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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte YUSUKE ONOYAMA, JUNICHI YAMASHITA, and
NAOBUMI TOYOMURA

Appeal 2019–000491
Application 14/289,259
Technology Center 2600

Before JEAN R. HOMERE, CARL W. WHITEHEAD JR., and
ROBERT J. WEINSCHENK, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge*
WEINSCHENK.

Opinion Dissenting filed by *Administrative Patent Judge* HOMERE.

WEINSCHENK, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–9 and 11–21. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

CLAIMED SUBJECT MATTER

The claims are directed to “a display device, a driving method for a display device and an electronic apparatus.” Spec. 1:11–18. Claim 1, reproduced below, is illustrative of the claimed subject matter.

1. A display device comprising:

a pixel array unit that is formed by disposing pixel circuits that include a P-channel type drive transistor that drives a light-emitting unit, a sampling transistor that applies a signal voltage, a light emission control transistor that controls light emission and non-light emission of the light-emitting unit, a storage capacitor that is connected between a gate electrode and a source electrode of the drive transistor and an auxiliary capacitor that is connected to the source electrode of the drive transistor; and

a drive unit that, at a time corresponding to a beginning of a threshold correction period, performs driving that respectively applies a first voltage and a second voltage to the source electrode of the drive transistor and the gate electrode thereof, the difference between the first voltage and the second voltage being less than a threshold voltage of the drive transistor, and subsequently performs driving that applies a standard voltage that is used in threshold correction to the gate electrode in a state

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Sony Corporation. Appeal Br. 3.

in which the source electrode of the drive transistor has been set to a floating state,

wherein the sampling transistor is in a conducting state during the entirety of the threshold correction period, and

wherein a capacitance value of the storage capacitor is greater than or equal to a capacitance value of the auxiliary capacitor.

REFERENCES

The prior art relied upon by the Examiner is:

| Name | Reference | Date |
|-------|---|---------------|
| Omoto | U.S. Patent Application Publication No. 2013/0057457 A1 | Mar. 7, 2013 |
| Kim | U.S. Patent No. 8,049,684 B2 | Nov. 1, 2011 |
| Yoon | U.S. Patent Application Publication No. 2011/0309362 A1 | Dec. 22, 2011 |

REJECTIONS

Claims 1–9, 11, and 14–21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Omoto and Kim. Final Act. 3–7.

Claims 12 and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Omoto, Kim, and Yoon. Final Act. 7–8.

OPINION

Each independent claim recites “a storage capacitor,” “an auxiliary capacitor,” and “wherein a capacitance value of the storage capacitor is greater than or equal to a capacitance value of the auxiliary capacitor.” The Examiner asserts that Omoto teaches a storage capacitor and an auxiliary capacitor. Final Act. 3. The Examiner acknowledges, though, that “Omoto does not explicitly disclose wherein a capacitance value of the storage capacitor is greater than or equal to a capacitance value of the auxiliary

capacitor.” *Id.* at 4. The Examiner relies on Kim to compensate for that deficiency. *Id.* Specifically, the Examiner cites to column 8, lines 65–67 of Kim (*id.*), which teaches that “the capacitance of the storage capacitor Cst is larger than that of the auxiliary capacitor Caux” (Kim, 8:65–67). The Examiner then provides a rationale for combining the teachings of Omoto and Kim. Final Act. 4. Namely, the Examiner cites to column 3, lines 56–67 of Kim as evidence that “[i]t would have been obvious to one with ordinary skill, in the art at the time of the invention, to have a storage capacitor larger than an auxiliary capacitor in Omoto’s device as taught by Kim in order to stably store the data signals.” *Id.*

Appellant argues that the portion of Kim cited by the Examiner “makes clear that the alleged stable storing of data signals is entirely unrelated to the presence or capacitance value of any auxiliary capacitor.” App. Br. 12. Appellant points out that, according to Kim, “this alleged benefit is realized only where ‘the capacitance of each of the data line capacitors C_{data11} – C_{datamk} is set to be larger than that of a storage capacitor Cst.” *Id.* Thus, Appellant concludes that “the Examiner’s proposed motivation to modify Omoto in view of Kim is entirely unrelated to the proposed modification.” *Id.*

We find Appellant’s argument persuasive. The Examiner correctly points out that column 8, lines 65–67 of Kim teaches that the capacitance of the storage capacitor Cst is larger than that of the auxiliary capacitor Caux, as recited in the independent claims of the present application. Final Act. 4. However, to show a rationale for combining the teachings of Omoto and Kim, the Examiner relies on a different portion of Kim. *Id.* As discussed above, the Examiner cites to column 3, lines 56–67 of Kim, and states that

“[i]t would have been obvious to one with ordinary skill, in the art at the time of the invention, to have a storage capacitor larger than an auxiliary capacitor in Omoto’s device as taught by Kim in order to stably store the data signals.” *Id.*

