reduces defects resulting from light leakage by dividing a charge generation layer into an active area and a non-active area, and a method for manufacturing the same.

[0004] 2. Description of the Related Art

[0005] An organic light emitting diode (OLED) display device is a self-light emitting display device in which an organic light emitting layer is disposed between two electrodes. Electrons and holes are respectively injected from the two electrodes into the organic light emitting layer, and light is emitted by combining the injected electrons and holes.

[0006] OLED display devices can be classified into a top emission type, a bottom emission type, and a dual emission type based upon the emission directions of light. The devices can also be classified into an active matrix type and a passive matrix type based upon the manner in which the OLED display devices are driven.

[0007] A white OLED display device for emitting white light can be implemented by stacking organic emission layers for emitting red, green and blue light or by stacking organic emission layers for emitting light of colors that complement each other. Compared to a layer structure formed by independently patterning each of red, green and blue emission layers, the white OLED display device can be implemented by deposition process of the organic emission layers without patterning the respective organic emission layers. Thus, white OLED display devices are advantageous in realizing a high resolution and large-area device.

[0008] The white OLED display device is formed of a structure in which a plurality of organic emission layers are stacked. Also, it is provided with a charge generation layer (CGL) disposed between two neighboring organic emission layers to supply charges to the neighboring organic emission layers. Similar to the organic emission layers, the CGL is also formed through the deposition process, and is disposed in both an active area and non-active layer of the OLED display device.

SUMMARY OF THE INVENTION

[0009] As described above, a CGL needs to supply charges to neighboring organic emission layers. Accordingly, the CGL needs to be sufficiently thick. If the CGL is excessively thin, charges cannot be supplied sufficiently, and as a result a part of the active area of the OLED display device may fail to emit light.

[0010] As the CGL is formed to be thick to supply sufficient charges to the organic emission layers, another defect may

occur. For example, since the CGL is connected to the active area and non-active area through the deposition process, an electric current may leak into a part of the CGL formed in the non-active area. Thereby, the part of the CGL formed in the non-active area serves as an electrode, and light leakage defect from the non-active area may increase. Light leakage from the non-active area may cause the mixing of colors of light from neighboring pixels, degrading the display quality.

[0011] To address the aforementioned problem, provided herein is an OLED display device having a new structure. The inventors found that by using a deposition process and at the same time separating the CGLs from each other, an OLED display device with the new structure, which minimizes light leakage defects and degradation of the display quality caused by the mixing of colors of light from neighboring pixels, can be developed.

[0012] An object of the present disclosure is to provide an organic light emitting display device capable of reducing current and light leakage by separately forming a CGL in an active area and a non-active area without a separate patterning process and a method for manufacturing the same.

[0013] Another object of the present disclosure is to provide an organic light emitting display device capable of reducing degradation of display quality caused by the mixing of colors of light from neighboring pixels by forming a plurality of partition layers having openings of different widths such that a dummy part having the same stack structure as an organic light emitting part formed in an active area is separately formed on the partition layers corresponding to a non-active area, and a method for manufacturing the same.

[0014] Another object of the present disclosure is to provide an organic light emitting display device capable of reducing defects such as disconnection between an anode and a cathode and enhancing the reliability thereof by adjusting the height of a partition layer for separating a CGL and a method for manufacturing the same.

[0015] It should be noted that objects of the present disclosure are not limited to the above-described objects, and other objects of the present disclosure will be apparent to those skilled in the art from the following descriptions.

[0016] According to an aspect of the present disclosure, there is provided an organic light emitting display device including an anode, a cathode, a plurality of organic layers and a partition member. The plurality of organic layers is disposed between the anode and the cathode, where the plurality of organic layers have at least one separated organic layer that minimizes current leakage into neighboring pixels. The partition member is disposed between the neighboring pixels and configured to separate the at least one of the organic layers. The at least one separated layer includes a charge generation layer. As at least one layer is separated, leakage of current into neighboring pixels may be minimized. Thereby, defects resulting from light leakage and the mixing of colors of light from neighboring pixels may be reduced and thus display quality may be enhanced.

[0017] According to another aspect of the present invention, there is provided an organic light emitting display device including a thin film transistor disposed on a substrate, an anode connected to the thin film transistor, a first partition layer having a first opening configured to expose at least a portion of the anode, and a second partition layer disposed on the first partition layer having a second opening corresponding to the first opening. A width of the second opening is less than a width of the first opening. The organic light emitting

display device also includes an organic light emitting part disposed on the anode. The organic light emitting part comprises a first part including at least one organic emission layer, a dummy part disposed on the second partition layer and configured to have the same stack structure as the first part, and the dummy part being separated from the first part. A cathode is disposed on the dummy part. As a result, defects resulting from light leakage and the mixing of colors of light from neighboring pixels may be reduced and thus display quality may be enhanced.

[0018] According to an embodiment of the present disclosure, a CGL is separately disposed in an organic light emitting display device without a separate patterning process, and thus defects caused by leaking light may be reduced.

[0019] In addition, a portion of an organic light emitting part is separately disposed in an active area and a non-active area when deposition process for the entire surface is applied, and thus the mixing of colors of light from neighboring pixels caused by current leakage and degradation of display quality may be suppressed.

[0020] Moreover, by adjusting the height of a partition layer for separating the CGL, operation-related defects such as disconnection between an anode and a cathode may be reduced and the reliability of the organic light emitting display device may be enhanced.

[0021] It should be noted that effects of the present disclosure are not limited to those described above and other effects of the present disclosure will be apparent to those skilled in the art from the following descriptions.

[0022] It is to be understood that both the foregoing general description and the following detailed description of the present disclosure are exemplary and explanatory and are not intended to specify essential limitations recited in the claims. Therefore, the scope of the claims is not restricted by the foregoing general description and the following detailed description of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] The above and other aspects, features and other advantages of the present disclosure will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

[0024] FIG. 1 is a cross-sectional view of an organic light emitting display device according to an embodiment of the present disclosure;

[0025] FIG. 2 is an enlarged view of region A shown in FIG. 1;

[0026] FIG. 3 is an enlarged view of region B shown in FIG. 1;

[0027] FIG. 4 is a cross-sectional view of an organic light emitting display device according to another embodiment of the present disclosure;

[0028] FIGS. 5A to 5D are cross-sectional views illustrating openings according to structures of a partition layer; and

[0029] FIGS. 6A to 6E are cross-sectional views illustrating a method for manufacturing an organic light emitting display device according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

[0030] Advantages and features of the present disclosure and methods to achieve them will become apparent from the

descriptions of exemplary embodiments herein below with reference to the accompanying drawings. However, the present disclosure is not limited to the exemplary embodiments disclosed herein but may be implemented in various different forms. The exemplary embodiments are provided to make the description of the present disclosure thorough and to fully convey the scope of the present disclosure to those skilled in the art. It is to be noted that the scope of the present disclosure is defined only by the claims.

