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**Son et al.**

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(54) **BACKLIGHT ASSEMBLY AND LIQUID CRYSTAL DISPLAY DEVICE INCLUDING THE SAME**

(58) **Field of Classification Search**  
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See application file for complete search history.

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 167 days.

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**Related U.S. Application Data**

(63) Continuation of application No. 11/870,691, filed on Oct. 11, 2007, now Pat. No. 8,665,389.

(57) **ABSTRACT**

Provided is a backlight assembly and a liquid crystal display including: a light source; a light guide plate; and a bottom chassis comprising an accommodating portion, a light source cover configured to accommodate the light source, a first sidewall, and a second sidewall, the accommodating portion comprising a first accommodating portion and a second accommodating portion detachably coupled with each other, wherein the light source cover is formed on a first edge of the first accommodating portion, the first sidewall is formed on a second edge of the first accommodating portion, and the second sidewall is formed on an edge of the second accommodating portion.

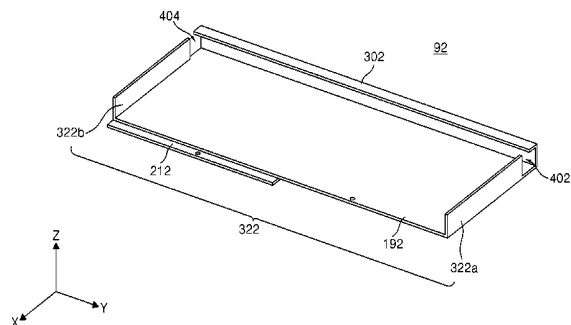
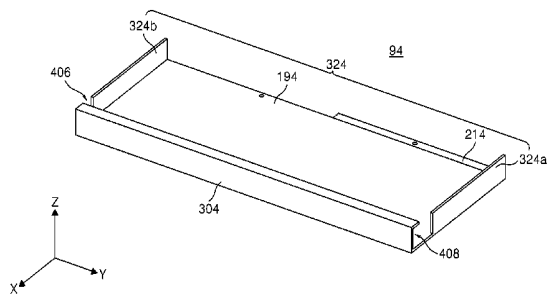
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**G02F 1/1333** (2006.01)  
**F21V 7/04** (2006.01)  
**F21V 8/00** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **G02B 6/0013** (2013.01); **G02B 6/0086** (2013.01); **G02F 2001/133314** (2013.01)



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FIG. 1

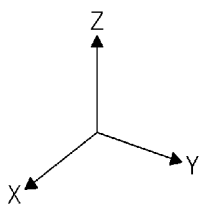
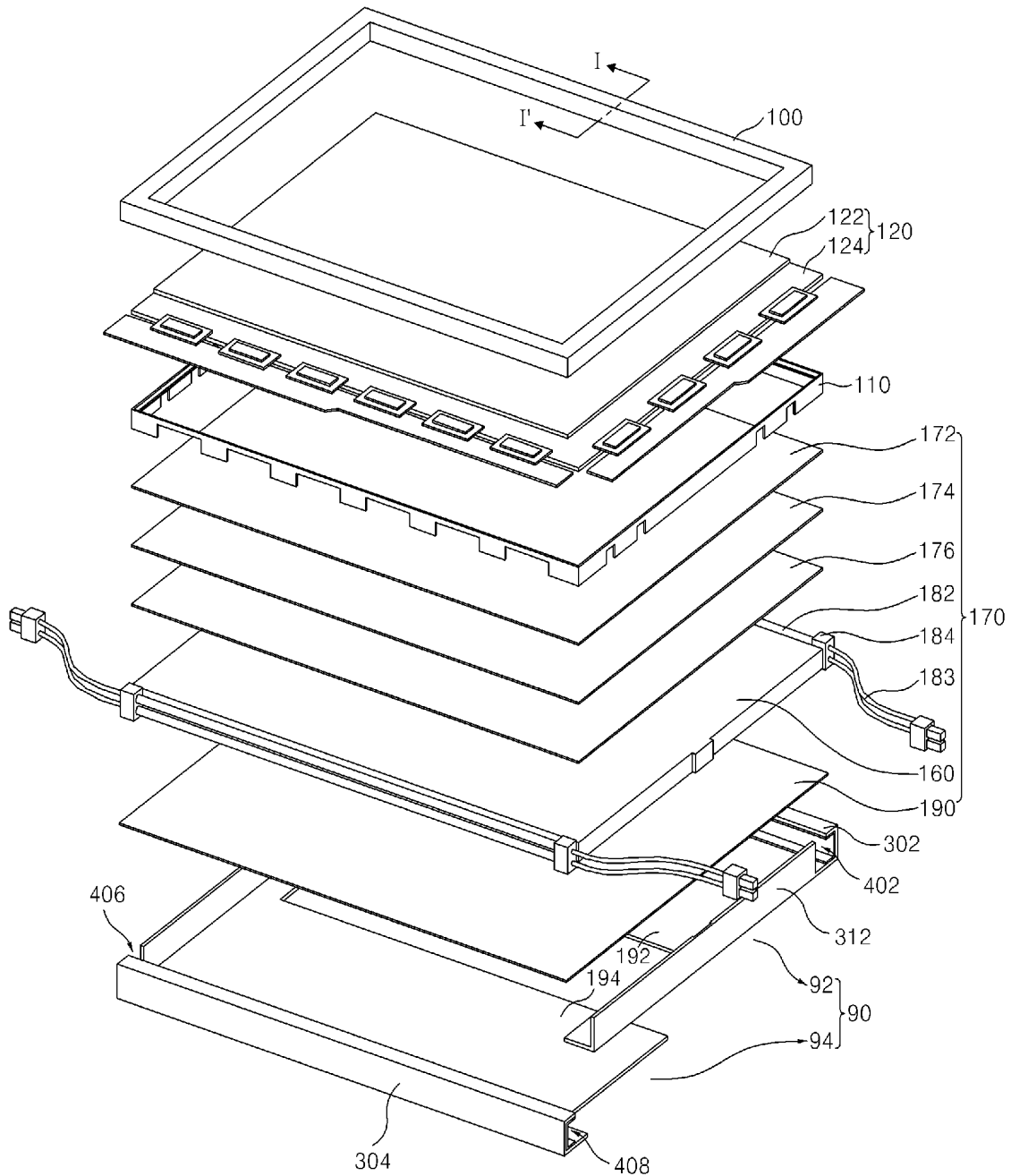


