UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HYEON HO SON and JONG JIN PARK

Appeal 2008-1825
Application 09/893,676
Technology Center 2600

Decided: September 24, 2008

Before KENNETH W. HAIRSTON, JOHN A. JEFFERY,
and ELENI MANTIS MERCADER, *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's rejection of claims 1-4, 7-17, and 20-24.[1] We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

INVENTION

Appellants' claimed invention is directed to a method of driving a liquid crystal display (LCD) to reduce flickering caused by residual images from a prior display frame (Spec. ¶ [0004] and ¶[0012]; and Fig. 6). This is accomplished during a display frame interval (Spec. ¶ [0027] and Fig. 6) by applying a reference common voltage (Vcom applied during Tr in Fig. 6; and Spec. ¶ [0031]) after applying a high-level common voltage (Vcom in Fig. 6) and a low level common voltage (Vcoml in Fig. 6).

Claim 1, reproduced below, is representative of the subject matter on appeal:

1. A method of driving a liquid crystal display device during one display frame, comprising the steps of:

applying one of a high-level common voltage and a low-level common voltage to a plurality of liquid crystal cells of the liquid crystal display device to write data into the liquid crystal cells within a time interval shorter than one display frame interval;

[1] Claims 5, 6, 18, and 19 stand objected as being dependent upon a rejected base claim (Ans. 5).

applying a reference common voltage to the plurality of liquid crystal cells after applying the one of the high-level common voltage and the low-level common voltage; and

turning on a backlight after said data writing to display an image.

THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

Sugawara	US 6,504,523 B1	Jan. 07, 2003 (filed Nov. 28, 2000)
Zavracky	US 6,552,704 B2	Apr. 22, 2003 (filed Oct. 31, 1997)

The following rejection is before us for review:

Claims 1-4, 7-17, and 20-24 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Zavracky in view of Sugawara.

OBVIOUSNESS

There are two obviousness issues before us regarding whether Appellants have shown that the Examiner erred in rejecting claims 1-4, 7-17, and 20-24 under 35 U.S.C. § 103(a).

The first issue is whether the Examiner erred in determining that Sugawara teaches a reference common voltage as claimed. The first issue turns on whether zero volts (0V) delivered to the pixels, which is a value different from Vcom high or Vcom low, constitutes a reference common voltage.

The second issue is whether the Examiner erred in combining Zavracky and Sugawara because Sugawara does not teach the "one display frame interval" as claimed. The second issue turns on whether Zavracky teaches the "one display frame," and whether one can show non-obviousness by attacking Sugawara individually where the rejection is based on the combination of Zavracky and Sugawara.

FINDINGS OF FACT

The relevant facts include the following:

1. Sugawana teaches that the control signal from the control signal generator 62 is used to switch the potential Vcom of the common electrode and the judgment section "*delivers*" zero volts (0V) as an absence signal (col. 6, ll. 52-57) (emphasis added).
2. Appellants' Specification is silent as to a voltage value that would constitute a "reference common voltage."
3. Zavracky teaches applying a high level common voltage (Vcom high) and a low level common voltage (Vcom low) to a plurality of liquid crystal cells within a time interval shorter than one display frame interval (col. 10, l. 67-col. 11, l. 10 and Fig. 12B, indicating Vcom high and Vcom low applied within a time interval shorter than one display frame interval).
4. Sugawara teaches applying a reference common voltage (Vcom = 0V during t14-t15) after the application of a Vcom high (Vcom = 5V before the time t13) and Vcom low (Vcom = -5V from the time of t13 to t14) (Fig. 9 and col. 6, ll. 52-60).

PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

Discussing the question of obviousness of a patent that claims a combination of known elements, the Court in *KSR Int'l v. Teleflex, Inc*., 127 S. Ct. 1727 (2007) explains:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [*v. AG Pro, Inc.,* 425 U.S. 273 (1976)] and *Anderson's-Black Rock*[*, Inc. v. Pavement Salvage Co*., 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR, 127 S. Ct. at 1740. If the claimed subject matter cannot be fairly characterized as involving the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement, a holding of obviousness can be based on a showing that "there was an apparent reason to combine the known elements in the fashion

claimed." *Id.*, 127 S. Ct., at 1740-41. Such a showing requires "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.*, 127 S. Ct. at 1741 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

If the Examiner's burden is met, the burden then shifts to the Appellants to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

"[O]ne cannot show non-obviousness by attacking references individually where . . . the rejections are based on combinations of references." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

"The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *Id.* at 425.

The claim terms should be given their broadest reasonable meaning in their ordinary usage as such claim terms would be understood by one skilled in the art by way of definitions and the written description. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

> The claims, of course, do not stand alone. Rather, they are part of a 'fully integrated written instrument' . . . consisting principally of a specification that concludes with the claims. For that reason, claims 'must be read in view of the specification, of which they are a part.' . . . . [T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'

Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005).

Claim terms are presumed to have their customary and ordinary meaning unless there is an express intention to impart the novel meaning of the claim terms. *Sunrace Roots Enterprise Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1302 (Fed. Cir. 2003).