[0031] The figures, dimensions, ratios, angles, numbers of elements given in the drawings are merely illustrative and are not limiting. Like reference numerals denote like elements throughout the descriptions. Further, in describing the present disclosure, descriptions of well-known technologies may be omitted in order not to obscure the gist of the present disclosure.

[0032] It is to be noticed that the terms “comprising,” “having,” “including” and so on, used in the description and claims, should not be interpreted as being restricted to the means listed thereafter unless specifically stated otherwise. Where an indefinite or definite article is used when referring to a singular noun, e.g., “a,” “an,” “the,” this includes a plural of that noun unless specifically stated otherwise.

[0033] In describing elements, they are interpreted as including error margins even if explicit statements are not made.

[0034] In describing positional relationship using phrases such as “an element A on an element B,” “an element A above an element B,” “an element A below an element B” and “an element A next to an element B,” another element C may be disposed between the elements A and B unless the term “immediately” or “directly” is explicitly used.

[0035] In describing temporal relationship, terms such as “after,” “subsequent to,” “next to,” “before,” and the like may include cases where any two events are not consecutive, unless the term “immediately” or “directly” is explicitly used.

[0036] In describing elements, terms such as “first” and “second” are used, but the elements are not limited by these terms. These terms are simply used to distinguish one element from another. Accordingly, as used herein, a first element may be a second element within the technical idea of the present disclosure.

[0037] Features of various exemplary embodiments of the present disclosure may be partially or fully combined. As will be clearly appreciated by those skilled in the art, technically various interactions and operations are possible. Various exemplary embodiments can be practiced individually or in combination.

[0038] Hereinafter, an organic light emitting display device according to an embodiment of the present disclosure will be described in detail with reference to the accompanying drawings.

[0039] FIG. 1 is a cross-sectional view of an organic light emitting display device according to an embodiment of the present disclosure. Referring to FIG. 1, an organic light emitting display device 100 includes a thin film transistor (TFT) 120, an anode 140, an organic light emitting part 150, a cathode 170, a first partition layer 131, a second partition layer 132 and a dummy part 160, which are disposed on a substrate 110.

[0040] The substrate 110 may include a transparent material, and be formed of glass, metal, or plastics.

[0041] The TFT 120 disposed on the substrate 110 includes a gate electrode 121, an active layer 122, a source electrode

123 and a drain electrode **124**. As shown in FIG. 1, the gate electrode **121** is disposed on the substrate **110**, and a first insulation layer **111** is disposed on the gate electrode **121** to cover the gate electrode **121**. The active layer **122** is disposed on the first insulation layer **111** to overlap the gate electrode **121**. The source electrode **123** and the drain electrode **124** spaced apart from each other are disposed on the active layer **122**.

[0042] The gate electrode **121**, the source electrode **123** and the drain electrode **124** are formed of a conductive material. For example, the gate electrode **121**, the source electrode **123** and the drain electrode **124** may be formed of one of molybdenum (Mo), aluminum (Al), chromium (Cr), gold (Au), titanium (Ti), nickel (Ni), neodymium (Nd), copper (Cu) and alloys thereof, but embodiments of the present disclosure are not limited thereto. The gate electrode **121**, the source electrode **123** and the drain electrode **124** may be formed of various materials.

[0043] The active layer **122** may be formed of one of amorphous silicon (a-Si), polycrystalline silicon (poly-Si), an oxide and an organic material, but embodiments of the present disclosure are not limited thereto.

[0044] The first insulation layer **111** may include a single layer or multiple layers formed of an inorganic material such as silicon oxide (SiO_x), silicon nitride (SiN_x), or the like.

[0045] While the TFT **120** is illustrated as having an inverted staggered structure in FIG. 1, it may have a coplanar structure.

[0046] A second insulation layer **112** is disposed on the TFT **120**, and a part of the source electrode **123** is exposed through the second insulation layer **112**. The second insulation layer **112** may include a single layer or multiple layers, and be formed of organic matter. Specifically, the second insulation layer **112** may be formed of a polyimide resin, an acrylic resin, or the like.

[0047] Although not shown in FIG. 1, a passivation layer may be disposed between the second insulation layer **112** and the TFT **120**. The passivation layer may be formed of an inorganic material to protect the TFT **120**. Similar to the second insulation layer **112**, the passivation layer may expose a part of the source electrode **123**.

[0048] The anode **140**, which is connected to the source electrode **123**, is disposed on the second insulation layer **112**. Also, the first partition layer **131** with a first opening OPN1 exposing a part of the anode **140** is disposed on the anode **140**. In addition, the second partition layer **132** with a second opening OPN2 is disposed on the first partition layer **131**. As shown in FIG. 1, when the first opening OPN1 of the first partition layer **131** and the second opening OPN2 of the second partition layer **132** are viewed in the same cross section, the width of the second opening OPN2 is less than that of the first opening OPN1. That is, an end of the second partition layer **132** protrudes farther than a corresponding end of the first partition layer **131**. Thus, the second opening OPN2 may become smaller than the first opening OPN1.

[0049] The first partition layer **131** may be formed of an inorganic insulation material, and the second partition layer **132** may be formed of an organic insulation material. However, embodiments of the present disclosure are not limited thereto.

[0050] The organic light emitting part **150** including at least one organic emission layer is disposed on the anode **140**, and the cathode **170** is disposed on the organic light emitting part **150**. Specifically, referring to FIG. 1, a first part **151** of the

organic light emitting part **150** is disposed in an area of the anode **140** which does not overlap either the first partition layer **131** or the second partition layer **132**, namely an active area AA. The dummy part **160**, which has the same stack structure as the first part **151**, is disposed on the second partition layer **132** corresponding to a non-active area NA. That is, a portion of the organic light emitting part **150** is separately disposed in the active area AA and the non-active area NA. In addition, a second part **152** of the organic light emitting part **150** is disposed to cover the dummy part **160** and the first part **151**. Further, the cathode **170** is disposed on the second part **152** of the organic light emitting part **150**. For reference, the anode **140**, the first part **151** and second part **152** of the organic light emitting part **150** disposed to overlap the anode **140**, and the cathode **170**, which are disposed on the active area AA, operate as an organic light emitting element. Relevant detailed description will be given with reference to FIG. 3 later.

