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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHI KANG LIU and GUO-KIANG HUNG

Appeal 2018-005811
Application 14/800,915
Technology Center 2600

Before JEAN R. HOMERE, DAVID J. CUTITTA II, and
NABEEL U. KHAN, *Administrative Patent Judges*.

HOMERE, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF THE CASE¹

Pursuant to 35 U.S.C. § 134(a), Appellant appeals from the Examiner’s decision to reject claims 1–5 and 7–17.² Appeal Br. 5. Claim 6 is canceled. *Id.* We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We refer to the Specification, filed July 16, 2015 (“Spec.”); the Final Office Action, mailed July 10, 2017 (“Final Act.”); the Appeal Brief, filed November 20, 2017 (“Appeal Br.”); and the Examiner’s Answer, mailed March 22, 2018 (“Ans.”).

² We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Mstar Semiconductor, Inc. as the real party in interest. Appeal Br. 3.

II. CLAIMED SUBJECT MATTER

According to Appellant, the claimed subject matter relates to a touch display panel (100) that transmits via its data lines (D1-Dn) a pixel voltage (F) during a display period (DT) and a touch driving signal (T) during a distinct and non-overlapping touch control period (TT). Spec. ¶ 27, Fig. 4. In particular, the touch display panel (100) includes a plurality of data lines (106) extending vertically (122) along a substrate (112), and a plurality of touch sensing lines (108) extending horizontally (124) along the substrate (112) such that the touch sensing lines (108) intersect with the data lines (106) to form a plurality of touch sensing elements (102). *Id.* ¶ 24, Figs. 1–3

Figure 4, discussed above and reproduced below, is useful for understanding the claimed invention:

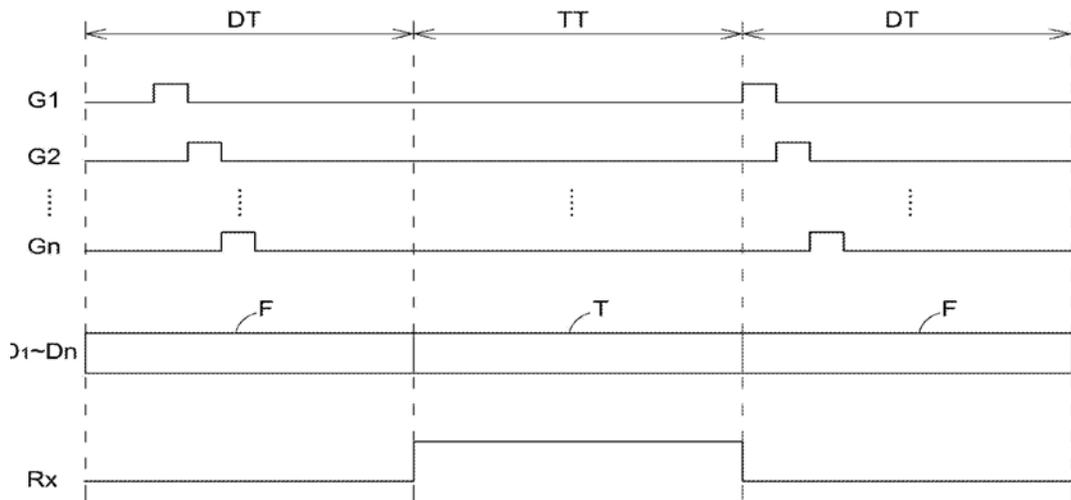


FIG. 4

Figure 4 illustrates a timing diagram of a pixel switch signal transmitted by a gate line, an integrated signal including a touch control signal and a pixel voltage signal transmitted by a data line, and a sensing signal sensed by a touch sensing line. *Id.* ¶ 11.

Of the rejected claims, claims 1 and 10 are independent. Claim 1, reproduced below with disputed limitation emphasized in *italics*, is illustrative of the claimed subject matter:

1. A touch display panel, comprising:
 - a first substrate;
 - a plurality of data lines, disposed above the first substrate, extending along a first direction;
 - a plurality of touch sensing lines, disposed above the first substrate, extending along a second direction and intersecting with the plurality of data lines to form a plurality of touch sensing elements;*
 - a plurality of gate lines, disposed above the first substrate, extending along the second direction and intersecting with the data lines; and
 - a plurality of thin-film transistors (TFTs), disposed above the first substrate, disposed adjacently to intersections of the gate lines and the data lines, each of the TFTs comprising a gate, a source and a drain, each of the gates electrically connected to one of the adjacent gate lines, the sources electrically connected to one of the adjacent data lines, wherein the data lines transmit at least one pixel voltage signal in a display period, and transmit at least one touch driving signal in a touch control period, and the display period does not overlap with the touch control period.

Appeal Br. 20 (Claims Appendix) (emphasis added).

