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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TIM CORNEEL WILHELMUS SCHENK,
LORENZO FERI, and HONGMING YANG

Appeal 2019-003010
Application 13/676,379
Technology Center 3600

Before JOSEPH L. DIXON, MAHSHID D. SAADAT, and
KRISTEN L. DROESCH, *Administrative Patent Judges*.

DROESCH, *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 rejecting claims 1, 8, 9, and 11–18. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42 (2017). Appellant indicates the real party-in-interest is Philips Lighting Holding B.V. Appeal Br. 3.

BACKGROUND

The disclosed invention relates to a method and system for controlling the light output of a set of light sources, where the light output is modulated by a modulation signal comprising individual information. *See Spec. 1:2–7.*

CLAIMED SUBJECT MATTER

Claim 1, which is representative of the subject matter of the appeal and is reproduced from the Claims Appendix of the Appeal Brief, reads as follows:

1. A method for controlling light emitted by a set of light sources comprising:
 - at least one light source, wherein
 - said emitted light is modulated with a modulation signal, said modulation signal carrying information related to the set of light sources,
 - the method for controlling the light includes recurrently:
 - remotely detecting by a detector the light emitted by said set of light sources;
 - extracting, from the modulation signal, the information carried by the modulation signal;
 - determining, based on the extracted information, at least one performance parameter of a light path extending between the set of light sources and a position where the remote detection takes place, by determining at least one of signal-to-noise ratio of the light path and signal amplitude of the modulation signal;
 - using said at least one performance parameter for determining at least one quality measure by a controller; and
 - adjusting the modulation signal on basis of said at least one quality measure by adjusting at least one of modulation depth, frequency, and intensity of the modulation signal, wherein the adjusting the modulation signal considers a dimming level of the set of light sources and maintains the dimming level.

REFERENCE

The prior art relied upon by the Examiner is:

Name	Reference	Date
Linnartz	WO 2008/001262 A1	Jan. 3, 2008

REJECTION ON APPEAL

Claims 1, 8, 9, and 11–18 stand rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Applicant Admitted Prior Art (AAPA) and Linnartz. Final Act. 2–16.

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments in the Brief and the Reply Brief, as well as the Examiner’s Answer. We are persuaded by Appellant’s arguments. We highlight and address specific findings and arguments below for emphasis.

The Examiner finds that AAPA teaches “adjusting the modulation signal on basis of said at least one quality measure” as recited in claim 1, based on the AAPA disclosure of adjusting power signals. *See* Final Act. 4; Ans. 4. The Examiner finds that AAPA does not explicitly disclose “wherein the adjusting the modulation signal considers a dimming level of the set of light sources . . . ,” but relies on Linnartz for teaching this limitation. *See id.* at 4–5. The Examiner determines that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of AAPA with the disclosure of Linnartz regarding modulating light emission of a lighting device to arrive at Applicant’s claimed invention in order to create an adaptive lighting source and to control the light emission of single LEDs by applying only a few sensors. *See id.* at 5–6 (citing Linnartz 2:5–17, 3:5–7, 16:19).

Appellant argues that AAPA does not disclose that any modulation signal is adjusted on the basis of a quality measure. *See* Appeal Br. 8. According to Appellant, “the Office Action purports that the adjustment of ‘power signals’ disclosed in the background of the present application constitutes the claimed adjustment of the modulation signal.” *Id.* (citing Final Act. 4). Appellant further argues that Linnartz fails to cure the deficiencies of AAPA. *See id.* at 9.

