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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHAWN ROBERT GETTEMY, JOSHUA GREY WURZEL,
JEAN-PIERRE SIMON GUILLOU, MING XU, and
DAVID ANDREW DOYLE

Appeal 2016-003578
Application 13/253,739
Technology Center 2600

Before: ELENI MANTIS MERCADER, JOHN D. HAMANN, and
SCOTT E. BAIN, *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a rejection of claims 1–
22. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part and enter a new ground of rejection pursuant to 37
C.F.R. § 41.50(b).

THE INVENTION

The claimed invention is directed to calibrating displays to improve the white point uniformity between similar type devices. In one embodiment, a backlight includes multiple strings of LEDs, where each string is driven by a separate driver, or driver channel. Each string may be separately tested at a base current to determine its emitted chromaticity, and values indicative of the emitted chromaticities may be stored within the backlight as calibration values. Abstract.

Claims 1 and 22, reproduced below, are illustrative of the claimed subject matter:

1. A display, comprising:
 - a first string of first light emitting diodes;
 - a second string of second light emitting diodes;
 - a storage containing calibration values representing a first emitted chromaticity of the first string when driven at a base current in isolation and a second emitted chromaticity of the second string when driven at the base current in isolation; and
 - a controller configured to determine a first driving strength for the first string and a second driving strength for the second string based on the calibration values.

22. A display, comprising:
 - a first string of first light emitting diodes configured to emit a first chromaticity when driven at a first current when no current is driven through a second string of second light emitting diodes;
 - the second string of second light emitting diodes, the second string being configured to emit a second chromaticity when driven at the first current when no current is driven through the first string of first light emitting diodes;

a storage containing a first color value representing the first chromaticity and a second color value representing the second chromaticity; and

a controller configured to determine a first driving strength for the first string based on the first color value and the second color value, and configured to determine a second driving strength for the second string based on the first color value and the second color value, wherein light with a mixed chromaticity at a desired white point is produced when the first string is driven with the first driving strength while the second string is driven with the second driving strength, wherein the first driving strength consists of a first driving current, a first driving duty cycle, or combination thereof, and the second driving strength consists of a second driving current, a second driving duty cycle, or combination thereof.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

| | | |
|--------|--------------------|--------------|
| WANG | US 2010/0110098 A1 | May 6, 2010 |
| Atkins | US 2010/0118057 A1 | May 13, 2010 |

REJECTIONS

The Examiner made the following rejections:

Claims 1–6 and 8–13, 15–18, and 21–22 stand rejected under 35 U.S.C § 102(b) as being anticipated by Atkins.

Claims 7, 14, 19 and 20 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Atkins in view of Wang.

ISSUES

The pivotal issues are whether the Examiner erred in finding that Atkins discloses the limitations of:

“a storage containing calibration values representing a first emitted chromaticity of the first string when driven at a base current in isolation and a second emitted chromaticity of the second string when driven at the base current in isolation” as recited in claim 1 and similarly recited in claims 8 and 15; and

a first string of first light emitting diodes configured to emit a first chromaticity when driven at a first current when no current is driven through a second string of second light emitting diodes;

the second string of second light emitting diodes, the second string being configured to emit a second chromaticity when driven at the first current when no current is driven through the first string of first light emitting diodes;

a storage containing a first color value representing the first chromaticity and a second color value representing the second chromaticity;

as recited in claim 22.

ANALYSIS

Claims 1, 8, 15, and 22

Appellants argue that Atkins fails to teach or suggest driving strings of light emitting diodes at a base current in isolation from other strings of light emitting diodes, as generally recited by independent claims 1, 8, 15, and 22. According to Appellants, Atkins does not appear to disclose driving one string of light emitting diodes at a base current in isolation while not driving another string of light emitting diodes. Appellants assert that Atkins

only appears to disclose driving all of the LEDs, and Atkins does not appear to drive a string or array of LEDs in isolation from another string or array of LEDs. App. Br. 9; citing Atkins, para. 44.

We do not agree with Appellants' argument. We agree with the Examiner's finding that Atkins discloses a first and a second array of LEDs wherein driving current (i.e. base current) is used to drive a solid-state illumination source (LEDs) applied to each or group of LEDs (i.e., paras. 29, 31, 43, and 44; Figs. 2 and 7; elements 60A and 60B of Fig. 7; Ans. 2). Thus, when one group of solid-state illumination sources (LEDs) is driven with a particular driving schema then that group of solid-state illumination sources (i.e., LEDs of 60A) is driven *in isolation* because a separate driving schema is used for another group of solid-state illumination sources (i.e., LEDs of 60B) (*id.*).

