

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TRW AUTOMOTIVE US LLC,
Petitioner,

v.

MAGNA ELECTRONICS, INC.,
Patent Owner.

Case IPR2014-00258
Patent 7,994,462 B2

Before JUSTIN T. ARBES, BENJAMIN D. M. WOOD, and
NEIL T. POWELL, *Administrative Patent Judges*.

WOOD, *Administrative Patent Judge*.

DECISION
Petitioner's Request for Rehearing
37 C.F.R. § 42.71

I. INTRODUCTION

TRW Automotive US LLC (“TRW”) filed a request for rehearing (Paper 17) (“Reh’g Req.”) of our decision, dated June 26, 2014 (Paper 16) (“Dec.”) denying institution of an *inter partes* review of U.S. Patent No. 7,994,462 B2 (“the ’462 patent”). Reh’g Req. 1. TRW requests that we reconsider our determination not to institute an *inter partes* review on the following grounds: (1) claims 1, 3, 5-7, 10, 15, 19, 23, 26, and 27 as anticipated by Kenue;¹ (2) claims 1, 3, 5-8, 10, 15, 19, 21, 23, 26, and 27 as obvious over Yanagawa,² Bottesch,³ and Wilson-Jones;⁴ (3) claim 11 as obvious over AURORA⁵ and either Kenue or the combination of Yanagawa, Bottesch and Wilson-Jones; (4) claims 12 and 13 as obvious over Zheng⁶ and either Kenue or the combination of Yanagawa, Bottesch and Wilson-Jones; (5) claims 16 and 17 as obvious over Vellacott⁷ and either Kenue or the combination of Yanagawa, Bottesch and Wilson-Jones; and (6) claim 9 as obvious over the combination of Yanagawa, Bottesch, Wilson-Jones and

¹ U.S. Patent No. 4,970,653 to Kenue, Ex. 1004.

² JP S62-121837 to Yanagawa et al., Ex. 1005.

³ U.S. Patent No. 5,166,681 to Bottesch, Ex. 1006.

⁴ EP0640903A1 to Wilson-Jones et al., Ex. 1007.

⁵ Mai Chen, *AURORA: A Vision-Based Roadway Departure Warning System*, 1995 IEEE/RSJ Int’l Conf. on Intelligent Robots and Systems (Aug. 9, 1995), Ex. 1009.

⁶ Yon-Jian Zheng, et al., *An Adaptive System for Traffic Sign Recognition*, INTELLIGENT VEHICLES ’94 SYMPOSIUM (Oct. 24-26, 1994), Ex. 1010.

⁷ Oliver Vellacott, *CMOS in Camera*, IEE REVIEW (May 1994), Ex. 1008.

Tadashi.⁸ *Id.* For the reasons stated below, TRW’s Rehearing Request is denied.

II. STANDARD OF REVIEW

Under 37 C.F.R. § 42.71(c), “[w]hen rehearing a decision on petition, a panel will review the decision for an abuse of discretion.” An abuse of discretion occurs when a “decision was based on an erroneous conclusion of law or clearly erroneous factual findings, or . . . a clear error of judgment.” *PPG Indus. Inc. v. Celanese Polymer Specialties Co.*, 840 F.2d 1565, 1567 (Fed. Cir. 1988) (citations omitted). The request must identify, specifically, all matters the party believes the Board misapprehended or overlooked. 37 C.F.R. § 42.71(d).

III. DISCUSSION

A. *Claims 1, 3, 5-7, 10, 15, 19, 23, 26, and 27—Anticipation by Kenue*

1. *Claims 1, 3, 5-7, 10, 15, and 19*

In its Petition, TRW alleged that Kenue anticipates claims 1, 3, 5-7, 10, 15, and 19. Pet. 12-21. Claim 1 is independent, and claims 3, 5-7, 10, 15, and 19 depend, either directly or indirectly, from claim 1. Claim 1 is drawn to an “image sensing system” that “identifies objects . . . via processing of . . . captured image data,” and “wherein said image processing comprises pattern recognition . . . based at least in part on at least one of (i) shape, (ii) reflectivity, (iii) luminance and (iv) spectral characteristic.” Ex. 1002, 12:57-13:11. Claim 1 further recites “wherein said pattern recognition is enhanced by comparing image data of objects over successive

⁸ JP HEI4-127280 to Tadashi, Ex. 1011.

frames of captured image data” (hereinafter, the “enhanced-pattern-recognition limitation”). *Id.*, 13:12-14. TRW alleged in the Petition that Kenue discloses image processing algorithms that use pattern recognition “based at least in part on at least one of shape and luminance.” Pet. 14. TRW further alleged that Kenue discloses the enhanced-pattern-recognition limitation, relying on the following passages from Kenue:

[The] algorithms . . . dynamically define the search area for lane markers based on the lane boundaries of the previous frame, and provide estimates of the position of missing markers on the basis of current frame and previous frame information. . . . Moreover, the search area changes with marker position MP, and increases in size if the marker was not found in the search of the previous frame. . . . After the centroid of each marker is calculated[,] . . . if the markers are not found where expected . . . based on the previously detected lane geometry, the marker locations from the previous frame are used.