Appellant asserts that the broadest reasonable interpretation in light of the Specification for “adjusting the modulation signal” as recited in claim 1 does not mean adjustment of the power signal. *See* Appeal Br. 8. Appellant asserts that AAPA distinguishes between a modulation signal and a power signal as follows: “the modulation signal carries the information content, while the power signal provides the basic power that determines the light intensity of the light source.” *See id.* (quoting Spec. 1:22–24); Reply Br. 4. Appellant also points out that the Specification discloses: “by using the ***modulation signal as a moderator rather than just adjusting the power signal as in prior art***, it is easier to modify the reliability without adversely affecting light properties.” Appeal Br. 8 (quoting Spec. 3:23–25). Appellant argues that the interpretation set forth in the Office Action is completely opposite to the use of the claim terms in the Specification. *See id.*

In response, the Examiner provides the following additional explanation:

Power drives light sources. A power signal is a light source drive signal. There is only one signal driving any given light source in this application. That is a power signal.

[] Generally speaking, light emitted by a light source changes in intensity as its driving power (power signal) changes in level. A power signal ‘includes’ or ‘carries’ information as

power level changes. (Changes are ‘signals’, change patterns are symbols, symbols are information.) Light emitted by a light source is modulated (changed) in accordance with changes in power levels applied to the light source. Changes in emitted light intensity (modulated light emission) project the information the power signal carries as power level changes.

[] The power signal *is* the light modulation signal.

Ans. 3–4.

In the Reply Brief, Appellant points out that AAPA discloses that drive signals include two components, namely a modulation signal and a power signal. *See* Reply Br. 3 (quoting Spec. 1:21–24). Appellant further points out that the Specification discloses the modulation signal is added at the beginning of each power signal pulse and part of the power pulse signal is removed. *See id.* at 4 (quoting Spec. 6:34–7:11). Appellant argues the Examiner’s interpretation that modification of the power signal constitutes the claimed modification of the modulation signal cannot be reasonable because the Specification is diametrically opposed to the Examiner’s interpretation. *See id.* In support of its argument, Appellant quotes portions of the Specification disclosing: (1) adjusting properties of the modulation signal based on quality, such as reliability, of the light output measurements performed at the detector; (2) by adjusting the modulation signal instead of adjusting the power signal, as in the prior art, it is easier to modify the reliability of the light output without adversely affecting light properties; and (3) adjusting the power signal will sometimes render no or little effect when trying to improve the reliability of detecting the information carried by the modulation signal. *See id.* at 4–5 (quoting Spec. 2:26–29, 3:23–4:2).

We agree with Appellant’s arguments. “During patent examination the pending claims must be interpreted as broadly as their terms reasonably

allow.” *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989). The broadest reasonable interpretation of the claims, however, must be consistent with the Specification, and that claim language should be read in light of the Specification as it would be interpreted by one of ordinary skill in the art. *See e.g., In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999). In view of Appellant’s Specification disclosing that each light source is driven by a drive signal comprising a power signal and a modulation signal which modulates the power signal (*see* Spec. 2:21–22, 6:30–33), we determine that the broadest reasonable interpretation of adjusting a modulation signal does not include adjusting a power signal. As Appellant points out, the Specification discloses that a power signal is distinct from a modulation signal, and the two signals are components of a drive signal. One with ordinary skill in the art, when reading the claims in light of Appellant’s Specification would not interpret a modulation signal as the same as, or including, a power signal. Accordingly, we agree with Appellant that the Examiner erred in finding that the AAPA disclosure of adjusting power signals on the basis of overall light output does not teach or suggest “adjusting the modulation signal on basis of said at least one quality measure,” as recited in claim 1, and similarly recited in independent claims 11 and 13. As applied by the Examiner, the teachings of Linnartz do not remedy the deficiencies of AAPA. *See* Final Act. 2–6; Ans. 3–4.

For the foregoing reasons, we are constrained to reverse the rejection of independent claims 1, 11, and 13, and claims 8, 9, 12, and 14–18 dependent therefrom, as unpatentable over AAPA and Linnartz.

CONCLUSION

We reverse the rejection of claims 1, 8, 9, and 11–18 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over AAPA and Linnartz.

In summary:

Claims Rejected	35 U.S.C. §	References/ Basis	Affirmed	Reversed
1, 8, 9, 11–18	103(a)	AAPA, Linnartz		1, 8, 9, 11–18

REVERSED