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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BY-HER W. RICHARDS

Appeal 2018-005803
Application 14/693,103
Technology Center 2600

Before BRADLEY W. BAUMEISTER, NABEEL U. KHAN, and
DAVID J. CUTITTA II, *Administrative Patent Judges*.

KHAN, *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 to reject claims 1–5, 11–14, and 20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Motorola Mobility LLC. Appeal Br. 3.

CLAIMED SUBJECT MATTER

Appellant describes the invention as:

A method and apparatus can determine lens shading correction for a multiple camera device with various fields of view. According to a possible embodiment, a flat-field image can be captured using a first camera having a first lens for a multiple camera device. A first lens shading correction ratio can be ascertained for the first camera. A second lens shading correction ratio can be determined for a second camera having a second lens for the multiple camera device. The second camera can have a different field of view from the first camera. The second lens shading correction ratio can be based on the first lens shading correction ratio and can be based on the flat-field image acquired by the first camera.

Abstract.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method comprising:
 - capturing a flat-field image using a first camera having a first lens for a multiple camera device;
 - ascertaining a first lens shading correction ratio for the first camera; and
 - determining a second lens shading correction ratio for a second camera having a second lens for the multiple camera device, where the second camera has a different field of view from the first camera, and where the second lens shading correction ratio is based on the first lens shading correction ratio and based on the flat-field image acquired by the first camera,wherein the first camera has a first field of view, the second camera has a second field of view, where one of the first field of view and the second field of view is wider than the other of the first field of view and the second field of view.

REFERENCE

The Examiner relies upon the following prior art:

Name	Reference	Date
Yamanaka	US 2004/0041919 A1	March 4, 2004
Kim	US 2011/0102548 A1	May 5, 2011
Chen	US 2015/0030258 A1	January 29, 2015
Wang	US 2015/0365576 A1	December 17, 2015

REJECTIONS

1. The Examiner rejects claims 1–4 and 11–13 under 35 U.S.C. § 103 as unpatentable over Wang and Yamanaka. Final Act. 3–10.
2. The Examiner rejects claim 20 stands rejected under 35 U.S.C. § 103 as unpatentable over Wang, Yamanaka, and Kim. Final Act. 10–13.
3. The Examiner rejects claims 5 and 14 stand rejected under 35 U.S.C. § 103 as unpatentable over Wang, Yamanaka, and Chen. Final Act. 13–14.

OPINION

Claim 1

The Examiner finds Wang teaches the limitations of claim 1 including (1) “ascertaining a first lens shading correction ratio for the first camera,” and (2) “determining a second lens shading correction ratio for a second camera having a second lens for the multiple camera device, where the second camera has a different field of view from the first camera, and where the second lens shading correction ratio is based on the first lens shading correction ratio and based on the flat-field image acquired by the first camera.” Final Act. 4 (citing Wang ¶¶ 43–46 Figs. 1, 3A, 3B). The

Examiner finds that Wang does not “explicitly teach that the first camera has a first field of view, the second camera has a second field of view, where one of the first field of view and the second field of view is wider than the other of the first field of view and the second field of view.” Final Act. 4–5. For this reason, the Examiner relies on Yamanaka as teaching that one of the first and second fields of view is wider than the other. Final Act. 5 (citing Yamanaka ¶¶ 81, 95–97, Figs. 8A, 8B).

Appellant focuses its argument on whether a proper rationale has been provided to combine Wang and Yamanaka.² For example, Appellant argues “Wang already provides shading correction[,] and there is no reason to look to Yamanaka to enable something that is already provided.” Appeal Br. 7. Similarly, Appellant argues “Yamanaka already provides shading correction[,] and there is no reason to look to Wang for shading correction.” Appeal Br. 7. According to Appellant, “[e]ven if Yamanaka provided better lens shading correction than Wang, instead of combining the teachings, one of ordinary skill in the art would discard the teachings of Wang and use the teachings of Yamanaka for lens shading correction.” Appeal Br. 7–8.

² Appellant also requests the Board to remand the case to the Examiner because the Appellant was not given a fair opportunity to respond to the Examiner’s rejection, which Appellant argues changed the reasoning to combine Wang with Yamanaka. Appeal Br. 15–16. The Board only considers matters affecting the merits of the invention, i.e., rejections of claims. *See* 37 C.F.R. § 41.31(c). Matters not affecting the merits of the invention, such as allegations of procedural errors by the Examiner (e.g., failure to designate a new ground of rejection as such), are to be raised by petition to the Director or to the USPTO official to whom the Director has delegated the authority to determine the petition. *See* 37 C.F.R. §§ 1.181–183. We note, however, that Appellant has already filed a Petition to withdraw Finality, but that the Petition was dismissed.

Finally, Appellant argues “the suggested combination of Yamanaka and Wang would change the principle of operation of Wang.” Appeal Br. 8.

We are unpersuaded by Appellant’s arguments. To support a finding of obviousness the Examiner must provide “articulated reasoning with some rational underpinning” for combining known elements in the manner required by the claim. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). A reason to combine may be found “explicitly or implicitly in market forces; design incentives; the ‘interrelated teachings of multiple patents’; ‘any need or problem known in the field of endeavor at the time of invention and addressed by the patent’; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018) (quoting *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013)).