FIG. 2

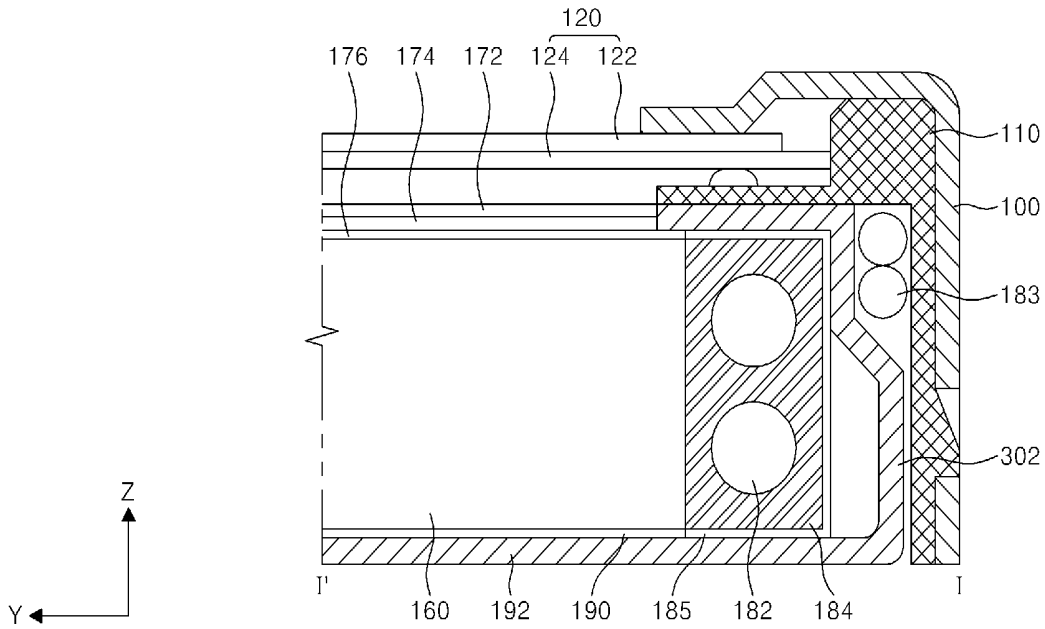


FIG. 3

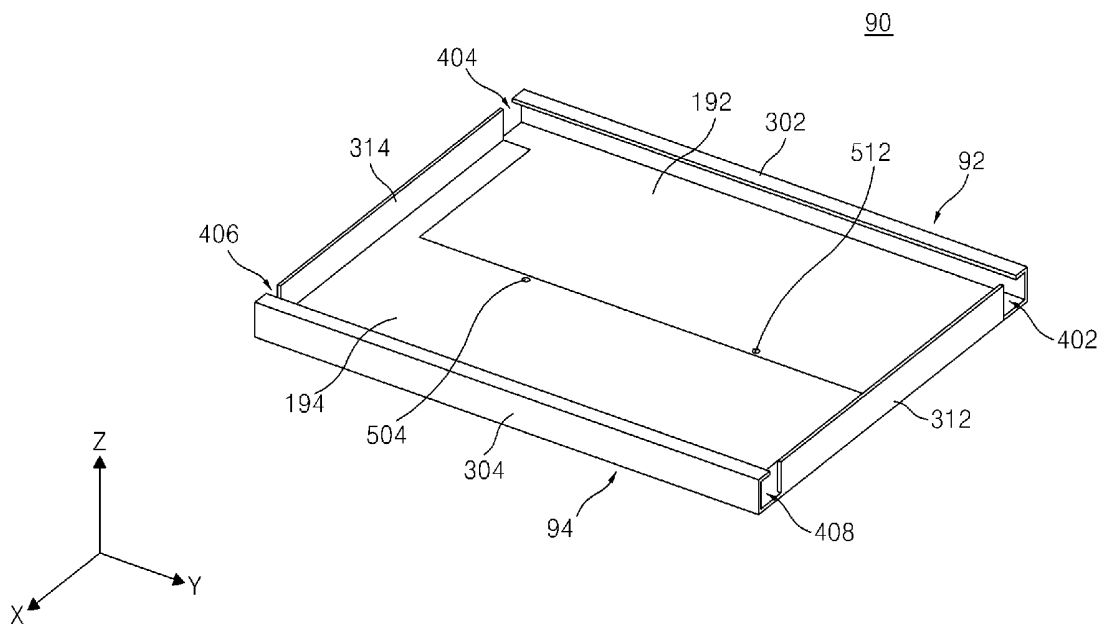


FIG. 4A

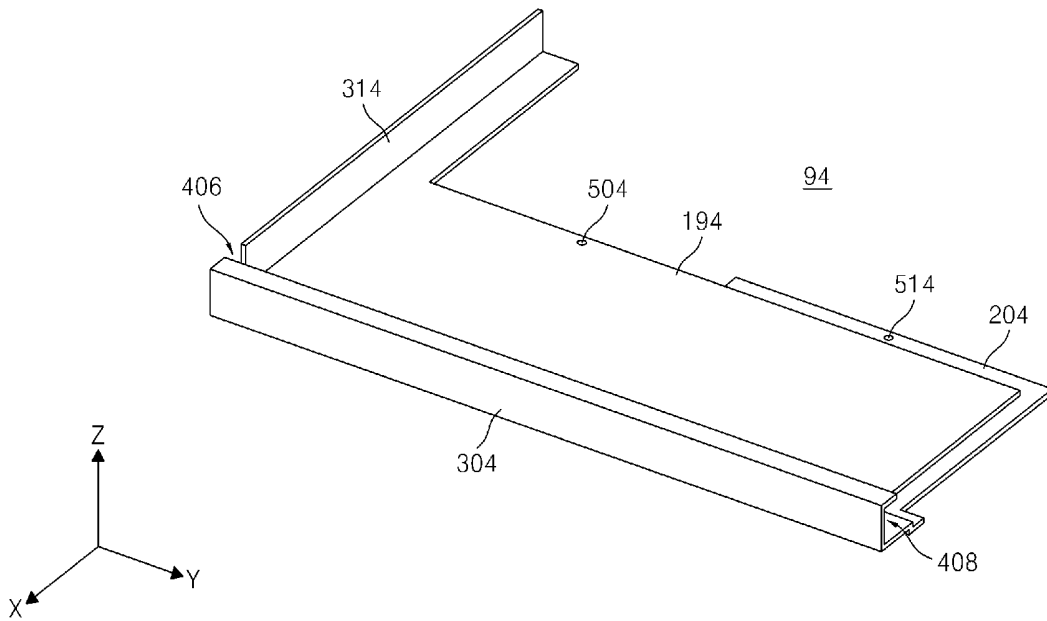


FIG. 4B

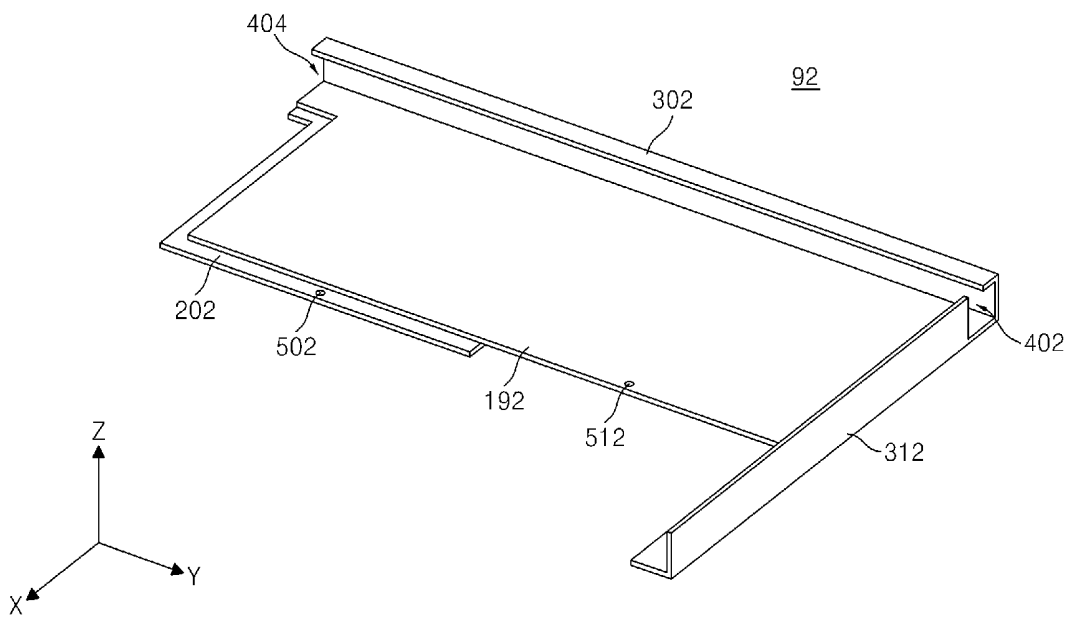


FIG. 5A

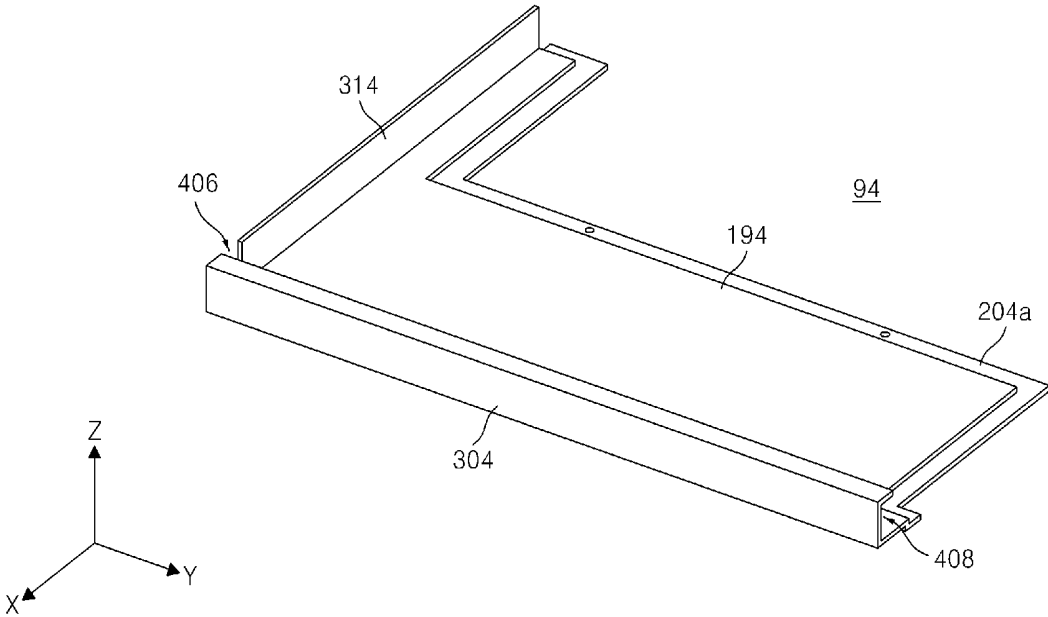


FIG. 5B

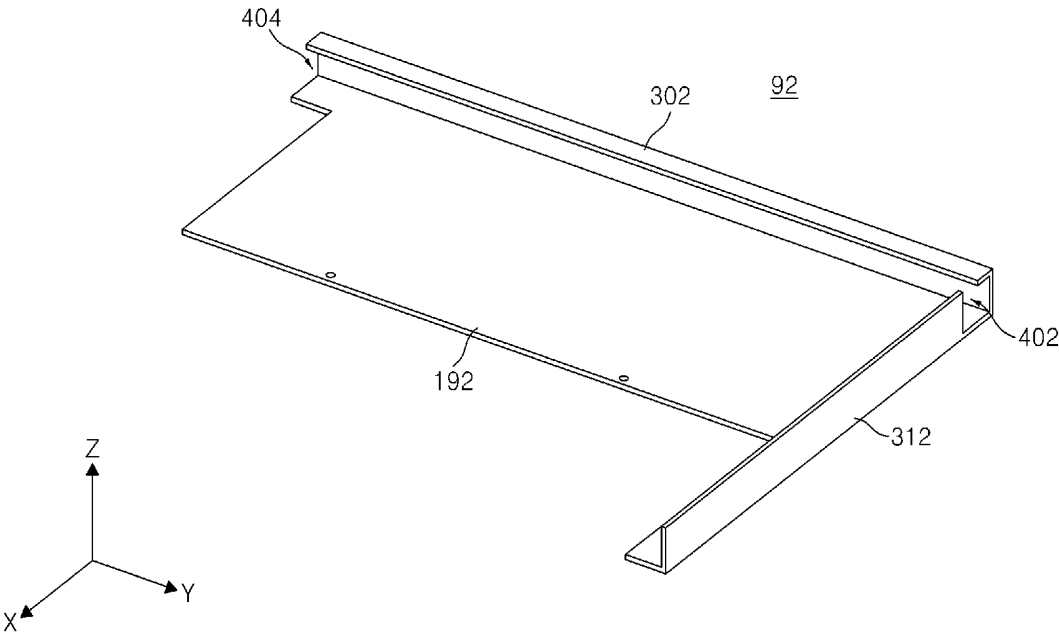


FIG. 5C

