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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREAS SCHMACK and UWE APEL¹

Appeal 2018-004951
Application 14/131,161
Technology Center 2400

Before JASON V. MORGAN, JON M. JURGOVAN, and
JOHN R. KENNY, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek review under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 15–38², constituting the only claims on appeal before us. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.³

¹ The Appeal Brief indicates the real party in interest is Robert Bosch GmbH. App. Br. 2.

² Claims 1–14 were indicated as canceled in an Amendment dated March 6, 2017.

³ Our Decision refers to the Specification (“Spec.”) filed January 6, 2014, the Final Office Action (“Final Act.”) mailed August 10, 2017, the Appeal Brief (“App. Br.”) filed December 4, 2017, the Examiner’s Answer (“Ans.”) mailed March 22, 2018, and the Reply Brief (“Reply Br.”) filed April 11, 2018.

CLAIMED INVENTION

The claimed invention tests automotive cameras for image deviations. Spec. 2–3. Automotive cameras have hyperfocal lengths of several meters, which makes their testing difficult in a production environment. *Id.* at 2. The claimed invention aims to solve this problem by interposing a lens unit between the camera and a target pattern unit. Spec. Fig. 1 [5], [10], [15]. The target pattern unit has a three-dimensional surface texture to assist in testing the camera. Spec. Fig. 1 [6].

Claim 15, shown below, is illustrative of the claimed invention:

15. A system for determining an imaging deviation of a camera, comprising:

the camera having a camera lens focused on a first distance;

a target pattern unit situated at a second distance from the camera in a field of view of the camera, *wherein the target pattern unit has a three-dimensional surface texture including calibration markings having a known spatial geometric system,* and wherein the calibration markings are provided at various object distances for a calibration;

a lens unit situated at a third distance from the camera and between the target pattern unit and the camera lens, the lens unit being configured so that the three-dimensional surface texture is able to be imaged by the camera; and

a control unit connected to the camera and configured so that the imaging deviation of the camera is determinable by evaluating an image taken of the calibration markings of the three-dimensional surface texture to check for a correct focus position of the camera and for a parallel alignment of an image sensor with the image plane.

App. Br. (Claims App. 1) (emphasis added).

REJECTIONS

Claims 15–17, 24–26, and 35 stand rejected under 35 U.S.C. § 103(a) based on Riley (US 5,642,441, iss. June 24, 1997) and Mack (US 2011/0026014 A1, publ. Feb. 3, 2011). Final Act. 5–7.

Claims 19–21, 28, and 32 stand rejected under 35 U.S.C. § 103(a) based on Riley, Mack, and Suzuki (US 8,174,585 B2, iss. May 8, 2012). Final Act. 7–8.

Claims 29–31, 33, and 34 stand rejected under 35 U.S.C. § 103(a) based on Riley, Mack, and Gupta (US 2006/0098096 A1, publ. May 11, 2006). Final Act. 8–11.

Claims 36 and 37 stand rejected under 35 U.S.C. § 103(a) based on Riley, Mack, and Craven (US 5,495,429, iss. February 27, 1996). Final Act. 11–12.

ANALYSIS

Section 103 forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (“*KSR*”). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Independent Claims 15, 24, and 35

Claim 15 recites “wherein the target pattern unit has a *three-dimensional surface texture* including calibration markings having a known spatial geometric system.” App. Br. (Claims App. 1) (emphasis added). Claims 24 and 35 recite similar limitations. App. Br. (Claims App. 2, 4).

The Examiner rejected the independent claims under § 103(a) over the combination of Riley and Mack. Final Act. 5. The Examiner relied on Riley as disclosing most of the claimed elements, but found that “Riley does not explicitly disclose calibration markings of the three-dimensional surface texture having a known geometric system.” *Id.* Consequently, the Examiner relied on Mack to disclose the claimed target pattern unit having a three-dimensional surface texture. Final Act. 6 (citing Mack ¶¶ 12, 38, 49, Fig. 1 [104]).

Appellants argue the claimed target pattern unit with three-dimensional surface texture has not been shown to be patentably indistinct from Mack’s two-dimensional planar target surface 104. App. Br. 9–12 (citing Mack ¶¶ 20–23, 42). On this record, we agree with Appellants’ argument.

