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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/259,512	09/08/2016	Adeel Abbas	GPRO.011A-T1	5531
142583	7590	10/23/2019	EXAMINER	
GAZDZINSKI & ASSOCIATES, PC 16644 WEST BERNARDO DRIVE, SUITE 201 SAN DIEGO, CA 92127			HALLENBECK-HUBER, JEREMIAH CHARLES	
			ART UNIT	PAPER NUMBER
			2423	
			MAIL DATE	DELIVERY MODE
			10/23/2019	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ADEEL ABBAS, BALINEEDU CHOWDARY
ADSUMILLI, and DAVID NEWMAN

Appeal 2018-008588
Application 15/259,512
Technology Center 2400

Before JASON V. MORGAN, MICHAEL J. STRAUSS, and
DANIEL N. FISHMAN, *Administrative Patent Judges*.

STRAUSS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE¹

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's decision to reject claims 9–14³, 24–32, and 34–42. Final Act. 1. Claims 1–8, 15–23, and 33 are canceled. Appeal Br. 10–13 (Claims Appendix). We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

CLAIMED SUBJECT MATTER

The claims are directed to compressing video content. Spec., Title. Claim 9, reproduced below with a disputed limitation emphasized in *italics*, is illustrative of the claimed subject matter:

9. A system configured to use an augmented image to improve encoding, the system comprising:
 - a network interface;
 - one or more processor apparatus; and
 - a storage apparatus in data communication with the one or more processor apparatus and comprising machine readable instructions, the machine readable instructions being configured to, when executed by the one or more processor apparatus, cause the system to:

¹ We refer to the Specification, filed September 8, 2016 (“Spec.”); Final Office Action, mailed September 5, 2017 (“Final Act.”); Appeal Brief, filed April 5, 2018 (“Appeal Br.”); Examiner’s Answer, mailed July 10, 2018 (“Ans.”); and Reply Brief, filed August 14, 2018 (“Reply Br.”).

² We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as GoPro, Inc. Appeal Br. 1.

³ The Examiner omits claim 14 from the listing of claims rejected on page 1 of the Final Action but indicates the claim is rejected in the narrative portion of the Action at pages 13–14.

partition an image, the partitioned image including a first image facet and a second image facet;
encode the first image facet;
transform the encoded first image facet via application of both of a rotation operation and a translation operation in order to produce a transformed encoded first image facet;
combine at least the transformed encoded first image facet with the second image facet to form the augmented image;
encode the second image facet based on the augmented image; and
transmit at least the encoded first image facet and the encoded second image facet to a display device for display.

REFERENCES⁴

The prior art relied upon by the Examiner is:

Name	Reference	Date
Imura et al.	US 9,277,122 B1	Mar. 01, 2016
Krishnan	US 2016/0012855 A1	Jan. 14, 2016
Budagavi et al.	US 2016/0142697 A1	May 19, 2016

REJECTIONS

Claims 9–13, 24–32, and 34–42 stand rejected under 35 U.S.C. § 103 as being unpatentable over Budagavi and Krishnan. Final Act. 5–13.

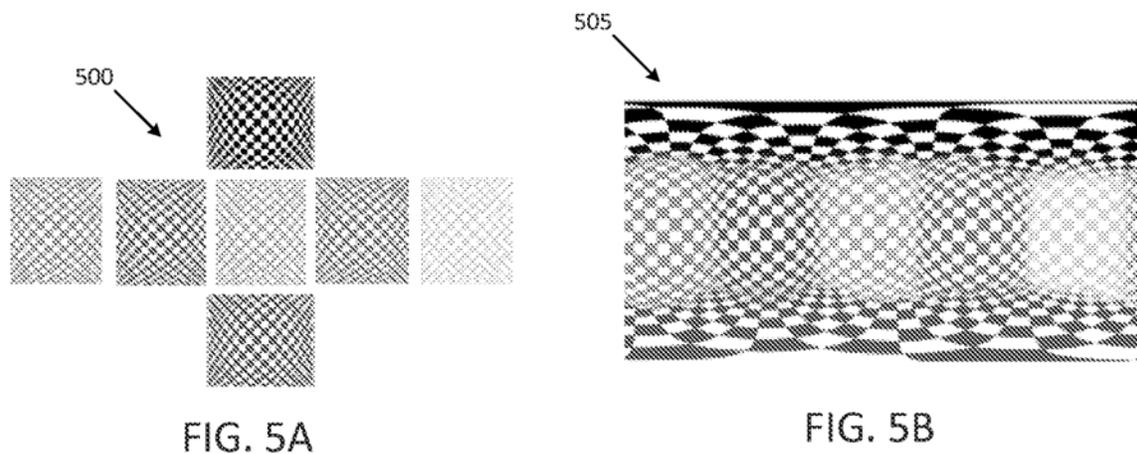
Claim 14 stands rejected under 35 U.S.C. § 103 as being unpatentable over Budagavi, Krishnan, and Imura. Final Act. 13–14.

⁴ All citations herein to these references are by reference to the first named inventor only.

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments the Examiner has erred. We agree with Appellant’s conclusions as to the rejections of the claims.

The Examiner finds Budagavi teaches all of the limitations of claim 9 except Budagavi “does not explicitly disclose performing separate encoding of a first image facet prior to transformation” for which the Examiner applies Krishnan. Final Act. 5–7. Concerning the disputed limitation requiring the first image facet be transformed via application of both rotation and translation operations, the Examiner finds Budagavi’s equirectangular mapping inherently includes translation and rotation operations. *Id.* at 5–6. The Examiner supports the inherency finding, directing attention to Budagavi’s Figures 5A and 5B, which are reproduced below.