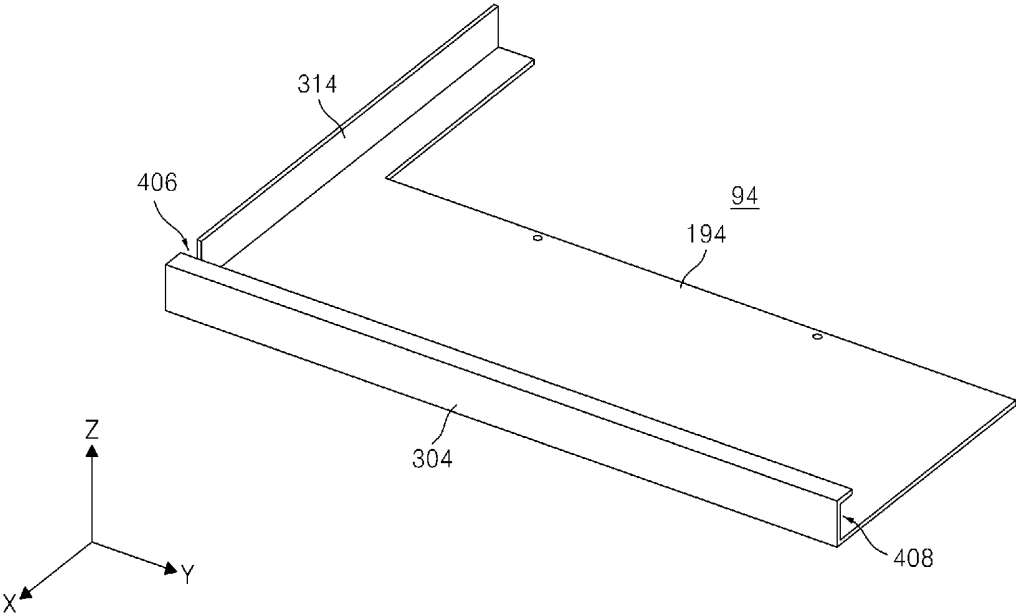


FIG. 5D

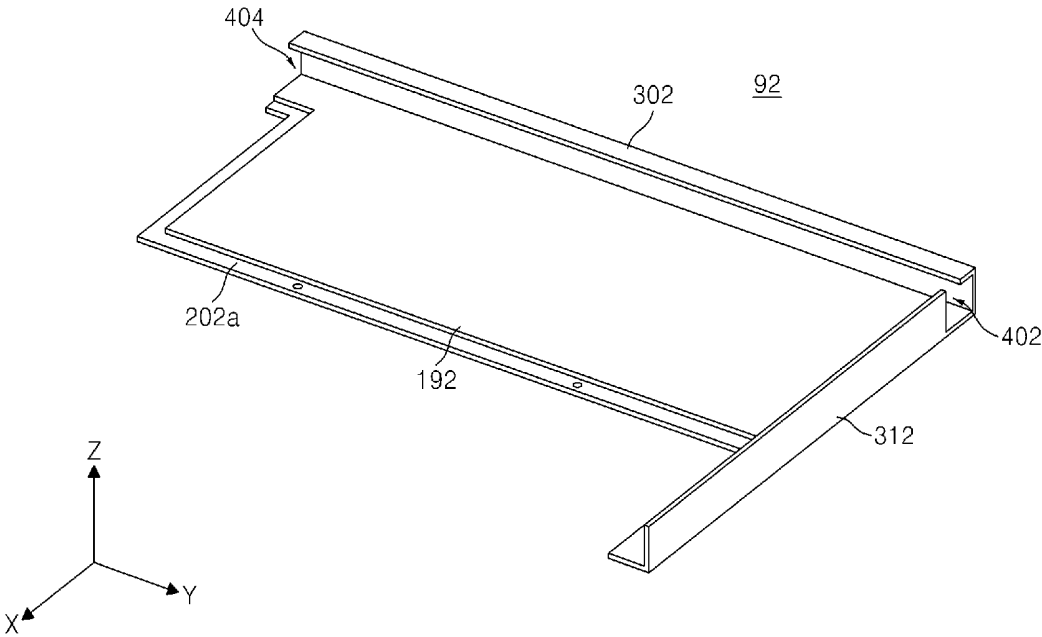


FIG. 6A

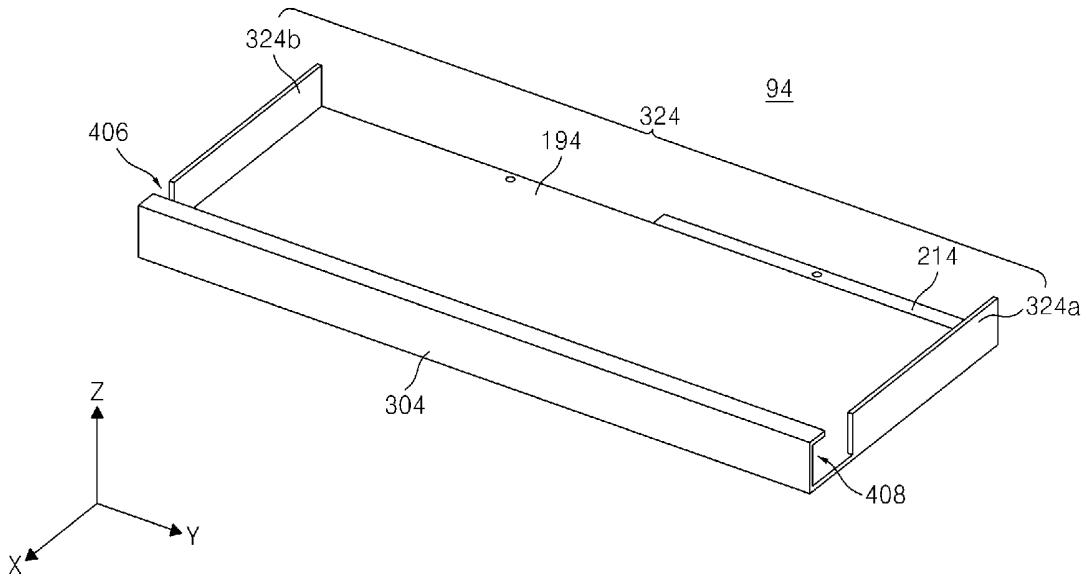


FIG. 6B

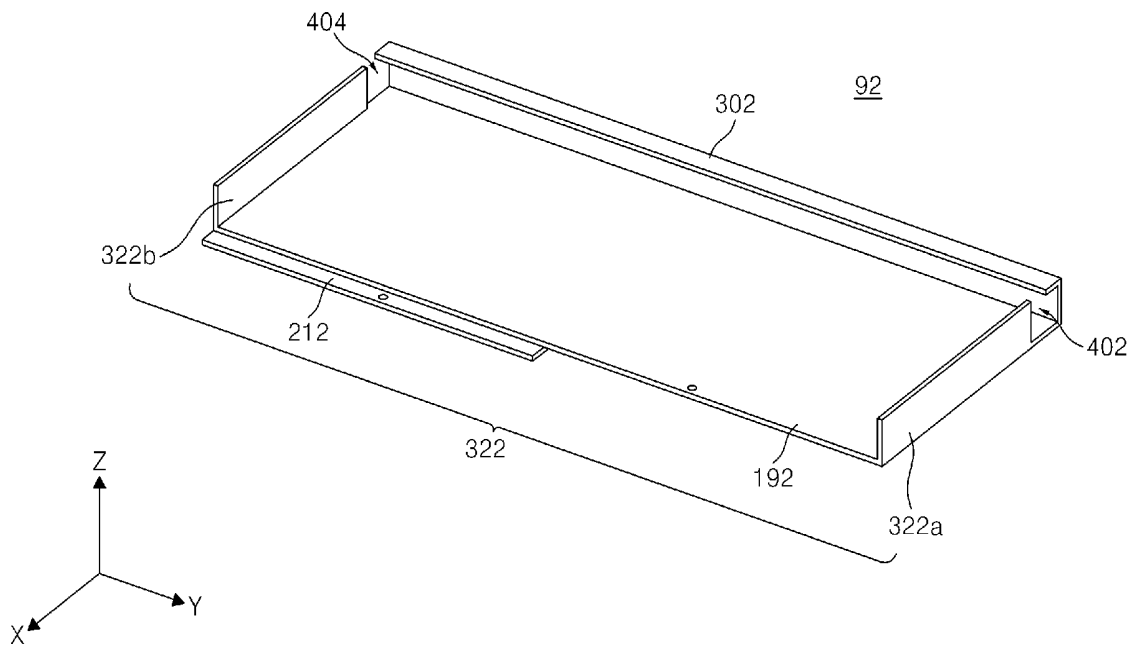


FIG. 7

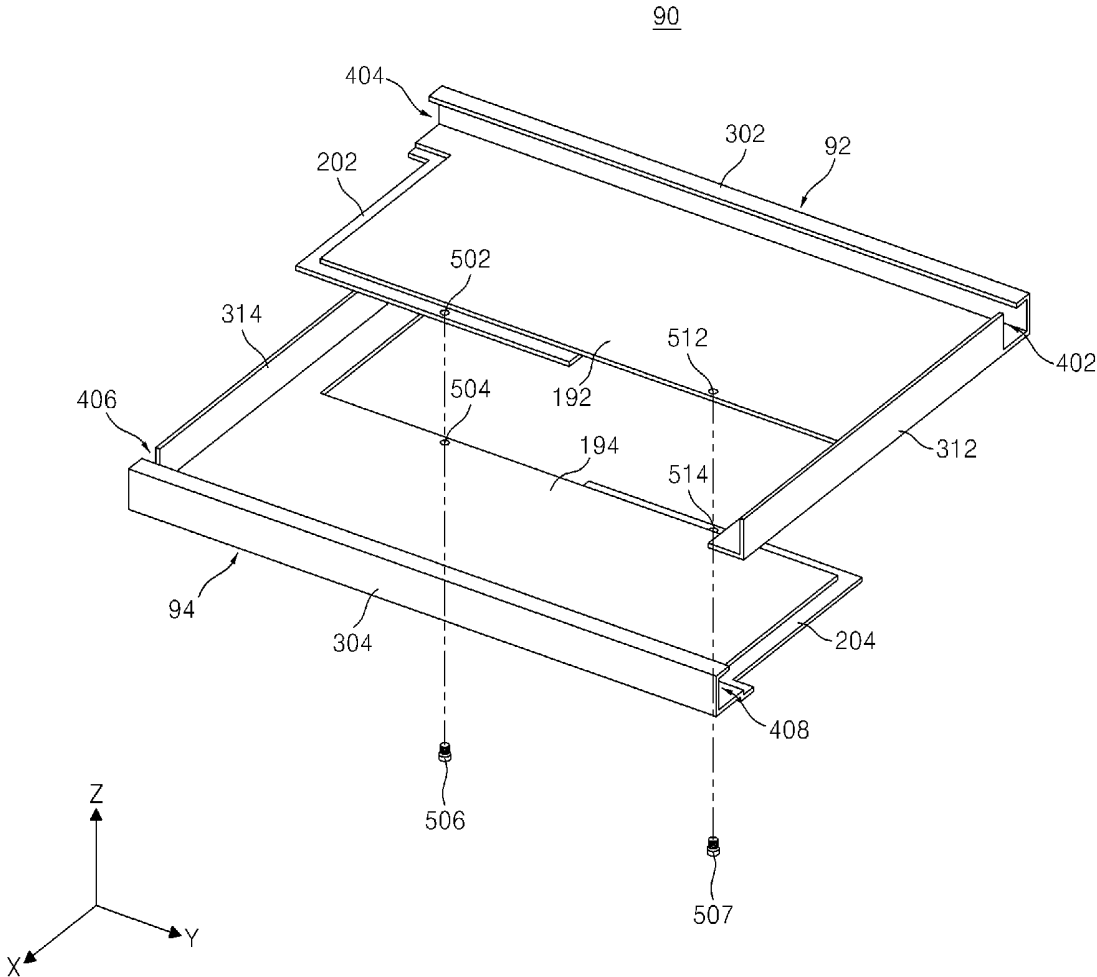


FIG. 8

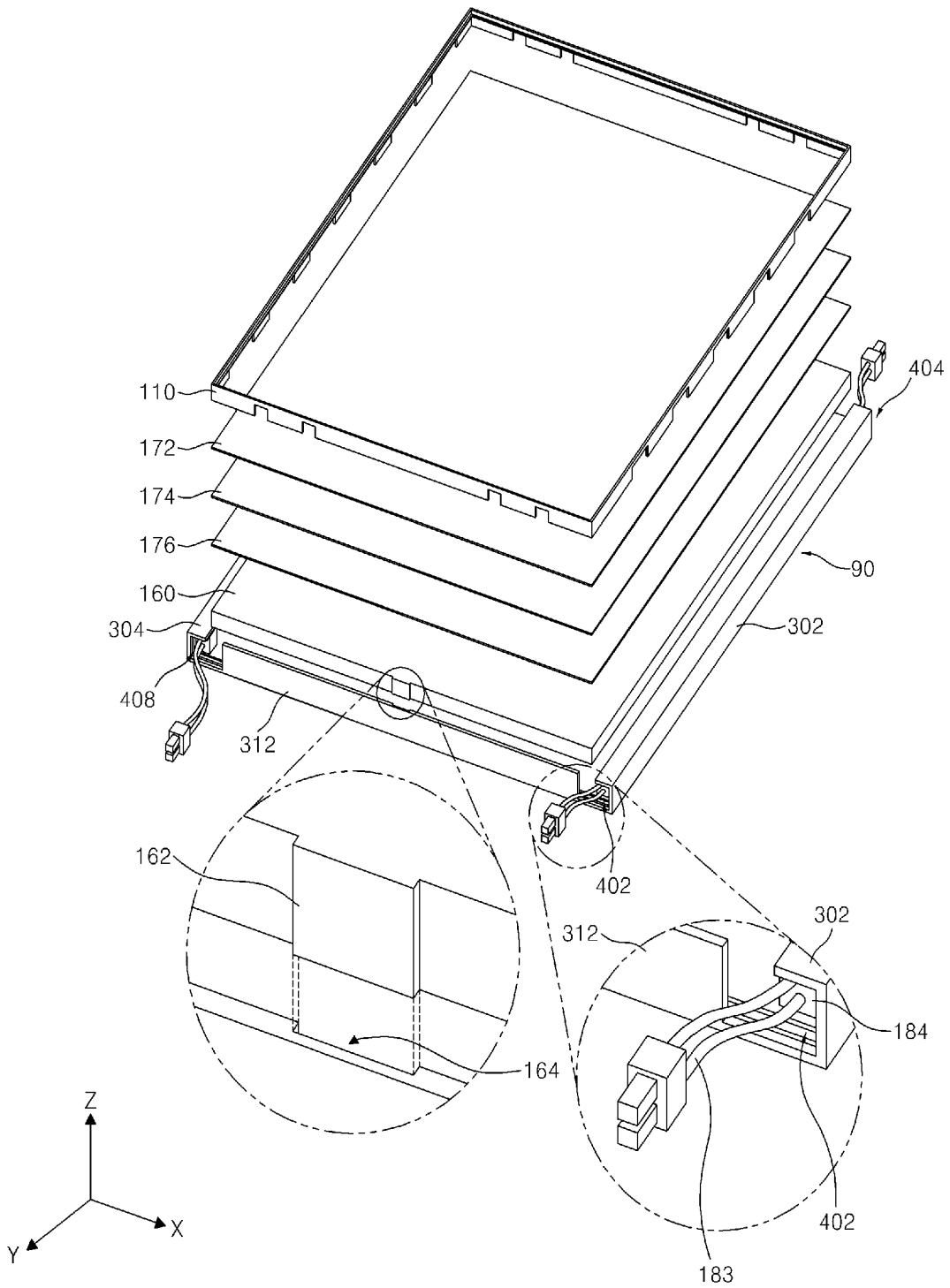


FIG. 9

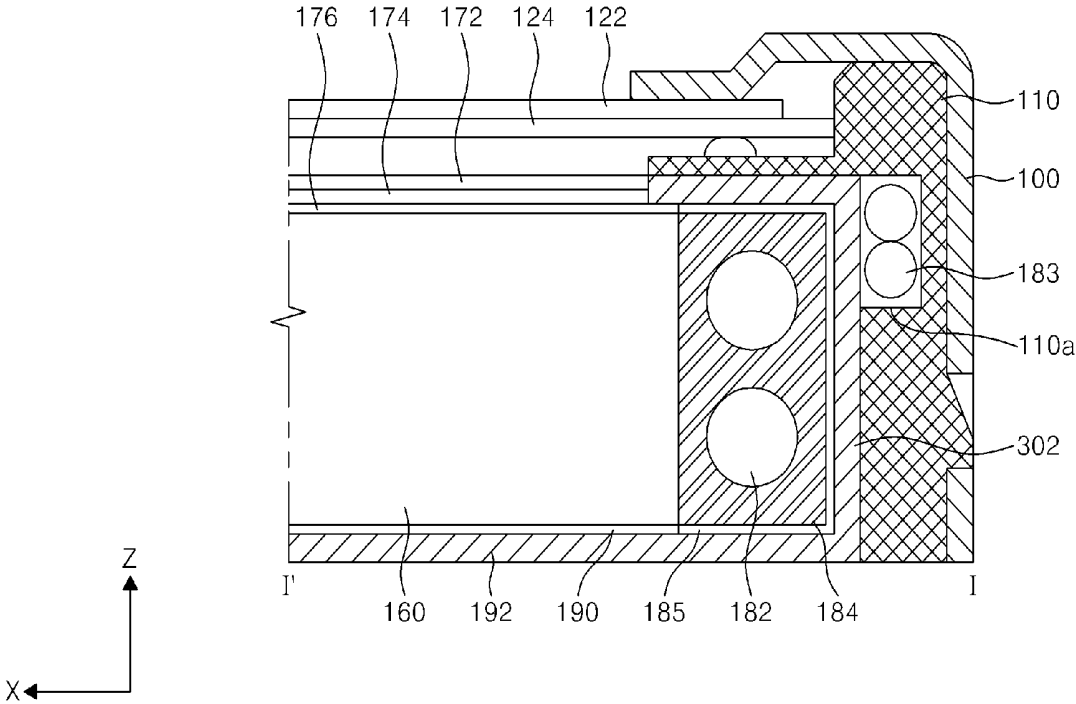


