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Yamazaki et al.

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(54) **THIN FILM TRANSISTORS HAVING SOURCE WIRING AND TERMINAL PORTION MADE OF THE SAME MATERIAL AS THE GATE ELECTRODES**

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(51) **Int. Cl.**⁷ **H01L 27/01; H01L 27/12; H01L 31/0392; H01L 29/04; H01L 31/20**

(52) **U.S. Cl.** **257/350; 257/59; 257/72; 257/311; 257/412**

(58) **Field of Search** **257/59, 72, 296, 257/311, 350, 412**

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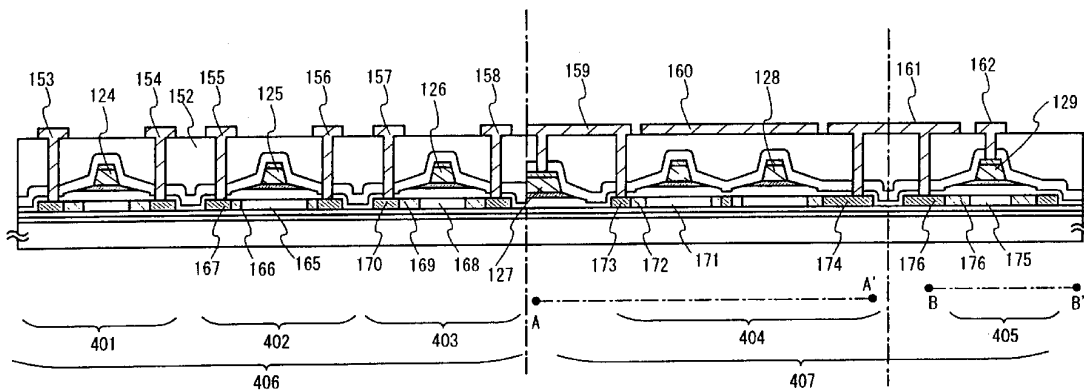
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(57) **ABSTRACT**

There are provided a structure of a semiconductor device in which low power consumption is realized even in a case where a size of a display region is increased to be a large size screen and a manufacturing method thereof. A gate electrode in a pixel portion is formed as a three layered structure of a material film containing mainly W, a material film containing mainly Al, and a material film containing mainly Ti to reduce a wiring resistance. A wiring is etched using an IPC etching apparatus. The gate electrode has a taper shape and the width of a region which becomes the taper shape is set to be 1 μm or more.

