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(54) **METAL PATTERN STRUCTURE OF RESTRAINING STATIC DAMAGE OF THIN FILM TRANSISTOR LIQUID CRYSTAL DISPLAY**

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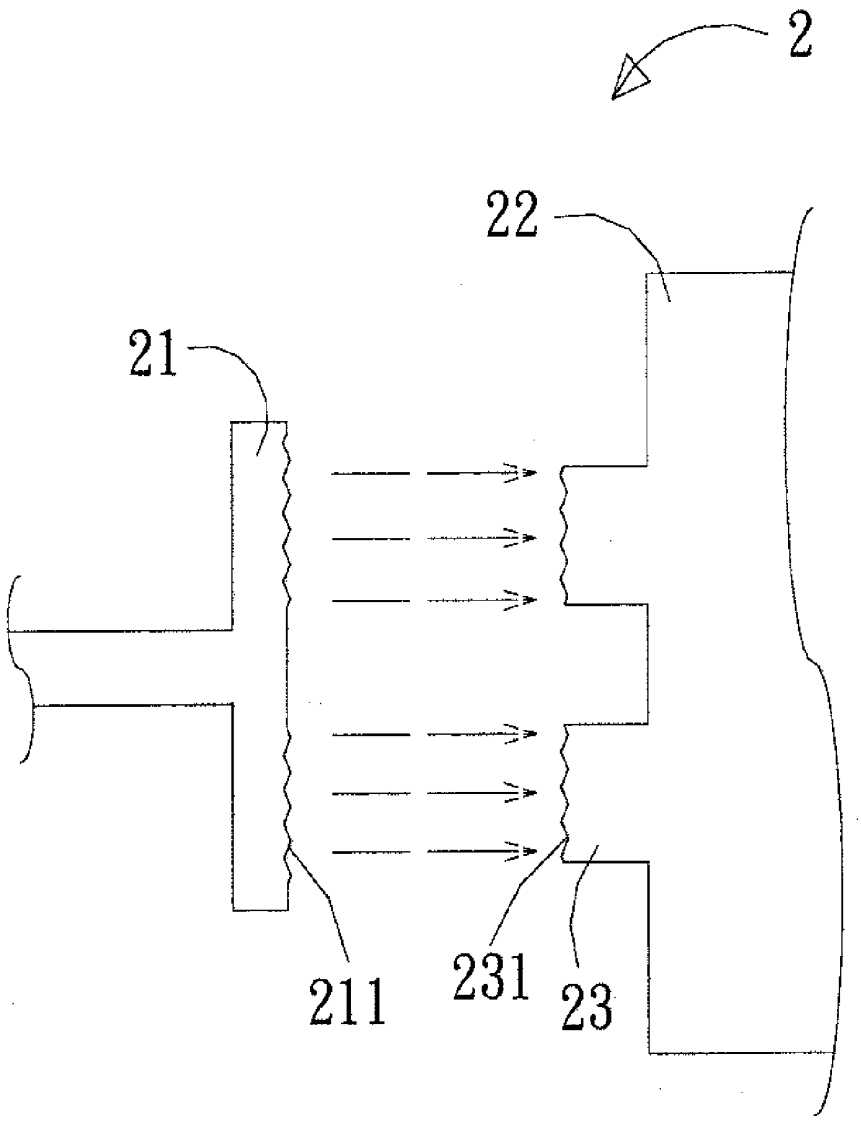
(57) **ABSTRACT**

The present invention relates to a metal pattern structure of restraining static damage of thin film transistor liquid crystal display. It includes a pattern discharge metal body; a pattern metal slice deposed opposite the pattern discharge metal body; and at least one pattern metal lump deposed between the pattern discharge metal body and the pattern metal slice and connected to the pattern metal slice. The present invention restrains the static damage of the pattern discharge metal body and the pattern metal slice, so as to avoid abnormal display picture like the phenomenon of the bright line.