[0051] In the organic light emitting display device **100**, the first part **151** of the organic light emitting part **150** and the dummy part **160** are separately disposed from each other due to the difference in width between the openings of the first partition layer **131** and the second partition layer **132**. More specifically, the second partition layer **132** laterally protrudes farther than the first partition layer **131**. Accordingly, when an organic material having low step coverage is deposited onto the anode **140**, the material is separated into two parts by the difference in the degree of lateral protrusion between the first partition layer **131** and the second partition layer **132**. Herein, step coverage refers to a capability to deposit a material having constant thickness on the bottom and wall surfaces of a trench or hole of a high aspect ratio, such as reverse taper structures. The organic material having low step coverage cannot reach and be deposited onto the lateral surface of the first partition layer **131**, which is positioned further inward than the second partition layer **132**. That is, as the first opening OPN1 has a greater width than the second opening OPN2, portions of the organic material may be separately disposed in the active area AA and the non-active area NA even without requiring a separate patterning process. Thus, a portion of the organic material positioned on the anode **140** forms the first part **151**, and the other portion of the organic material positioned on the second partition layer **132** forms the dummy part **160**.

[0052] Accordingly, in the organic light emitting display device **100**, the partition layer disposed on the anode **140** includes the first partition layer **131** having the first opening OPN1 and the second partition layer **132** having the second opening OPN2 whose width is less than the width of the first opening OPN1. Thus, an organic material forming at least one organic emission layer may be separately disposed in the active area AA and the non-active area NA, namely the upper portions of the anode **140** and the second partition layer **132**, without a separate patterning process. Moreover, the organic material forming the first part **151** of the organic light emitting part **150** and the dummy part **160** may also include a charge generation layer (CGL). As the CGL is also separately disposed in the active area AA and the non-active area NA, defects resulting from light leakage and the mixing of colors of light from neighboring pixels may be reduced.

[0053] FIG. 2 is an enlarged view of region A shown in FIG. 1. FIG. 2 illustrates the stack structure of the organic light

emitting part 150 and the dummy part 160 disposed on the active area AA and the non-active area NA in a more detailed manner.

[0054] The organic light emitting part 150 includes at least one organic emission layer and at least one CGL. Referring to FIG. 2, the organic light emitting part 150 includes the first part 151 and the second part 152. The first part 151 includes a first organic emission layer 151b and a CGL 151d, and the second part 152 includes a second organic emission layer 152b. The dummy part 160 having the same stack structure as the first part 151 of the organic light emitting part 150 is disposed on the second partition layer 132. More specifically, the first part 151 of the organic light emitting part 150 includes a first intermediate layer 151a, the first organic emission layer 151b, a second intermediate layer 151c and the CGL 151d, which are stacked one over another onto the anode 140. In addition, the dummy part 160 includes a first dummy layer 160a, a second dummy layer 160b, a third dummy layer 160c and a fourth dummy layer 160c, which are stacked one over another onto the second partition layer 132. Herein, the first intermediate layer 151a and the first dummy layer 160a are formed of the same material, and the first organic emission layer 151b and the second dummy layer 160b are formed of the same material. Also, the second intermediate layer 151c and the third dummy layer 160c are formed of the same material, and the CGL 151d and the fourth dummy layer 160c are formed of the same material. That is, each layer of the first part 151 and a corresponding layer of the dummy part 160 are simultaneously formed of the same material, thereby having the same stack structure.

[0055] As the organic material forming the first part 151 of the organic light emitting part 150 and the dummy part 160 includes materials of the first organic emission layer 151b and the CGL 151d, the CGL 151d is also separately disposed in the active area AA and the non-active area NA. Thereby, defects resulting from light leakage and the mixing of colors of light from neighboring pixels may be reduced.

[0056] The second part 152 of the organic light emitting part 150 is disposed on the first part 151 of the organic light emitting part 150, and the second part 152 contacts and covers the first part 151 and the dummy part 160 without being separated into parts. Referring to FIG. 2, the second part 152 has a stack structure constructed by stacking a third intermediate layer 152a, the second organic emission layer 152b and a fourth intermediate layer 152c one over another. The cathode 170 is disposed on the second part 152. As mentioned above, the anode 140, the first part 151 and second part 152 of the organic light emitting part 150, which are disposed to overlap the anode 140, and the cathode 170 operate as an organic light emitting element of the organic light emitting display device 100. Lights emitted from the first organic emission layer 151b the second organic emission layer 152b are mixed together to finally emit white light.

[0057] In order to separately dispose the CGL 151d and the fourth dummy layer 160c, which are formed of the same material, on the upper portion of the anode 140 and the upper portion of the second partition layer 132, an upper surface 131t of the first partition layer 131 may be positioned higher than an upper surface 151t of the first part 151. Or, it may be positioned in the same plane as the upper surface 151t of the first part 151. This means that the height of the first partition layer 131 is greater than or equal to the distance from the anode 140 to the first part 151 of the organic light emitting part 150. In other words, the thickness of the first partition

layer 131 is greater than or equal to the sum of the thicknesses of the anode 140 and the first part 151. More specifically, this means that the thickness of the first partition layer 131 is greater than or equal to the sum of the thicknesses of the anode 140, the first intermediate layer 151a, the first organic emission layer 151b, the second intermediate layer 151c and the CGL 151d. Referring to FIG. 2, the upper surface 131t of the first partition layer 131 is disposed in a plane that is close to (or positioned a little higher than) the plane where the upper surface 151t of the first part 151, more particularly, the upper surface 151t of the CGL 151d which the uppermost layer of the first part 151 lies. Thereby, the CGL 151d may be ensured to be separately disposed in the active area AA and the non-active area NA.

[0058] Although not shown in the figure, if the upper surface 131t of the first partition layer 131 is positioned higher than the upper surface 151t of the CGL 151d, the uppermost layer of the first part 151 may become a part of the second part 152 of the organic light emitting part 150 rather than becoming the CGL 151d, more specifically, one of the third intermediate layer 152a, the second organic emission layer 152b and the fourth intermediate layer 152c. In this case, the uppermost layer of the dummy part 160 having the same stack structure of the first part 151 may be formed of the same material as one of the third intermediate layer 152a, the second organic emission layer 152b and the fourth intermediate layer 152c.