29 Claims, 18 Drawing Sheets



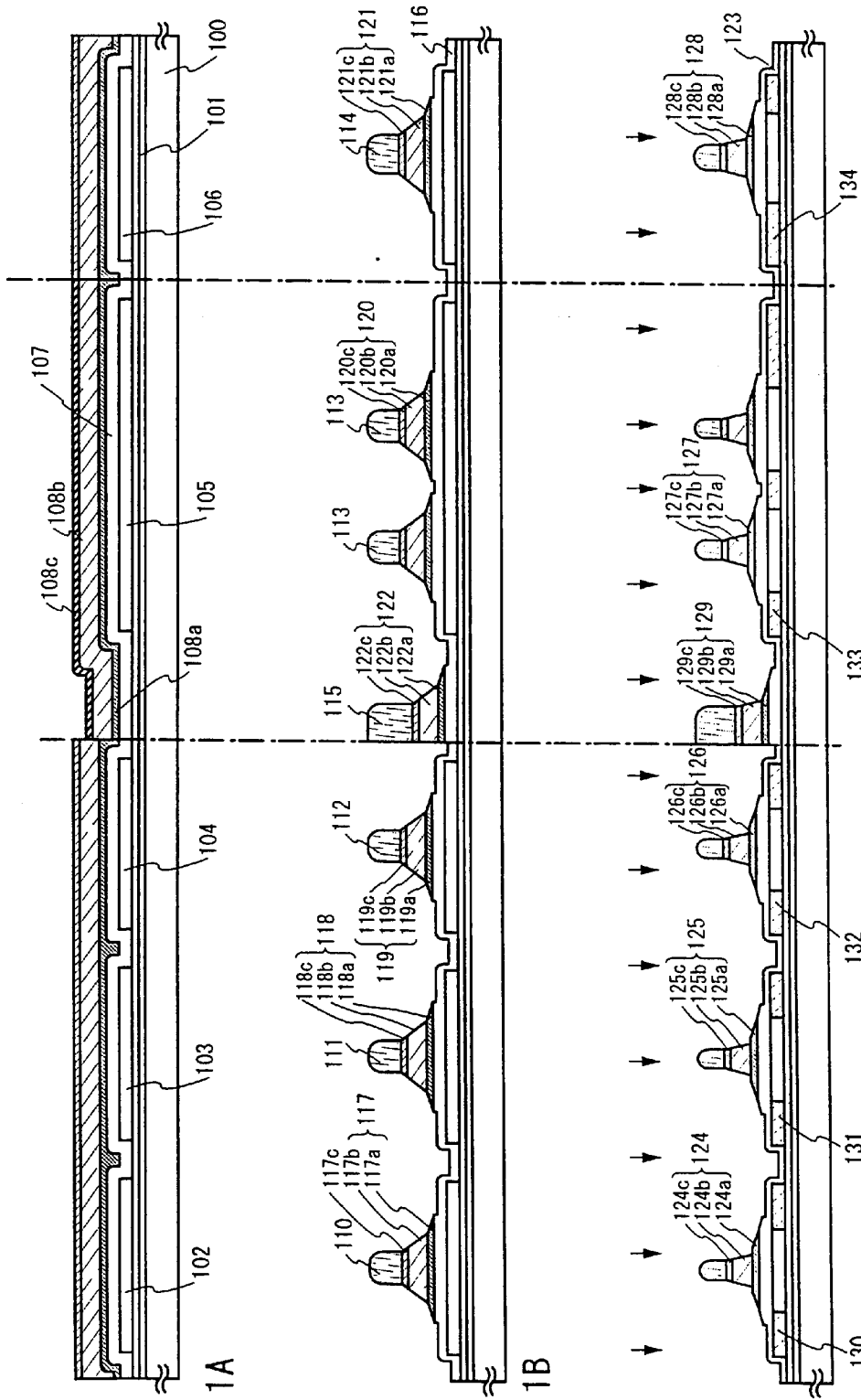


FIG. 1A

FIG. 1B