III. REFERENCES

The Examiner relies upon the following references³

Name	Number	Filed	Published
Kim (hereinafter “Kim ‘214”)	US 2012/0075214 A1	Sept. 7, 2011	Mar. 29, 2012
Kim et al. (hereinafter “Kim ‘539”)	US 2014/0168539 A1	Dec. 5, 2013	June 19, 2014
Kim (hereinafter “Kim ‘590”)	US 9,229,590 B2	Dec. 19, 2012	Jan. 5, 2016

IV. REJECTIONS

The Examiner rejects the claims as follows:

1. Claims 1–3, 7–11 and 14–17 are rejected under 35 U.S.C. 103 as being unpatentable over the combination of Kim’539 and Kim’590. Final Act. 4–10.⁴
2. Claims 4, 5, 12 and 13 are rejected under 35 U.S.C. 103 as being unpatentable over the combination of Kim’539, Kim’590, and Kim’214. Final Act. 10–11.

V. ANALYSIS

Appellant argues that the Examiner erred in finding that the combination of Kim’539 and Kim’590 teaches or suggests forming touch

³ All reference citations are to the first named inventor only.

⁴ Claim 14 is inadvertently omitted from the statement of the rejection. Final Act. 4. However, it is discussed in the body of the rejection. *Id.* at 10.

sensing elements by intersecting data lines and touch sensing lines, as recited independent claim 1. Appeal Br. 11. In particular, Appellant argues that Kim'539 discloses forming touch sensing elements by intersecting touch sensing lines (Rx) with touch driving electrodes (Tx), as opposed to Rx lines intersecting the data lines (Dx). *Id.* (citing Kim'539 ¶ 36, Fig. 1).

According to Appellant, Kim'539 also shows “that the data lines D₁-D_n and gate lines G₁-G_m are intersected with the thin film transistors.” *Id.* However, Appellant submits Kim'539 does not teach D_n intersects with Rx or G_x. *Id.*

Appellant's argument is persuasive of reversible Examiner error. As a preliminary matter, we note that the Examiner relies upon Kim'539 for the disputed limitation as follows:

Kim '539 teaches a touch display panel (Title: Touch Sensor Integrated Type Display), comprising: a first substrate (Figure 4b; SU81); a plurality of data lines, disposed above the first substrate, extending along a first direction (Figure 48; reference D which is a side depiction of the plurality of data lines D1-Dn extending along a first direction of Figure 1 disposed above the first substrate); a plurality of touch sensing lines, disposed above the first substrate, extending along a second direction and intersecting with the plurality of data lines to form a plurality of touch sensing elements (Figure 4A, reference RX which is a side depiction of the plurality of touch sensing lines extending along a second direction of Figure 1 and intersecting with a plurality data lines to form a plurality of touch sensing elements disposed above the first substrate); a plurality of gate lines, disposed above the first substrate, extending along the second direction and intersecting with the data lines (Figure 48, reference G which is a side depiction of the plurality of gate lines extending along the second direction of Figure 1 and intersecting with the data lines disposed above the first substrate)[.]

Final Act. 4.

Further, we note the Examiner did not address in the Answer Appellant's argument summarized above at pages 4–5. Although figure 1 of Kim '539 depicts the data lines (Dx) extending vertically along a substrate and the gate lines (Gx)/touch sensing lines (Rx) extending horizontally along the thin film transistor, it is unclear from the cited portions of Kim'539, and the Examiner has not shown that the thin film transistor and the data lines are on the same layer. As persuasively argued by Appellant, Kim '539 discloses that the gate lines (Gx) and the touch sensing lines (Rx) intersect to form the touch sensing electrodes (Tx). Appeal Br. 11. Even though the data lines (Dx) do communicate with the gate lines and touch sensing lines, the Examiner's finding that the data lines (Dx) intersect with the gate lines (Gx) or the touch sending lines (Tx) is at best speculative, and is not supported by the record before us. Accordingly, we agree with Appellant that the proposed combination falls short of teaching or suggesting the disputed limitation.

Because Appellant has shown at least one reversible error in the rejection of claim 1, we need not reach Appellant's remaining arguments. Accordingly, we do not sustain the Examiner's obviousness rejection of independent claims 1 and 10. Likewise, we do not sustain the rejections of claims 2–5 and 7–17, which recite the disputed limitation.

VI. CONCLUSION

We reverse the Examiner's obviousness rejections of claims 1–5 and 7–17 under 35 U.S.C. § 103.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-3, 7-11, 14-17	103	Kim'539, Kim'590		1-3, 7-11, 14-17
4, 5, 12, 13	103	Kim'539, Kim'590, Kim'214		4, 5, 12, 13
Overall Outcome				1-5, 7-17

REVERSED