The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FUMIHIRO SONODA

Appeal 2007-1809
Application 09/774,013
Technology Center 2600

Decided: September 26, 2007

Before JAMES D. THOMAS, JOSEPH L. DIXON, and
JOHN A. JEFFERY, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-22. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Appellant invented an image processing method that eliminates blemishes (scratches, dust, etc.) on an image obtained by photoelectrically reading an image on a film to obtain an actual image, and performing blemish elimination processing. In particular, a defective image is read to provide information regarding a defect on the film. Efficiency is improved by performing preprocessing on the defective image for blemish elimination processing while obtaining the actual image.[1] Claim 1 is illustrative:

> 1. An image processing method for photoelectrically reading an image on a film and then performing a blemish elimination processing, comprising the steps of:
>
> reading a defective image to provide information regarding a defect on a film;
>
> then, reading photoelectrically said image to obtain an actual image;
>
> performing preprocessing for the blemish elimination processing on said defective image while reading photoelectrically said image; and
>
> performing the blemish elimination processing on a blemish of said actual image, based on the defective image subjected to said preprocessing,
>
> wherein said preprocessing comprises edge enhancement processing.

The Examiner relies on the following prior art references to show unpatentability:

[1] *See generally* Specification P. 1, ¶ 1 and P. 7, ¶ 1 – P. 9, ¶ 1.

Yajima	US 4,074,231	Feb. 14, 1978
Stavely	US 5,969,372	Oct. 19, 1999

Claims 1-22 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Stavely in view of Yajima.

Rather than repeat the arguments of Appellant or the Examiner, we refer to the Briefs and the Answers for their respective details. In this decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

OPINION

As an initial matter, we note that Appellant presents three claim groups for consideration in the present appeal: (1) claims 1 and 7[2]; (2) claim 2; and (3) claims 4, 5, 8, and 10 (Br. 9-10).

Regarding the first grouping, although Appellant's arguments are directed primarily to the patentability of independent claim 1, we would select independent claim 7 as representative of this grouping because it is broader than claim 1 and, indeed, is the broadest claim on appeal. *See* 37 C.F.R. § 41.37(c)(1)(vii).

[2] Although Appellant's arguments are primarily directed to the patentability of independent claim 1 (Br. 10-15), Appellant also mentions independent claim 7 in connection with this grouping as allowable for the same reasons as claim 1 "[t]o the extent claim 7 recites similar elements [as claim 1]" (Br. 15). We therefore presume that Appellant intended to include claim 7 in this grouping.

Claim 7 is broader than claim 1 in two significant respects. First, unlike claim 1, claim 7 does not require reading the image photoelectrically to obtain an actual image *after* reading a defective image.[3] Claim 7 merely calls for, in pertinent part, reading a defective image and performing blemish elimination processing on an actual image obtained by reading the image photoelectrically.

Second, unlike claim 1, claim 7 does not require performing the preprocessing step *while* the image is read photoelectrically.

In light of these key distinctions, we find claim 7 best represents the subject matter recited in the first claim grouping. As such, we may consider the patentability of claims in this grouping with respect to claim 7 alone.[4] Nevertheless, we will also consider the rejection with respect to independent claim 1 since all the arguments necessary to render this decision are of record in this case.

Representative Claim 7

We now turn to the merits of the Examiner's obviousness rejection of representative claim 7. 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 must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

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[3] Claim 1 recites, in pertinent part, "reading a defective image…" and "*then*, reading photoelectrically said image to obtain an actual image" (emphasis added).

[4] *See* 37 C.F.R. § 41.37(c)(1)(vii).

Discussing the question of obviousness of a patent that claims a combination of known elements, the Court in *KSR Int'l v. Teleflex, Inc*., 127 S. Ct. 1727, 82 USPQ2d 1395 (2007) explains:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [*v. AG Pro, Inc.,* 425 U.S. 273, 189 USPQ 449 (1976)] and *Anderson's-Black Rock*[*, Inc. v. Pavement Salvage Co*., 396 U.S. 57, 163 USPQ 673 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR, 127 S. Ct. at 1740, 82 USPQ2d at 1396. If the claimed subject matter cannot be fairly characterized as involving the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement, a holding of obviousness can be based on a showing that "there was an apparent reason to combine the known elements in the fashion claimed." *Id.*, 127 S. Ct. at 1740-41, 82 USPQ2d at 1396. Such a showing requires "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id*., 127 S. Ct. at 1741, 82 USPQ2d

at 1396 (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)).