Pet. 16 (quoting Ex. 1004, 2:44-48, 4:27-29, 5:15-18).

We denied institution as to this ground because we were not persuaded that Kenue discloses the enhanced-pattern-recognition limitation. Dec. 13. We stated that “neither TRW nor [its declarant] Dr. Miller explains sufficiently how these passages correspond to the limitation at issue. . . . [I]t is not self-evident how the quoted passages relate to ‘enhanc[ing] pattern recognition,’ based on ‘at least one of shape and luminance.’” *Id.*

TRW contends that this determination was erroneous. Reh’g Req. 6-8. First, TRW asserts that “[t]he Board incorrectly requires the enhancement to be based on ‘at least one of shape and luminance.’” *Id.* at 7. TRW misunderstands our analysis. The required enhancement must be to “said” pattern recognition. We based our analysis on TRW’s assertion that Kenue teaches pattern recognition “based at least in part on *at least one of*

shape and luminance.” Pet. 14 (emphasis added). Therefore, the “said” pattern recognition that TRW had to show was “enhanced” must be based at least in part on at least one of shape and luminance. TRW did not attempt to connect Kenue’s alleged pattern recognition with the passages from Kenue that allegedly teach *enhancing* pattern recognition. In fact, TRW provided no analysis at all on this point. Accordingly, TRW has not persuaded us that we erred in this regard.

Second, TRW alleges that “[t]he cited portion of Kenue nonetheless describes enhancing pattern recognition based on shape,” and explains why this is so. Reh’g Req. 8. TRW does not explain, however, why it failed to provide this analysis in its Petition. A rehearing request under 37 C.F.R. § 42.71(d) is not an opportunity to submit new arguments that could have been submitted in the petition. Accordingly, we decline to consider this new argument.

2. *Claims 23, 26, and 27*

In its Petition, TRW alleged that Kenue anticipates claims 23, 26, and 27. Pet. 42-48. Claim 23 is independent, and claims 26 and 27 depend from claim 23. Claim 23 recites, *inter alia*, “wherein objects are at least one of (a) qualified and (b) disqualified based, at least in part, on object motion in said field of view of said imaging sensor” (hereinafter, the “qualified-disqualified limitation”). Ex. 1002, 14:59-61. TRW relied on two separate excerpts from Kenue as disclosing this limitation. Pet 18-20 (citing Ex. 1004, 5:14-22, 3:10-21). The first excerpt reads:

After the centroid of each marker is calculated[,] . . . if the markers are not found where expected . . . based on the previously detected lane geometry, the marker locations from the previous frame are used. . . . The determination of expected

marker position . . . involves comparing the position of each marker centroid with that of the previous frame. If the change is more than nine pixels, a flag is set.

Ex. 1004, 5:14-22. In its Petition TRW characterized this passage as teaching that “objects are *qualified* based at least in part on object motion in said field of view of the imaging sensor.” Pet. 46 (emphasis added). The second excerpt reads:

FIG. 3 illustrates the presence of a vehicle 30 or other obstacle in the roadway of FIG. 2. If the other vehicle is close, say, within 50 feet of the trailing vehicle, it tends to obscure the lane markers 24 to such an extent that there is insufficient information to determine the boundaries. In that case an obstacle warning is given and no further image processing is done on that frame. When the obstacle 30 is more than 50 feet away the image is processed but the obstacle is effectively erased from the image by removing horizontal and vertical lines, thereby making subsequent processing steps simpler.

Ex. 1004, 3:10-21. In its Petition TRW characterized this excerpt as teaching that “objects are *disqualified* based in part on object motion in said field of view of the imaging sensor.” Pet. 46 (emphasis added).

In our Decision, we observed that the above language from Kenue “does not, on its face, correspond to the qualified-disqualified limitation.” Dec. 11. We noted, for example, that “it is unclear from the first excerpt how lane markers are ‘qualified,’ i.e., determined to be objects of interest. Rather, it would seem that Kenue’s system predetermines lane markers to be of interest, as it is specifically designed to detect them.” *Id.* at 11-12. As for the second excerpt, we stated that “it is unclear how it describes disqualifying an object, i.e., determining it to be not of interest, based on object motion.” *Id.* at 12. We observed that, “[i]nstead, it appears to

describe issuing a warning to the driver based on object position (within 50 feet of the vehicle), rather than object motion.” *Id.* Because we were not persuaded that TRW was reasonably likely to prevail in showing that Kenue teaches the qualified-disqualified limitation in claim 23, we declined to institute an *inter partes* review of claims 23, 26 and 27 as anticipated by Kenue. *Id.*

