THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 38

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NICHOLAS A. W. VILIESID

Appeal No. 96-1628
Application No. 08/167,617[1]

ON BRIEF

Before HAIRSTON, BARRETT, and GROSS, Administrative Patent Judges.

GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 11, 12, 21, 22, 24, and 31 through 36. Claims 2 through 10, 13 through 17, and 37 have been withdrawn from consideration as being directed to nonelected claims.

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[1] Application for patent filed December 15, 1993. According to appellant, this application is a continuation of application 07/842,644, filed February 27, 1992. Now abandoned.

The appellant's invention relates to a video camera which reduces by a constant amount (a negative offset) the voltage level of the video signals which correspond to an incident intensity over a predetermined threshold. Claim 1 is illustrative of the claimed invention, and it reads as follows:

> 1. Image capture apparatus for producing video image signals, comprising:
>
> image sensor means for producing video image signals having voltage levels representative of radiation intensities incident on respective areas of said image sensor means;
>
> means for identifying those respective areas of said image sensor means at which the incident radiation intensity exceeds a predetermined intensity and for producing a control signal representative thereof; and
>
> means responsive to said control signal for selectively causing a reduction in the voltage levels of said video image signals corresponding to said respective areas, which reduction is equivalent to applying a negative offset to said video image signals.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are[2]:

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[2] Hirobe, PN 4,535,364, issued August 13, 1985, Mizokami et al., PN 4,584,610, issued April 22, 1986, Okino et al., PN 5,019,911, issued May 28, 1991, Walter, PN 3,818,127, issued June 18, 1974, Homma et al., PN 5,339,163,

Kawaoka et al. (Kawaoka)	5,075,775	Dec. 24, 1991
Asao	JP 3-070274	Mar. 26, 1991

Claims 1, 11, 21, 22, 24, and 31 through 36 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Asao. Claim 12 stands rejected under 35 U.S.C. § 103 as being unpatentable over Asao in view of Kawaoka[3].

Reference is made to the Examiner's Answer (Paper No. 29, mailed June 13, 1995) for the examiner's complete reasoning in support of the rejections, and to the appellant's Brief (Paper No. 28, filed March 10, 1995) and Reply Brief (Paper No. 31, filed August 02, 1995) for the appellant's arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by the appellant and the examiner. As a consequence of our

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issued August 16, 1994, Kerbel, PN 4,158,859, issued June 19, 1979, Oba, JP 60-136480, published July 19, 1985, and Todaka, JP 63-123278, published May 27, 1988, are all cited in the prior art section of the Examiner's Answer but were not applied in any rejections.

[3] As the claims stand or fall together (Brief, page 6), only the alleged anticipation of claim 1 by Asao will be considered.

review, we will reverse the anticipation rejection of claims 1, 11, 21, 22, 24, and 31 through 36 and the obviousness rejection of claim 12.

Claim 1, the only independent claim, recites

> means for identifying those respective areas of said image sensor means at which the incident radiation intensity exceeds a predetermined intensity . . . and
> means . . . for selectively causing a reduction in the voltage levels of said video image signals corresponding to said respective areas, which reduction is equivalent to applying a negative offset to said video image signals.

Thus, the voltage level is reduced for those areas at which the intensity exceeds the threshold, and the reduction equals a negative offset. Appellant shows in Figure 5 a uniform reduction of all voltages representing intensities above the threshold such that all of the voltages are reduced by the same amount. Appellant describes Figure 5 (Specification, page 9) as showing "a change in the image signals corresponding to that area 21 (equivalent to applying a

negative offset to those signals)." In the specification (page 11), appellant states

> The effect of the programmable attenuator 48 is, therefore, to apply a negative pedestal to a range of intensity values for the image signals within the areas specified by the threshold detector 46 to step down or shift that range of intensity values by a selected amount determined by control signals. (underlining added for emphasis.)

Accordingly, claim 1 requires reducing by a constant amount the voltage level of the video image signals that correspond to intensities above a threshold.

Appellant contends (Brief, page 8) that

> Asao does not reduce the voltage level of those areas which receive light intensities that exceed a predetermined intensity, with such reduction **being equivalent to applying a negative offset** to those areas . . . Asao reduces the lower intensity regions by a smaller amount than the higher intensity regions utilizing "reverse-light conditions."

and (Brief, page 9) that "[t]he **combination** of identifying those areas that exceed a predetermined intensity and reducing the intensities of those areas by a constant amount (i.e., a

negative offset) is neither shown nor suggested in Asao." We agree.

Asao describes (Translation, pages 5-6) reducing the light permeability (or voltage) per region according to the relative intensities for the regions. In other words, the voltage at a very high intensity region will be reduced more than at a slightly high intensity region. Asao does reduce the light permeability (or voltage) a constant amount for all picture elements within a given block. However, the claim requires "selectively causing a reduction in the voltage levels of said video image signals corresponding to said respective areas" where the "respective areas" are those areas in which the intensity exceeds a threshold value. In Asao, the areas determined to have high incident intensity values are blocks, and the voltage level from block to block varies according to the intensity incident upon the block. If the picture elements within a block are considered to be the areas, then the reduction in voltage level is not "corresponding to the respective areas", as the voltage level is reduced for each picture element within the block

regardless of the brightness level. In other words, the voltage
would be reduced even for picture elements (within the block) which have incident intensities below the threshold value.