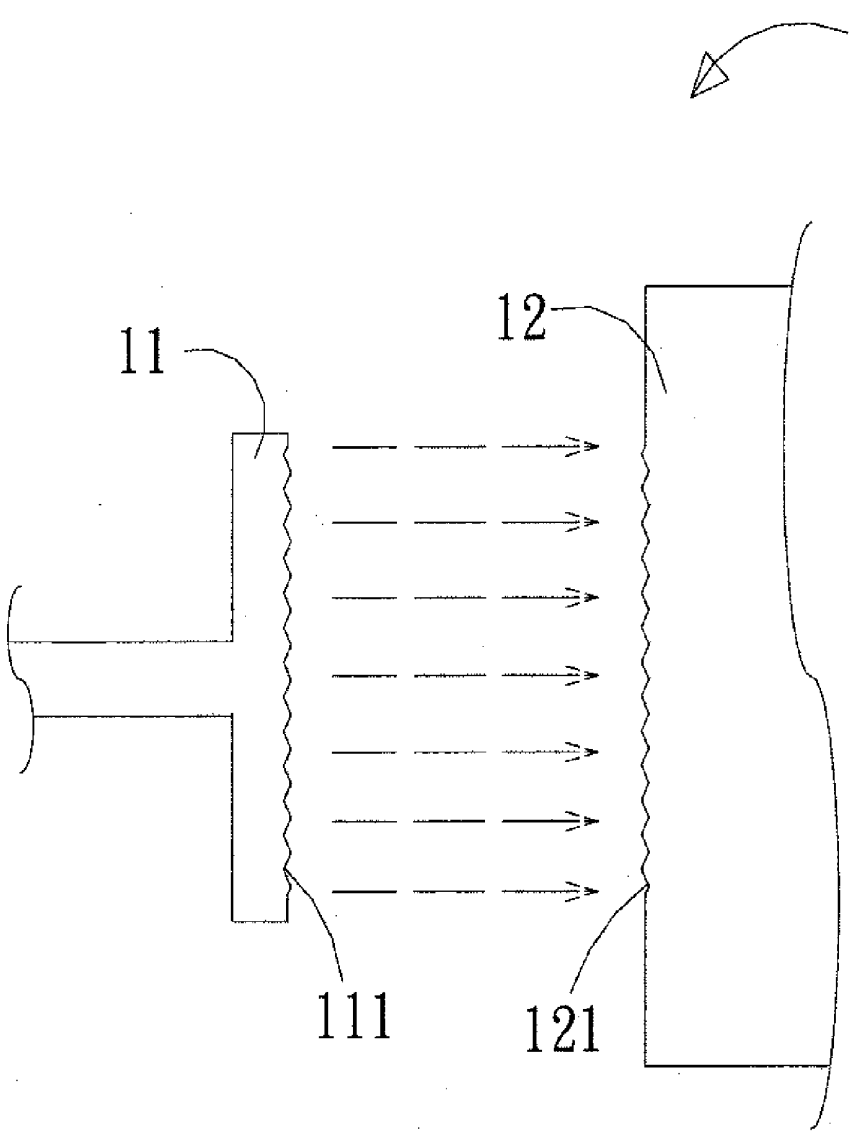


Fig. 1 (PRIOR ART)