FIG. 1C

FIG. 2A

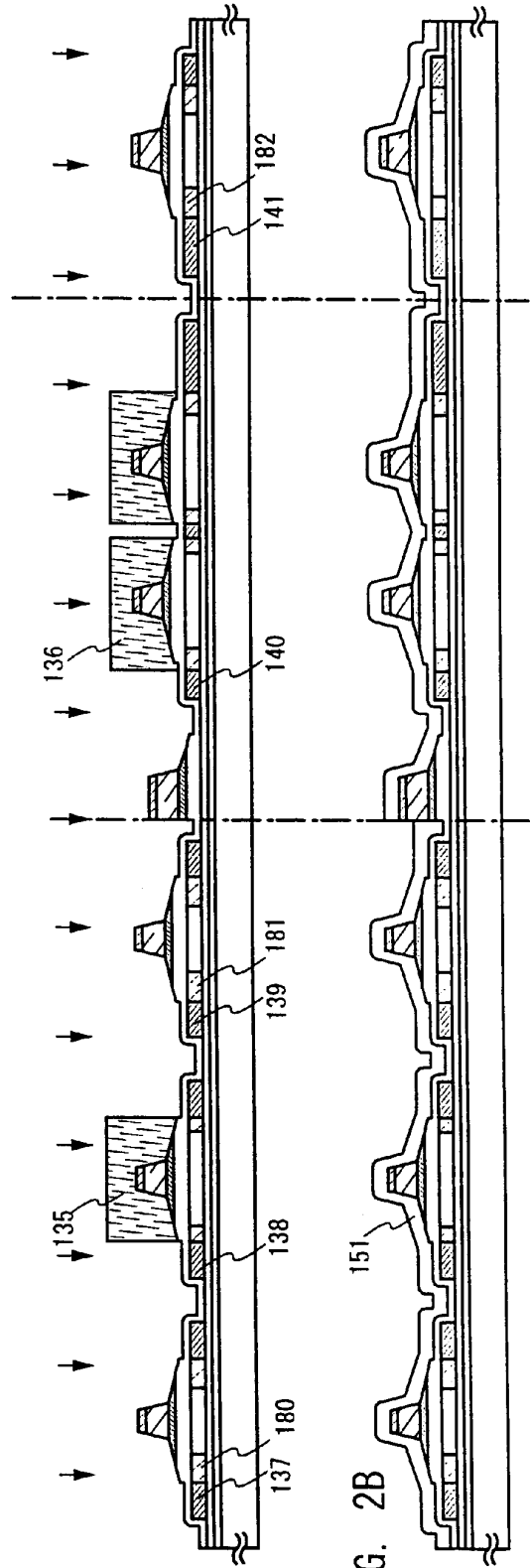
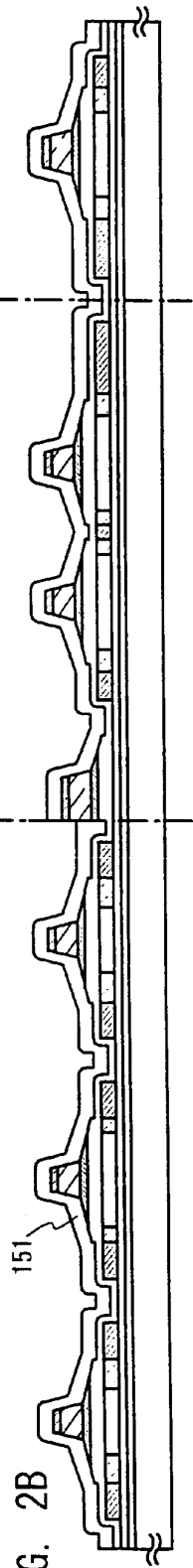