The examiner asserts (Answer, page 10) that appellant's arguments that Asao does not teach reducing only those intensities which exceed a threshold "are not relevant since 'only those intensities which exceed a threshold are reduced' is not directly recited in the claims." However, as discussed above, claim 1 recites that the reduction is done selectively for the video image signals corresponding to the areas in which the intensity is above the threshold.

Furthermore, as the last paragraph of claim 1 is recited as a means plus function, we "must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure." In re Donaldson Co., 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994). Here, the "means . . . for selectively causing a reduction in the voltage levels of said

video image signals corresponding to said respective areas" is disclosed on page 11, lines 8-30, as a programmable attenuator 48 which

> responds to the first control signal C_1 from the threshold detector 46 to attenuate the image signals (the voltages) from the sensor 33 which correspond to the areas where the incident intensity exceeds the threshold and responds to the second control signal C_2 not to attenuate the other image signals received.
>
> Figure 7B is a schematic representation of the programmable attenuator 48. The programmable attenuator comprises a signal modifier 49 for stepping down a signal received at a first input thereof. The degree by which the input signal is stepped down is determined by a control signal S supplied at a second input of the signal modifier 49. Conveniently, the signal modifier can be implemented by an operational amplifier for which the first input is the positive input and the second input is the negative input. The control signals C_1-C_2 are used to control a switch 47. Thus, image signals received from the image sensor 33 are directed by the switch 47 to the programmable attenuator 49 on receipt of a control signal C_1 from the threshold detector 46 indicating that the received signal from the sensor 33 is representative of an image intensity exceeding the predetermined incident inten-sity P. Such signals are then stepped down by the amount determined by the control signal S. Image signals received from the image sensor 33 when a control signal C_2 is supplied by the threshold detector 46 are channeled by the switch 47

> so as to bypass the signal modifier 49 and to emerge from the programmable attenuator unamended.

In a second embodiment (Specification, page 12, lines 5-19), element 46, a threshold detector, is the same as in the first embodiment, and therefore outputs control signals C_1 and C_2 according to the incident intensity. Further, as shown in Figure 8, the signals are directed to control circuitry 51C, which

(Specification, page 12, lines 15-19).

> change[s] dynamically the integration times of the sense elements in the image sensor 51 so as to step down the image signals output by the image sensor 51 corresponding to elements in the image sensor at which the incident light intensity exceeds the predetermined intensity value.

In other words, the control circuitry in the second embodiment functions the same way as the programmable attenuator in the first embodiment, thereby reducing the voltage level only for intensities exceeding the threshold.

In the third embodiment a programmable filter replaces the programmable attenuator, but functions the same way. In particular, (Specification, page 12, lines 23-32)

> in order to step down the output signal for sense elements in the image sensor 33 for which the incident light exceeds the predetermined value, a programmable filter 52 is provided. The control signals C_1/C_2 output by the threshold detector 46 are used to cause the control circuitry 52C of the programmable filter to adjust the transmission coefficients for those areas of the filter at which the intensity exceeds the aforementioned predetermined value. The programmable filter is preferably implemented in the form of a liquid crystal display, or the like, where individual elements in the display can be set to different transmission values.

Similarly, the next embodiment (Specification, page 12, lines 33-37) includes programmable attenuator 48, as in the first embodiment.

In further embodiments, programmable attenuators 68, control circuitry 51C in combination with control logic 62, and programmable filter 52, are described to be the same as and/or to function primarily the same as programmable attenuators 48, control circuitry 51C in combination with control logic 62, and

programmable filter 52, respectively, of previous embodiments. (See Specification, page 13, lines 9-12 and 21-32, and page 14, lines 2-9.) Additionally, appellant states (Specification, page 14, lines 30-35) that

> the programmable filter could be incorporated as an integral part of an integrated image sensor with the array of optical filter elements of the programmable filter overlying the array of sense elements of the image sensor. The array of filter elements (e.g. LCD elements) could be formed as a set of further layers of integration over those for the sense elements.

Accordingly, the specification clearly provides a corresponding structure for the "means . . . for selectively causing a reduction in the voltage levels of said video image signals corresponding to said respective areas." Further, the corresponding structure attenuates only those intensities exceeding the threshold. Therefore, we find that the claim is limited to a means that reduces the voltage level of video images that correspond to intensities above the threshold. Asao does not limit the attenuation to brightnesses above the threshold.

Consequently, Asao does not meet every limitation of the claims, and we must reverse the rejection.

CONCLUSION

The decision of the examiner to reject claims 1, 11, 21, 22, 24, and 31 through 36 under 35 U.S.C. § 102(e) and claim 12 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
LEE E. BARRETT Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
ANITA PELLMAN GROSS Administrative Patent Judge	)	

vsh

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