TRW asserts in its Rehearing Request that our determination not to institute *inter partes* review of these claims constitutes an abuse of discretion. Reh’g Req. 3. First, in discussing whether the first excerpt from Kenue corresponds to the qualified-disqualified limitation, TRW alleges that we “incorrectly impute[d] into the qualified-disqualified limitation the requirement that the imaging system cannot be designed to detect the object that is being qualified/disqualified.” *Id.* at 3–4. We disagree. Our comment that “it would seem that Kenue’s system predetermines lane markers to be of interest, as it is specifically designed to detect them,” points out that qualifying an object as an object of interest likely means something beyond simply detecting the object. It is undisputed that Kenue’s system *detects* lane markers. But TRW did not explain how Kenue’s system *qualifies* lane markers as *objects of interest*, or address whether there is any difference between qualifying lane markers as objects of interest and simply detecting them. Ultimately, the problem with TRW’s analysis was its failure to offer any explanation why the first excerpt discloses qualifying an object as an object of interest. *See* Dec. 11-12 (“it is unclear from the first excerpt how lane markers are ‘qualified,’ i.e., determined to be objects of interest”).

TRW next argues that we “fail[ed] to recognize the significance” of the first excerpt. Reh’g Req. 3. In describing the first excerpt, TRW alleges

that (1) “a change in pixels connotes object motion between successive frames;” (2) the first excerpt from Kenue describes “qualifying/disqualifying because ‘a flag is set;’” and (3) “the flag being set here disqualifies the associated centroid as a lane marker when the centroid moves more than nine pixels between successive frames.” *Id.* at 4. This analysis does not persuade us that we abused our discretion in denying institution on the asserted ground. TRW impermissibly presents this analysis for the first time in its Rehearing Request, rather than in its Petition. As above, we decline to consider it. Further, even if we did, we would not consider it persuasive. First, it is inconsistent with TRW’s position in the Petition. TRW argues that the first Kenue excerpt discloses *disqualifying* an object as an object of interest, whereas, in its Petition, TRW contended that it discloses *qualifying* an object. *See* Pet. 46 (contending that the first excerpt “shows that objects are qualified based at least in part on object motion in said field of view of the imaging sensor”). Second, TRW’s allegations lack evidentiary support. TRW does not identify sufficient record evidence supporting its contention that “a change in pixels connotes object motion between successive frames,” or that “[t]he flag being set disqualifies the associated centroid as a lane marker.” Reh’g Req. 4.

Finally, TRW argues that we “fail[ed] to recognize the significance of the second [excerpt] of Kenue.” *Id.* at 5. TRW argues that the reference to a “trailing vehicle” in the second excerpt “clearly connotes motion” instead of position. *Id.* Again, TRW did not make this allegation in the Petition, and therefore it is too late for TRW to raise it for the first time in its Rehearing Request. Even if we were to consider it, we would deem it to be unsupported attorney argument, which is entitled to little weight. Moreover,

we disagree with the allegation. “Trailing” simply means that the vehicle is behind the other vehicle, i.e., it connotes position, not motion. TRW apparently infers from the second excerpt that a detected obstacle is erased from the image – i.e., disqualified – only when the obstacle starts out within 50 feet from the trailing vehicle, and then pulls away from the trailing vehicle until the distance between the vehicle and the obstacle “grows” to more than 50 feet. *Id.* at 5-6. This inference is unwarranted. Rather, Kenue states that “the obstacle is effectively erased from the image” when “the obstacle *is* more than 50 feet away,” indicating that the action of erasing the obstacle from the image is based on the obstacle’s position rather than its motion. *See* Dec. 12.

B. Claims 1, 3, 5-9, 10, 15, 19, 21, 23, 26, and 27—Obvious over Yanagawa, Bottesch, Wilson-Jones, and Tadashi (Claim 9)

In its Petition, TRW contended that claims 1, 3, 5-8, 10, 15, 19, 21, 23, 26, and 27 are unpatentable under 35 U.S.C. § 103 as obvious over Yanagawa, Bottesch, and Wilson-Jones. Pet. 21-36, 49-59. TRW further contended that claim 9 is unpatentable under 35 U.S.C. § 103 as obvious over these references plus Tadashi. *Id.* at 59-60. According to TRW, Yanagawa discloses all of the limitations of the above claims except that it does not expressly disclose “a two-dimensional array of light sensing photosensor elements.” Pet. 23-36. TRW therefore relied on Bottesch as teaching this limitation. *Id.* at 23 (citing Ex. 1006, 2:40-45, 4:10-13, 6:57-60). TRW asserted that “to include in the camera 11 of Yanagawa . . . a two-dimensional array of photosensor elements as shown in Bottesch . . . is, under *KSR*, merely a simple substitution of one known element for another to obtain predictable results.” *Id.* at 24. TRW further asserted that “those

