

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GOO-SOO GAHANG

Appeal No. 2000-2057
Application 08/838,791

ON BRIEF

Before JERRY SMITH, FLEMING and DIXON, 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 1-10, which constitute all the claims in the application.

The disclosed invention pertains to a method and apparatus for reproducing images which have been generated by scanning a document. More particularly, the invention performs both shading compensation and half-tone processing of the scanned images.

Representative claim 1 is reproduced as follows:

1. An image forming apparatus with an image sensor for scanning a document to produce an electric signal representative of an image from the document, comprising:

a converter for converting said electric signal to produce image data with a predetermined number of bits;

a shading memory unit for storing said image data on a pixel by pixel basis from a least significant address to a most significant address scanned during a first mode operation with said converter, and for storing shading factors each corresponding to each pixel from said image data;

a controller for sequentially reading said image data stored from the least significant address to the most significant address of said shading memory unit during said first mode of operation, calculating each shading factor for each pixel by dividing a preset maximum brightness value by said image data sequentially read from said shading memory unit, recording the shading factors in said shading memory unit, and for outputting the shading factors stored in said shading memory unit corresponding to each pixel of said image data produced by said converter during second mode of operation;

a shading compensation unit for multiplying each pixel of said image data produced from said converter by a corresponding one of said shading factors during said second mode of operation to produce shading-compensated image data; and

a half-tone processing unit for producing a half-tone image data from said shading-compensating image data produced from said shading compensating unit.

The examiner relies on the following references:

Nosaki et al. (Nosaki)	5,099,341	Mar. 24, 1992
Ito	5,317,421	May 31, 1994
Augusti et al. (Augusti)	EP 0 200 438	Nov. 05, 1986
Gahang	GB 2 292 283	Feb. 14, 1996

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The admitted prior art described in appellant's specification.

Claims 1-10 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Ito in view of Nosaki and the admitted prior art. Claims 1-10 also stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Gahang and Augusti.

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

OPINION

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

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in

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claims 1-10. Accordingly, we reverse.

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), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444

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(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). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived by appellant [see 37 CFR § 1.192(a)].

We consider first the rejection of claims 1-10 based on Ito, Nosaki and the admitted prior art. With respect to independent claims 1, 5 and 8, the examiner finds that Ito teaches the claimed invention except for storing the shading factors as claimed, calculating shading factors and determining shading compensation as claimed, and a half-tone processing unit as claimed. The examiner finds that it would have been obvious to the artisan to calculate shading factors in Ito in a manner as taught by Nosaki. The examiner also finds that it would have been obvious to the artisan to determine shading compensation and

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perform half-tone processing in view of the admitted prior art [answer, pages 3-6].

Appellant argues that the white shading corrected signal of Nosaki does not correspond to the claimed preset maximum brightness, and the white shading value for subscanning does not correspond to the claimed image data sequentially read from said shading memory unit as asserted by the examiner. Specifically, appellant argues that the result of averaging in Nosaki does not constitute a preset value as claimed. Appellants argue that the features of the controller as recited in claim 1 are not obvious in view of the proposed combination of Ito, Nosaki and the admitted prior art. Appellant also argues that the examiner has provided no support for his statement that combining the teachings as proposed would increase the utility of the Ito-Nosaki apparatus. Finally, appellant argues that none of the applied prior art teaches producing a half-tone image from said shading compensated image data produced from said shading compensation unit [brief, pages 7-15].

The examiner responds that the admitted prior art clearly establishes that prior art systems performed both half-tone processing and shading compensation. The examiner also responds that the average of 16 white pixels in Nosaki is ideally a preset

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maximum value [answer, pages 12-13].

We will not sustain this rejection. Although we agree with the examiner that the admitted prior art discloses that half-tone processing and shading compensation were both performed by prior art systems, the applied prior art does not establish that it was obvious to produce half-tone image data from the shading compensated image data as recited in independent claims 1, 5 and 8. The admitted prior art described in the specification falls short of teaching performing the shading compensation before the half-tone processing. We agree with appellant that the operation of Nosaki does not equate to the claimed calculating a shading factor for each pixel by dividing a preset maximum brightness value by the image data sequentially read from the shading memory unit. A calculated value, as used by Nosaki, cannot be considered to be a preset value as claimed. A key feature of appellant's invention specifically eliminates this calculating step [specification, page 3]. Despite the similarities between the claimed invention and the teachings of Ito, Nosaki and the admitted prior art, the collective teachings of the applied prior art do not teach the invention as specifically recited in independent claims 1, 5 and 8.

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Since we have not sustained this rejection of independent claims 1, 5 and 8, we also do not sustain this rejection of any of the dependent claims in this application. Accordingly, the rejection of claims 1-10 based on Ito, Nosaki and the admitted prior art is not sustained.

We now consider the rejection of claims 1-10 based on Gahang and Augusti. With respect to independent claims 1, 5 and 8, the examiner finds that Gahang teaches the claimed invention except for the feature of calculating each shading factor in the manner claimed. The examiner cites Augusti as teaching this particular feature of the claimed invention. The examiner finds that it would have been obvious to the artisan to calculate the shading factors in Gahang in the manner taught by Augusti [answer, pages 8-10].

Appellant argues that the portion of Augusti relied on by the examiner is for half-tone processing and not for shading compensation. Appellant also argues that the prestored values in Augusti are in no way similar to the shading correction factors calculated as recited in the claimed invention. Specifically, appellant argues that there is no preset maximum brightness value in Augusti. Appellant also argues that the half-tone processor of Augusti is not equivalent to the half-tone processor of

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Gahang. Finally, appellant argues that there is no teaching of the claimed storing step during a first mode of operation in Gahang [brief, pages 20-23].

The examiner responds that the portion of Augusti relied on in the rejection relates to shading correction and not to half-tone processing [answer, pages 13-14].

We will not sustain this rejection of claims 1-10 because we agree with appellant that the values stored in advance in EPROM 32 of Augusti do not constitute a preset maximum brightness value as claimed. Augusti describes these preset values as resulting from a ratio between the direct reading signal of a pixel and that recorded in the RAM 31 in the preliminary reading of the corresponding pixel of the sample strip 29 [page 5]. Both of these values which make up the ratio are measured values and not maximum values preset by the user. Although these stored values may have a theoretical maximum, the system of Augusti does not preset this theoretical maximum in the memory. As noted above, one of the key features of appellant's invention is to avoid the calculation of shading factors based on measured parameters.

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In summary, we have not sustained either of the examiner's rejections of the claims on appeal. Therefore, the decision of the examiner rejecting claims 1-10 is reversed.

REVERSED

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JERRY SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
MICHAEL R. FLEMING)	
Administrative Patent Judge)	APPEALS AND
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