If the Examiner's burden is met, the burden then shifts to the Appellant 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 In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Regarding the independent claims, the Examiner's rejection essentially finds that Stavely teaches an image processing method for photoelectrically reading an image on a film with every claimed feature except for the preprocessing step to comprise edge enhancement processing. The Examiner cites Yajima as teaching this feature and concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Stavely's preprocessing method to enhance edges as well as detect them to make such boundaries of the defective portions more recognizable (Answer 3-4).

Appellant argues that Stavely does not perform *preprocessing* for the *blemish elimination processing* on the defective image *while reading photoelectrically the image* as claimed (Br. 10) (emphasis in original). Appellant emphasizes that image processing in Stavely is not preprocessing, but rather obtains an actual image free of low intensity areas (Br. 10; Reply Br. 4).

Appellant adds that Stavely's image processing is not performed on a defective image, but rather on an actual image. According to Appellant, Stavely merely uses an infrared image as a template or guide to correct the

normal image, but the defective image itself is not corrected (Br. 11; Reply Br. 5-6).

The Examiner notes that Stavely initially identifies specific areas of the defective image as blemishes. Such a process, the Examiner argues, fully meets "preprocessing" in accordance with the term's plain meaning (Answer 5). The Examiner emphasizes that this "preprocessing" in Stavely is performed on the defective image by locating surface defects via Scan B (the infrared scan). According to the Examiner, following this "preprocess," Stavely eliminates blemishes on the normal image (i.e., the image obtained via Scan A) by processing this normal image in accordance with the blemishes identified in the defective image (i.e., the "preprocessing" stage) (Answer 6-7).

Appellant also argues that the secondary reference, Yajima, does not disclose edge enhancement preprocessing performed on the defective image as claimed (Br. 13-14; Reply Br. 7). Appellant adds that combining Yajima with Stavely is not obvious since, among other things, edge enhancement emphasizes sudden changes in image signals. According to Appellant, providing such processing on the defective image in Stavely would emphasize small scattered points of low intensity and noise in the infrared scan "to an unignorable level." Such an emphasis, Appellant contends, would lead to a failure in limiting image correction to larger features of the image (Br. 14; Reply Br. 7-8).

The Examiner responds that since Yajima specifically teaches enhancing edges without undue influence from outside noise, providing such edge enhancement in Stavely's infrared scan would not emphasize noise (Answer 8).

We will sustain the Examiner's rejection with respect to our selected representative claim 7. Stavely's film scanner provides dust and scratch correction by scanning the film 300 twice. In one scan, the image to be corrected is produced by passing conventional direct visible illumination through the image on the film and then onto a sensor. Stavely refers to this normal scan as "Scan A."

The second scan in Stavely provides a defect signature (i.e., an image of surface defects) that is produced by passing either dark- or bright-field infrared light or dark-field visible white light through the image on the film. Stavely refers to this scan as "Scan B." Using this defect signature obtained from Scan B, image processing software then suitably alters corresponding areas in the image produced by Scan A (Stavely, col. 2, ll. 26-34; col. 4, ll. 18-31; Fig. 3).

The order of Scan A and Scan B is not important (Stavely, col. 4, ll. 24-25). Stavely further notes that the entire image may be (1) sequentially scanned twice in two separate passes, or (2) each line may be scanned twice on a line-by-line basis. In the latter case, defect calculations and image processing are likewise performed on a line-by-line basis (Stavely, col. 2, ll. 43-56; col. 5, ll. 5-23 and 45-65).

Turning to representative claim 7, Stavely's Scan B -- a scan that can occur prior to Scan A as the Examiner indicates[5] -- fully meets reading a defective image as claimed. We also agree with the Examiner that "preprocessing" the defective image does not preclude merely identifying

[5] *See* Answer, at 3; *see also* Stavely, at col. 4, ll. 24-25 (noting the unimportance of the order of Scan A and Scan B).

those areas of the defect signature of Scan B that qualify as defects or blemishes (i.e., areas to be corrected on the image obtained from Scan A).

Additionally, Stavely's image processing function eliminates blemishes on the image obtained from Scan A in accordance with defect information obtained via the image produced by Scan B – an image that was "preprocessed" to identify the normal image's defective areas. Such image processing fully meets performing "blemish elimination processing" of the image of Scan A – an image obtained by photoelectrically reading the image on the film.

