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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JEONG IL KIM, SEUNG SOO BAEK
CHANG SOO LEE, and MIN CHEOL LEE

Appeal 2014-005357
Application 11/969,597¹
Technology Center 2600

Before JASON V. MORGAN, SHARON FENICK, and
JOHN R. KENNY, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–6, 8–15, and 17–18, which constitute all the claims pending in this application.² We have jurisdiction under 35 U.S.C. § 6(b)(1).

We reverse.

¹ Appellants identify Samsung Display Co., Ltd. as the real party in interest. (Appeal Br. 2.)

² Claims 7 and 16 were cancelled. Claims 19–20 were withdrawn. (Appeal Br. 2.)

Invention

Appellants' invention concerns a gate driving circuit including a plurality of stages. Each stage comprises a gate pad, a pull-up transistor, a gate electrode of the pull-up transistor and a drain electrode of the pull-up transistor, a capacitor with a first and second electrode, a holding transistor, and a switching transistor, connected in a specified manner. (Abstract.) In each stage a contact portion (connected to a gate electrode of the switching transistor) and the second electrode of the capacitor are disposed on different layers, and are connected via a contact hole. (Spec. ¶¶ 77, 80, 82, Figs. 5A, 5B.)

Illustrative claim 1 is reproduced below with key limitations emphasized:

1. A gate driving circuit comprising:
 - a plurality of stages each stage comprising:
 - a gate pad formed at one end of a gate line;
 - a pull-up transistor outputting a gate driving signal for driving the gate line;
 - a capacitor formed with a dielectric substance disposed between a first electrode connected to a gate electrode of the pull-up transistor and a second electrode connected to a drain electrode of the pull-up transistor;
 - a first conductive line connecting the gate pad to the second electrode;
 - a holding transistor connected to the pull-up transistor to maintain a voltage level of the gate driving signal;
 - a switching transistor connected to the pull-up transistor and the capacitor to control the holding transistor through the gate driving signal; and
 - a second conductive line connecting the second electrode to a contact portion via a contact hole, the contact portion connected to the gate electrode of the switching transistor,*

wherein, in a plan view, the gate pad has a first side positioned adjacent and spaced apart from a first side of the second electrode and the contact portion has a first side positioned adjacent the first side of the second electrode,
wherein the second electrode and the contact portion are disposed on different layers.

Rejections

The Examiner rejects claims 1–4, 9, 11–13, and 18 under 35 U.S.C. § 103(a) as unpatentable over the combination of Moon (US 2005/0008114 A1, pub. Jan. 13, 2005), Koyama et al. (US 2004/0263508 A1; pub. Dec. 30, 2004) (“Koyama”), Jung (US 2007/0164289 A1; pub. July 19, 2007), and Kim (US 6,900,856 B2, iss. May 31, 2005) (“Kim”). (Final Action 3–15.)

The Examiner rejects claims 5, 6, 8, 14, 15, and 17 under 35 U.S.C. § 103(a) as unpatentable over the combination of Moon, Koyama, Jung, Kim and Lim et al. (US 7,760,317 B2; iss. July 20, 2010) as evidenced by Wu et al. (US 2007/0170469 A1; pub. July 26, 2007). (Final Action 15–18.)

The Examiner rejects claim 10 under 35 U.S.C. § 103(a) as unpatentable over the combination of Moon, Koyama, Jung, Kim, Park et al. (US 6,995,742 B2; iss. Feb. 7, 2006) and Furuhashi et al. (US 5,818,409; iss. Oct. 6, 1998). (Final Action 18–20.)

Issues

Appellants’ arguments present us with the following issues:

Did the Examiner err in finding that the combination of Moon, Koyama, Jung, and Kim teaches or suggests the claim limitation of “a second conductive line connecting the second electrode to a contact portion

via a contact hole” and “the second electrode and the contact portion are disposed on different layers” as in claim 1?

We address only this issue, which is dispositive. Consequently, we do not reach additional, non-dispositive issues raised by Appellants’ arguments.

ANALYSIS

Appellants argue that the combination of Moon, Koyama, Jung and Kim does not teach “a second conductive line connecting the second electrode to a contact portion via a contact hole” and “the second electrode and the contact portion are disposed on different layers,” as in claim 1.

(Appeal Br. 17–20; Reply Br. 3–6.)

The Examiner finds that Moon teaches or suggests these disputed elements, but does not explicitly teach the connection being via a contact hole, rather showing the connection as a node on a circuit diagram. (Final Action 4–5.) However, the Examiner finds that Koyama teaches that “nodes illustrated in circuit diagrams with regard to display technology may refer to a connection of elements via a contact hole.” (*Id.* at 5.) No physical combination of Moon and Koyama is used by the Examiner in the rejection. (Answer 21.) Rather, the Examiner explains that Koyama is used to show that “nodes illustrated in circuit diagrams with regard to display technology may refer to a connection of elements via a contact hole.” (Final Action 5.) “Koyama demonstrates that it is known in the art that in circuit diagrams, an illustrated node connects two elements via a contact hole. This teaching requires that the two elements are on separate layers, otherwise a contact hole would not be necessary.” (Answer 20–21.)

Appellants argue that the circuit diagram relied upon in “Moon is a schematic diagram, not a layout diagram.” (Reply Br. 4.). Appellants argue

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