

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSEPH H. RUBY and
ALAN S. FELDMAN

Appeal 2007-3322
Application 09/947,094
Technology Center 2600

Decided: 25 September 2007

Before JAMESON LEE, ADRIENE LEPIANE HANLON, and JAMES T. MOORE, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

DECISION ON APPEAL

A. Statement of the Case

This is a decision on appeal by an applicant under 35 U.S.C. § 134(a) from a rejection of claims 1-4, 6-15, 18, 20-24, and 26-31 of application 09/947,094. We have jurisdiction under 35 U.S.C. § 6(b).

References Relied on by the Examiner

Rand	U.S. Patent 6,521,879 B1	Feb. 18, 2003
Hochstein	U.S. Patent 5,783,909	Jul. 21, 1998
Blalock	U.S. Patent 6,344,641 B1	Feb. 5, 2002

The Rejection on Appeal

The Examiner rejected claims 1-4, 8, 11-15, and 31 under 35 U.S.C. § 103 as unpatentable over Rand.

The Examiner rejected claims 6, 9, 10, 18, 20-24, 26-28, and 30 under 35 U.S.C. § 103 as unpatentable over Rand and Blalock.

The Examiner rejected claim 7 under 35 U.S.C. § 103 as unpatentable over Rand and Hochstein.

The Examiner rejected claim 29 under 35 U.S.C. § 103 as unpatentable over Rand, Blalock, and Hochstein.

The Examiner rejected claims 1-4, 7, 8, 11-15, and 31 under 35 U.S.C. § 103 as unpatentable over Hochstein.

The Examiner rejected claims 6, 9, 10, 18, 20-24, and 26-30 under 35 U.S.C. § 103 as unpatentable over Hochstein and Blalock.

B. Issue

Has the Applicant shown error in the rejection of claims 1-4, 6-15, 18, 20-24, and 26-31?

C. Summary of the Decision

The Applicant has not shown error in the rejection of claims 1-4, 6-15, 18, 20-24, and 26-30, but has shown error in the rejection of claim 31.

D Findings of Fact (FF. ¶ Nos.)

1. The invention is directed to an apparatus which senses light emitting diode luminance and a method for sensing light emitting diode luminance. (Specification 3-5).

2. It has been known in the art to use an LED back lighting array as a source of illumination for liquid crystal displays. (Specification 2:22-24).

3. There are difficulties with conventional ways of providing an LED array as the source of illumination for liquid crystal displays, relating to the sensing of LED illumination to provide a basis for adjustment of the illumination intensity. (Specification 3:1-7).

4. According to the Applicants, among such difficulties is that a sensor for sensing LED illumination, if placed in the path of illumination toward the liquid crystal display, would create a dark spot on the display, and also that a sensing device mounted on a side panel lateral to the direct path of illumination would be prone to false readings due to ambient light. (Specification 3:8-13).

5. The independent claims are claims 1, 11, 14, 18, 26, and 31.

6. Claim 1 reads as follows:

1. A light emitting diode (LED) luminance sensing system comprising:

a string of LEDs having a sampling LED, said string configured to receive a current flow and, upon receipt thereof, to emit light;

a light sensor configured to detect light emitted from said sampling LED;

an optical path between said sampling LED and said light sensor, said optical path configured to prevent intrusion of light not emitted from said sampling LED; and

a control mechanism in communication with at least said light sensor, said control mechanism configured to adjust the current flow in accordance with the light detected by said light sensor,

wherein a direction of light emission from said sampling LED is altered from a direction of light emission from the remaining LEDs of said string.

7. Like claim 1, claims 11, 14, 18, and 26 each recites a limitation requiring the direction of light emission from a sampling LED to be altered from the direction of light emission from the rest of the LEDs in the same string of LEDs (claims 11, 14 and 18) or the rest of the LEDs in the same array of LEDs (claim 26).

8. Claim 31 does not recite any limitation concerning the direction of light emission of any LED.

9. Claim 31 reads as follows:

31. A light emitting diode (LED) luminance sensing system comprising:

an LED mount structure having a first side and a second side;

a string of LEDs mounted on the LED mount structure first side, the string of LEDs including a sampling LED and configured to receive a current flow and, upon receipt thereof, to emit light;

a light sensor disposed adjacent the mount structure second side, the light sensor configured to detect light emitted from the sampling LED;

an optical path between the sampling LED and the light sensor, the optical path configured to prevent intrusion of light not emitted from the sampling LED; and

a control mechanism in communication with the light sensor and configured to adjust the current flow to the string of LEDs in accordance with the light detected by said light sensor.