skilled in the art would consider it obvious to try to include such a two-dimensional array in the camera 11 of Yanagawa . . . as this selection involves choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success.” *Id.* (citing MPEP § 2141; Ex. 1012 ¶ 38). In our Decision, we determined that “TRW’s analysis falls short, as it is based on ‘mere conclusory statements’ that cannot support an obviousness rejection.” Dec. 15 (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007)). We noted that TRW did not support either its “simple substitution” or “obvious to try” rationales with explanation or evidence. *Id.* For example, TRW did not explain *why* the alleged combination would have been a simple substitution achieving predictable results, or *why* selecting Bottesch’s array, as opposed to any other, would have been a choice from a finite number of solutions with a reasonable expectation of success. *Id.* We further noted that Dr. Miller’s testimony did not elaborate on TRW’s position because it simply repeated TRW’s conclusory statements *verbatim*. *Id.*

In its Rehearing Request, TRW asserts that we “fatally erred in failing to appreciate the significance of the Expert declaration and TRW’s submission.” Reh’g Req. 9. TRW contends that *Meyer I.P. Ltd. v. Bodum, Inc.*, 690 F.3d 1354, 1374-76 (Fed. Cir. 2012), compels us to accept Dr. Miller’s opinion supporting TRW’s simple-substitution and obvious-to-try rationales. In *Meyer*, TRW argues, “the Federal Circuit held that a District Court abused its discretion by holding that an expert declaration was insufficient.” Reh’g Req. 9. According to TRW, Dr. Miller’s declaration “is at least as in depth as the Expert declaration in the *Meyer* case, and therefore must also be found to be sufficient.” *Id.* at 11. We disagree. In *Meyer*, the

issue was whether an expert report complied with Rule 26(a) of the Federal Rules of Civil Procedure. *Meyer*, 690 F.3d at 1375. *Meyer* does not restrict the Board's well-established discretion to give little weight to conclusory, unsupported expert testimony. See 37 C.F.R. § 42.65(a); *Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997).

TRW also asserts that in *In re Lackey*, “the Federal Circuit upheld an obvious[ness] rejection based on the Examiner (and Board) stating mere simple substitution as the only motivation to combine.” Reh’g Dec. 10 (citing *In re Lackey*, 371 F. App’x 80, 82 (Fed. Cir. 2010) (unpublished)). But this mischaracterizes the *Lackey* decision. There, the Examiner did not simply “stat[e] mere simple substitution,” but supported that rationale with record evidence. See *Lackey*, 371 F. App’x at 81 (affirming rejection of claim to an air admittance valve made of metal based in part on Kohn reference, which teaches that plumbing fixtures may be made out of a variety of metals). In contrast, TRW supported its obviousness rationales only with the conclusory testimony of Dr. Miller.

C. *Claims 11-13, 16, and 17*

TRW asserts that we abused our discretion in not instituting *inter partes* review of claims 11-13, 16 and 17 as obvious over the combination of Aurora (claim 11), Zheng (claims 12 and 13), or Vellacott (claims 16 and 17) with either (a) Kenue or (b) the Yanagawa-Bottesch-Wilson-Jones combination. Reh’g Req. 14-15. Claims 11-13, 16, and 17 depend, either directly or indirectly, from claim 1. As discussed above, we are not persuaded that we erred in determining that TRW is not reasonably likely to show that (1) Kenue teaches all of the limitations of claim 1, and (2) claim 1 would have been obvious over the combination of Yanagawa, Bottesch, and

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Wilson-Jones. Further, TRW does not rely on Aurora, Zheng, or Vellacott to cure the deficiencies noted in the proposed grounds based on either Kenue or the Yanagawa-Bottesch-Wilson-Jones combination. Accordingly, and for at least the reasons discussed above, we are not persuaded that we erred in not instituting review of claims 11-13, 16 and 17.

IV. ORDER

For the foregoing reasons, it is

ORDERED that TRW's Request for Rehearing is *denied*.

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PETITIONER:

Josh Snider
Timothy Sendek
A. Justin Poplin
LATHROP & GAGE LLP
patent@lathropgage.com
tsendek@lathropgage.com
jpoplin@lathropgage.com

PATENT OWNER:

Timothy A. Flory
Terence J. Linn
GARDNER, LINN, BURKHART & FLORY, LLP
Flory@glbf.com
linn@glbf.com

David K.S. Cornwell
STERNE, KESSLER, GOLDSTEIN & FOX PLLC
Davidc-PTAB@skgf.com