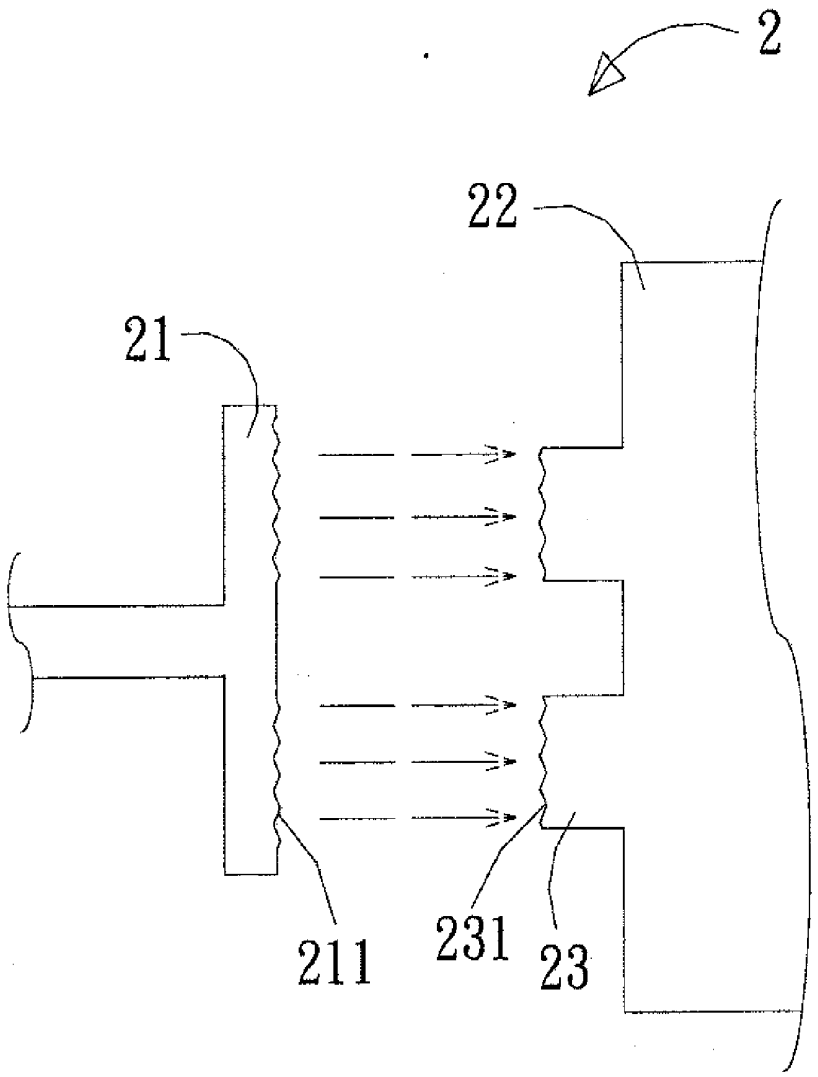


Fig. 2

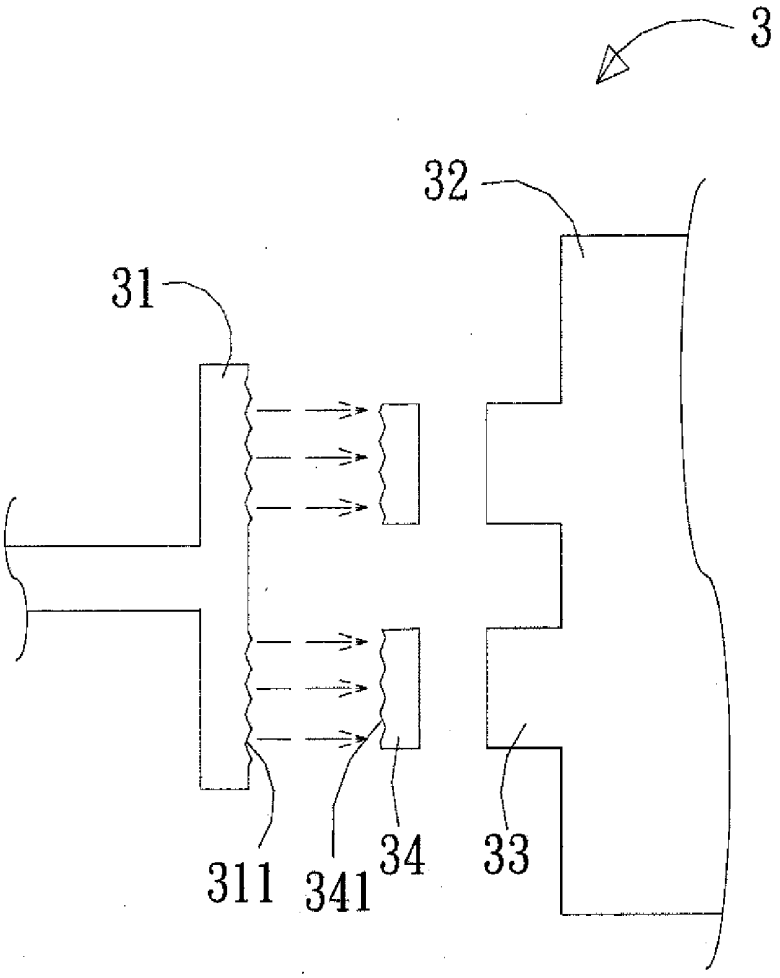


Fig. 3

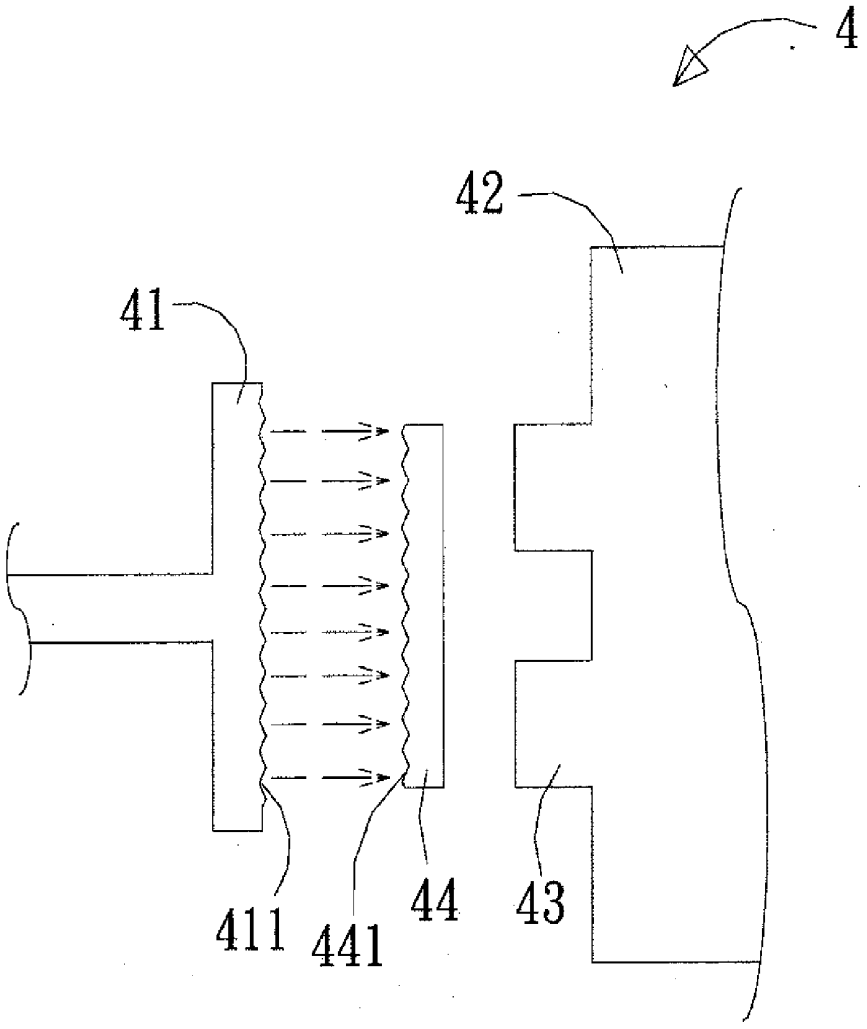


Fig. 4

METAL PATTERN STRUCTURE OF RESTRAINING STATIC DAMAGE OF THIN FILM TRANSISTOR LIQUID CRYSTAL DISPLAY

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a metal pattern structure of thin film transistor liquid crystal display, more particular to a metal pattern structure of restraining static damage of thin film transistor liquid crystal display, which is used for the area of restraining static damage in the thin film transistor liquid crystal display. For example, it is used for the area of restraining the static damage of the gate's and the shorting bar's pattern metal or restraining the static damage of the source's and the shorting bar's pattern metal in the thin film transistor liquid crystal display.

[0003] 2. Description of Related Art

[0004] The thin film transistor liquid crystal display has many pattern discharge metal bodies and many pattern metal slices deposed opposite the pattern discharge metal bodies respectively. The static damage's phenomenon is always happened between the pattern discharge metal body and the pattern metal slice, so as to cause the abnormal display picture of the thin film transistor liquid crystal display.