FIG. 10

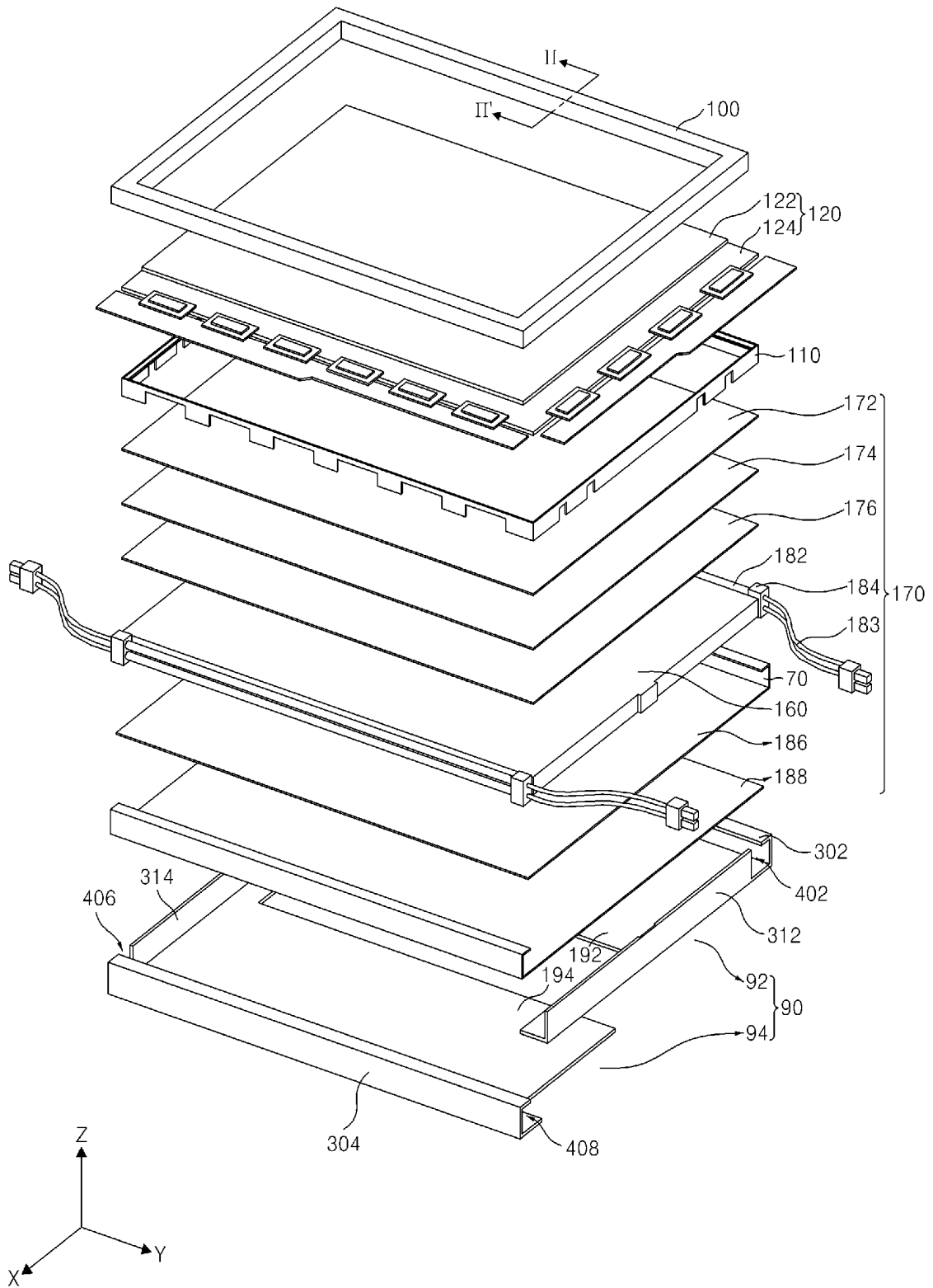


FIG.11

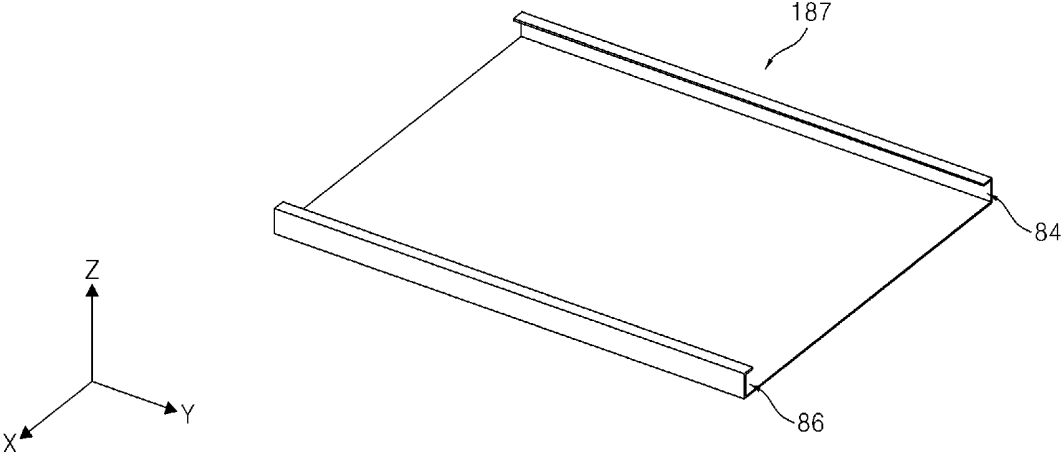


FIG.12

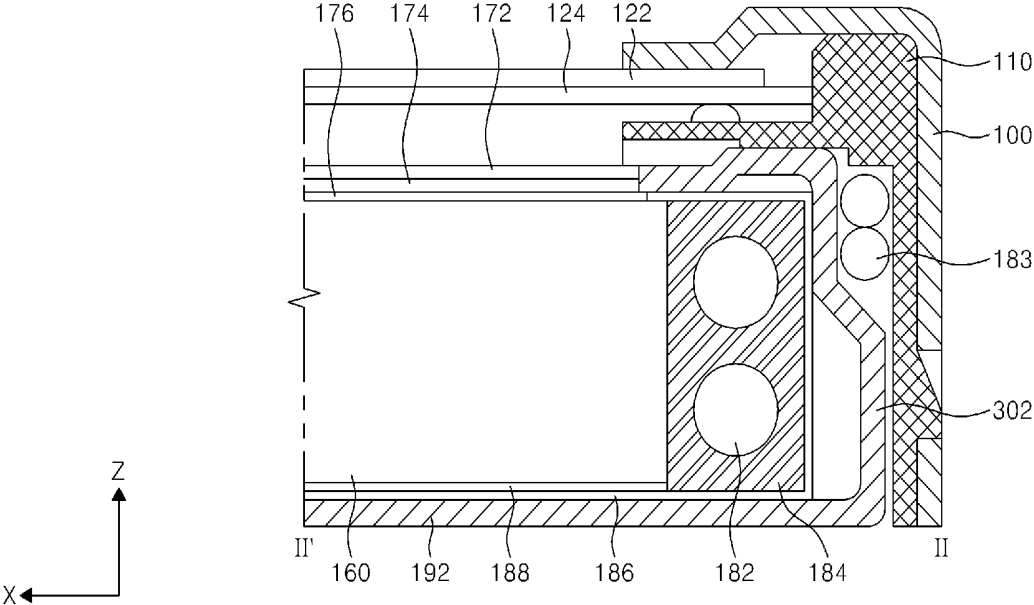
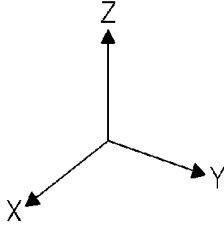
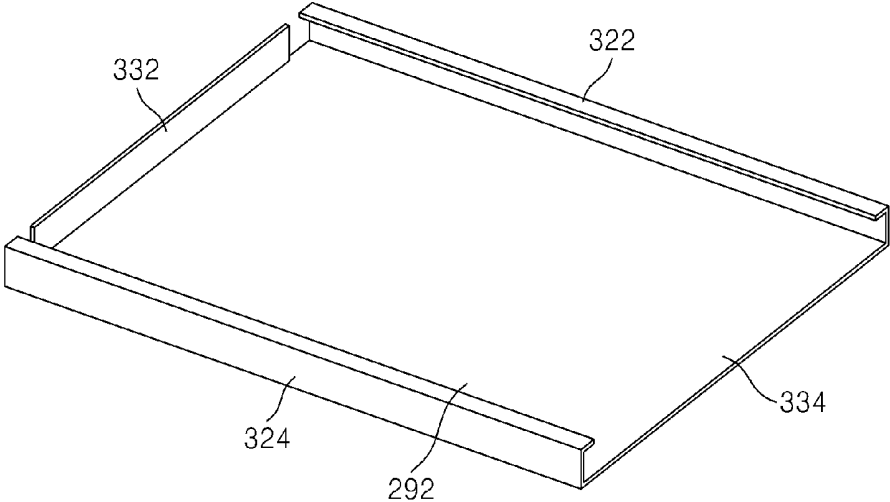


FIG. 13



## BACKLIGHT ASSEMBLY AND LIQUID CRYSTAL DISPLAY DEVICE INCLUDING THE SAME

### CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 11/870,691, filed on Oct. 11, 2007 and claims priority from and the benefit of Korean Patent Application No. 10-2006-0099498, filed on Oct. 12, 2006, both of which are hereby incorporated by reference for all purposes as if fully set forth herein.