[0059] Meanwhile, the upper surface 131t of the first partition layer 131 may be positioned lower than an upper surface 152t of the organic light emitting part 150, specifically, the upper surface 152t of the fourth intermediate layer 152c corresponding to the uppermost layer of the second part 152. Or it may be positioned in the same plane as the upper surface 152t of the fourth intermediate layer 152c. This means that the height of the first partition layer 131 is less than or equal to the distance from the anode 140 to the second part 152 of the organic light emitting part 150. In other words, the thickness of the first partition layer 131 is less than or equal to the sum of the thicknesses of the anode 140, the first part 151, and second part 152 of the organic light emitting part 150. If the upper surface 131t of the first partition layer 131 is positioned higher than the upper surface 152t of the organic light emitting part 150, a defect is likely to be caused by the cathode 170. More specifically, if the upper surface 131t of the first partition layer 131 is positioned higher than the upper surface 152t of the organic light emitting part 150, both the first part 151 and second part 152 of the organic light emitting part 150 will be separately disposed in the active area AA and the non-active area NA by the aforementioned step coverage of the organic material. However, the cathode 170 is formed of a material having high step coverage rather than an organic material. Thus, it may be deposited by extending down along the lateral surface of the first partition layer 131 positioned further inward than the lateral surface of the second partition layer 132 and the exposed upper surface of the anode 140. As a result, the anode 140 comes in contact with the cathode 170, and thus an operation-related defect may be caused by disconnection.

[0060] In summary, for the organic light emitting display device 100, the CGL 151d may be separately disposed in the active area AA and the non-active area NA by positioning the upper surface 131t of the first partition layer 131 higher than the upper surface 151d of the CGL 151d of the organic light emitting part 150. Or it may be positioned in the same plane

as the upper surface **151d** of the CGL **151d**. Thus, defects resulting from light leakage and the mixing of colors of light caused by, for example, current leaking into the non-active area NA, may be reduced. In addition, by positioning the upper surface **131t** of the first partition layer **131** lower than or in the same plane as the upper surface **152t** of the organic light emitting part **150**, operation-related defects produced by disconnection between the anode **140** and the cathode **170** may be reduced. Thereby, the reliability of the organic light emitting display device **100** may be enhanced.

[0061] FIG. 3 is an enlarged view of region B shown in FIG. 1. FIG. 3 illustrates the stack structure of an organic light emitting element disposed in the active area AA.

[0062] As described above with reference to FIG. 2, by separately disposing a portion of the organic material including the CGL **151d** on the upper portion of the anode **140** and the upper portion of the second partition layer **132**, the CGL **151d** may be prevented from causing current leaking into the non-active area NA. Thus, light is emitted from only the active area AA. That is, the dummy part **160** disposed in the non-active area NA does not emit light. As shown in FIG. 3, an organic light emitting element is disposed in the active area AA, and includes the anode **140**, the first part **151** and second part **152** of the organic light emitting part **150** and the cathode **170**. Hereinafter, each layer will be described in detail.

[0063] The anode **140** is a positive electrode for supplying holes. The anode **140** may be formed of transparent conductive oxide such as indium tin oxide (ITO), indium zinc oxide (IZO), or the like.

[0064] The cathode **170** is a negative electrode. The cathode **170** is formed of a material having high step coverage including a metal such as, for example gold (Au), silver (Ag), aluminum (Al), molybdenum (Mo), magnesium (Mg), or an alloy thereof.

[0065] The first intermediate layer **151a** disposed on the anode **140** may include a signal layer of a hole injection layer (HIL) or hole transporting layer (HTL) or a combination of two layers. The HIL, which allows holes transported from the anode **140** to be smoothly injected into the first organic emission layer **151b**, may enhance the interfacial and adhesive properties of the anode **140** formed of an inorganic material and the organic emission layer **151b** formed of an organic material. The HTL, which is a layer serving to move injected holes to the organic emission layer **151b**, may be formed of a material having high hole mobility.

[0066] The first organic emission layer **151b** disposed on the first intermediate layer **151a** includes a dopant and host. The first organic emission layer **151b** emits light when electrons are combined with holes.

[0067] The second intermediate layer **151c** disposed on the first organic emission layer **151b** may be an electron transporting layer (ETL). The ETL serves to move electrons injected from the CGL **151d**, which is positioned on the ETL, to the first organic emission layer **151b**.

[0068] The CGL **151d**, which is a source of supply of electrons and holes, supplies electrons or holes to the organic emission layers **151b** and **152b** adjacent thereto. The CGL **151d** may have a dual structure with a P-type CGL and an N-type CGL or may consist of a single layer.

[0069] The third intermediate layer **152a**, which may be an HTL, serves to move holes injected from the CGL **151d** to the second organic emission layer **152b**.

[0070] Similar to the first organic emission layer **151b**, the second organic emission layer **152b** includes a dopant and

host, and emits light. As mentioned above, lights emitted from the first organic emission layer **151b** and the second organic emission layer **152b** are mixed to emit white light. For example, the first organic emission layer **151b** may be a blue organic light emitting layer and the second organic emission layer **152b** may be a yellow organic light emitting layer. However, embodiments of the present disclosure are not limited thereto. White light may be emitted through various combinations of light.

[0071] The fourth intermediate layer **152c** includes a signal layer of an electron injection layer (EIL) or ETL or a combination of two layers. The EIL allows electrons transported from the cathode **170** to be smoothly injected into the second organic emission layer **152b**.

[0072] The first intermediate layer **151a**, the second intermediate layer **151c**, the third intermediate layer **152a** and the fourth intermediate layer **152c**, which are auxiliary layers provided to enhance emission efficiency of the organic light emitting element **150**, are not limited to the aforementioned structure. Each of the layers may be designed as one of or a combination of an HIL, an HTL, an EIL and an ETL.

[0073] FIG. 4 is a cross-sectional view of an organic light emitting display device according to another embodiment of the present disclosure. In this embodiment, the organic light emitting part includes a plurality of CGLs. Description of constituents identical to or corresponding to constituents of the previous embodiment will be omitted.

[0074] Referring to FIG. 4, a first part **251** of an organic light emitting part **250** is disposed on an anode **240**, and a first partition layer **231** is disposed on the edge of the anode **240**. A second partition layer **232** laterally protruding farther than the first partition layer **231** is disposed on the first partition layer **231**. Also a dummy part **260** having the same stack structure as the first part **251** of the organic light emitting part **250** is disposed on the second partition layer **232**. In addition, a second part **252** of the organic light emitting part **250** is disposed on the first part **251** of the organic light emitting part **250** and the dummy part **260**. The second part **252** is disposed without being separated into parts. A cathode **270** is disposed on the second part **252**.