[0005] Please refer to the FIG. **1**, which discloses a metal pattern structure of thin film transistor liquid crystal display **1**. It includes a gate's pattern discharge metal body **11**; and a shorting bar's pattern metal slice **12**. When the current pass the gate's pattern discharge metal body **11**, the gate's pattern discharge metal body **11** discharges electricity toward the shorting bar's pattern metal slice **12**. Hence, the gate's pattern discharge metal body **11** and the shorting bar's pattern metal slice **12** are damaged by the static electricity, so as to form a first defect **111** on a side of the gate's pattern discharge metal body **11** and a second defect **121** on a side of the shorting bar's pattern metal slice **12**. Hence, it will cause the abnormal display picture like the phenomenon of the bright line.

[0006] According to above prior art can be improved, the present invention provides a metal pattern structure of restraining static damage of thin film transistor liquid crystal display. It restrains the static damage of the pattern discharge metal body and the pattern metal slice to avoid the abnormal display picture like the phenomenon of the bright line.

SUMMARY OF THE INVENTION

[0007] The main objection of the present invention is to provide a metal pattern structure of restraining static damage of thin film transistor liquid crystal display. It restrains the static damage of the pattern discharge metal body and the pattern metal slice to avoid the abnormal display picture.

[0008] The present invention provides a metal pattern structure of restraining static damage of thin film transistor liquid crystal display includes a pattern discharge metal body; a pattern metal slice deposed opposite the pattern discharge metal body; and at least one pattern metal lump deposed between the pattern discharge metal body and the pattern metal slice and connected to the pattern metal slice.

[0009] In order to make the aforementioned objects, features and advantages of the present invention comprehensible, preferred embodiments accompanied with figures is described in detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the invention and together with the description, serve to explain the principles of the invention.

[0011] FIG. **1** is a schematic diagram of discharging electricity of a metal pattern structure of thin film transistor liquid crystal display in the prior art.

[0012] FIG. **2** is a schematic diagram of discharging electricity of a metal pattern structure of restraining static damage of thin film transistor liquid crystal display of a first embodiment in the present invention.

[0013] FIG. **3** is a schematic diagram of discharging electricity of a metal pattern structure of restraining static damage of thin film transistor liquid crystal display of a second embodiment in the present invention.

[0014] FIG. **4** is a schematic diagram of discharging electricity of a metal pattern structure of restraining static damage of thin film transistor liquid crystal display of a third embodiment in the present invention.

DESCRIPTION OF PREFERRED EMBODIMENT

First Embodiment

[0015] A metal pattern structure of restraining static damage of thin film transistor liquid crystal display **2** of the present invention is shown in FIG. **2**. It includes a pattern discharge metal body **21**; a pattern metal slice **22** deposed opposite the pattern discharge metal body **21**; and at least one pattern metal lump **23** deposed between the pattern discharge metal body **21** and the pattern metal slice **22** and connected to the pattern metal slice **22**. The static electricity of the pattern discharge metal body **21** is prior to damage a lateral of the pattern metal lump **23** to form a second defect **231** thereon and it is prior to damage a part of a lateral of the pattern discharge metal body **21** to form a first defect **211** thereon. Hence, the remainder part of the lateral of the pattern discharge metal body **21** and a lateral of the pattern metal slice **22** are not damaged by the static electricity.

[0016] In this embodiment, the pattern discharge metal body **21** is a T shape's pattern discharge metal body and the pattern discharge metal body **21** is a gate's pattern discharge metal body or a source's pattern discharge metal body. The pattern metal slice **22** is a shorting bar's pattern metal slice.

Second Embodiment

[0017] A metal pattern structure of restraining static damage of thin film transistor liquid crystal display **3** of the present invention is shown in FIG. **3**. It includes a pattern discharge metal body **31**; a pattern metal slice **32** deposed opposite the pattern discharge metal body **31**; and at least one pattern metal lump **33** deposed between the pattern discharge metal body **31** and the pattern metal slice **32** and connected to the pattern metal slice **32**; and a pattern metal body **34** deposed between the pattern discharge metal body **31** and the pattern metal lump **33**. The static electricity of the pattern

discharge metal body **31** is prior to damage a lateral of the pattern metal body **34** to form a third defect **341** thereon and it is prior to damage a part of a lateral of the pattern discharge metal body **31** to form a first defect **311** thereon. Hence, the remainder part of the lateral of the pattern discharge metal body **31**, a lateral of the pattern metal slice **32** and a lateral of the pattern metal lump **33** are not damaged by the static electricity.