In sum, Stavely discloses every feature of representative claim 7 except for the preprocessing to comprise edge enhancement processing. But, we see no reason why the skilled artisan could not have applied such edge enhancement for the images produced by Scans A and B in Stavely in view of the teachings of Yajima. Yajima notes that patterns obtained from input devices can be blurry where (1) the characteristics of the image pickup equipment are inferior, or (2) photographing conditions are inferior (Yajima, col. 1, ll. 14-21). Yajima therefore provides a system that enhances the edge of a line without being influenced by noises (e.g., smears and stains). To this end, Yajima utilizes an edge enhancement processor 1 in conjunction with a noise suppressor 3 (col. 3, l. 54 – col. 4, l. 13; col. 5, ll. 37-45; Fig. 4). Such a system produces a good quality pattern from a blurred pattern (Yajima, col. 2, ll. 40-47).

Although Yajima's edge enhancement technique is used for optical character recognition of printed and handwritten characters, we see no reason why such edge enhancement techniques would not be applicable in an image acquired from a film scanner such as that disclosed by Stavely.

First, images obtained from a film scanner could be susceptible to blurring due to a variety of factors including, among other things, the very factors indicated by Yajima (e.g., inferior imaging equipment and operating conditions). *See* Yajima, col. 1, ll. 14-21. Thus, enhancing the edges of the images obtained from Scans A and B in Stavely would minimize blurring – a benefit that would, in our view, only enhance Stavely's image defect correction. Among other things, such enhancement would more clearly and accurately define the boundaries of respective image areas, including defective areas to be corrected.

Appellant's argument that such enhancement would emphasize low-intensity points and noise in the infrared scan "to an unignorable level" is merely speculative and lacks evidentiary support. It is well settled that mere lawyer's arguments and conclusory statements, which are unsupported by factual evidence, are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984).

In any event, even if we assume, without deciding, that enhancing an image's edges could emphasize certain lower-intensity points and noise in and around an image's boundary region, such emphasis would not necessarily result in an outright failure to limit image correction to larger features in Stavely as Appellant suggests. Skilled artisans would recognize that the degree of edge enhancement would be dependent, at least in part, upon the particular resolution desired. In our view, the skilled artisan would readily adjust the appropriate enhancement parameters to provide a resolution that would enhance the image's edges, yet not sacrifice the

system's ability to discriminate larger image features from scattered low-intensity points and noise.

For at least these reasons, we will sustain the Examiner's rejection of representative independent claim 7. Likewise, we will sustain the Examiner's rejection of claims 9, 11, 13, 16, and 20 which fall with claim 7. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Independent Claim 1

We now turn to the Examiner's rejection of independent claim 1. As an initial matter, our previous discussion in connection with independent claim 7 with respect to commensurate limitations recited in claim 1 applies equally here, and we incorporate that discussion by reference.

As we indicated previously, independent claim 1, unlike claim 7, calls for performing preprocessing on the defective image *while* reading the image photoelectrically. This particular limitation is a key point in dispute.

According to Appellant, Stavely does not disclose preprocessing *while* reading photoelectrically the image, but rather performs image processing *after* obtaining the normal and defective images (Reply Br. 6-7; Supp. Reply Br. 5).

The Examiner responds that the limitation is met by Stavely for either of two alternative scanning methods discussed in the reference: (1) performing entire scans in succession, or (2) switching between scans on a line-by-line basis. Regarding the latter method, the Examiner readily admits that Stavely "is not explicit about when the timing of the preprocessing is performed" (Supp. Answer 3). The Examiner nevertheless contends that since Stavely is concerned with inefficiencies of performing operations

serially as opposed to simultaneously (at least in part), it would be readily apparent to the skilled artisan that preprocessing the defective image would at least temporally overlap the process of scanning the actual image (*Id.*).

Appellant argues that since scanning in Stavely is performed on a line-by-line basis, a defective image has not been read to provide information regarding a defect on a film by the time preprocessing is performed on a defective image while reading photoelectrically the image (Supp. Reply Br. 6).

We will sustain the Examiner's rejection of independent claim 1. While we find the Examiner's specific contention noted above with respect to what the skilled artisan would ostensibly glean from Stavely problematic,[6] we nevertheless find Appellant's arguments are simply not commensurate with the scope of the claim language.