We further agree with the Examiner's interpretation of the claimed term "in isolation" recited in independent claims 1, 8, and 15. We give claims their broadest reasonable interpretation consistent with the specification. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004). However, although claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). Under the broadest reasonable interpretation, when a string of one group of solid-state illumination sources (LEDs) is driven at a given time period it would be *in isolation* from another group of solid-state illumination sources (LEDs) (Ans. 3). Therefore, when Atkins discloses driving one group of solid-state illumination sources (LEDs) using a driving schema the solid-state illumination sources (LED) would be in isolation (Ans. 3). This is

consistent with Appellants' own disclosure that "[e]ach string may be controlled independently by separate driver, or driver channel, which in turn allows each string to be operated at a separate driving strength" (Spec. 6–7). We refuse to import the limitation of "no current" into the limitations of claims 1, 8, and 15, as part of the "isolation" limitation because that term does not appear in these claims, and as such, we will not import that limitation from Appellants' Specification (para. 52).

Appellants also assert that a set of instructions to control a driving current cannot properly be interpreted as calibration values representing chromaticity, as generally recited by independent claims 1, 8, and 15 (App. Br. 11). Appellants submit that a set of instructions (i.e., driving schema) supplied to two different colored LEDs would likely cause the LEDs to emit different colors (*id.*). Appellants assert that Atkins fails to disclose the limitation of "a storage containing calibration values representing first emitted chromaticity of the first string . . . and a second emitted chromaticity of the second string" as recited in claims 1, 8, 15, and 22 (App. Br. 10–11).

We do not agree with Appellants' argument. We agree with the Examiner's finding that under the broadest reasonable interpretation Atkins discloses a driving schema (i.e., calibration values) representing emitted chromaticity (i.e., color) of the illumination source (i.e., lights string group 60A) when the illumination source (i.e., light string) is driven at a base current (i.e., driving current) (Ans. 3). Atkins discloses a storage containing calibration value for a drive schema (i.e., Fig. 3, item 28) and discloses calibration values (para. 46 and Fig. 4) for drive schemas 37-1, 37-2 and 37-N, wherein the calibration (i.e., 37-1) used to drive a solid-state illumination source (i.e., LED) in order to emit light having desired *chromaticity* and

when the solid-state illumination source (LED) is driven at a base current (i.e., driving current) illumination source (LED) emits light of desired chromaticity (para. 46 detected by color sensor 26 that generates a signal which is sent to the calibration unit to establish a driving schema (i.e., calibration value) that is stored in storage unit (i.e., data store 28) (Fig 3 and paras. 31–32; Ans. 3–4. Thus, we agree with the Examiner that Atkins discloses a storage (Fig 3; item 28) containing calibration values (i.e., drive schema) representing the emitted chromaticity (Ans. 3–4).

Appellants further argue that Atkins does not appear to disclose driving different strings of light emitting diodes with the same base current as recited in independent claims 1, 8, 15, and 22 (App. Br. 13).

We do not agree. The Examiner cited to Figure 7 (*see supra*) and when we turn to the written disclosure of Figure 7, it is disclosed that “[d]rivers 62A and 62B may apply *the same driving signals* to all of the driven illumination sources or may apply individually-determined driving signals to different ones of the illumination sources” (para. 59) (emphasis added). Thus, there is an explicit teaching of using the “same” driving signal to the different set of illumination sources 61A and 61B (i.e., all of the illumination sources). While the Examiner asserted that the same current is not required by the claim language (Ans. 4), we disagree because “the base current” is referring back to “a base current”, and thus, the antecedent basis dictates the same current being claimed. Nonetheless, the thrust of the Examiner’s rejection regarding Atkins disclosing driving groups of LEDs in isolation remains unchanged because the disclosure of Figure 7 cited by the Examiner explicitly discloses “the same driving signals” being used.

Appellants further argue that the Examiner's rejection of independent claim 22 fails to address the recited limitations of "when no current is driven through a second string of second light emitting diodes" and "when no current is driven through the first string of first light emitting diodes" (App. Br. 10).

The Examiner did not respond to this argument (*see Answer*). The Examiner pointed us previously to Figure 2 of Atkins for disclosing different driving current schemes (*supra*). Atkins discloses driving each group of LEDs under separate driving schemas, and one of the disclosed schemas is a *DC value* (*see in particular paras. 29 and 43; Fig. 2C*). A DC value of zero, or no current, constitutes a DC value of a driving current. Thus, under the embodiment when the first group of LEDs 61A is driven under a first schema (i.e., 60A) of a driving current 14 (i.e., Fig. 2A) and the second group of LEDs 61B is driven under a second schema (i.e., 60B) of a driving current 16 (i.e., Fig. 2C; including zero driving current), would meet the limitation of "a first string of first light emitting diodes configured to emit a first chromaticity when driven at a first current when no current is driven through a second string of second light emitting diodes" as recited in claim 22. Furthermore, the embodiment of when the first group of LEDs 61A is driven under a first schema (i.e., 60A) of a driving current 16 (i.e., Fig. 2C; including zero driving current) and the second group of LEDs 61B is driven under a second schema (i.e., 60B) of a driving current 14 (i.e., Fig. 2A), would read on the limitation of "the second string of second light emitting diodes, the second string being configured to emit a second chromaticity when driven at the first current when no current is driven through the first string of first light emitting diodes" as recited in claim 22. These schemes

