

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte DWIGHT POPLIN, MICHAEL J. ZELMAN, AIRELL R. CLARK II,
and TODD S. SACHS

Appeal No. 2006-3032
Application No. 09/969,040

ON BRIEF

Before JERRY SMITH, RUGGIERO, and BARRY, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-3, 5-9, 12-14, 16, 17 and 19-21. We note that the examiner has withdrawn the rejection of dependent claim 11 in response to appellants' arguments in the brief. Claims 4, 10, 15 and 18 have been cancelled.

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The disclosed invention pertains to an automatic flicker frequency detection device and method.

Representative claim 19 is reproduced as follows:

19. A method of processing image information comprising the steps of:
- providing successive first and second frames of image information, each said frame having a row direction and a column direction;
 - calculating first averages of signal levels for each row of said first frame;
 - calculating second averages of signal levels for each row of said second frame;
 - forming a difference signal representative of differences between said first averages and said second averages, said difference signal being a data sequence that corresponds with a sequence of rows of data within said frames; and
 - detecting artifacts indicative of periodic lighting fluctuations during said forming of said first frame and during said forming of said second frame.

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The examiner relies on the following references:

Oyama et al. (Oyama)	5,099,329	Mar. 24, 1992
Smith et al. (Smith)	6,501,518	Dec. 31, 2002 (filed July 28, 1998)

The following rejection is on appeal before us:

1. Claims 1-3, 5-9, 12-14, 16, 17 and 19-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the teachings of Smith in view of Oyama.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer. Only those arguments actually made by appellants

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have been considered in this decision. Arguments which appellants could have made but chose not to make in the briefs have not been considered and are deemed to be waived. See 37 C.F.R. § 41.37(c)(1)(vii)(2004). See also In re Watts, 354 F.3d 1362, 1368, 69 USPQ2d 1453, 1458 (Fed. Cir. 2004).

It is our view, after consideration of the record before us, that the evidence relied upon by the examiner does not support the examiner's rejection of claims 1-3, 5-9, 12-14, 16, 17 and 19-21. Accordingly, we reverse.

Grouping of Claims

We consider the obviousness of the following logical groups of claims, as defined under separate subheadings and argued separately by appellants in the briefs.

GROUP A: Claims 19-21 [brief, pages 7-12].

GROUP B: Claims 13, 14, 16 and 17 [brief, pages 12 and 13].

GROUP C: Claims 1-3, 5-9 and 12 [brief, pages 13-15].

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In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). The examiner must articulate reasons for the examiner's decision. In re Lee, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). In particular, the examiner must show that there is a teaching, motivation, or suggestion of a motivation to combine references relied on as evidence of obviousness. Id. at 1343, 61 USPQ2d at 1433-34. The examiner cannot simply reach conclusions based on the examiner's own understanding or experience - or on his or her assessment of what would be basic knowledge or common sense. Rather, the examiner must point to some concrete evidence in the record in support of these findings. In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). Thus the examiner must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the examiner's conclusion. However, a suggestion, teaching, or motivation to combine the relevant prior art

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teachings does not have to be found explicitly in the prior art, as the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. In re Kahn, 441 F.3d 977, 987-88, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) citing In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000). See also In re Thrift, 298 F. 3d 1357, 1363, 63 USPQ2d 2002, 2008 (Fed. Cir. 2002). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

Group A, claims 19-21

A. We consider first the examiner's rejection of claims 19-21 as being unpatentable over the teachings of Smith in view of Oyama. Since appellants' arguments with respect to this rejection have treated these claims as a single group which stand or fall together, we will consider independent claim 19 as the representative claim for this rejection. See 37 C.F.R. § 41.37(c)(1)(vii)(2004).

Appellants agree with the examiner that Smith does not teach frame-to-frame comparisons [brief, page 8]. However, Appellants assert that a prima facie case of obviousness has not been presented because it would not be obvious to combine the references in the manner proposed by the examiner [brief, page 10]. In particular, Appellants assert that it would not be obvious to modify Smith to include Oyama's frame-to-frame comparisons [id.]. Appellants assert that frame-to-frame motion becomes an issue with respect to Smith's method only if Smith's method is modified to include frame-to-frame comparisons [id.]. Appellants argue that there is no incentive to introduce a problem by modifying Smith with the teachings of Oyama, unless there is some offsetting advantage to be realized [id.]. Appellants assert that Smith would be rendered less suitable for its intended purpose if Oyama's frame-to-frame comparisons were incorporated in Smith in the manner suggested by the examiner [brief, page 11]. Appellants point