### BACKGROUND OF THE INVENTION

#### 1. Field

The present disclosure relates to a backlight assembly and a liquid crystal display device including the same. More particularly, the present disclosure relates to a backlight assembly and a liquid crystal display device including the backlight assembly, where the liquid crystal display device is slim, lightweight, and requires low manufacturing costs because the device integrates a bottom chassis and a lamp cover.

#### 2. Discussion of the Background

Liquid crystal display ("LCD") devices have increasingly been used in a broad range of applications because LCDs are lightweight, compact, and require low power consumption. An LCD device includes an LCD module and a driving circuit for driving the LCD module.

The LCD module includes an LCD panel including liquid crystal cells arranged in a matrix format between two transparent substrates, and a backlight assembly which emits light to the LCD panel.

The backlight assembly includes a lamp for emitting light to the LCD panel, a lamp housing for covering the lamp, a light guide plate for guiding incident light from the lamp toward the LCD panel, a reflection sheet located on the inner surface of the light guide plate, and a plurality of optical sheets stacked on the light guide plate.

Although there are various types of backlight assemblies, a backlight assembly including a lamp cover for seating the lamp is commonly used. However, stacking the lamp cover on the backlight assembly increases the thickness of the LCD device. This structure increases the LCD device's manufacturing costs because the LCD device includes the lamp cover for preventing light emitted from the lamp from proceeding thereunder and a reflection material coated on the lamp cover for guiding the light toward the light guide plate.

### SUMMARY OF THE INVENTION

The present disclosure provides a backlight assembly and an LCD device including the backlight assembly, where the liquid crystal display device is slim, lightweight, and requires low manufacturing costs because the device integrates a bottom chassis and a lamp cover.

Additional features of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention.

The present application discloses a backlight assembly, comprising: a light source; a light guide plate; and a bottom chassis comprising an accommodating portion, a light source cover configured to accommodate the light source, and first and second sidewalls, the accommodating portion comprising a first accommodating portion and a second accommo-

dating portion configured to separatably engage with each other, wherein the light source cover is formed on a first edge of the first accommodating portion, the first sidewall is formed on a second edge of the first accommodating portion, and the second sidewall is formed on an edge of the second accommodating portion.

The present application also discloses a liquid crystal display device, comprising: a liquid crystal display panel; a driving circuit to drive the liquid crystal display panel; a light source to provide the liquid crystal display panel with light; a light guide plate to guide the light emitted from the light source toward the liquid crystal display panel; and a bottom chassis comprising an accommodating portion, a light source cover configured to accommodate the light source, and first and second sidewalls, the accommodating portion comprising a first accommodating portion and a second accommodating portion configured to separatably engage with each other; and a top chassis enclosing edge portions of the liquid crystal display panel and covering side surfaces of the bottom chassis, wherein the light source cover is formed on a first edge of the first accommodating portion, the first sidewall is formed on a second edge of the first accommodating portion, and the second sidewall is formed on an edge of the second accommodating portion.

The present application discloses a backlight assembly, comprising: a lamp; a light guide plate configured to guide light emitted from the lamp; an optical sheet disposed on the light guide plate; and a chassis configured to accommodate the lamp, the light guide plate, and the optical sheet, the chassis comprising a first chassis and a second chassis, wherein the first chassis and the second chassis are configured to be separatably coupled together such that an upper surface of the first chassis is coplanar with an upper surface of the second chassis, the coplanar upper surfaces forming an accommodating portion, and wherein the light source cover is formed on a first edge of the first chassis, the first sidewall is formed on a second edge of the first chassis, and the second sidewall is formed on an edge of the second chassis.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

### BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention are incorporated in and constitute a part of this specification, illustrate embodiments of the invention, and together with the description serve to explain the principles of the invention.

FIG. 1 is an exploded perspective view showing an LCD according to an exemplary embodiment of the present invention.

FIG. 2 is a cross-sectional view taken along line I-I' of FIG. 1.

FIG. 3 is a graphical view showing a first bottom chassis engaged with a second bottom chassis of FIG. 1.

FIG. 4A, FIG. 4B, FIG. 5A, FIG. 5B, FIG. 5C, FIG. 5D, FIG. 6A and FIG. 6B are graphical views showing the first bottom chassis and the second bottom chassis of FIG. 3 according to exemplary embodiments of the present invention.

FIG. 7 is a graphical view showing a method of engaging the first bottom chassis and the second bottom chassis shown in FIG. 4A and FIG. 4B.

FIG. 8 is a perspective view showing a backlight assembly shown in FIG. 1.

FIG. 9 is a cross-sectional view of the LCD device including a lamp cover and a mold frame according to an exemplary embodiment of the present invention.

FIG. 10 is a perspective view showing an LCD device according to an exemplary embodiment of the present invention.

FIG. 11 is a graphical view showing a reflection sheet according to an exemplary embodiment of the present invention.

FIG. 12 is a cross-sectional view taken along line II-II' of FIG. 10.

FIG. 13 is a graphical view showing a bottom chassis according to an exemplary embodiment of the present invention.

### DETAILED DESCRIPTION OF THE INVENTION

Various exemplary embodiments of the invention are described more fully hereinafter with reference to the accompanying drawings, in which embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure is thorough, and will fully convey the scope of the invention to those skilled in the art. In the drawings, the size and relative size of layers and regions may be exaggerated for clarity. Like reference numerals in the drawings denote like elements.

It will be understood that when an element such as a layer, film, region or substrate is referred to as being "on", "connected to", or "coupled to" another element or layer, it can be directly on, directly connected to, or directly coupled to the other element or layer, or intervening elements or layers may also be present. In contrast, when an element is referred to as being "directly on", "directly connected to", or "directly coupled to" another element or layer, there are no intervening elements or layers present.

FIG. 1 is an exploded perspective view showing an LCD device according to an exemplary embodiment of the present invention, and FIG. 2 is a cross-sectional view taken along line I-I' of FIG. 1.

The LCD device shown in FIG. 1 and FIG. 2 includes an LCD panel 120, a backlight assembly 170, a mold frame 110, a top chassis 100, and a bottom chassis 90 divided into a first bottom chassis 92 and a second bottom chassis 94.

The LCD panel 120 includes a thin film transistor ("TFT") substrate 124, and a color filter substrate 122 facing the TFT substrate 124. Liquid crystals (not shown) are disposed between the TFT substrate 124 and the color filter substrate 122. The LCD panel 120 displays an image by controlling the light transmissivity of the liquid crystals using TFTs switching element that are arranged in a matrix format. The color filter substrate 122 includes RGB color filters thereon for generating a desired color. Therefore, light transmitted through the liquid crystals is expressed as a desired color through the RGB color filters for displaying an image.

The top chassis 100 covers an upper edge portion of the LCD panel 120, and side surfaces of the top chassis 100 are formed to cover side surfaces of the mold frame 110 and the bottom chassis 90.

The mold frame 110 accommodates the LCD panel 120 and the backlight assembly 170 to prevent movement thereof and to absorb an outside impact on the LCD panel 120 and the backlight assembly 170. The mold frame 110 may be formed of synthetic resins or plastics to be insulated from a driving circuit.

The backlight assembly 170 includes a lamp 182, a reflection sheet 190, a light guide plate 160, a diffusion sheet 176, a prism sheet 174, and a protection sheet 172 and supplies light to the LCD panel 120.

The lamp 182 may be comprised of at least one cold cathode fluorescence lamp having a bar shape for generating light, a lamp electrode line 183 connected to both ends of the lamp 182 for applying a driving voltage. Alternatively, the at least one cold cathode fluorescent lamp may be replaced with a plurality of light emitting diodes for generating light. The lamp 182 may be fixed by a lamp holder 184.

The sheets include the diffusion sheet 176, the prism sheet 174, and the protection sheet 172. The diffusion sheet 176 and the prism sheet 174 are combined with two or three sheets, and diffuse and converge light emitted from the light guide plate 160, improving brightness and a viewing angle of the LCD device. The protection sheet 172 may be stacked on the diffusion sheet 176 or the prism sheet 174 for protecting sheets sensitive to dust or scratching and for preventing movement of the sheets and the backlight assembly 170.

The light guide plate 160 uniformly distributes light emitted from the lamp 182 across the entire surface of the light guide plate 160, and then guides the light toward the LCD panel 120. For doing so, the light guide plate 160 may be formed of a transparent, thermal resistant polycarbonate, or a transparent acrylic resin with a high refraction index. The light guide plate 160 has a protrusion portion 162 formed on at least one side surface thereof as shown in FIG. 8. The protrusion portion 162 of the light guide plate 160 is fixed to a groove 164 of an inner sidewall 314 of the bottom chassis 90.

Referring back to FIG. 1, the reflection sheet 190 reflects light emitted from a lower portion of the light guide plate 160 back toward the light guide plate 160. For doing so, the reflection sheet 190 may have a basic material coated with a highly reflective material. The basic material may include aluminum (Al), polyethylene terephthalate (PET), etc. and the reflective material may include silver (Ag), titanium (Ti), etc. The bottom chassis 90 is divided into the first bottom chassis 92 and the second bottom chassis 94.