At the outset, we note that claim terms are given their broadest reasonable interpretation consistent with the specification in which they appear. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004). Under this standard, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Mack consistently refers to its target 104 as “planar.” *See, e.g.*, Mack ¶¶ 33, 35–38. “Planar” means either “of, relating to, or lying in a plane” or being “two-dimensional in quality.” Merriam-Webster online dictionary (<https://www.merriam-webster.com/dictionary/planar>) (last visited Jan. 30, 2019). In other words, Mack uses the term “planar” to mean its target lies in a plane, i.e., is two-dimensional. This contrasts with the Specification’s Figure 1, reproduced below.

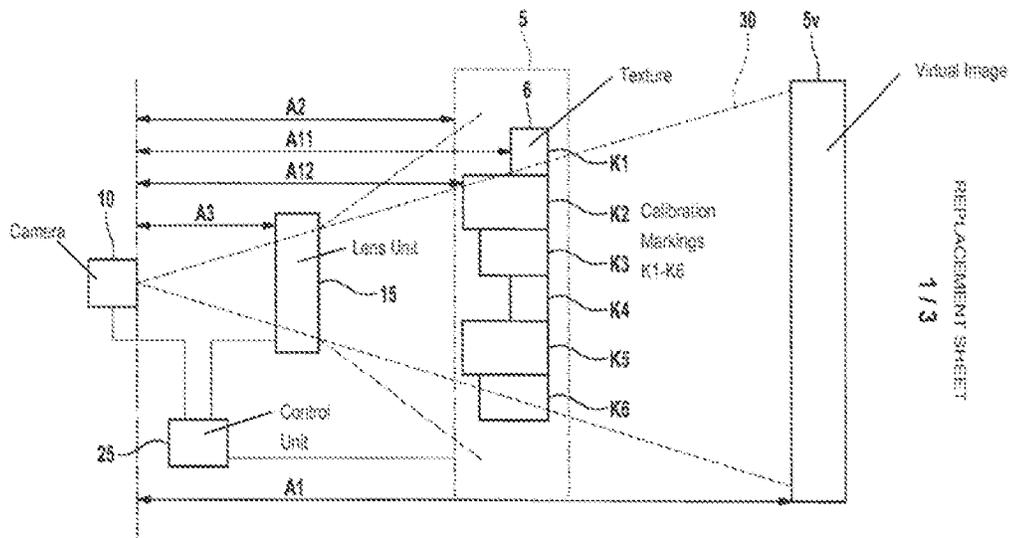


Fig. 1

Figure 1 of the Specification shows a target pattern unit 5 with three-dimensional surface texture 6, camera 10, lens unit 15, and control unit 25.

As shown in Figure 1 of the Specification, the claimed invention’s target pattern unit 5 has a three-dimensional surface texture 6 with calibration markings K1–K6 provided at various object distances A11, A12 from the camera 10. Spec. 7.

Appellants note that Mack makes reference to the three-dimensional X-Y-Z position of fiducial markers 110 on the planar target 104. App.

Br. 11. The X-Y-Z position that Mack refers to is relative to a coordinate system origin 112. Mack ¶ 38, Fig. 1 [112]. Thus, Mack’s reference to the X-Y-Z position does not mean that Mack’s target 104 has a three-dimensional surface texture.

The Examiner mentions that Mack’s planar target 104 can be attached and rotated in an angular mount 130. Final Act. 4 (citing Mack ¶¶ 20–21); *see also* ¶ 42, Fig. 3. Although this would cause the planar target 104 and its fiducial markers 110 to move in three dimensions, the Examiner has not shown that this or any other teaching of Mack would have led one of ordinary skill to modify Mack’s planar target 104 into one that has a *three-dimensional surface texture* as claimed.

To sustain an obviousness rejection under § 103(a), “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). As we find no explicit analysis in the record to explain why one of ordinary skill in the art would have modified Mack’s planar target into one with a three-dimensional surface texture as claimed, we do not sustain the § 103(a) rejection.

Remaining Claims

The remaining claims depend from the independent claims discussed above and necessarily incorporate all of their limitations. Accordingly, for the same reasons, we do not sustain the § 103(a) rejections of the dependent claims.

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DECISION

We reverse the rejections of claims 15–38 under 35 U.S.C. § 103(a).

REVERSED