The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 44

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RYO OZAWA and KOUHEI IKETANI

Appeal No. 2004-0557
Application No. 08/829,187

ON BRIEF[1]

Before FLEMING, GROSS and MACDONALD, ***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 through 7, 17, and 19 through 21 which are all of the claims pending in this application. Claims 19 through 21 were not addressed in the rejection presented in the Examiner’s Answer. Therefore, only claims 1 through 7 and 17 are before us on appeal.

Appellants' invention relates to an electronic endoscope including a noise reduction system that reduces random noise

[1] We note that the hearing scheduled for November 18, 2004 was waived by appellants on September 15, 2004.

included in the image signals by combining a first non-noise-reduced image signal previously stored in a frame memory with a second current non-noise-reduced signal to form a noise-reduced image signal (see specification, pages 13-14). Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. An electronic endoscope system, comprising:

an image capturing system, which receives sequential frames of an optical image of an object and sequentially outputs a plurality of image signals respectively corresponding to a plurality of color components of said sequential frames of said optical image;

a frame memory for storing image signals;

a noise reduction system, which reduces random noise included in each of said plurality of image signals by combining a non-noise-reduced image signal previously stored in said frame memory and including first random noise, with a non-noise-reduced current image signal from said image capturing system and including second random noise, to form a noise-reduced image signal, and outputs a plurality of said noise-reduced image signals, respectively corresponding to said plurality of image signals;

a memory which receives said plurality of noise-reduced image signals for each of said sequential frames of said optical image; and

a video signal generating system, which generates a video signal for each of said sequential frames based on said noise-reduced image signals, corresponding to said plurality of color components.

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

Buchin	5,475,420	Dec. 12, 1995

Amano JP 1-181840[2] Jul. 19, 1989

Claims 1 through 6 and 17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Amano.[3]

Claim 7 stands rejected under 35 U.S.C. § 103 as being unpatentable over Amano in view of Buchin.[4]

Reference is made to the Examiner's Answer (Paper No. 37, mailed June 18, 2003) for the examiner's complete reasoning in support of the rejections, and to appellants' Brief (Paper Nos. 34 and 35, filed January 4 and 18, 2002 respectively) and Reply Brief (Paper No. 40, filed September 05, 2003) for the appellants' arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by

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[2] Our understanding of this reference is based upon a translation provided by the Scientific and Technical Information Center of the Patent and Trademark Office. A copy of the translation is enclosed with this decision.

[3] Even though the final rejection indicated claim 19 as being rejected under 35 U.S.C. 102(b), and the examiner indicated that the statement of the status of the claims contained in the brief (which included claim 19 as being rejected under 35 U.S.C. 102(b)) is correct, since the Examiner's Answer did not include a rejection of claim 19, the rejection of claim 19 is considered withdrawn.

[4] Even though the final rejection indicated claims 20 and 21 as being rejected under
35 U.S.C. 103, and the examiner indicated that the statement of the status of the claims contained in the brief (which included claims 20 and 21 as being rejected under 35 U.S.C. 103) is correct, since the Examiner's Answer did not include a rejection of claims 20 and 21, the rejection of claims 20 and 21 is considered withdrawn.

appellants and the examiner. As a consequence of our review, we will reverse the anticipation rejection of claims 1 through 6, and 17, and we will reverse the obviousness rejection of claim 7.

Claims 1 through 6 and 17

Claims 1 through 6 and 17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Amano. Appellants argue (Brief, pages 7-8) that the noise reduction system 18 of Amano does not reduce the random noise in the image signals as does the claimed (see independent Claim 1) noise reduction system, namely, by "combining a non-noise-reduced image signal previously stored in said frame memory ... with a non-noise-reduced current image signal ... to form a noise-reduced image signal." Additionally, appellants argue (Brief, pages 9-11) that in the Amano system the two signals that are combined by the adder 25 are already noise-reduced because the signal that was previously stored in the frame 27 is multiplied by a coefficient K in multiplier 26, and the current signal is multiplied by a coefficient (1-K) in multiplier 24 before the two signals arrive in adder 25. Since the noise reduction is done at the multipliers 24 and 26, the two signals are thus noise-reduced by these coefficients before the two signal combination occurs in adder 25.

The examiner counters (Answer, pages 5-6) by stating that Amano teaches that the coefficient K can have values including

the value 0, and thus, when K = 0 the signals that arrive at the adder 25 are not noise-reduced. Appellants (Brief, pages 10-11) respond that regardless of the value that the coefficient K takes, the limitations of Claim 1 are not present in Amano. We agree.

Under 35 U.S.C. 102(b), a reference must disclose, explicitly or implicitly, every limitation of the claimed invention. ***Glaxo Inc. V. Novopharm Ltd.***, 52 F.3d 1043, 1047, 34 USPQ 2d 1565, 1567 (Fed. Cir.), ***cert. denied***, 516 U.S. 988 (1995). We find that, regardless of what value K takes, Amano does not implicitly or explicitly disclose a noise reduction system as recited in Claim 1, namely, a noise reduction system where the random noise is reduced by "combining a non-noise-reduced image signal previously stored in said frame memory ... with a non-noise-reduced current image signal ... to form a noise-reduced image signal." The two possible scenarios are 1) if K = 0, or 2) if K ≠ 0. See ***infra*** for an explanation of why neither scenario satisfies the limitations of independent claim 1.

1) If K = 0

If K = 0, we find that the signal which was previously stored in the frame memory 27 has to be multiplied by 0 (i.e., K) in multiplier 26 before it arrives at adder 25, and the current

image signal has to be multiplied by 1 (i.e., 1-K) in multiplier 24 before it arrives at adder 25. This means that the signal from the frame memory is cancelled (due to multiplying it by zero) and thus, only one signal arrives at the adder 25. Therefore, the limitation that the noise reduction system combines <u>two</u> non-noise-reduced signals is not present in Amano (underline added for emphasis).

2) If K ≠ 0

If K does not equal zero, we find that the signal that was previously stored in the frame memory 27 is noise reduced by having been multiplied by coefficient K in multiplier 26, and that the current signal is noise reduced by having been multiplied by (1-K) in multiplier 24, before the signals arrive at adder 25 where the signals are then combined. As such, the limitation that the noise reduction system combines two <u>non-noise-reduced signals</u> is not present in Amano (underline added for emphasis).

Therefore, we find that Amano does not disclose all the elements of independent claim 1, nor its dependents, claims 2 through 6 and 17, as required for an anticipation rejection. Thus, we will not sustain the anticipation rejection of claims 1 through 6 and 17.

Claim 7

Claim 7 stands rejected under 35 U.S.C. § 103 as being unpatentable over Amano in view of Buchin. As discussed ***supra***, Amano alone does not teach or suggest a noise reduction system that combines two non-noise-reduced signals. The examiner has not shown, nor do we find, that Buchin remedies the shortcomings of Amano. Therefore, we will not sustain the obviousness rejection of claim 7 under 35 U.S.C. § 103.

CONCLUSION

The decision of the examiner rejecting claims 1 through 6 and 17 under 35 U.S.C. § 102(b) is reversed.

The decision of the examiner rejecting claim 7 under 35 U.S.C. § 103 is reversed.

REVERSED

MICHAEL R. FLEMING Administrative Patent Judge	)	
ANITA PELLMAN GROSS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
ALLEN R. MACDONALD Administrative Patent Judge	)	

AGP/RWK

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