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out that Smith teaches a method in which the frequency of lighting fluctuations can be identified by processing data from a single frame of information [id.]. Appellants point to fig. 3 of Smith that shows the pixel values of each row of the frame are averaged to yield row-averaged captured image data over time [id.]. Appellants further note that Smith discloses (at col. 6, lines 40-45) if more than one frame is captured and assuming that the inter-frame gap is equal to zero (i.e., frames are captured successively without a pause), the horizontally averaged image data can be “stitched” together to form a continuous series of horizontally averaged input data [id.]. Appellants note that Smith discloses stitching the data from the two frames together instead of incorporating a subtractor to obtain difference data as taught by Oyama [id., emphasis added]. Appellants assert that the advantage of Smith’s “stitching” is apparent because the stitching of the averaged information for two frames doubles the information and doubles the length of time [brief, page 11]. Appellants assert that there are no apparent advantages to substituting Oyama’s subtractor for Smith’s “stitcher” or combining stitching and differencing [id.]. Appellants conclude that subtracting an averaged row value of a first image frame from the corresponding averaged row value of the second image frame will lead to

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inconsistent results, unless the frequency of lighting fluctuations is known [id.]. Appellants note that Smith's invention is irrelevant if the frequency of lighting fluctuations is known because the purpose of Smith's invention is to identify the frequency, so that the integration time can be set accordingly (Smith, col. 7, lines 19-22) [id., emphasis added]. Appellants further conclude that without previous knowledge of the frequency of lighting fluctuations, the substitution of Oyama's subtractor for Smith's "stitcher" will require further modifications to the method of Smith [brief, page 11].

The examiner disagrees [answer, page 10]. The examiner notes that Smith discloses a capture control unit that is set to capture more than one frame of a target (Smith, col. 6, lines 28-54) [id.]. The examiner acknowledges that the Smith reference does not specifically state that a target may move during the disclosed capture of multiple frames [id.]. However, the examiner asserts that it is well known in the art that a target being captured may not remain stationary from frame to frame during the capture of multiple frames [brief, page 11]. The examiner reasons that because the Smith reference teaches the capture of more than one frame of a target, "motion noise" may be introduced during the capture of the

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multiple frames [id.]. The examiner notes that the Oyama reference is being relied upon to teach a frame-to-frame comparator (22) for generating difference signals between multiple frames in order to eliminate the frame-to-frame effects of "motion noise" introduced by motion of a target (Oyama: col. 7, lines 26-47) [id.]. The examiner asserts that it would have been obvious for an artisan to incorporate Oyama's noise reduction device (including an interframe difference signal for detecting flicker noise) in Smith's image capture and processing system [id.]. The examiner concludes that doing so would provide a means for excluding large values of interframe difference signals caused by motion so that these large values are not looked at as flicker noise (Oyama, col. 7, lines 43-47) [id.].

In the reply brief, appellants further assert that it is inaccurate to state that Oyama teaches a frame-to-frame comparator (22) for generating difference signals between multiple frames in order to eliminate the frame-to-frame effects of motion noise introduced by motion of a target [reply brief, page 8]. Appellants assert that motion noise is irrelevant to Smith because Smith describes a method of identifying and eliminating the effects of flicker noise without the use of frame-to-frame comparisons, [reply brief, page 9]. Appellants argue that modifying Smith to introduce motion noise in order to also eliminate the motion noise would not be obvious to a person of ordinary skill in the art [id.].

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At the outset, we note that to reach a proper conclusion under § 103, the examiner, as finder of fact, must step backward in time and into the mind of a person of ordinary skill in the art at a time when the invention was unknown, and just before it was made. In light of all the evidence, we review the specific factual determinations of the examiner to ascertain whether the examiner has convincingly established that the claimed invention as a whole would have been obvious at the time of the invention to a person of ordinary skill in the art. When claim elements are found in more than one prior art reference, the fact finder must determine “whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.” In re Kahn 441 F.3d at 988, 78 USPQ2d at 1337. With respect to the role of the examiner as finder of fact, the Court of Appeals for the Federal Circuit has stated: “the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” In re Oetiker, 977 F.2d at 1445, 24 USPQ2d at 1444. The Court of Appeals for the Federal Circuit has also noted: “[w]hat the prior art teaches, whether it teaches away from the claimed invention, and whether it

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motivates a combination of teachings from different references are questions of fact.” In re Fulton, 391 F.3d 1195, 1199-1200, 73 USPQ2d 1141, 1144 (Fed. Cir. 2004) (internal citations omitted).

