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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte VITALY MIKHAILOV and PAUL S. WESTBROOK

Appeal 2015-004860
Application 13/177,116
Technology Center 2800

Before MARK NAGUMO, MICHAEL P. COLAIANNI, and JENNIFER R. GUPTA, *Administrative Patent Judges*.

GUPTA, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants[1] appeal under 35 U.S.C. § 134(a) from the Examiner's decision[2] finally rejecting claims 1, 5–16, 27, 29–32, and 34–40. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The subject matter on appeal relates to a technique for calibrating an optical polarimeter that does not rely on the use of a polarization "standard" and can be used to calibrate a polarimeter during installation and/or operation in the field. Spec. ¶ 2.

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[1] Appellants identify the real party in interest as OFS Fitel, Inc. Appeal Brief filed October 16, 2014 ("Br."), 1.
[2] Final Office Action mailed June 19, 2014 ("Final Act.").

Claim 1, reproduced below, is illustrative of the claims on appeal.

> 1. A method of calibrating a polarimeter by creating a calibration matrix C from a plurality of N detector output signals (N≥4) associated with a plurality of N detectors, the calibration matrix C used to generate the Stokes parameters associated with an optical signal propagating along a signal path, the method comprising the steps of:
>
> a) sequentially launching at least four optical signals into the polarimeter, each launched optical signal having a different state of polarization (SOP);
>
> b) for each sequentially launched signal, measuring a plurality of detector signals including at least the detector output signals at each detector of the plurality of N detectors;
>
> c) creating an initial calibration matrix of a plurality of elements selected from the group consisting of: the plurality of detector signals measured in step b), a plurality of values defining a calibration matrix for a tetrahedral polarimeter, and a plurality of random values; and
>
> d) adjusting values of selected elements of the initial calibration matrix to satisfy at least one predefined constraint to determine the calibration matrix C.

App. Br. (Claims Appendix) 8.

DISCUSSION

The Examiner rejects claims 1 and 5 under 35 U.S.C. § 112, second paragraph as being indefinite. Final Act. 2–3.

The Examiner rejects claims 1, 2, 27, 32, and 40 under 35 U.S.C. § 102(b) as anticipated by Heffner (US 5,296,913, issued Mar. 22, 1994) (Br. 3–6)[3], and rejects the remaining claims on appeal under 35 U.S.C.

[3] Canceled claim 4 was mistakenly included in the statement of the rejection. *See* Final Act. 3.

§ 103(a) as unpatentable over Heffner alone or in combination with additional prior art references (*id.* at 6–16).

Appellants present arguments specifically directed to independent claim 1. Br. 4–6. No separate arguments for patentability are specifically directed to the other claims on appeal (*id.* at 6). Therefore, we focus on claim 1 in deciding this appeal.

Appellants do not contest the merits of the § 112, second paragraph rejection in the record of this appeal, but instead state that they intend "to address these issues subsequent to the ruling on this Appeal regarding the applicability of the cited Heffner reference." Br. 4, n.1. Because the Board does not hold rejections in abeyance, we treat Appellants failure to provide substantive arguments against the § 112, second paragraph rejection as a waiver thereof. *See* Manual of Patent Examining Procedure (MPEP) § 1205.02 (9th ed., rev. July 2015) ("If a ground of rejection stated by the examiner is not addressed in the appellant's brief, that ground of rejection will be summarily sustained by the Board."); *see also In re Berger*, 279 F.3d 975, 984 (Fed. Cir. 2002) (affirming the Board's decision to sustain an uncontested rejection of claims under 35 U.S.C. 112, second paragraph and finding the appellant had waived his right to contest the indefiniteness rejection by not presenting arguments as to error in the rejection on appeal to the Board). Thus, we summarily sustain the rejection.

In the § 102 rejection of claim 1, the Examiner finds Heffner discloses all the elements of claim 1 including "creating an initial calibration matrix of a plurality of elements selected from the group consisting of: the plurality of detector signals measured in step b) . . . ," as recited in step c) of claim 1. *See* Final Act. 3–5, citing Heffner 3:65–4:8, 4:3–29, 5:18–28.