[0075] The organic light emitting part **250** may include a plurality of CGLs. As shown in FIG. 4, the first part **251** of the organic light emitting part **250** is formed by disposing a first intermediate layer **251a**, a first organic emission layer **251b**, a second intermediate layer **251c**, a first CGL **251d**, a third intermediate layer **251e**, a second organic emission layer **251f**, a fourth intermediate layer **251g** and a second CGL **251h** one over another. The dummy part **260** disposed on the second partition layer **232** is formed by stacking a first dummy layer **260a**, a second dummy layer **260b**, a third dummy layer **260c**, a fourth dummy layer **260d**, a fifth dummy layer **260e**, a sixth dummy layer **260f**, a seventh dummy layer **260g** and an eighth dummy layer **260h** one over another. Each layer of the dummy part **260** corresponds to a layer of the first part **251** and is formed of the same material as the corresponding layer of the first part **251**.

[0076] Referring to FIG. 4, an upper surface **231t** of the first partition layer **231** may be positioned higher than an upper surface **251t1** of the first part **251** of the organic light emitting part **250**. Specifically, the upper surface **251t1** of the second CGL **251h** is the uppermost layer of the first part **251**. Or an upper surface **231t** may be positioned in the same plane as the upper surface **251t1** of the second CGL **251h**. This means that the height of the first partition layer **231** is greater than or

equal to the distance from the anode 240 to the first part 251 of the organic light emitting part 250. In other words, the thickness of the first partition layer 231 is greater than or equal to the sum of the thicknesses of the anode 240 and the first part 251. More specifically, this means that the thickness of the first partition layer 231 is greater than or equal to the sum of the thicknesses of the anode 240, the first intermediate layer 251a, first organic emission layer 251b, second intermediate layer 251c, first CGL 251d, third intermediate layer 251e, second organic emission layer 251f, fourth intermediate layer 251g and second CGL 251h. Referring to FIG. 4, by positioning the upper surface 231t of the first partition layer 231 close to (or a little higher than) the plane where the upper surface 251t1 of the second CGL 251h lies, each of the first CGL 251d and the second CGL 251h can be separately disposed in an active area AA and a non-active area NA. In other words, each of the first CGL 251d and the second CGL 251h may not continuously extend over the active area AA and non-active area NA.

[0077] As mentioned above, if the upper surface 231t of the first partition layer 231 is positioned higher than the upper surface 251t1 of the CGL 251h, the uppermost layer of the first part 251 may be a part of the second part 252, more specifically, one of a fifth intermediate layer 252a, a third organic emission layer 252b and a sixth intermediate layer 252c, rather than the CGL 251h, of the organic light emitting part 250. In this case, the uppermost layer of the dummy part 260 having the same stack structure as the first part 251 may be formed of the same material as one of the fifth intermediate layer 252a, third organic emission layer 252b and sixth intermediate layer 252c.

[0078] Although not shown in the figure, only the first CGL 251d may be separately disposed depending on the structure and design of the organic light emitting part 250. If the upper surface 231t of the first partition layer 231 is positioned higher than the upper surface 251t2 of the first CGL 251d of the organic light emitting part 250 and lower than the upper surface 251t1 of the second CGL 251h, the first CGL 251d may be separately disposed on the upper portion of the anode 240 and the upper portion of the second partition layer 232. The second CGL 251h may be disposed without being separated into parts in a manner that the second part 252 of the organic light emitting part 250 shown in FIG. 4 is disposed.

[0079] Accordingly, when the organic light emitting part 250 of the organic light emitting display device 200 includes a plurality of CGLs 251d and 251h, the upper surface 231t of the first partition layer 231 may be positioned higher than the upper surface 251t2 of the first CGL 251d that is closer to the anode 240 than the other CGL 251h. Or the upper surface 231t may be positioned in the same plane as the upper surface 251t2 of the first CGL 251d. As a result, at least one CGL may be separately disposed in the active area AA and the non-active area NA, and thus current leakage due to the CGL may be reduced and light leakage and the mixing of colors of light may be suppressed.

[0080] The upper surface 231t of the first partition layer 231 may be positioned lower than the upper surface 252t of the organic light emitting part 250, specifically, the upper surface 252t of the sixth intermediate layer 252c which is the uppermost layer of the second part 252. Or the upper surface 231t may be positioned in the same plane as the upper surface 252t of the sixth intermediate layer 252c. This means that the height of the first partition layer 231 is less than or equal to the distance from the anode 240 to the second part 252 of the

organic light emitting part 250. In other words, the thickness of the first partition layer 231 is less than or equal to the sum of the thicknesses of the anode 240, the first part 251 and second part 252 of the organic light emitting part 250. If the upper surface 231t of the first partition layer 231 is positioned higher than the upper surface 252t of the organic light emitting part 250, the cathode 270 having high step coverage may be deposited along the lateral surface of the first partition layer 231. The first partition layer 231 is positioned further inward than the second partition layer 232 and the exposed upper surface of the anode 240, as described above. Thus, an operation-related defect may be produced by disconnection between the anode 240 and the cathode 270.

[0081] In summary, the CGL may be separately disposed in the active area AA and the non-active area NA by positioning the upper surface 231t of the first partition layer 231 higher than or in the same plane as the upper surface 251t2 of the first CGL 251d of the organic light emitting part 250 or the upper surface 251t1 of the second CGL 251h. As a result, defects resulting from light leakage and the mixing of colors of light caused by, for example, current leaking into the non-active area NA, may be reduced. In addition, by positioning the upper surface 231t of the first partition layer 231 lower than or in the same plane as the upper surface 252t of the organic light emitting part 250, operation-related defects produced by disconnection between the anode 240 and the cathode 270 may be reduced. Thus, the reliability of the organic light emitting display device 200 may be enhanced.

[0082] FIGS. 5A to 5D are cross-sectional views illustrating openings according to structures of a partition layer. Hereinafter, openings according to structures and shapes of a partition layer will be described in more detail without describing the other constituents described above.

[0083] Referring to FIG. 5A, a first partition layer 331a having a first opening OPN1a configured to expose a portion of an anode 340a is disposed on the anode 340a. Also a second partition layer 332a having a second opening OPN2a is disposed on the first partition layer 331a. The second opening OPN2a may be disposed to overlap the first opening OPN1a and expose a portion of the anode 340a. The width of the second opening OPN2a may be less than that of the first opening OPN1a such that the second partition layer 332a laterally protrudes farther than the first partition layer 331a.