In the instant case, we acknowledge that the examiner has relied upon analogous references taken from the same field of endeavor as the instant invention and we also acknowledge that the examiner has taken the motivation to modify Smith directly from the Oyama reference at col. 7, lines 43-47 [answer, page 7]. However, after careful consideration of all the evidence before us, we agree with appellants that the examiner has failed to provide a convincing line of reasoning as to why an artisan having knowledge of Smith would have found the claimed invention obvious in light of the teachings of Oyama.

In particular, we agree with appellants that there is no explicit or implicit deficiency found within Smith’s disclosure that would have suggested to an artisan that a difference signal to distinguish motion from flicker noise was required. Indeed, we note that Smith is silent with respect to any mention of “motion noise.” Significantly, we note that Smith determines the frequency of illumination using image data from a single frame or multiple frames only once. See e.g., Smith at col. 7, lines 13-15:

As the detection only has to be done once to determine the initial lighting conditions, it may be acceptable to use a more computationally intensive algorithm [emphasis added].

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We note that after the illumination flicker frequency is determined by Smith's initial test, normal image capture is performed at the appropriate frame rate [Smith, col. 7, lines 23-38]. Because AC line frequency varies from 60 Hz to 50 Hz according to country, a single brief test for flicker frequency suffices. Therefore, we agree with appellants that "motion noise" is irrelevant to Smith because Smith tests only once for the flicker frequency using image data from a single frame or multiple frames. Because "motion noise" is irrelevant to Smith's brief test for initial lighting conditions, we find that the motivation suggested by the examiner is misplaced.

Furthermore, we note that Smith's system describes a method of identifying and eliminating the effects of flicker noise without the use of frame-to-frame comparisons [Smith, col. 6, lines 41-46]. While the examiner correctly points out that one embodiment of Smith's invention captures multiple successive frames, we note that Smith explicitly discloses: "horizontally averaged image data can be 'stitched' together to form a continuous series of horizontally averaged image data" [Smith, col. 6, lines 41-46]. We find that pixel-by-pixel differencing between successive frames (as performed by Oyama's subtractor, col. 4, lines 5-7) is clearly distinguished from Smith's use of a continuous series of horizontally

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averaged image data [Smith, col. 6, lines 41-46]. In particular, we find that Smith's method of horizontally averaging image data continuously over multiple frames clearly teaches away from the instant claimed difference signal.

In addition, we find that modifying Smith with Oyama's frame-to-frame comparisons in the manner suggested by the examiner would fail to provide the horizontally averaged image data expected as a time domain input to Smith's fast-Fourier-transform (FFT) [see Smith, col. 6, line 49: "performing the FFT on the horizontally averaged image data"]. Therefore, we agree with appellants that modifying Smith with the teachings of Oyama would render Smith's invention unsatisfactory for its intended purpose. We note that the Court of Appeals for the Federal Circuit has determined that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 901, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

For all of the aforementioned reasons, we do not see how an artisan having knowledge of Smith would have been reasonably motivated to look to Oyama to achieve the advantage proffered by the examiner without relying

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upon the instant claims as a template or guide. We note that our reviewing court has clearly stated: “[d]etermination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention. There must be a teaching or suggestion within the prior art, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources of information, to select particular elements, and to combine them in the way they were combined by the inventor.” ATD Corp. v. Lydall, Inc., 159 F.3d 534, 546, 48 USPQ2d 1321, 1329 (Fed. Cir. 1998).

In the instant case, we conclude that the examiner has impermissibly used the claimed invention as a template or guide in order to piece together the teachings of Smith and Oyama in an effort to create a mosaic of such prior art to argue obviousness. Therefore, we agree with appellants that the examiner has failed to meet his/her burden of presenting a prima facie case of obviousness. Accordingly, we will reverse the examiner’s rejection of representative claim 19. In addition, we will reverse the examiner’s rejection of independent claims 1 and 13 for the same reasons discussed supra with respect to claim 19. Because we have reversed the examiner’s rejection of each independent claim, we will not sustain the examiner’s rejection of any of the dependent claims under appeal.

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In summary, we will not sustain the examiner's rejection of any claims under appeal. Therefore, the decision of the examiner rejecting claims 1-3, 5-9, 12-14, 16, 17 and 19-21 is reversed.

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REVERSED.

Jerry Smith
Administrative Patent Judge

Joseph F. Ruggiero
Administrative Patent Judge

Lance Leonard Barry
Administrative Patent Judge

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