[0018] In this embodiment, the pattern discharge metal body **31** is also a T shape's pattern discharge metal body and the pattern discharge metal body **31** is a gate's pattern discharge metal body or a source's pattern discharge metal body. The pattern metal slice **32** is a shorting bar's pattern metal slice.

Third Embodiment

[0019] The metal pattern structure of restraining static damage of thin film transistor liquid crystal display **4** of the present invention is shown in FIG. **4**. It includes a pattern discharge metal body **41**; a pattern metal slice **42** deposed opposite the pattern discharge metal body **41**; and at least one pattern metal lump **43** deposed between the pattern discharge metal body **41** and the pattern metal slice **42** and connected to the pattern metal slice **42**; and a pattern metal strip **44** deposed between the pattern discharge metal body **41** and the two pattern metal lumps **43**. The static electricity of the pattern discharge metal body **41** is prior to damage a lateral of the pattern metal strip **44** to form a forth defect **441** thereon and it is prior to damage a part of a lateral of the pattern discharge metal body **41** to form a first defect **411** thereon. Hence, a lateral of the pattern metal slice **42** and a lateral of the pattern metal lump **43** are not damaged by the static electricity.

[0020] In this embodiment, the pattern discharge metal body **41** is also a T shape's pattern discharge metal body and the pattern discharge metal body **41** is a gate's pattern discharge metal body or a source's pattern discharge metal body. The pattern metal slice **42** is a shorting bar's pattern metal slice.

[0021] According to above mention, the present invention restrains the static damage of the pattern discharge metal body and the pattern metal slice, so as to avoid abnormal display picture like the phenomenon of the bright line.

[0022] It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the present invention without departing from the scope or spirit of the invention. In view of the foregoing, it is intended that the present invention cover modifications and variations of this invention provided they fall within the scope of the following claims and their equivalents.

What is claimed is:

1. A metal pattern structure of restraining static damage of thin film transistor liquid crystal display, comprising:

a pattern discharge metal body;

a pattern metal slice deposed opposite the pattern discharge metal body; and

at least one pattern metal lump deposed between the pattern discharge metal body and the pattern metal slice and connected to the pattern metal slice.

2. The metal pattern structure of restraining static damage of thin film transistor liquid crystal display according to the claim **1**, wherein the pattern discharge metal body is a T shape's pattern discharge metal body.

3. The metal pattern structure of restraining static damage of thin film transistor liquid crystal display according to the claim **1**, further comprising a pattern metal body deposed between the pattern discharge metal body and the pattern metal lump.

4. The metal pattern structure of restraining static damage of thin film transistor liquid crystal display according to the claim **1**, further comprising a pattern metal strip deposed between the pattern discharge metal body and the two pattern metal lumps.

5. The metal pattern structure of restraining static damage of thin film transistor liquid crystal display according to the claim **1**, wherein the pattern discharge metal body is a gate's pattern discharge metal body.

6. The metal pattern structure of restraining static damage of thin film transistor liquid crystal display according to the claim **1**, wherein the pattern discharge metal body is a source's pattern discharge metal body.

7. The metal pattern structure of restraining static damage of thin film transistor liquid crystal display according to the claim **1**, wherein the pattern metal slice is a shorting bar's pattern metal slice.

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摘要(译)

本发明涉及一种抑制薄膜晶体管液晶显示器静电损伤的金属图案结构。它包括图案放电金属体;与图案放电金属体相对的图案金属片;至少一个图案金属块设置在图案放电金属体和图案金属片之间并连接到图案金属片。本发明抑制了图案放电金属体和图案金属片的静电损伤，以避免像亮线现象那样的异常显示画面。