Budagavi’s Figures 5A and 5B illustrate an example of stitching and equirectangular mapping. Budagavi ¶ 14. Figure 5A illustrates seven images from seven cameras, five laid out horizontally in the middle, one on top, and one on bottom. *Id.* ¶ 64. Figure 5B illustrates the corresponding stitched image, where the five middle images form the middle of the stitched together image while the top and bottom images respectively form the top and bottom of the stitched together image. *Id.*

In reference to Budagavi’s Figures 5A and 5B, the Examiner explains:

[In] Figs. 5A and 5B the black squares of the checkerboard pattern shown in the ‘top’ facet of Fig. 5A, which are shown as being in different positions [compared with Fig. 5B] showing that the equirectangular mapping inherently includes a translation operation, also note the black squares which are rotated into diamond shapes showing that the equirectangular mapping also inherently includes a rotation operation.

Final Act. 5–6.

Appellant contends, instead of Fig. 5A depicting a top facet of squares, it includes diamond shapes which, rather than being rotated by the equirectangular mapping process, are merely stretched to span the width of the five middle facets or images. App. Br. 5. “Appellant further notes that neither the terms ‘rotation’ nor ‘translation’ are used anywhere within the body of the specification for Budagavi.” *Id.* at 5–6.

The Examiner responds, explaining:

The ‘top’ and ‘bottom’ images in Fig. 5A of Budagavi are shown with a checkerboard pattern that comprises squares. After transformation this checkerboard pattern is shown as the warped top and bottom portions of Fig. 5B wherein some of the squares have become diamond shapes indicative of rotation, and have been translated left and right from their original positions in Fig. 5A. Thus the figures of Budagavi illustrate that the ‘stretching’ operation is not a simple scaling, but inherently includes rotation and translation of the image portions as part of the transformation.

Ans. 12.

We find the Examiner erred in finding Budagavi’s equirectangular mapping inherently includes translation and rotation operations. As an initial matter, it is not clear from the drawings exactly what shapes are initially present in the top and bottom images of Budagavi’s Fig. 5A, whether squares, diamond, or other shapes. (*See* Reply Br. 2 arguing there is

a mixture of “a roughly-shaped diamond, X-shaped dark spots, lines that appear to be oriented at approximately 45°, and irregularly shaped dots.”) Thus, it is not evident whether the original shapes depicted in Fig. 5A were rotated and translated in forming the top portion of the resultant stitched image depicted in Fig. 5B. It appears the various textures and shadings used in each of the seven images depicted in Fig. 5A are intended to visually distinguish the images from one another in illustrating how each of the separate images maps to corresponding portions of the resultant stitched image depicted in Fig. 5B. Standing alone, Budagavi’s figures are deficient in disclosing with any particularity how the equirectangular mapping process alters the constituent images.

We also find instructive the evidentiary weight given to patent drawings in the past. In particular, our reviewing court has stated, “it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.” *Hockerson-Halberstadt, Inc. v. Avia Grp. Int’l, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000). Similarly, in the present case, we find Budagavi’s drawings cannot be relied upon for disclosing specific shapes constituting each of the images depicted. Therefore, in the absence of any description in Budagavi’s specification, reliance by either the Examiner or Appellant on Budagavi’s Figs. 5A and 5B as depicting specific shapes and/or how those shapes are affected by Budagavi’s equirectangular mapping is unpersuasive of whether image rotation and/or translation is *inherently* disclosed.

Furthermore, even if Budagavi’s drawings clearly and unequivocally depicted rotation and translation, the drawings nonetheless would be

insufficient standing alone to support the Examiner's finding that equirectangular mapping *inherently* includes translation and rotation operations.

To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

In re Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). *See also In re Rijckaert*, 9 F.3d 1531, 1534, (Fed. Cir. 1993), MPEP § 2112(IV). Thus, it would be insufficient to prove Budagavi's equirectangular mapping *could* perform rotation and/or translation. To support a finding of inherency, the Examiner must provide rationale or evidence supporting a finding that equirectangular mapping *necessarily* includes translation and/or rotation operations. In the present case, even if sufficient detail were present to conclude that Budagavi's Figs. 5A and 5B depict equirectangular mapping that *may* result in image rotation and/or translation, such a determination nonetheless falls short of proving equirectangular mapping *necessarily* results in image rotation and/or translation. Therefore, it would be improper to find equirectangular mapping inherently includes translation and/or rotation operations.

For the reasons discussed above, the Examiner's findings are deficient to show the Budagavi inherently teaches the disputed transforming of an encoded first image facet via application of both of a rotation operation and a translation operation in order to produce a transformed encoded first image facet as recited by independent claim 9. Therefore, the Examiner erred in rejecting claim 9 under 35 U.S.C. § 103 over Budagavi and Krishnan. For the same reasons, the Examiner erred in rejecting independent claims 24 and 30 which include limitations substantively similar to the disputed limitation of claim 9.

Because we agree with at least one of the arguments advanced by Appellant, we need not reach the merits of Appellant's other arguments. Accordingly, we do not sustain the rejection of independent claims 9, 24, and 30 under 35 U.S.C. § 103 or the rejection of dependent claims 10–13, 25–29, 31, 32, and 34–42 which stand with their respective base claim.

DECISION SUMMARY

We reverse the Examiner's decision to reject claims 9–14, 24–32, and 34–42.

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
9–13, 24–32, 34–42	103	Budagavi, Krishnan		9–13, 24–32, 34–42
14	103	Budagavi, Krishnan, Imura		14
Overall Outcome				9–14, 24–32, 34–42

REVERSED