are further supported by Figure 7 of Atkins as discussed above, disclosing that “[d]rivers 62A and 62B may apply *the same driving signals* to all of the driven illumination sources or may apply individually-determined driving signals to different ones of the illumination sources” (para. 59) (emphasis added). However, since the Examiner did not articulate this interpretation of Atkins with respect to claim 22, and to the extent that we would be changing the thrust of the rejection, we designate our findings with respect to claim 22 as new grounds of rejection under 35 U.S.C § 102(b) as being anticipated by Atkins or under 35 U.S.C § 103(a) as obvious over Atkins.

The claim would be anticipated because Atkins explicitly discloses the possible schemes of driving signals as enumerated above. However, and in the alternative, to the extent that the particular pattern of the same driving current applied to a group of LEDs when no current is applied in the other group of LEDs is selected from the possible driving current schemes disclosed, would be obvious to one skilled in the art at the time of the invention. This is because applying a driving current to a group of LEDs and using no current in another group of LEDs would be within the skill of an artisan choosing from a limited number of ways of determining the chromaticity for a group of LEDs *in isolation*. In an obviousness analysis, it is not necessary to find precise teachings directed to the specific subject matter claimed because inferences and creative steps that a person of ordinary skill in the art would employ can be taken into account. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). In this regard, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *Id.* at 421.

Accordingly, we affirm the Examiner's rejections of claims 1, 8, and 15. As to claim 22, we reverse the Examiner's rejection and enter new grounds of rejection.

Claims 4, 5, and 16

Appellants argue with respect to claims 4, 5, and 16 that Atkins does not appear to include the term "coordinate" and like terms with respect to chromaticity (App. Br. 13–14).

We do not agree with Appellants' argument. We agree with the Examiner (Ans. 5) that under the broadest reasonable interpretation of the claims, Atkins (para. 64, line 8–10) discloses calibration values (i.e., driving schema) comprising chromaticity used to drive one or group of solid-state illumination sources (LEDs) (Fig. 7). Because the polarities of solid-state illumination sources (LEDs) are used in an apparatus wherein each one or group of solid state illumination source (LEDs) are calibrated using calibration values of chromaticity, the apparatus would have to have the location (i.e., coordinates) of each one or group of solid-state illumination sources (LEDs) in order to apply the appropriate calibration value of chromaticity (Ans. 5). Thus, the calibration value comprises a set of chromaticity coordinates in order to apply appropriate values (i.e., driving schemas) to one of a group of solid-state illumination sources (LEDs) at the particular coordinates (Ans. 5).

In the Reply Brief Appellants direct our attention to paragraph 45 of their Specification and assert that "coordinates" refers to a chromaticity diagram (Reply Br. 9). In other words, Appellants would like us to read the disclosure of --chromaticity diagram-- from the Specification into the claim term "coordinate." We decline such an interpretation because although

claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *See In re Van Geuns*, 988 F.2d at 1184.

Accordingly, we affirm the Examiner's rejection of claims 4, 5, and 16.

Claims 2, 3, 6, 7, 9–14, 17, 18, 19, 20, and 21

Appellants rely on the same arguments as those presented for claims 1, 8, and 15 (App. Br. 15). Accordingly, we also affirm the Examiners' rejections of claims 2, 3, 6, 7, 9–14, 17, 18, 19, 20, and 21 for the same reasons articulated above.

CONCLUSION

The Examiner did not err in finding Atkins discloses the limitation of: “a storage containing calibration values representing a first emitted chromaticity of the first string when driven at a base current in isolation and a second emitted chromaticity of the second string when driven at the base current in isolation” as recited in claim 1 and similarly recited in claims 8 and 15.

The Examiner erred in finding Atkins discloses the limitations of:

a first string of first light emitting diodes configured to emit a first chromaticity when driven at a first current when no current is driven through a second string of second light emitting diodes;

the second string of second light emitting diodes, the second string being configured to emit a second chromaticity when driven at the first current when no current is driven through the first string of first light emitting diodes;

a storage containing a first color value representing the first chromaticity and a second color value representing the second chromaticity;
as recited in claim 22.

DECISION

For the above reasons, the Examiner's rejection of claims 1–21 is affirmed. The Examiner's rejection of claim 22 is reversed and new grounds of rejection are entered pursuant to 37 C.F.R. § 41.50(b).

37 C.F.R. § 41.50(b) provides a “new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that the Appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner

(2) *Request rehearing.* Request that the proceeding be reheard under §41.52 by the Board upon the same Record

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED-IN-PART

37 C.F.R. § 41.50(b)