ANALYSIS

Initially, we note that independent claims 1 and 13 were argued as a group (App. Br. 4-9). Additionally, no arguments pertaining to patentability were presented with respect to claims 2-4, 7-12, 14-17, and 20-24.[2] Accordingly, these claims, which are subject to the same ground of rejection, fall with claims 1 and 13 from which they depend. *See* 37 C.F.R. § 41.37 (c)(1)(vii) (2004).

[2] Only arguments made by Appellants have been considered in this decision. Arguments which Appellants could have made but did not make in the Briefs have not been considered and are deemed waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2004).

Regarding claims 1 and 13
a) Did the Examiner err in determining that Sugawara teaches a reference common voltage as claimed?

Appellants argue that Sugawara does not teach the step of "applying" a reference common voltage (Vcom) because the switch 66 of Figure 8 does not connect Vcom to a zero volts (0V) source, but rather, the "0V" state of Figure 9 indicates when the power is absent (i.e., absence of voltage is taught rather than "applying a reference common voltage" as claimed) (App. Br. 7-8).

The Examiner responds that the claim does not define a reference common voltage, and therefore, any Vcom value that differs from Vcom high and Vcom low is sufficient (Ans. 6). The Examiner further explains that Sugawara teaches that at t14-t15 (Fig. 9) the common electrode 76 rises from –5 volts to 0 volts (col. 7, ll. 54-60), and thus, a Vcom equal to zero volts (0V) is applied to the pixels (Ans. 6).

We agree with the Examiner's findings of facts and conclusions as set out in the Answer and adopt them as our own. We add the following primarily for emphasis.

Sugawana teaches that the control signal from the control signal generator 62 is used to switch the potential Vcom of the common electrode and the judgment section "*delivers*" zero volts (0V) as an absence signal (Finding of Fact 1) (emphasis added). Thus, it is clear that a voltage of zero volts (0V) is applied (i.e., delivered) to the pixels. Furthermore, Appellants' Specification is silent as to the voltage value that would constitute a "reference common voltage" (Finding of Fact 2). Thus, any voltage value

that is different than Vcom high or Vcom low (i.e., 0V) applied (i.e., delivered) to the pixels would satisfy the claim limitation.

Thus, Appellants' argument has not persuaded us of error in the Examiner's rejection of claims 1 and 13 because Sugawara teaches a reference common voltage as claimed (Findings of Fact 1 and 2).

b) Did the Examiner err in combining Zavracky and Sugawara because Sugawara does not teach the "one display frame interval" as claimed?

Appellants argue that the timing of the application of the signals shown in Figure 9 of Sugawara is based on when the POWC signal has been detected and not on the time periods related to one display frame as recited in the claims (App. Br. 8). Appellants further argue that even if the Vcom of 0V of Sugawara constituted a reference common voltage, there is still no teaching that would motivate one of ordinary skill in the art to apply the signals represented in Figure 9 of Sugawara during the one display frame of Zavracky (App. Br. 8-9).

The Examiner used Zavracky *inter alia* for the teaching of applying a high level common voltage (Vcom high) and a low level common voltage (Vcom low) to a plurality of liquid crystal cells within a time interval shorter than one display frame interval (Finding of Fact 3; and Ans. 3-4). The Examiner further used Sugawara for the teaching of applying a reference common voltage (Vcom = 0V during t14-t15) after the application of a Vcom high (Vcom = 5V before the time t13) and Vcom low (Vcom = -5V from the time of t13 to t14) (Finding of Fact 4). The Examiner articulated as a motivation to combine the references that the reference common voltage as taught by Sugawara in the system of Zavracky would

prevent the flicker phenomenon and improve picture quality (Ans. 4 and also *see* Sugawara's Abstract, last line).

We agree with the Examiner's findings of facts and conclusions as set out in the Answer and adopt them as our own. We add the following primarily for emphasis.

As stated *supra*, one cannot show non-obviousness by attacking Sugawara individually where the rejection is based on the combination of Zavracky and Sugawara. *In re Keller*, 642 F.2d at 425. Furthermore, the test for obviousness is not whether the features of Sugawara may be bodily incorporated into the structure of the Zavracky, but, rather, the test is what the combined teachings of Sugawara and Zavracky would have suggested to those of ordinary skill in the art. *Id.* at 425. Sugawara teaches that the signal processing as depicted in Figure 9 would reduce flicker (Fig. 9 and Abstract, last sentence).

Further, we note that Sugawara teaches that the flicker reduction occurs in a displayed frame because the polarities between the pixels are cancelled out and their intensity averaged on the entire screen (col. 8, ll. 61-65). Thus, contrary to Appellants' assertion, it is clear that Sugawara's signal processing which includes the POWC signal of Figure 9 results in the reduction of the flicker phenomenon during the one display frame as recited in the claims.

Thus, Appellants' argument has not persuaded us of error in the Examiner's rejection of claims 1 and 13 because the combination of Zavracky and Sugawara teach the "one display frame interval" as claimed.

CONCLUSIONS OF LAW

We conclude that Appellants have not shown that the Examiner erred in rejecting claims 1-4, 7-17, and 20-24 under 35 U.S.C. § 103(a).

ORDER

The decision of the Examiner to reject claims 1-4, 7-17, and 20-24 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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