FIG. 2B



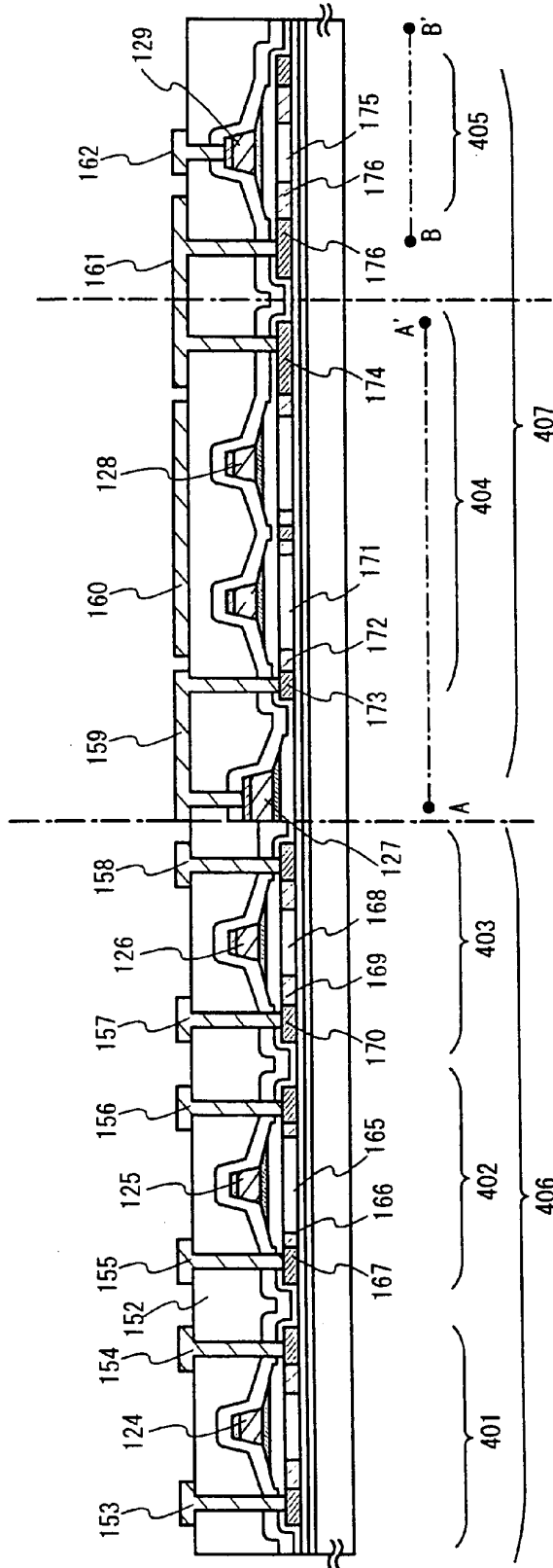


FIG. 3

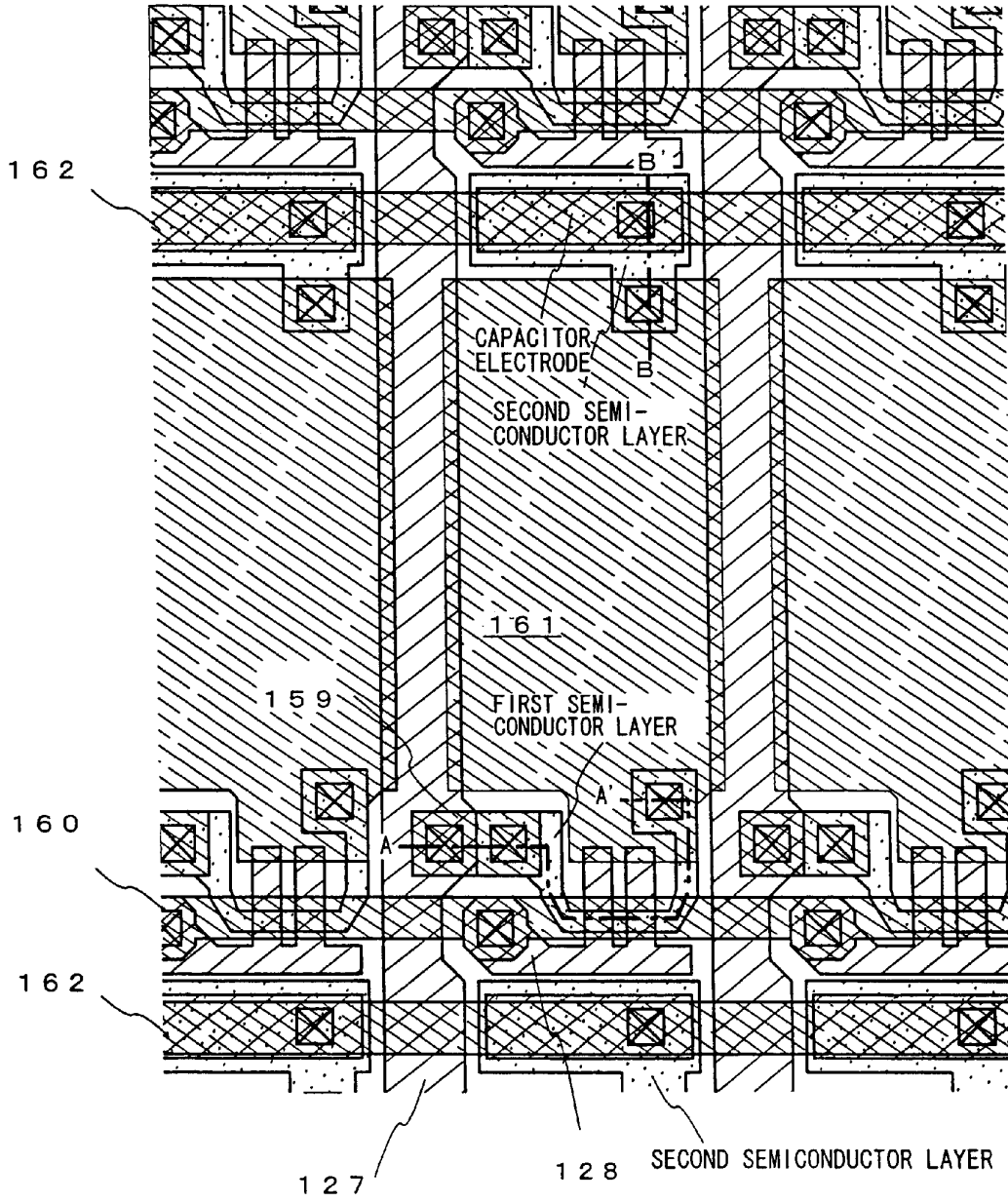


FIG. 4

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