As we indicated previously, the entire image in Stavely may be (1) sequentially scanned twice in two separate passes, or (2) each line may be scanned twice on a line-by-line basis (i.e., Scans A and B occur on the same line). In the latter case, defect calculations and image processing are likewise performed on a line-by-line basis (Stavely, col. 2, ll. 43-56; col. 5, ll. 6-23 and 45-65).

The line-by-line mode fully meets the recited order of process steps. First, since Stavely indicates that the scanning order is unimportant, Scan B can occur before Scan A. Second, Scan B, in our view, fully meets reading a defective image to provide information regarding a defect on a film. Then, Scan A is performed – a scan that involves photoelectrically reading the

[6] *See* Supp. Answer, at 3.

image *in part* (i.e., one line at a time) to ultimately obtain an actual image as claimed.

"Preprocessing" as claimed is fully met by the processing in Stavely associated with Scan B (i.e., at least the identification of defects discussed previously). Significantly, in the line-by-line mode, this "preprocessing" step associated with Scan B – like Scan A – occurs every line of the image. But nothing in the claim precludes the image that is read photoelectrically during the preprocessing step to be the *entire* image. That is, the claim does not preclude the "defective image" corresponding to the image of the particular *line* that is scanned via Scan B, but the photoelectrically-read image corresponding to the *entire* image (i.e., all lines read by Scan A).

In this sense, preprocessing on the defective image (i.e., processing of a line via Scan B) would be performed, at least incrementally, *while* reading the *entire image* photoelectrically. The scope and breadth of independent claim 1 simply does not preclude this reasonable interpretation. Moreover, with respect to dependent claim 2, preprocessing for a particular line in the line-by-line mode would be complete prior to the time the actual entire image is obtained.

For at least these reasons, we will sustain the Examiner's rejection of independent claim 1 and dependent claim 2. We will also sustain the rejection of claims 3, 6, 12, 14, 15, 19, 21, and 22 which are grouped with independent claim 1.

Claims 4, 5, 8, and 10

Regarding claims 4, 5, 8, and 10, Appellant contends that the Examiner improperly referred to the same aspect of Stavely (i.e., the image

of surface defects and defect signature information) as corresponding to the "distinctly different" limitations of (1) claims 5 and 8 (flag information), and (2) claims 4 and 10 (evaluated result) (Br. 15; Reply Br. 8).

We will sustain the Examiner's rejection. At the outset, we note that Appellant has cited no authority to support the assertion that a reference cannot be applied in the manner proposed by the Examiner. Nor has Appellant disputed the specific teachings in Stavely relied upon by the Examiner as corresponding to the respective limitations of (1) claims 5 and 8, and (2) claims 4 and 10. Appellant has simply not rebutted the Examiner's position in this regard – a position that we find reasonable.

To be sure, claim differentiation principles require us to presume that each claim has a different meaning and scope. Otherwise, certain claims would be superfluous. *See Free Motion Fitness, Inc. v. Cybex Int'l, Inc.*, 423 F.3d 1343, 1351 (Fed. Cir. 2005).

But even if the limitations between (1) claims 5 and 8 (flag information), and (2) claims 4 and 10 (evaluated result) are "distinctly different" as Appellant argues, we find no error in the Examiner's reliance upon a similar aspect from Stavely to meet these respective limitations.

Dependent claims incorporate by reference all the limitations of the claim to which they refer. 35 U.S.C. § 112, ¶ 4. For example, dependent claims 4 and 5 respectively incorporate the limitations of independent claim 1. Similarly, claims 8 and 10 each incorporate the limitations of independent claim 7. While these claims share common independent claims, they nevertheless have independent significance and must be *separately assessed* for patentability.

In conducting such an individual assessment, the fact that the same or similar aspect of an applied reference happens to anticipate or render obvious distinct limitations recited in different claims hardly precludes such an interpretation. The Examiner merely interpreted each claim separately giving each limitation its broadest reasonable interpretation and found that the Stavely reference taught or suggested these limitations. We find no error in this approach. Accordingly, the Examiner's prima facie case of obviousness based on the collective teachings of Stavely and Yajima has not been persuasively rebutted.

For the foregoing reasons, we will sustain the Examiner's rejection of claims 4, 5, 8, and 10. Likewise, we will sustain the rejection of claims 17 and 18 which fall with claim 4.

DECISION

We have sustained the Examiner's rejections with respect to all claims on appeal. Therefore, the Examiner's decision rejecting claims 1-22 is affirmed.

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

AFFIRMED

tdl/gw

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