[0084] The degree of protrusion of the second partition layer 332a compared to the first partition layer 331a may be expressed by a distance from an end of the first partition layer 331a to an end of the second partition layer 332a. The degree of protrusion may correspond to a distance Da between the lateral surface of the first partition layer 331a and the lateral surface of the second partition layer 332a in the structure of the partition layer shown in FIG. 5A. The distance Da may be greater than 0.1 μm and less than the thickness of the second partition layer 332a. Preferably, the distance Da may be between 0.1 μm and 2 μm . If the distance Da between the lateral surface of the first partition layer 331a and the lateral surface of the second partition layer 332a is greater than the thickness of the second partition layer 332a, the second partition layer 332a disposed in a protruding manner may be collapsed down toward the anode 340a by gravity. Thus, an unexpected defect may occur in the partition layer as the partition layer is formed in an improper shape. For example, if the inclined lateral surface of the second partition layer 332a comes in contact with the anode 340a, the difference between the openings of the partition layer provided to sepa-

ately dispose an organic material may be eliminated. Thus, the organic material may be continuously disposed rather than being properly separated into parts. As a result, light may leak into the non-active area. If the distance D_a between the lateral surface of the first partition layer **331a** and the lateral surface of the second partition layer **332a** is less than $0.1\ \mu\text{m}$, there may be little difference between the width of the second opening **OPN2a** and the width of the first opening **OPN1a**. Thus, the effect of step coverage may hardly occur. As a result, the organic material may be continuously disposed without being properly separated into parts, and thus light leakage may occur in the non-active area.

[0085] FIG. 5B shows a second partition layer **332b** whose lateral surface has a different shape over the lateral surface shown in FIG. 5A. The other constituents shown in FIG. 5B are the same as those of FIG. 5A and thus description thereof will be omitted.

[0086] As shown in FIG. 5B, the lateral surface of the second partition layer **332b** is inclined. More specifically, the lateral surface of the second partition layer **332b** is inclined in a taper shape such that the upper portion of the lateral surface protrudes farther than the lower portion of the lateral surface. In this case, a second opening **OPN2b** may be defined based on the lower surface of the second partition layer **332b**. The shape of the inclined lateral surface of the second partition layer **332b** may be determined by a processing method, process conditions, and properties of a material forming the second partition layer **332b**. The width of the second opening **OPN2b** may be less than the width of a first opening **OPN1b**, and the second opening **OPN2b** may be disposed to overlap the first opening **OPN1b**. The distance D_b from an end of the first partition layer **331b** to a corresponding end of the second partition layer **332b** may be greater than about $0.1\ \mu\text{m}$ and less than the thickness of the second partition layer **332b**. Preferably, the distance D_b may be between about $0.1\ \mu\text{m}$ and $2\ \mu\text{m}$. In this case, the end of the first partition layer **331b** corresponds to the lateral surface of the first partition layer **331b**. Also the end of the second partition layer **332b** corresponds to a portion of the inclined lateral surface of the second partition layer **332b** that protrudes farther than the other portion of the lateral surface.

[0087] FIG. 5C shows a first partition layer **331c** whose lateral surface has a different shape over the lateral surface shown in FIG. 5B. The other constituents shown in FIG. 5C are the same as those of FIG. 5B and thus description thereof will be omitted.

[0088] As shown in FIG. 5C, similar to a second partition layer **332c**, the first partition layer **331c** has an inclined lateral surface. More specifically, the lateral surface of the first partition layer **331c** is formed in a reverse taper shape such that the upper portion of the lateral surface protrudes farther than the lower portion of the lateral surface. In this case, a first opening **OPN1c** may be defined based on the upper surface of the first partition layer **331c**. The shape of the inclined lateral surface of the first partition layer **331c** may be determined by a processing method, process conditions, and properties of a material forming the first partition layer **331c**. The width of a second opening **OPN2c** may be less than that of the first opening **OPN1c**, and the second opening **OPN2c** may be disposed to overlap the first opening **OPN1c**. The distance D_c from an end of the first partition layer **331c** to a corresponding end of a second partition layer **332c** may be greater than $0.1\ \mu\text{m}$ and less than the thickness of the second partition layer **332c**. Preferably, the distance D_c may be between about 0.1

μm and $2\ \mu\text{m}$. In this case, the end of the first partition layer **331c** corresponds to a portion of the inclined lateral surface of the first partition layer **331c** that is dented further inward than the other portion of the lateral surface. Also, the end of the second partition layer **332c** corresponds to a portion of the inclined lateral surface of the second partition layer **332c** that protrudes farther than the other portion of the lateral surface.

[0089] FIG. 5D shows a first partition layer **331d** whose lateral surface has a different shape over the lateral surface shown in FIG. 5C. The other constituents shown in FIG. 5D are the same as those of FIG. 5C and thus description thereof will be omitted.

[0090] As shown in FIG. 5D, the lateral surface of the first partition layer **331d** is inclined. More specifically, similar to a second partition layer **332d**, the first partition layer **331d** has a lateral surface formed in a taper shape such that the upper portion of the lateral surface protrudes farther than the lower portion of the lateral surface. In this case, a first opening **OPN1d** may be defined based on the upper surface of the first partition layer **331d**. The shape of the inclined lateral surface of the first partition layer **331d** may be determined by a processing method, process conditions, and properties of a material forming the first partition layer **331d**. The width of a second opening **OPN2d** may be less than that of the first opening **OPN1d**, and the second opening **OPN2d** may be disposed to overlap the first opening **OPN1d**. The distance D_d from an end of the first partition layer **331d** to an end of a second partition layer **332d** may be greater than about $0.1\ \mu\text{m}$ and less than the thickness of the second partition layer **332d**. Preferably, the distance D_d may be between about $0.1\ \mu\text{m}$ and $2\ \mu\text{m}$. In this case, the end of the first partition layer **331d** corresponds to a portion of the inclined lateral surface of the first partition layer **331d** that is dented further inward than the other portion of the lateral surface. Also the end of the second partition layer **332d** corresponds to a portion of the inclined lateral surface of the second partition layer **332d** that protrudes farther than the other portion of the lateral surface.

[0091] Accordingly, referring to FIGS. 5A to 5D, when a cross section of an organic light emitting display device according to an embodiment of the present disclosure is viewed, the width of a first opening **OPN1** of a first partition layer **331** is greater than that of a second opening **OPN2** of a second partition layer **332**. Further, the first opening **OPN1** and the second opening **OPN2** are disposed to overlap each other. In addition, the first opening **OPN1** may be defined based on the upper surface of the first partition layer **331**, and the second opening **OPN2** may be defined based on the lower surface of the second partition layer **332**. As an organic material having low step coverage is separately formed on the upper portion of the anode **340** corresponding to an active area and the upper portion of the second partition layer **332** corresponding to a non-active area by the aforementioned difference in width between the first opening **OPN1** and the second opening **OPN2**, light leakage and the mixing of colors of light caused by current leaking into the non-active area may be suppressed.

[0092] FIGS. 6A to 6E are cross-sectional views illustrating a method for manufacturing an organic light emitting display device according to an embodiment of the present disclosure.