Appellants' sole argument for reversal is that the Examiner erred in finding that Heffner discloses "creating an initial calibration matrix," as required by step (c) of claim 1. In particular, Appellants contend that Heffner teaches changing or recalibrating the initial calibration matrix [A] rather than creating an initial calibration matrix. Br. 5–6.

Appellants' argument is not persuasive of reversible error in the Examiner's rejection. According to the language of claim 1, the initial calibration matrix created in step (c) can be based on "the plurality of detector signals measured in step b)," which in turn includes "at least the detector output signals at each detector of the plurality of N detectors." (App. Br. 8.) All polarimeters not only have to be initially calibrated, but also need to be re-calibrated over time to ensure they are making accurate measurements. Heffner 1:11–15. Heffner's polarimeter has a plurality of detectors (e.g., four detectors). Heffner 3:59–62, 4:4–6. As the Examiner finds, Heffner teaches that typically, the values of the instrument matrix [A] (calibration matrix) are determined during the original (initial) calibration of the polarimeter, before the polarimeter is recalibrated (Heffner 3–8). Final Act. 4; *see also* Krause et al. (US 2003/0193667 A1, published Oct. 16, 2003) (hereinafter "Krause") ¶ 20 (teaching it was known in the art that for calibration of a polarimeter, known states of polarization and optical powers are usually fed into the polarimeter, and the associated detector signals are measured, and from the known states of the polarization and the associated detector signals, a transmission function (calibration matrix) is calculated.). Thus, the Examiner's finding that Heffner teaches or suggests creating an initial calibration matrix using a plurality of detector signals measured during the original calibration, which is performed prior to recalibration, is

supported by a preponderance of the evidence. Appellants have not explained what limitation recited in claim 1 excludes the determination of the elements of matrix [A] during the "original calibration" of the polarimeter.

Moreover, the scope of the phrase "creating an initial calibration matrix" as recited in step c) of claim 1, when read in light of Appellants' Specification, encompasses a calibration matrix created during a re-calibration method as long as the calibration matrix is derived from measured detector output signals. *See* Spec. ¶ 12 (teaching that "[i]n one exemplary embodiment, an initial matrix is derived from the measured detector output values."); *see also id.* at ¶¶ 13–15 (teaching the measured output values are subsequently adjusted to satisfy predefined constraints). Heffner teaches a method of re-calibrating a polarimeter that begins with sequentially launching input electromagnetic waves having different states of polarization (SOP) into a polarimeter (Heffner Abstract) and then measuring, using a plurality of detectors, raw values that indicate the state and degree of polarization of each wave (Heffner 3:1–6, 57–64, Fig. 1A). A calibration factor [C] is then calculated using those raw values (Heffner 3:17–21). The calibration factor [C] is used to re-calibrate the polarimeter by creating an instrument matrix ([A] * [C]) to replace the original instrument matrix [A] (Heffner 5:25–28). Thus, even if Heffner does not perform the "original calibration," as Appellants contend (Br. 6), a preponderance of the evidence supports the Examiner's finding that the instrument matrix created in Heffner's re-calibration method using a plurality of measured detector signals falls within the scope of "creating an initial calibration matrix," as recited in step c) of claim 1 (Ans. 2–4).

Although Heffner does not use the term "initial" instrument matrix, as the Examiner points out, Heffner need not use the exact same language of the claims for an anticipation rejection (Ans. 2). *See In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) ("the reference need not satisfy an *ipsissimis verbis* test"); *Akzo N.V. v. U.S. Int'l Trade Comm'n*, 808 F.2d 1471, 1479 n.11 (Fed. Cir. 1986) ("An '*ipsissimis verbis*' test requires the same terminology in the prior art in order to find anticipation.").

DECISION

For the above reasons, the Examiner's rejections of claims 1, 5–16, 27, 29–32, and 34–40 are 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).

AFFIRMED