10. Rand discloses an array of LEDs used as backlighting for a liquid crystal display, which array comprises a plurality of strings of LEDs. (Rand Abstract).

11. Rand discloses a sampling LED in each string of LEDs and a sensor for detecting the light emitted from the sampling LEDs, which sensor is disposed in a side panel. (Rand col.2:66 to col.3:2, Fig. 1).

12. None of Rand's sampling LEDs is disclosed as emitting light in a direction altered or different from the direction of light emission from the rest of the LEDs.

13. Hochstein discloses an array of LEDs mounted on a circuit board, and states that the LEDs are electrically connected in series and/or parallel. (Hochstein col.2:64 to col.3:3).

14. Hochstein discloses a light sensor coupled to one or more of the LEDs in the array to measure the actual light output of the LED array. (Hochstein col.3:31-40).

15. Hochstein's light sensor 22 is positioned directly in front of an LED opposite the LED's mounting board. (Hochstein Fig. 1).

16. None of Hochstein's LEDs whose light output is measured is disclosed as emitting light in a direction altered or different from the direction of light emission from the rest of the LEDs.

17. The level of ordinary skill in the art is reflected by the content of Rand, Hochstein, and Blalock.

E. Principles of Law

Obviousness is a legal determination made on the basis of underlying factual inquiries including (1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the art; and (4) any objective evidence of unobviousness, *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). One with ordinary skill in the art is presumed to have skills apart from what the prior art references explicitly say. *See In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985). A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton. *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007). With respect to determining obviousness, the Supreme Court stated: "Rigid preventive rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it." *Id.*

F. Analysis

With respect to all claims except claim 31, the Applicants present the same argument, i.e., that while all independent claims require a sampling LED to emit light in a direction that is altered from a direction at which light is emitted from the rest of the LEDs in a string of LEDs (claims 1, 11, 14 and 18) or an array of LEDs (claim 26), the prior art does not disclose or suggest the same. With regard to all claims on appeal except for claim 31,

the Applicants advance only that single argument. The argument is unpersuasive of error.

It is not an issue in dispute that both Rand and Hochstein disclose a string or array of LEDs including a sampling LED the light intensity of which is sensed. It is also not an issue in dispute that the sampling LED in either Rand or Hochstein is not configured to emit light in a direction altered from the direction of light emitted from the rest of the LEDs in the LED string or array. With regard to the claim feature in all claims except claim 31 that the sampling LED emits light in a direction altered from that at which light is emitted from the rest of the LEDs, the Examiner cited *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950), as authority to the effect that a mere change in location of a device component is well within the level of ordinary skill in the art.

The authority cited by the Examiner, *In re Japikse, supra*, does not set forth a general rule that a mere change in location of a component is always within the level of ordinary skill in the art. In that case, the Board determined that although the claimed location required by claim 3 for a particular component is not met by the prior art, the different location did not modify the overall operation of the claimed device and therefore there was “no invention.” On review, the Court of Customs and Patent Appeals simply stated that it found no error in the holding. The key lies in the question to what extent the changed location affects system operation. The Applicants dispute that the respective disclosure of Rand and Hochstein differs from the subject matter of independent claims other than claim 31 in merely the “position” of a sampling LED. The Applicants note that the

direction of light emission of the sampling LED is changed, which changes the function and operation of the invention. That is correct.

The Examiner erroneously determined that Applicants' specification does not disclose any advantage to be achieved by the changed direction of emission from the sampling LED. The Applicants' specification does disclose an advantage arising from changing the direction of light emission from the sampling LED. The specification discusses two problems associated with prior art devices, evidently not shared by the claimed invention: (1) the sensor blocking the light from the sampling LED to the target of illumination, which creates a dark spot, and (2) the sensor and the sampling LED being placed within a side panel known to be associated with false readings caused by ambient light. (Specification 3:8-13).

