

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCE

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Ex parte YUJI SHINOZAKI

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Appeal No. 2004-0262  
Application No. 09/139,711<sup>1</sup>

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HEARD: APRIL 13, 2004

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Before GROSS, BARRY and SAADAT, Administrative Patent Judges.  
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1-3, 5, 6, 13 and 14. Claims 4 and 7-12 have been canceled.

We reverse.

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<sup>1</sup> Application for patent filed August 25, 1998, which claims the foreign filing priority benefit under 35 U.S.C. § 119 of the Japanese Application No. 09-228460, filed August 25, 1997.

BACKGROUND

Appellant's invention is directed to an image scanner having an expanded range of brightness within which the scanner can operate. According to Appellant, conventional scanners operate in limited range of brightness and degraded image quality when the sensor is saturated due to excessive brightness light (specification, page 2). To maintain a high image quality, Appellant provides for a brightness sensing means which causes the reading speed of the image sensor be varied according to the sensed brightness (specification, page 3).

Representative independent claim 1 is reproduced below:

1. An image scanner equipped with a one-dimensional image sensor and an optical mechanism to scan an original placed with its face up in a limited area and makes said image sensor read an image data on said original's face, comprising:

brightness sensing means for sensing the ambient brightness;  
and

means for varying the reading speed of said one-dimensional image sensor in accordance with the brightness sensed by said brightness sensing means, wherein said varying means includes a clock frequency control means for controlling a clock frequency to be applied to said one-dimensional image sensor in accordance with the brightness sensed by said brightness sensing means.

The Examiner relies on the following reference in rejecting the claims:

Suzuki et al. (Suzuki)	5,856,879	Jan. 5, 1999 (filed Jun. 19, 1997)
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Claims 1-3, 5, 6, 13 and 14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Suzuki.

We make reference to the answer (Paper No. 16, mailed July 18, 2001) and to the final Office action (Paper No. 7, mailed August 28, 2000) for the Examiner's complete reasoning in support of the rejection and to the appeal brief (Paper No. 15, filed April 7, 2001) and to the reply brief, (Paper No. 17, filed September 17, 2001) for Appellant's arguments there against.

#### OPINION

The main point of contention is based on whether the claimed clock frequency that is applied to the image sensor reads on the charging period determined by image brightness as taught in Suzuki. The Examiner equates the claimed "brightness sensing means" with the controlling of the clock frequency during the "photomentering process" while the claimed "means for varying the reading speed" is equated with elements 407-411 in Figure 30 of Suzuki (final, page 2). To support this position, the Examiner relies on column 25, lines 16-25 and 41-65 of the reference (id.).

Appellant argues that the controlling of the charging period based on brightness is not the same as the claimed controlling of the clock frequency (brief, page 5). Appellant further contrasts

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the charging period of an image sensor as a period for storing an electrical charge in the photodiodes of the image sensor with the clock signal as a signal used to shift the stored electrical charge from the photodiode (brief, page 6). Appellant further asserts that what in Suzuki corresponds with the clock signal or the driving pulse is the "transmission pulse" (col. 26, line 5) which is not the same as the charging period (id.). While acknowledging that Suzuki's charging period depends on the sensed brightness, Appellant argues that this charging period is not the same as the claimed clock pulse and the driving signal of Suzuki, which is called "transmission pulse," does not depend on the sensed brightness (id.).

In response to Appellant's arguments, the Examiner relies on Figure 20 of Suzuki and argues that the pulses generated by CPU 301 called "sample and hold pulse" and "calm pulse" are a function of the brightness determination (answer, page 4). The Examiner further relies on Figure 20 of Suzuki and argues that the clock pulses generated by the CPU called "sample and hold pulse" and "calm pulse" are a function of the brightness determination (id.). Additionally, the Examiner asserts that Suzuki does teach the clock signal as a driving pulse because the

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stored charges are transformed to a transmission part in response to a transmission pulse (answer, page 6).

A rejection for anticipation under section 102 requires that the four corners of a single prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. See Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999); In re Paulsen, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

After a review of Suzuki, we agree with Appellant's assertion that the claimed clock signal to be applied to the one-dimensional image sensor is different from the charging period or the rotating speed of the scanning mirror. Suzuki in col. 25, lines 19-24 states:

In the photometering process, a charging period of the image sensor 16 for each line during image capturing is selected based on the maximum brightness at which pixels will not be saturated. The rotating speed of the scanning motor 70 is then determined to correspond to the charging period.

Therefore, although the rotating speed of the scanning motor is determined based on the desired charging period, it is the rotation of the motor that rotates the mirror and actually causes the image sensor to capture the image for that charging period.

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The way the charging period is imposed on the image sensor is further described in col. 28, lines 9-12 and shown in Figure 31:

Then, at S505, a scanning speed fp for the scanning motor 70 is determined. The scanning speed fp is defined as a motor driving pulse cycle calculated to provide the charging period determined in the photometering process. [Emphasis added.]

The scanning motor 70 rotates the scanning mirror 2 at the speed that allows the sensor 16 to capture the image and store the charges for the duration equal to the predetermined "charge period." Once the charges are transformed to a transmission part through a shift gate, they are read out in response to a clock signal which is what Appellant argues to be independent from the sensed brightness. Suzuki describes this charge transfer in col. 25, line 67 through col. 26, line 6:

In the image sensor 16, an electrical charge, which is stored in a photodiode for each pixel in response to a received light amount, is transformed to a transmission part through a shift gate. The transmitted electrical charge is sequentially input into a floating capacitor in response to a transmission pulse and then converted to a voltage.

There is nothing in Suzuki indicate that this "transmission pulse," which is actually the only pulse applied to the image sensor, is not determined or controlled by the sensed brightness. We also agree with Appellant (reply brief, page 2) that the readout of the charges from the image sensor does not depend on

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the sensed brightness since clamp and sample-and-hold pulses (col. 15, lines 3-15) are neither a part of the image capturing and storing of the charges nor in any way described as affected by the sensed brightness.

We note that independent claims 13 and 14 also require that a clock signal dependent on the brightness information be applied to the image sensor. As discussed above, Suzuki does not apply a clock pulse to the one-dimensional image sensor that is determined according to the brightness sensed and therefore, cannot anticipate any of independent claims 1, 13, and 14, nor claims 2, 3, 5, 6 dependent therefrom.

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CONCLUSION

In view of the foregoing, the decision of the Examiner rejecting claims 1-3, 5, 6, 13 and 14 under 35 U.S.C. § 102 is reversed.

REVERSED

ANITA P. GROSS	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
LANCE L. BARRY	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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MAHSHID D. SAADAT	)	
Administrative Patent Judge	)	

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