[0093] Referring to FIG. 6A, a TFT **420** is formed on a substrate **410**. Specifically, a conductive material is deposited onto the substrate **410** and patterning is performed to form a gate electrode **421**. Then, a first insulation layer **411** formed

of an insulation material is formed on the gate electrode **421**. A semiconductor material is applied onto the first insulation layer **411** and then patterning is performed to form an active layer **422** such that the active layer **422** overlaps the gate electrode **421**. After a conductive material is deposited onto the active layer **422**, patterning is performed to form a source electrode **423** and a drain electrode **42** such that the source electrode **423** and the drain electrode **42** are spaced apart from each other. A second insulation layer **412** having a contact hole configured to expose a portion of the source electrode **423** is disposed on the TFT **420**.

[0094] Next, referring to FIG. 6B, an anode **440** connected to the source electrode **423** through the contact hole of the second insulation layer **412** is formed on the second insulation layer **412**. The anode **440** may be formed for each pixel by performing the patterning operation. Thereafter, an inorganic insulation film **430** formed of an inorganic insulation material is deposited onto the anode **440**. The inorganic insulation film **430** may be formed of silicon oxide (SiO_x) or silicon nitride (SiN_x), but embodiments of the present disclosure are not limited thereto.

[0095] Next, referring to FIG. 6C, an organic insulation film formed of an organic insulation material is deposited on the entire inorganic insulation film **430**. Then patterning is performed using, for example, photo resist to form a second partition layer **432**. The second partition layer **432** is patterned to have a second opening OPN2, and the second opening OPN2 is formed to overlap the anode **440**. The second partition layer **432** may be formed of a polyimide resin, an acrylic resin or a benzocyclobutene (BCB) resin, but embodiments of the present disclosure are not limited thereto.

[0096] Next, referring to FIG. 6D, a first partition layer **431** is etched on the inorganic insulation film **430** using an etchant. In this operation, the second partition layer **432** serves as a mask of the inorganic insulation film **430**. An end of the first partition layer **431** may be dented further inward than an end of the second partition layer **432** by adjusting a processing condition, particularly, a process time. That is, a portion of the inorganic insulation film **430** where the second partition layer **432** is not formed is removed by the etchant, and the lateral surface of the first partition layer **431** is gradually dented inward by the process time and the etchant. In this operation, the first partition layer **431** is provided with the first opening OPN1, and the first opening OPN1 is formed to have a greater width than the second opening OPN2.

[0097] Dry etching or wet etching may be used to form the first partition layer **431** depending on the type of the inorganic insulation film **430**. In addition, the structures and shape of the first partition layer **431** and the second partition layer **432**, more specifically, the shape of the lateral surface of each of the first partition layer **431** and the second partition layer **432** may be determined by processing conditions corresponding to properties of a material in use, a process time and a process environment. The lateral surfaces may have the structures described above with reference to FIGS. 5A to 5D.

[0098] Lastly, referring to FIG. 6E, an organic material is deposited on the anode **440** and on the second partition layer **432**. In this operation, the organic material having low step coverage is separately formed on the upper portion of the anode **440** and the upper portion of the second partition layer **432** due to the structure of the partition layers. That is, the organic material having low step coverage cannot reach the dented lateral surface of the first partition layer **431**, and is thus discontinuously formed on the upper portion of the

anode **440** and the upper portion of the second partition layer **432**. Thus, a first part **451** of an organic light emitting part **450** and a dummy part **460** are simultaneously formed on the upper portion of the anode **440** and the upper portion of the second partition layer **432** respectively without being connected to each other. The first part **451** and the dummy part **460** have the same stack structure.

[0099] As described above, the height of the first partition layer **431** may be adjusted such that the first part **451** of the organic light emitting part **450** includes at least one CGL. Thereby, the CGL may be separately formed in the active area AA corresponding to the upper portion of the anode **440** and the non-active area NA corresponding to the upper portion of the second partition layer **432**. Accordingly, light leakage and the mixing of colors of light caused by current leaking into the non-active area NA may be suppressed.

[0100] A second part **452** formed of an organic material is deposited onto the first part **451** of the organic light emitting part **450** and the dummy part **460**. The second part **452** is deposited onto the active area AA and the non-active area NA without being separated into parts by the thickness of the organic material. In addition, a cathode **470** is formed on the second part **460**.

[0101] According to the method for manufacturing the organic light emitting display device **400**, as an organic material including a CGL is separately formed in the active area AA and the non-active area NA using the structures of the first partition layer **431** and the second partition layer **432** which have openings of different widths, display quality deteriorated by light leakage and the mixing of colors of light from neighboring pixels, which are caused by current leaking into the non-active area NA may be enhanced.

[0102] In an organic light emitting display device according to an embodiment of the present disclosure, the partition member may have an eaves shape that include a first partition layer having an opening and a second partition layer disposed on the first partition layer. Also, the second partition layer has an opening configured to overlap the opening of the first partition layer and is to be smaller than the opening of the first partition layer.

[0103] A height of the first partition layer may be greater than or equal to a distance from a top surface of the anode to a top surface of the CGL such that the CGL is separately formed in neighboring pixels.

[0104] Organic layers disposed between the anode and a specific layer of the plurality of organic layers may be separated by the partition member. Also organic layers between the specific layer and the cathode may be connected to each other in neighboring pixels, wherein at least one of the organic layers separated by the partition member may include the CGL.

[0105] In an organic light emitting display device according to another embodiment of the present disclosure, a first part may further include at least one CGL.

[0106] An organic light emitting part may include a second part disposed between the first part and a cathode, wherein the second part may be disposed to cover the first part and a dummy part.

[0107] The upper surface of the first partition layer may be positioned lower than or in the same plane as the upper surface of an organic light emitting part.

[0108] An upper surface of the first partition layer may be positioned higher than or in the same plane as the upper surface of the CGL.

[0109] When the organic light emitting part includes a plurality of CGLs, the upper surface of the first partition layer may be positioned higher than or in the same plane as the upper surface of a CGL disposed closest to the anode among the CGLs.

[0110] A lateral surface of at least one of the first partition layer and the second partition layer may be inclined.

[0111] A first opening may be defined based on the upper surface of the first partition layer, and a second opening may be defined based on the lower surface of the second partition layer.

[0112] A distance from an end of the first partition layer and an end of the second partition layer may be greater than 0.1 μm and less than thickness of the second partition layer.

[0113] The first partition layer may be formed of an inorganic insulation material, and the second partition layer may be formed of an organic insulation material.