FIG. 3 shows a graphical view of the first bottom chassis 92 engaged with the second bottom chassis 94 of FIG. 1. The first bottom chassis 92 includes a first accommodating portion 192, a first inner sidewall 312, a first lamp cover 302, and first and second opening portions 402 and 404. The second bottom chassis 94 includes a second accommodating portion 194, a second inner sidewall 314, a second lamp cover 304, and third and fourth opening portions 406 and 408.

The first bottom chassis 92 and the second bottom chassis 94 are engaged to face each other. The first accommodating portion 192 of the first bottom chassis 92 and the second accommodating portion 194 of the second bottom chassis 94 provide an accommodating space, which accommodates the light guide plate 160, the optical sheets 172, 174 and 176, and the reflection sheet 190. The first accommodating portion 192 and the second accommodating portion 194 are formed to be symmetrical to each other, and their facing surfaces may be formed in an 'L' shape and a reverse 'L' shape.

FIG. 4A and FIG. 4B show graphical views of exemplary embodiments of the second bottom chassis 94 and the first bottom chassis 92 of FIG. 3, respectively.

Referring to FIG. 4A and FIG. 4B, the first bottom chassis 92 includes a first mounting portion 202 formed to overlap and engage an area of the second accommodating portion 194, a first mounting hole 502, and a first accommodating hole 512. The second bottom chassis 94 includes a second mounting portion 204 formed to overlap and engage an area of the first accommodating portion 192, a second accommo-

dating hole **504**, and a second mounting hole **514**. The first accommodating portion **192** forms the first mounting portion **202** such that a stepped portion is formed at an area in contact with the second accommodating portion **194**.

The first mounting portion **202** is formed from the first accommodating portion **192** in a single body and second mounting portion **204** is formed from the second accommodating portion **194** in a single body.

When the first bottom chassis **92** engages the second bottom chassis **94**, the first mounting portion **202** engages and overlaps the second accommodating portion **194** at an area equivalent to the width of the first mounting portion **202**, and the second mounting portion **204** engages and overlaps the first accommodating portion **192** at an area equivalent to the width of the second mounting portion **204**. In this manner, the engagement of the first bottom chassis **92** and the second bottom chassis **94** may prevent light emitted from the lamp **182** from leaking through a gap between the facing surfaces of the first accommodating portion **192** and the second accommodating portion **194**. Further, the intersection and overlapping of the first accommodating portion **192** and the second accommodating portion **194** strengthens the engagement between the first bottom chassis **92** and the second bottom chassis **94**.

FIG. **5A**, FIG. **5B**, FIG. **5C** and FIG. **5D** show graphical views of exemplary embodiments of the first bottom chassis **92** and the second bottom chassis **94** of FIG. **3**, respectively.

As shown in FIG. **5A** and FIG. **5B**, a second mounting portion **204a** of the second bottom chassis **94** is formed such that a stepped portion is formed across the entire width of the second bottom chassis **94** and in contact with the first accommodating portion **192** across the entire width of the first bottom chassis **92**. The first accommodating portion **192** is also formed to overlap and engage the second accommodating portion **194** across the entire width of the second bottom chassis **94**. Alternatively, as shown in FIG. **5C** and FIG. **5D**, the first accommodating portion **192** may form a first mounting portion **202a** to overlap and engage the second accommodating portion **194** across the entire width of the second bottom chassis **94**.

The first mounting portion **204a** is formed from the first accommodating portion **192** in a single body, and the second mounting portion **202a** is formed from the second accommodating portion **194** in a single body.

FIG. **6A** and FIG. **6B** show graphical views of exemplary embodiments of the second bottom chassis **94** and the first bottom chassis **92** of FIG. **3**, respectively.

As shown in FIG. **6A** and FIG. **6B**, the first mounting portion **212** is arranged under the first accommodating portion **192** to form a stepped portion and overlaps and engages an area in contact with the second accommodating portion **194**. In other words, the second accommodating portion **194** is mounted on the first mounting portion **212** which partially extends from the first accommodating portion **192** and forms a stepped portion by a constant distance. Likewise, the second mounting portion **214** partially extends from the second accommodating portion **194** and forms a stepped portion by a constant distance. The first mounting portion **212** is formed from the first accommodating portion **192** in a single body, and the second mounting portion **214** is formed from the second accommodating portion **194** in a single body.

Alternatively, the first accommodating portion **192** includes a first inner sidewall **322** perpendicular to the first accommodating portion **192**, and the second accommodating portion **194** includes a second inner sidewall **324** perpendicular to the second accommodating portion **194**. The first inner sidewall **322** includes sidewalls **322a** and **322b** formed at both

sides of the first accommodating portion **192**, and the second inner sidewall **324** includes sidewalls **324a** and **324b** formed at the both sides of the second accommodating portion **194**.

As shown in FIG. **7**, the overlap and engagement of the first accommodating portion **192** to the second accommodating portion **194** may be strengthened by using screws **506** and **507**. A screwing method will be described with reference to FIG. **4A** and FIG. **4B** as previously described above. The first mounting hole **502** formed in the first mounting portion **202** and the second accommodating hole **504** formed at a position corresponding to the first mounting hole **502** are aligned and secured by the first screw **506**. The second mounting hole **514** formed in the second mounting portion **204** and the first accommodating hole **512** formed at a position corresponding to the second mounting hole **514** are aligned and secured by the second screw **507**. Alternatively, a plurality of screws may be used at desired positions for improving a securing strength. In this way, the overlap and engagement of the first accommodating portion **192** and the second accommodating portion **194** may prevent light from leaking toward the lower portion of the light guide plate **160**. Further, the light guide plate **160**, the optical sheets **172**, **174**, and **176**, and the reflection sheets **186** and **188** may be more easily accommodated by dividing the bottom chassis **90** into the first bottom chassis **92** and the second bottom chassis **94**.

As shown in FIG. **8**, the first inner sidewall **312** accommodates the light guide plate **160**, the optical sheets **172**, **174**, and **176**, and the reflection sheets **186** and **188**. The light guide plate **160** is fixed by the first inner sidewall **312**. The groove **164** is formed at a position corresponding to the protrusion portion **162** of the light guide plate **160** in the first inner sidewall **312** perpendicular to the first accommodating portion **192** (refer to FIG. **3**, FIG. **4A** and FIG. **4B**). Accordingly, by combining the groove **164** of the first inner sidewall **312** with the protrusion **162** of the light guide plate **160**, the securing strength of the light guide plate **160** and the bottom chassis **90** may be improved. Alternatively, the protrusion portion **162** may be formed on the second inner sidewall **314**, and the groove **164** may be formed on the light guide plate **160** at a position corresponding to the protrusion portion **162**. Like the first inner sidewall **312**, the second inner sidewall **314** may have a groove **164** or a hole into which the protrusion portion **162** of the light guide plate **160** is inserted.

The first lamp cover **302** and the second lamp cover **304** extend from one side surfaces of the first bottom chassis **92** and the second bottom chassis **94**, respectively, and are bent to enclose a lamp reflection layer **185** and the lamp **182** fixed by the lamp holder **184**. The first lamp cover **302** and the second lamp cover **304** are formed in a 'C' shape, for example, to accommodate the lamp **182** and the lamp reflection layer **185**. Accordingly, the first lamp cover **302** and the second lamp cover **304** accommodate the lamp **182**. The lamp electrode line **183** for applying a driving voltage to the lamp **182** is exposed to an external circuit and is disposed between the first and second lamp covers **302** and **304** and the mold frame **110**. More specifically, as shown in FIG. **2**, the lamp electrode line **183** disposed between the first lamp cover **302** and the mold frame **110** is supported and secured by bending side surface of the first lamp cover **302**. Further, as shown in FIG. **9**, when the side surface of the first lamp cover **302** is flat, a protrusion portion **110a** of the mold frame **110** is formed between the first lamp cover **302** and the mold frame **110** to support and fix the lamp electrode line **183**. Meanwhile, the first lamp cover **302** may be formed of a material with high reflectivity for reflecting light generated from the lamp **182** toward the light guide plate **160**, thereby improving light efficiency of the LCD device.

The lamp reflection layer **185** may be formed of a material with high reflectivity on an inner surface of the first lamp cover **302**. The lamp reflection layer **185** reflects light emitted from the lamp **182** toward an incident surface of the light guide plate **160**, thus improving light efficiency. The lamp reflection layer **185** is attached to the inner surface of the first lamp cover **302** by an adhesive. Alternatively, the lamp reflection layer **185** may be coated with a reflective material such as Ag or Al to enclose the inner surface of the first lamp cover **302**. The second lamp cover **304** has the same structures as the first lamp cover **302**. Therefore, repetitive descriptions will be omitted.

As shown in FIG. 3 and FIG. 8, the first to fourth opening portions **402**, **404**, **406** and **408** allow the lamp electrode line **183** connected to the lamp **182** to be exposed to an external circuit. The first opening portion **402** is exposed by a constant distance at an area in contact with the first lamp cover **302** and the first inner sidewall **312**; the second opening portion **404** is exposed by a constant distance at an area in contact with the first lamp cover **302** and the second inner sidewall **314**; the third opening portion **406** is exposed by a constant distance at an area in contact with the second lamp cover **304** and the second inner sidewall **314**; and the fourth opening portion **408** is exposed by a constant distance at an area in contact with the second lamp cover **304** and the first inner sidewall **312**. The lamp electrode lines **183** connected to the lamp **182** inserted into the first lamp cover **302** are exposed through the first opening portion **402** and the second opening portion **404**. The lamp electrode lines connected to the lamp **182** inserted into the second lamp cover **304** are exposed at the third opening portion **406** and the fourth opening portion **408**. Accordingly, the lamp electrode lines **183** may be easily moved and connected to an external circuit.