The problem with the Examiner’s proffered rationale is that column 3, lines 56–67 of Kim only discusses the capacitance of the *data line capacitors* and the *storage capacitor*, and only indicates that setting the capacitance of the data line capacitors greater than the capacitance of the storage capacitor provides the benefit of stably storing data signals. The cited portion of Kim does not mention the *auxiliary capacitor*, and does not indicate that setting the capacitance of the storage capacitor greater than the capacitance of the auxiliary capacitor provides the benefit of stably storing data signals. In other words, the cited evidence does not support the Examiner’s proffered rationale for combining the teachings of Omoto and Kim. As a result, the Examiner does not show sufficiently that it would have been obvious to combine the teachings of Omoto and Kim.

For the reasons discussed above, we do not sustain the Examiner’s rejection of independent claims 1, 19, and 20. Because claims 2–9, 11–18, and 21 depend, directly or indirectly, from claim 1, we also do not sustain the Examiner’s rejection of claims 2–9, 11–18, and 21.

CONCLUSION

The decision of the Examiner rejecting claims 1–9 and 11–21 is reversed.

DECISION SUMMARY

In summary:

| Claims Rejected | 35 U.S.C. § | Basis | Affirmed | Reversed | New Ground |
|------------------------|--------------------|------------------|-----------------|-----------------|-------------------|
| 1-9, 11, 14-21 | 103 | Omoto, Kim | | 1-9, 11, 14-21 | |
| 12, 13 | 103 | Omoto, Kim, Yoon | | 1-9, 11, 14-21 | |
| Overall Outcome | | | | 1-9, 11-21 | |

REVERSED

HOMERE, *Administrative Patent Judge*, dissenting.

I respectfully dissent from the majority's decision reversing the Examiner's rejections of claims 1–9 and 11–21.

As noted by the majority opinion, the Examiner correctly points out that:

[C]olumn 8, lines 65–67 of Kim teaches that “the capacitance of the storage capacitor Cst is larger than that of the auxiliary capacitor Caux,” as recited in the independent claims. Kim, 8:65–67. ... to show a rationale for combining the teachings of Omoto and Kim, the Examiner relies on a different portion of Kim. Final Act. 4. The Examiner cites to column 3, lines 56–67 of Kim, and states that “[i]t would have been obvious to one with ordinary skill, in the art at the time of the invention, to have a storage capacitor larger than an auxiliary capacitor in Omoto's device as taught by Kim in order to stably store the data signals.” *Id.*

Dec. 4.

The majority, however, characterizes as problematic the Examiner's proffered rationale to combine different portions of Kim discussing the capacitance of the *data line capacitors* and the *storage capacitor*, the capacitance of the data line capacitors greater than the capacitance of the storage capacitor provides the benefit of stably storing data signals. *Id.* Because the cited portion of Kim does not mention the *auxiliary capacitor*, the majority Decision finds error in the Examiner's rejection. *See id.* From that finding of fact and ultimate conclusion of nonobviousness, I take exception.

The majority appears to have bought into Appellant's argument, which it addresses Kim and Omoto individually, as opposed to the combination thereof relied on by the Examiner. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (“[O]ne cannot show non-obviousness by attacking

references individually where, as here, the rejections are based on combinations of references.”). As discussed above, the Examiner relies on Omoto, not Kim, to teach an auxiliary capacitor that is connected to the source electrode of the drive transistor. Final Act. 3. Although the reason for combining the references as identified by the Examiner may not be directed to the comparison of storage capacitor and auxiliary capacitor, it is undisputed that the combination of references teaches all the claim elements required for the display device. Therefore, the ordinarily skilled artisan, being a creative individual, would have been able to fit the cited teachings of Kim and Omoto together like pieces of a puzzle to predictably result in the claimed display device. Further, although it may be necessary for an Examiner to identify a reason for modifying the familiar elements obtained from the prior art in establishing a prima facie case of obviousness, the identification of such a reason is not a *sine qua non* requirement. So long as the Examiner provides an articulated reasoning with some rational underpinning to substantiate the obviousness rejection, such a conclusion is proper. In this case, the afore-cited rationale provided by the Examiner is more than just a mere conclusory statement. In my view, such a statement suffices as an articulated reason with a rational underpinning to support the proffered combination. As noted above, the case law allows the Examiner to look to the state of the prior art, including the knowledge of the ordinarily skilled artisan, to arrive at such a reason for combining the known elements of the prior art. Consequently, the Examiner’s reliance upon widely available knowledge to arrive at an articulated reason with a rational underpinning to support the proffered combination is proper.

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For the foregoing reasons, I would affirm the Examiner's rejection of claims 1-9 and 11-21.