Appl. No. 11/220,373
Amdt. dated April 30, 2009
Reply to Office Action of January 9, 2009

Atty. Ref. 88552.0006
Customer No. 26021

Remarks/Arguments

Reconsideration of this application is requested.

Extension of Time

A request for a one month extension of the period for response to the Office Action mailed on January 9, 2009 is enclosed. The extended period for response expires on May 9, 2009.

Claim Status

Claims 1-12 were presented. Claims 10-12 are canceled without prejudice. Claims 1-9 are now pending.

Claim Rejections – 35 USC 101

Claims 1-12 are rejected under 35 USC 101 as directed to non-statutory subject matter. In response, claims 10-12 are canceled, thus rendering the rejection of those claims moot. With respect to claims 1-9, applicant traverses the rejections.

Pages 5 and 6 of the Action assert that 35 USC 112, sixth paragraph, has been invoked through the use of "means plus function" claim language. Applicant disagrees. MPEP 2182(I) states that "a claim element that does not include the phrase 'means for' or 'step for' will not be considered to invoke 35 USC 112, sixth paragraph. Claims 1-9 are not claimed in this manner and thus do not invoke 35 USC 112, sixth paragraph.

Furthermore, applicant submits that the claimed invention can be construed as functional descriptive material per se only if selected portions of the disclosure are considered without proper consideration of the disclosure as a whole. In particular, the cited portions of the specification at page 17, lines 6-13 defines a program embodied on a computer readable mediums such as hard disk 48, ROM 46 and CD-ROM. The program is clearly embodied on a computer readable medium and is not pure software. In addition, applicant's disclosure at page 32, line 22 to page 33, line 7 teaches the program "readable by the image output apparatus 20 and is recorded and distributed on a recording medium such as a flexible disk, CD-ROM." The program is also installed on a hard disk or is alternatively embodied on

Appl. No. 11/220,373
Amdt. dated April 30, 2009
Reply to Office Action of January 9, 2009

Atty. Ref. 88552.0006
Customer No. 26021

a ROM that is image output apparatus 20. Therefore, the teaching of a program is provided in conjunction with the disclosure of a computer readable medium to which the program is recorded on. How these disclosures can be fairly construed to recite a pure software program is unclear to applicant. Thus, the specification defines a statutory invention of functional descriptive material recorded on a computer readable medium.

As such, even if the claims were to define the apparatus in means plus function form, which they do not, the specification clearly provides the physical structure of a computer readable medium on which the functional descriptive material is recorded on so as to not teach a pure software embodiment. The drawings also define the claimed apparatus through physical structures, rather than as functional descriptive material per se. For example, FIG. 2 discloses an image output apparatus 20 including a CPU 42 including the structures of a pixel group reference point determination unit 64, pixel group expansion processing unit 65 and quantization data supply unit 66. Page 16, lines 12-23 recites CPU 42 executing the respective functions of pixel group reference point determination unit 64, pixel group expansion processing unit 65 and quantization data supply unit 66. Page 16, lines 4-9 discloses a halftone processing unit 24 including CPU 42, RAM 44, ROM 46 and hard disk 48.

In sum, means plus function language is not recited in claims 1-9 and the specification does not teach pure software such that the claimed invention is directed to a statutory apparatus. For these reasons, the rejections of claims 1-9 under 35 USC 101 should be withdrawn.

Claim Rejections – 35 USC 102(b)

Claims 1-12 are rejected under 35 USC 102(b) as anticipated by Maeda (US 5,384,868). In response, applicant traverses the rejections.

The present invention is directed to an image processing apparatus providing halftone processing of grayscale image data. Pixel group reference point determination unit 64 divides the input image data into predetermined pixel groups

and determines a position of a reference point from grayscale values of respective pixels contained in the pixel groups. If the total of the grayscale values of the respective pixels contained in the pixel group is less than a threshold value based on each of the values of quantization data, then pixel group expansion processing unit 65 takes the grayscale values of the part that is less than the threshold value from unprocessed pixels in periphery of the pixel group into the pixel group. Furthermore, quantization data supply unit 66 supplies the quantization data to a pixel on the basis of the position of the reference point determined by the pixel group reference point determination unit. Thus, the present invention provides high halftone processing speed that generates stable dots without image quality deterioration by preventing production of isolated dots. Maeda does not operate in this manner.

Maeda is directed to an image coding apparatus utilizing vector quantization and Hadamard orthogonal transformation. In the embodiment disclosed in FIG. 31, Hadamard transformation using Walsh transformation patterns is applied to an input image data block $X_1...X_{16}$ by orthogonal transformation unit 603 for output as y_{11}-y_{44}. Category distribution unit 604 then extracts a DC component y_{11} and provides distribution to eight categories (col. 24, lines 1-21). Importantly, column 22, lines 64-68 merely teaches that line buffer 602 stores image data and outputs parallel blocks of image data. The disclosure of line buffer 602 does not include a reference point position determination based on the pixels within the pixel group. For this reason, the basis for supplying quantization data is not applicant's reference point position, as recited in the claims. Applicant can find no correspondence between a reference point position and the cited disclosure of Maeda such that further clarification is respectfully requested. Furthermore, Maeda fails to teach comparison of the total grayscale values to a threshold value and the taking of grayscale values less than the threshold value from unprocessed pixels in the periphery of the pixel into the pixel group. In particular, a threshold value is not disclosed.

Appl. No. 11/220,373
Amdt. dated April 30, 2009
Reply to Office Action of January 9, 2009

Atty. Ref. 88552.0006
Customer No. 26021

Moreover, dependent claim 3 recites the calculation of a product of pixel positions and grayscale values, divided into the total value of the grayscale values to determine the position of the reference point. Maeda, by contrast, merely teaches a color signal transformed into Y, I and Q signals where the I and Q information is averaged (col. 12, lines 51-57). A position of the reference point is not determined. In dependent claim 6, the quantization supply unit preferentially selects the closest pixels to the position of the reference point and supplies quantization data to the selected pixels. However, Maeda is cited for teaching a low and high sequence supplied to different vector quantization units. The low and high sequence components are determined based on low and high frequencies and not on a position relative to a reference point. Therefore, preferential selection of the pixels closest to the reference point is not disclosed.

Independent claims 1, 2 and 9 each recite the features discussed above and are allowable for at least those reasons. Claim 2 further recites the feature of a generated pulse width. However, scalar quantization and vector quantization, as disclosed by Maeda (col. 24, line 22 – col. 25, line 20), do not generate a pulse width. Since Maeda does not disclose each and every feature of claims 1, 2 and 9, it cannot anticipate claims 1, 2 and 9 or claims 3-8 dependent thereon. The rejections under 35 USC 102 should therefore be withdrawn.

Conclusion

This application is now believed to be in condition for allowance. The Examiner is invited to telephone the undersigned to resolve any issues that remain after entry of this amendment.

Appl. No. 11/220,373
Amdt. dated April 30, 2009
Reply to Office Action of January 9, 2009

Atty. Ref. 88552.0006
Customer No. 26021

Any fees due with this response may be charged to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

Date: April 30, 2009

By: _____

Troy M. Schmelzer
Registration No. 36,667
Attorney for Applicant(s)

1999 Avenue of the Stars, Suite 1400
Los Angeles, California 90067
Phone: 310-785-4600
Fax: 310-785-4601

\\\LA - 088552/000006 - 426994 v1