[0114] A method for manufacturing an organic light emitting display device according to an embodiment of the present disclosure comprises forming a thin film transistor (TFT) on a substrate, forming an anode connected to the TFT, forming an inorganic insulation film on the anode, forming an organic insulation film on the inorganic insulation film and forming a second partition layer having a second opening by patterning the organic insulation film, forming a first partition layer having a first opening by patterning the inorganic insulation film such that the anode is exposed, forming a first part positioned on the anode and a dummy part positioned on the second partition layer simultaneously by depositing an organic material onto the anode and the second partition layer, and depositing a cathode onto the first part and the dummy part. The first opening may be larger than the second opening.

[0115] The first part may be separated from the dummy part.

[0116] The first part may include at least one CGL.

[0117] The method may further include depositing a second part formed of an organic material onto the first part and the dummy part.

[0118] Forming the first partition layer may include patterning the inorganic insulation film using the second partition layer as a mask.

[0119] Exemplary embodiments of the present disclosure have been described in detail above with reference to the accompanying drawings. Those skilled in the art will appreciate that the present disclosure is not limited to the exemplary embodiments, and various modifications and variations can be made in the present disclosure without departing from the spirit or scope of the disclosure. Accordingly, the exemplary embodiments described herein are merely illustrative and are not intended to limit the scope of the present disclosure. The technical idea of the present disclosure is not limited by the exemplary embodiments. Therefore, the embodiments described herein should be construed in all aspects as illustrative and not restrictive. The scope of protection sought by the present disclosure should be determined by the appended claims and their legal equivalents, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

What is claimed is:

1. A white organic light emitting display device comprising:

an anode and a cathode;

a plurality of organic layers between the anode and the cathode, wherein at least one of the organic layers have

at least one separated organic layer that minimizes current leakage into neighboring pixels; and

a partition member between the neighboring pixels configured to separate at least one of the organic layers, wherein the at least one separated organic layer comprises a charge generation layer.

2. The white organic light emitting display device according to claim 1, wherein the partition member has an eaves shape that comprises a first partition layer having an opening and a second partition layer on the first partition layer, and wherein the second partition layer has an opening configured to overlap the opening of the first partition layer and is smaller than the opening of the first partition layer.

3. The white organic light emitting display device according to claim 2, wherein a height of the first partition layer is greater than or equal to a distance from a top surface of the anode to a top surface of the charge generation layer such that the charge generation layer is separated between neighboring pixels.

4. The white organic light emitting display device according to claim 3, wherein organic layers between the anode and a specific layer of the plurality of organic layers are separated by the partition member, and organic layers between the specific layer and the cathode are connected between the neighboring pixels, wherein at least one of the organic layers separated by the partition member comprises the charge generation layer.

5. An organic light emitting display device comprising:

a thin film transistor on a substrate;

an anode connected to the thin film transistor;

a first partition layer having a first opening configured to expose at least a portion of the anode;

a second partition layer on the first partition layer having a second opening corresponding to the first opening, wherein a width of the second opening is less than a width of the first opening;

an organic light emitting part on the anode, wherein the organic light emitting part comprises a first part having at least one organic emission layer;

a dummy part on the second partition layer configured to have same stack structure as the first part, the dummy part being separated from the first part; and

a cathode on the organic light emitting part and the dummy part.

6. The organic light emitting display device according to claim 5, wherein the first part further comprises at least one charge generation layer.

7. The organic light emitting display device according to claim 6, wherein the organic light emitting part further comprises a second part between the first part and the cathode, wherein the second part covers the first part and the dummy part.

8. The organic light emitting display device according to claim 6, wherein an upper surface of the first partition layer is lower than or in the same plane as an upper surface of the organic light emitting part.

9. The organic light emitting display device according to claim 8, wherein the upper surface of the first partition layer is higher than or in the same plane as an upper surface of the charge generation layer.

10. The organic light emitting display device according to claim 9, wherein the organic light emitting part comprises a plurality of charge generation layers, the upper surface of the first partition layer is higher than or in the same plane as an

upper surface of a charge generation layer positioned closest to the anode among the plurality of charge generation layers.

11. The organic light emitting display device according to claim **5**, wherein a lateral surface of at least one of the first partition layer and the second partition layer is inclined.

12. The organic light emitting display device according to claim **11**, wherein the first opening is defined based on an upper surface of the first partition layer, and

the second opening is defined based on a lower surface of the second partition layer.

13. The organic light emitting display device according to claim **5**, wherein a distance from an end of the first partition layer and an end of the second partition layer is greater than $0.1\ \mu\text{m}$ and less than a thickness of the second partition layer.

14. The organic light emitting display device according to claim **5**, wherein the first partition layer is formed of an inorganic insulation material, and

the second partition layer is formed of an organic insulation material.

15. A method for manufacturing an organic light emitting display device comprising:

forming a thin film transistor (TFT) on a substrate;

forming an anode connected to the TFT;

forming an inorganic insulation film on the anode;

forming an organic insulation film on the inorganic insulation film and forming a second partition layer having a second opening by patterning the organic insulation film;

forming a first partition layer having a first opening by patterning the inorganic insulation film such the anode is exposed;

forming a first part of an organic light emitting part on the anode and a dummy part on the second partition layer simultaneously by depositing an organic material onto the anode and the second partition layer; and

depositing a cathode onto the first part and the dummy part.

16. The method according to claim **15**, wherein the first opening is larger than the second opening.

17. The method according to claim **16**, wherein the first part of the organic light emitting part is separated from the dummy part.

18. The method according to claim **17**, wherein the first part of the organic light emitting part comprises at least one charge generation layer.

19. The method according to claim **15**, further comprising:

depositing a second part formed of an organic material onto the first part and the dummy part.

20. The method according to claim **15**, wherein forming the first partition layer comprises:

patterning the inorganic insulation film using the second partition layer as a mask.

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申请(专利权)人(译)	LG DISPLAY CO. , LTD.		
当前申请(专利权)人(译)	LG DISPLAY CO. , LTD.		
[标]发明人	PANG HEESUK		
发明人	PANG, HEESUK		
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其他公开文献	US9735212		
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摘要(译)

公开了一种有机发光显示装置，包括阳极，阴极，多个有机层和分隔构件。多个有机层设置在阳极和阴极之间，其中至少一个层被分离以最小化电流泄漏到相邻像素中。分隔构件设置在相邻像素之间并且配置为分离多个有机层。至少一个分离层包括电荷产生层。因为至少一个层是分离的，所以可以最小化到相邻像素的电流泄漏。因此，可以减少由漏光和来自相邻像素的光的颜色混合导致的缺陷，并且提高显示质量。