FIG. 10 and FIG. 12 show a perspective view and a cross-sectional view, respectively, of the LCD device according to another exemplary embodiment of the present invention.

FIG. 10 and FIG. 12 are the same configurations as those of FIG. 1 and FIG. 2, except for the addition of a reflection sheet. Accordingly, any repetitive descriptions will be omitted.

The reflection sheet includes first and second reflection sheets **186** and **188** where the reflection sheet reflects light emitted to the lower portion of the light guide plate **160** back toward the light guide plate **160**. For doing so, the first and second reflection sheets **186** and **188** may have a basic material coated with a material with high reflectivity. The basic material may be Al, PET, etc. and the reflective material may be Ag, Ti, etc.

The first reflection sheet **186** is bent into a shape similar to the second lamp cover **304** and the second reflection sheet **188** is bent into a shape similar to the first lamp cover **302**. The first reflection sheet **186** and the second reflection sheet **188** are stacked on the first lamp cover **302** and the second lamp cover **304** and reflect light generated from the lamp **182** back toward the light guide plate **160**, thus improving light efficiency. Meanwhile, as shown in FIG. 11, a single reflection sheet **187** may be formed to have both ends **84** and **86** bent into a shape similar to the first lamp cover **302** and the second lamp cover **304** and to enclose the lamp **182**.

FIG. 13 shows a perspective view of a bottom chassis according to an exemplary embodiment of the present invention.

As shown in FIG. 13, the bottom chassis comprises an accommodating portion **292**, an inner sidewall **332**, first and second lamp covers **322** and **324**, and a light guide plate inserting portion **334**. The accommodating portion **292** and the inner sidewall **332** provide an accommodating space which may accommodate the light guide plate **160**, the optical

sheets **172**, **174**, and **176**, and the reflection sheet **190**. The first and second lamp covers **322** and **324** extend from both sides of the bottom chassis and are bent in a shape to enclose the lamp **182** fixed by the lamp holder **184** and the lamp reflection layer **185**. The first and second lamp covers **322** and **324** are formed in a 'C' shape to accommodate the lamp **182** and the lamp reflection layer **185** in a 'C' shape. The light guide plate inserting portion **334** is formed to provide an open area facing the inner sidewall **332**. Because the area corresponding to the sidewall **332** of the bottom chassis is open, the light guide plate **160**, the optical sheets **172**, **174**, and **176**, and the reflection sheet **190** may be easily accommodated.

As described above, the backlight assembly and the LCD device including the backlight assembly according to the present invention enclose the lamp by bending both sides of the bottom chassis and dividing the bottom chassis into the first and second bottom chassis. Accordingly, since an additional lamp cover is unnecessary, the present invention may reduce manufacturing costs and provide a slim, lightweight LCD device.

Although exemplary embodiments of the present invention have been described in detail hereinabove, it should be clearly understood that many variations and/or modifications of the basic inventive concepts taught herein, which may appear to those skilled in the present art, will still fall within the spirit and scope of the present invention. Thus, it is intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A backlight assembly, comprising:

a light source;

a light guide plate; and

a bottom chassis comprising an accommodating portion, a light source cover configured to accommodate the light source, a first sidewall, and a second sidewall, the accommodating portion comprising a first accommodating portion and a second accommodating portion detachably coupled with each other,

wherein the light source cover is formed on a first edge of the first accommodating portion, the first sidewall is formed on a second edge of the first accommodating portion, and the second sidewall is formed on an edge of the second accommodating portion,

wherein the first accommodating portion comprises a first mounting portion, the first mounting portion stepped and extended from the first accommodating portion in a single body such that a first stepped portion is formed at an area in contact with the second accommodating portion, and the second accommodating portion comprises a second mounting portion, the second mounting portion stepped and extended from the second accommodating portion in a single body such that a second stepped portion is formed at an area in contact with the first accommodating portion.

2. The backlight assembly of claim 1, wherein the first sidewall extends along the second edge of the first accommodating portion, and the second sidewall extends along the edge of the second accommodating portion.

3. The backlight assembly of claim 1, wherein the first edge of the first accommodating portion is perpendicular to the second edge of the first accommodating portion, and the edge of the second accommodating portion is perpendicular to the first edge of the first accommodating portion.

4. The backlight assembly of claim 1, wherein the first sidewall faces the second sidewall.

5. The backlight assembly of claim 1, wherein the first and second sidewalls are configured to block at least part of light emitted from the light source.

6. The backlight assembly of claim 1, wherein the first sidewall is formed integrally with the first accommodating portion, and the second sidewall is formed integrally with the second accommodating portion.

7. The backlight assembly of claim 1, wherein the first accommodating portion comprises a first extension area that extends from a body area thereof and along the first sidewall, and the second accommodating portion comprises a second extension area that extends from a body area thereof and along the second sidewall, and

wherein the first extension area is configured to fit with the body area of the second accommodating portion, and the second extension area is configured to fit with the body area of the first accommodating portion, when the first accommodating portion engages the second accommodating portion.

8. The backlight assembly of claim 1, wherein the accommodating portion is configured to accommodate the light guide plate.

9. The backlight assembly of claim 1, wherein the light source cover comprises a bent end to accommodate the light source and is formed integrally with the accommodating portion.

10. The backlight assembly of claim 1, wherein the first accommodating portion comprises a first tab configured to engage the second accommodating portion, and the second accommodating portion comprises a second tab configured to engage the first accommodating portion.

11. The backlight assembly of claim 1, wherein the bottom chassis is divided into a first bottom chassis and a second bottom chassis, the first bottom chassis comprising the first accommodating portion and the first sidewall, and the second bottom chassis comprising the second accommodating portion and the second sidewall.

12. The backlight assembly of claim 11, wherein the first bottom chassis comprises opening portions respectively separating the first and second sidewalls from the light source cover.

13. The backlight assembly of claim 12, wherein at least one of the first bottom chassis and the second bottom chassis comprises:

a mounting portion configured to overlap the second accommodating portion or the first accommodating portion;

two or more holes penetrating areas where the mounting portion overlaps the second accommodating portion or the first accommodating portion; and

a fastener configured to secure the second accommodating portion and the first accommodating portion together.

14. The backlight assembly of claim 1, further comprising: an optical sheet located on an upper portion of the light guide plate; and

a reflection sheet located on a lower portion of the light guide plate,

wherein the reflection sheet comprises at least one sheet, each at least one sheet comprising at least one bent end.

15. The backlight assembly of claim 14, wherein the reflection sheet further comprises an extension portion with bent ends that enclose the light source.

16. The backlight assembly of claim 1, further comprising: a light source reflection layer on a surface of the light source cover, the light source reflection layer configured to reflect light emitted from the light source toward the light guide plate,

wherein the light source reflection layer is attached to the surface of the light source cover with a reflective adhesive, and the light source reflection layer is coated with a reflective material.

17. A liquid crystal display device, comprising:

a liquid crystal display panel;

a driving circuit to drive the liquid crystal display panel;

a light source to provide the liquid crystal display panel with light;

a light guide plate to guide the light emitted from the light source toward the liquid crystal display panel; and

a bottom chassis comprising an accommodating portion, a light source cover configured to accommodate the light source, a first sidewall, and a second sidewall, the accommodating portion comprising a first accommodating portion and a second accommodating portion detachably coupled with each other; and

a top chassis enclosing edge portions of the liquid crystal display panel and covering side surfaces of the bottom chassis,

wherein the light source cover is formed on a first edge of the first accommodating portion, the first sidewall is formed on a second edge of the first accommodating portion, and the second sidewall is formed on an edge of the second accommodating portion,

wherein the first accommodating portion comprises a first mounting portion, the first mounting portion stepped and extended from the first accommodating portion in a single body such that a first stepped portion is formed at an area in contact with the second accommodating portion, and the second accommodating portion comprises a second mounting portion, the second mounting portion stepped and extended from the second accommodating portion in a single body such that a second stepped portion is formed at an area in contact with the first accommodating portion.

18. A backlight assembly, comprising:

a lamp;

a light guide plate configured to guide light emitted from the lamp;

an optical sheet disposed on the light guide plate; and

a chassis configured to accommodate the lamp, the light guide plate, and the optical sheet, the chassis comprising a first chassis and a second chassis,

wherein the first chassis and the second chassis are configured to be detachably coupled together such that an upper surface of the first chassis is coplanar with an upper surface of the second chassis, the coplanar upper surfaces forming an accommodating portion,

wherein the light source cover is formed on a first edge of the first chassis, the first sidewall is formed on a second edge of the first chassis, and the second sidewall is formed on an edge of the second chassis, and

wherein the first chassis comprises a first mounting portion, the first mounting portion stepped and extended from the first chassis in a single body such that a first stepped portion is formed at an area in contact with the second chassis, and the second chassis comprises a second mounting portion, the second mounting portion stepped and extended from the second chassis in a single body such that a second stepped portion is formed at an area in contact with the first chassis.

专利名称(译)	背光组件和包括其的液晶显示装置		
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摘要(译)

一种背光组件和液晶显示器，包括：光源；导光板；底架包括容置部，用于容纳光源的光源盖，第一侧壁和第二侧壁，所述容置部包括可拆卸地相互连接的第一容置部和第二容置部，其中光源盖形成在第一容纳部的第一边缘上，第一侧壁形成在第一容纳部的第二边缘上，第二侧壁形成在第二容纳部的边缘上。