However, the Examiner proceeded to make pertinent findings with respect to both Rand and Hochstein. It was determined that one of ordinary skill in the art would have expected the Rand system to perform equally well whether or not the direction of light emitted from a sampling LED is altered from that of light emitted from the other LEDs. (Answer 4:19-21). It was also determined that one of ordinary skill in the art would have expected the Hochstein system to perform equally well whether or not the direction of light emitted from the sampling LED is altered from that of light emitted from the other LEDs. (Answer 9:15-19). Given the breadth of the Applicants' claims, the Applicants have not shown error in the Examiner's determination that an altered direction of light emission from a sampling LED as compared to that of the light emission from other LEDs has no substantively meaningful effect on the operation of the invention.

None of the claims specifies the degree of alteration of the direction of light emission from the sampling LED relative to that of the other LEDs. Although the disclosed preferred embodiments implement a changed direction of 180 degrees, it is improper to read into the claims extraneous limitations from the specification which are not otherwise in the claims. A changed direction of as little as a half of a degree satisfies the direction alteration aspect of the claims on appeal. In that connection, the Examiner is correct that one with ordinary skill in the art would expect no difference whatsoever between operation of the systems in each of Rand and Hochstein and that according to the claimed invention. In other words, an altered direction of light emission from the sampling LED, within the broad scope as specified in the claims, is without substantive significance.

In *KSR International Co.*, 127 S. Ct. at 1742, 82 USPQ2d at 1397, within the context of determining obviousness, the Supreme Court stated: “Rigid preventive rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it.” Small changes and variations which serve no meaningful purpose and which have no functional significance are within the level of ordinary skill in the art to make and require no corresponding teaching from the prior art. The specification reveals no advantage to be gained or any solution to be achieved by varying the direction of light emission from a sampling LED by a small angle such as an angle less than one degree. An LED may exhibit that variance relative to the other LEDs simply as a result of imprecise mounting.

As a matter of common sense one with ordinary skill in the art would have recognized that the direction of light emission of the sampling LED

may be altered slightly relative to that of the other LEDs without causing a functional impact. A slight alteration in the emission angle from one LED has no significance. No teaching from the prior art is required for one with ordinary skill to make inane changes in a known structure. A person of ordinary skill in the art is a person of ordinary creativity, and is not an automaton. *KSR International Co.*, 127 S. Ct. at 1742, 82 USPQ2d at 1397. One with ordinary skill is presumed to possess some skills apart from what prior art references disclose. *See In re Sovish*, 769 F.2d at 743, 226 USPQ at 774.

Claim 31 is different from all the rest of the claims on appeal. According to claim 31, a string of LEDs including a sampling LED are mounted on one side of a supporting structure and a sensor detecting light from the sampling LED is disposed on a second side of the structure. The Examiner characterized the recited configuration as involving a mere change in component position without any functional significance. That is incorrect.

It is manifestly evident from the specification that the opposing disposition of the sampling LED and the corresponding light sensor provides the advantage of not having the sensor obstruct light intended for the target of illumination and obviates the need to place the sensor in a lateral side panel. The opposing location of the sampling LED and the light sensor is not without functional and operational significance. There is no support for the Examiner's finding that one with ordinary skill in the art would have expected the Rand and the Hochstein systems to perform equally well as the Applicants' claimed invention. The Examiner's reliance on *In re Japikse*,

supra, is misplaced. No proper rationale has been articulated to support the conclusion of obviousness. The rejection of claim 31 is therefore in error.

CONCLUSION

The rejection of claims 1-4, 8, and 11-15 under 35 U.S.C. § 103 as unpatentable over Rand is **affirmed**.

The rejection of claim 31 under 35 U.S.C. § 103 as unpatentable over Rand is **reversed**.

The rejection of claims 6, 9, 10, 18, 20-24, 26-28, and 30 under 35 U.S.C. § 103 as unpatentable over Rand and Blalock is **affirmed**.

The rejection of claim 7 under 35 U.S.C. § 103 as unpatentable over Rand and Hochstein is **affirmed**.

The rejection of claim 29 under 35 U.S.C. § 103 as unpatentable over Rand, Blalock, and Hochstein is **affirmed**.

The rejection of claims 1-4, 7, 8, and 11-15 under 35 U.S.C. § 103 as unpatentable over Hochstein is **affirmed**.

The rejection of claim 31 under 35 U.S.C. § 103 as unpatentable over Hochstein is **reversed**.

The rejection of claims 6, 9, 10, 18, 20-24, and 26-30 under 35 U.S.C. § 103 as unpatentable over Hochstein and Blalock is **affirmed**.

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

AFFIRMED-IN-PART

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