We find the Examiner has articulated a rational reason to combine the two references. In particular, the Examiner finds both Wang and Yamanaka are in the same field of endeavor and address the same problem of correcting for shading, but do so in different ways. Final Act. 2–3 (citing Yamanaka ¶¶ 8, 96, 105). The Examiner finds Wang teaches correcting for shading by ascertaining a first lens shading correction ratio for a first camera and determining a second lens shading correction ratio for a second camera. Ans. 13; *see also* Final Act. 4 (citing Wang ¶¶ 43–46 Figs. 1, 3A, 3B). The Examiner acknowledges that Wang does not teach that the first camera has a wider field of view than the second camera and therefore relies on Yamanaka (Ans. 13–14) to teach shading correction by capturing two images, a target image and a reference image, where the reference image is

captured with a wider field of view than the target image. Ans. 14 (citing Yamanaka ¶¶ 81-96, 105, Figs. 8A, 8B); *see also* Final Act. 2, 4 (citing Wang ¶¶ 21, 43-46, 57).

The Examiner determines one of ordinary skill in the art would have combined the two references because (1) both references aim to correct for shading, (2) Wang teaches that its shading correction is based on approximation and therefore not all the shading is corrected for, and (3) Yamanaka provides a way for removing shading that one of ordinary skill in the art would use to try and improve Wang’s shading correction. Ans. 14-15; *see also* Final Act. 2-3. We agree.

Appellant argues that Wang and Yamanaka each “already provides shading correction” and therefore there would be no reason to look to the other to provide shading correction. Appeal Br. 7. This argument is unpersuasive.

Wang already teaches using images from two cameras to correct for shading. Wang ¶¶ 41-46. Modifying Wang so that one of the cameras has a wider field of reference, as taught by Yamanaka, would be a substitution of one known method of correcting for shading with another known alternative method of correcting for shading.

There is no requirement that either Wang or Yamanaka explicitly express that a method different than the ones they disclose be tried as an alternative. Nor is there a requirement that one alternative must necessarily be better than the other. *In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (“[J]ust because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes”); *see also In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (“[O]ur case law does not

require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.”)

Appellant also argues that “[e]ven if Yamanaka provided better lens shading correction than Wang, instead of combining the teachings, one of ordinary skill in the art would discard the teachings of Wang and use the teachings of Yamanaka for lens shading correction.” Appeal Br. 7–8. However, Appellant provides no evidence that one of ordinary skill would discard the teachings of Wang and use the teachings of Yamanaka, instead of simply modifying Wang to use the teaching of Yamanaka. *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (attorney arguments or conclusory statements are insufficient to rebut a prima facie case).

Appellant’s argument that the combination of Wang with Yamanaka would change the principle of operation of Wang is also unpersuasive. Appellant argues “Wang requires the use of the same images with the same pixel coordinates. To the contrary, changing the focal length would result in different images, which would change the principle of operation of Wang.” Appeal Br. 12; *see also* Reply Br. 7–8.

We disagree that use of “the same image[]” is a principle of operation of Wang. Rather, Wang teaches using two images, one being a diffused image to correct for shading in another image, labeled the primary image, where the diffused image is taken from a different camera lens than the primary image. Wang ¶¶ 41–42. In the Examiner’s combination, Wang’s diffused image would be replaced with Yamanaka’s image with a wider field of view. Then a comparison of the two images would result in correcting for shading in the primary image. Both Wang and Yamanaka compare a

primary image with a secondary image. In the case of Wang, the secondary image is a diffused image, in the case of Yamanaka, the secondary image is an image with a wider field of view. *See* Wang ¶¶ 41–46; Yamanaka ¶¶ 95–97.

While it is true that the precise method of making the comparison would have to be modified (i.e., Wang’s pixel by pixel comparison would need to be modified now that the secondary image has a wider field of view), such a modification would have been within the skill of the ordinary artisan who would have been “able to fit the teachings of multiple patents together like pieces of a puzzle.” *KSR*, 550 U.S. at 420. Making the substitution of the Yamanaka’s method for the Wang’s method does not change the principle of operation of Wang, but, rather, modifies Wang with the teachings of Yamanaka.

Furthermore, one of ordinary skill would understand that rather than modifying Wang with Yamanaka’s teachings, one could modify Yamanaka with Wang’s teachings. *See In re Mouttet*, 686 F.3d at 1333 (“[W]here the relevant factual inquiries underlying an obviousness determination are otherwise clear, characterization by the examiner of prior art as ‘primary’ and ‘secondary’ is merely a matter of presentation with no legal significance.”). Yamanaka discloses taking two images serially with one camera where the second image has a wider field of view than the first. *See* Yamanaka ¶¶ 95–97, Figs. 8A, 8B. One of ordinary skill would have been able to modify Yamanaka to use two cameras instead of one to take the two images (i.e., the first camera takes the first image (PA1) and the second camera takes the second image (PB2)) in light of Wang’s teaching of correcting shading using two cameras. Thus, Yamanaka would be modified

by Wang, without changing the principle of operation of Yamanaka. Either way, the merits of the rejection remains.

Accordingly, we sustain the Examiner's rejection of independent claim 1 and of independent claims 11 and 20, for which Appellant makes the same arguments. *See* Appeal Br. 16–37. We also sustain the Examiner's rejection of the pending dependent claims, for which Appellant does not make arguments for separate patentability. *See* Appeal Br. 38.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–4, 11–13	103	Wang, Yamanaka	1–4, 11–13	
20	103	Wang, Yamanaka, Kim	20	
5, 14	103	Wang, Yamanaka, Chen	5, 14	
Overall Outcome			1–5, 11–14, 20	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED