

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas, Texarkana Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 5:23-CV-00152	DATE FILED 12/29/2023	U.S. DISTRICT COURT Eastern District of Texas, Texarkana Division
PLAINTIFF MAXELL, LTD.		DEFENDANT LG ELECTRONICS INC., and LG ELECTRONICS U.S.A., INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,736,729	5/27/2014	Maxell, Ltd.
2 7,421,188	9/2/2008	Maxell, Ltd.
3 9,818,449	11/14/2017	Maxell, Ltd.
4 10,199,072	2/5/2019	Maxell, Ltd.
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court _____ for the Eastern District of Texas, Texarkana Division _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO.	DATE FILED 11/18/2016	U.S. DISTRICT COURT for the Eastern District of Texas, Texarkana Division
PLAINTIFF HITACHI MAXELL, LTD.		DEFENDANT ZTE CORP. and ZTE USA, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 5,396,443	3/7/1995	Hitachi Maxell, Ltd.
2 6,748,317	6/8/2004	Hitachi Maxell, Ltd.
3 8,339,493	12/25/2012	Hitachi Maxell, Ltd.
4 8,736,729	5/27/2014	Hitachi Maxell, Ltd.
5 6,408,193	6/18/2002	Hitachi Maxell, Ltd.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT It is ORDERED that the above-entitled and numbered cause of action is DISMISSED WITH PREJUDICE and that each party shall bear their own costs.

CLERK <i>David A. O'Poole</i>	(BY) DEPUTY CLERK slo	DATE 3/12/2019
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE CORPORATION and ZTE (USA), INC.,
Petitioners,

v.

MAXELL, LTD.,
Patent Owner.

Case IPR2018-00238
Patent 8,736,729 B2

Before MINN CHUNG, TERRENCE W. McMILLIN, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

ZTE Corporation and ZTE (USA), Inc. (“Petitioner”)¹ filed a Petition (“Pet.”) (Paper 1) to institute an *inter partes* review of claims 1–4 of U.S. Patent 8,736,729 B2 (the “’729 patent”) (Ex. 1001) pursuant to 35 U.S.C. § 311 *et seq.* Patent Owner Maxell, Ltd. (“Patent Owner”)² filed a Preliminary Response (“Prelim. Resp.”) (Paper 6) to the Petition.

This is a preliminary proceeding to decide whether *inter partes* review of the ’729 patent should be instituted under 35 U.S.C. § 314(a), which provides that *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” *See* 35 U.S.C. § 314(a) (regarding institution of *inter partes* review); 37 C.F.R. § 42.4(a) (delegating authority to institute trial to the Board).

Upon consideration of the Petition, the Preliminary Response, and the evidence of record, we conclude that the information presented fails to show that there is a reasonable likelihood that Petitioner will prevail in establishing the unpatentability of at least one of the challenged claims of

¹ In the caption of the Petition, both ZTE Corporation and ZTE (USA), Inc. are identified as Petitioner. In the body of the Petition, ZTE (USA), Inc. is identified as the sole Petitioner and ZTE Corporation is identified as an additional real party in interest. Pet. 4.

² In the caption of the Petition, the Patent Owner is identified by the Petitioner as Hitachi Maxell, Ltd. In the caption of Patent Owner’s Mandatory Notices, the Patent Owner is identified as Hitachi Maxell, Ltd. but, in the body of this same document, the Patent Owner is identified as Maxell, Ltd. (Paper 5, 1). In the caption and body of the Preliminary Response (Paper 6, 1), Patent Owner identifies itself as Maxell, Ltd.

the '729 patent. For the reasons that follow, the Board has determined not to institute an *inter partes* review.

A. Related Matters

Both parties identify one related matter under 37 C.F.R. § 42.8(b)(2), *Maxell, Ltd. v. ZTE Corporation and ZTE USA Inc.*, 5:16-cv-00179-RWS (E.D. Tex.),³ that would affect, or be affected by, a decision in this proceeding. Pet. 1; Paper 5, 1.

B. The '729 Patent (Ex. 1001)

The '729 patent, is titled “Electric Camera.” Ex. 1001, (54). It issued on May 27, 2014, based on an application filed November 20, 2012. *Id.* at (22), (45). It claims priority as a continuation of a U.S. application filed on July 28, 2010, which claims priority as a continuation of a U.S. application filed September 12, 2003, which claims priority as a division of a U.S. application filed March 8, 2000. *Id.* at (60). Priority is also claimed to a Japanese patent application filed January 11, 2000. *Id.* at (30), 1:6–15.

The '729 patent relates to “video cameras, camcorders, digital still cameras and others using a solid-state image sensing device, and more particularly to an electric camera using a solid-state image sensing device with a large number of pixels.” *Id.* at 2:59–63. An object of the invention is to provide an electric camera “which uses an image sensing device with a sufficient number of pixels for still images and enables the taking of highly detailed still images and a moving video taking with reduced image quality degradation without increasing circuitry such as field memory.” *Id.* at 3:10–

³ Petitioner identifies the plaintiff as Hitachi Maxell, Ltd. Pet. 4. Patent Owner identifies the plaintiff as Maxell, Ltd. Paper 5, 1.

15. “It is also an object of the present invention to provide an electric camera that can also realize the image stabilizing function.” *Id.* at 3:15–17.

The ’729 patent contains 4 claims of which claims 1 and 3 are independent. *Id.* at 15:56–18:32. Claims 1–4 (all) are challenged. Pet. 4.

C. The Challenged Claims

Claims 1–4 of the ’729 patent recite:

1. A camera comprising:
 - an image sensing device having an array of pixels arranged vertically and horizontally in grid pattern;
 - an image-instability detector, configured to detect an amount of image-instability of the camera;
 - a signal processing unit configured to form image signals with a predetermined view angle by using effective pixels of the image sensing device, and:
 - during monitoring in a static image mode, to form image signals with a first view angle by using a first effective set of pixels of the image sensing device,
 - during recording in the static image mode, to form image signals by using all effective pixels of the image sensing device, and
 - during recording in a moving video mode, to form image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which is a portion of the array of pixels of the image sensing device, and to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability; and
 - a display unit configured to display an image corresponding to the image signals formed by the signal processing unit.
2. A camera according to the claim 1, wherein the first view angle is larger than the second view angle.

3. A method of operating a camera, the camera including an image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in grid pattern, a signal processing unit configured to form image signals at a predetermined view angle by using effective pixels of the image sensing device, a display unit configured to display an image corresponding to the image signals formed by the signal processing unit, and an image-instability detector configured to detect an amount of image-instability of the camera, the method for operating the camera comprising the steps of:
 - selecting between a static image mode and a moving video mode;
 - and
 - selecting an operation from a list of operations, as follows:
 - when in the static image mode, selecting an operation from a list of operations including: a monitoring of an image in the static image mode, and a recording of an image in the static image mode, and
 - when in the moving video mode, selecting an operation from a list of operations including: a recording of an image in the moving video mode;
 - wherein when the selected operation is the monitoring of an image in a static image mode, the signal processing unit forms the image signals with a first view angle, by using a first effective set of pixels of the image sensing device;
 - wherein when the selected operation is the recording of an image in the static image mode, the signal processing unit forms image signals by using all effective pixels of the image sensing device; and
 - wherein when the selected operation is the recording of an image in a moving video mode, the signal processing unit forms image signals with a second view angle, by using a second effective set of pixels which is a portion of the array of pixels of the image sensing device, a position of the second effective set of pixels being changed according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability.

4. A method for operating a camera according to the claim 3, wherein the first view angle is larger than the second view angle.

Ex. 1001, 15:58–16:61.

D. The Prior Art

Petitioner relies on the following prior art:

U.S. Patent 5,828,406, issued October 27, 1998 (“Parulski ’406”)

(Ex. 1003);

U.S. Patent 5,440,343, issued August 8, 1995 (“Parulski ’343”)

(Ex. 1004);

U.S. Patent 5,497,192, issued March 5, 1996 (“Ishizuka”) (Ex. 1005);

U.S. Patent 6,512,541 B2, filed December 8, 1997 (“Dunton”)

(Ex. 1006); and

U.S. Patent 5,493,335, issued February 20, 1996 (“Parulski ’335”)

(Ex. 1007). Pet. 6–7.

E. The Asserted Grounds

Petitioner challenges claims 1–4 of the ’729 patent on the following grounds:

Claims 1 and 3 as obvious under 35 U.S.C. § 103 in view of Parulski ’406, Parulski ’343, and Ishizuka;

Claims 2 and 4 as obvious under 35 U.S.C. § 103 in view of Parulski ’406;

Claims 1 and 3 as obvious under 35 U.S.C. § 103 in view of Dunton, Parulski ’335 and Ishizuka; and

Claims 2 and 4 as obvious under 35 U.S.C. § 103 in view of Dunton. Pet. 9.

II. ANALYSIS

A. Relevant Principles of Law

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze the asserted grounds based on obviousness with the principles identified above in mind.

B. Asserted Obviousness of Claims 1 and 3 In View of Parulski '406, Parulski '343, and Ishizuka

Petitioner challenges independent claims 1 and 3 as obvious in view of Parulski '406 (Ex. 1003), Parulski '343 (Ex. 1004), and Ishizuka (Ex. 1005). Pet. 9, 22–38.

The “Display” Limitation

Claims 1 and 3 recite, “a display unit configured to display an image corresponding to the image signals formed by the signal processing unit.” Ex. 1001, 16:17–19, 16:27–29 (the “display” limitation). Petitioner relies on Parulski '406 as teaching the “display” limitation. Pet. 27–29.

Petitioner’s showing with regard to the “display” limitation is inconsistent with Petitioner’s construction of this limitation. As part of its

proposed construction for the “display” limitation,” Petitioner contends, “[t]he structure for the term should be ‘display screen of a television system’ or other screen compatible with NTSC or PAL format.” Pet. 16–17 (citing Ex. 1001, 1:35–36, 3:22–23, 10:19–21). Patent Owner argues, “Grounds A–D [all asserted grounds] should not be instituted at least due to Petitioner’s clear error of not applying its own proposed construction when setting forth its grounds of obviousness.” Prelim Resp. 13. Petitioner fails to show that the prior art teaches or suggests the “display” limitation for any of the asserted grounds under Petitioner’s proposed construction for this limitation.

37 C.F.R. § 42.104(b)(3) and (4), which relate to the content of petitions, require statements of “[h]ow the challenged claim is to be construed” and “[h]ow the construed claim is unpatentable.” Thus, this rule requires that the construction of a claim in a petition be consistent with the unpatentability contentions in a petition. Regardless of whether or not this construction is correct,⁴ Petitioner makes no showing that Parulski ’406 teaches a television screen or other screen compatible with either the NTSC or the PAL format. Pet. 27–29. Therefore, Petitioner has violated Section 42.104(b)(3) and (4) by failing to show that the prior art teaches or suggests the “display” limitation under its own proposed construction.

In the absence of any express teaching on the “display” limitation in Parulski ’335, Petitioner alludes to the knowledge of a person of ordinary skill in the art (“POSITA”) and relies on the Declaration of Dr. Barmak Mansoorian (“Mansoorian Declaration”) (Ex. 1002). The Petition states:

⁴ In the litigation between the parties, the District Court adopted a “[p]lain and ordinary meaning” construction of the “display” limitation. Ex. 2001, 12. We agree with the District Court for purposes of this Decision.

it would have been obvious to a POSITA that an electric camera would include a display screen. Ex. 1002 at ¶91. The display screen would present the captured object on a display so that the user to review image, activate additional features if needed, such as zoom in/out, and make decisions, such as delete, save or transfer the image. *Id.*

Pet. 29. The only evidence cited in support of the conclusion that it would be obvious that an electric camera would include a display screen for displaying images is paragraph 91 of the Mansoorian Declaration.

Paragraph 91 states:

91. As discussed earlier in the technology background section, a display unit is a basic component of the camera. It would have been obvious to a POSITA or even to a regular customer that a display unit is a basic part of an electric camera. Having a display unit is essential to the user to review captured images and make decision on whether to save, alter, or delete the image.

Ex. 1002 ¶ 91. However, we accord Dr. Mansoorian's testimony as to what would have been obvious no weight because it relates to the wrong time period.

Specifically, the Mansoorian Declaration states: "I also understand that the *earliest possible priority date* for the '729 Patent *is November 20, 2012*. I have therefore analyzed obviousness as of that date or somewhat before that date." Ex. 1002 ¶ 32 (emphasis added). The Petition states: "[t]he earliest effective filing date of the claims of the '729 patent is November 20, 2012. (*See* Ex. 1001)." Pet. 6. Patent Owner asserts the priority date of the '729 patent is January 11, 2000. Prelim. Resp. 3–4.

The application for the '729 patent was filed on November 20, 2012. Ex. 1001, (22). However, this application was a **continuation** of an application filed July 28, 2010, which was a **continuation** of an application filed September 12, 2003, which in turn was a **division** of an application filed March 8, 2000. *Id.* at (60), 1:6–15. And, priority is claimed to a Japanese application filed January 11, 2000. *Id.* at (30). Considering the continuity of applications as indicated on the front page of the '729 patent, and absent any argument or evidence to the contrary, we accept the patentee's priority claims to the Japanese application. For purposes of this Decision, we conclude that the priority date for the '729 patent is January 11, 2000. Thus, the “earliest possible priority date” used by Dr. Mansoorian to analyze obviousness was off by about 12 years (2000–2012). The parties seem to agree that the technology relating to electric cameras advanced a great deal in this time period. *See* Ex. 1002 ¶¶ 37–38; Prelim. Resp. 3–4. For these reasons, we accord Dr. Mansoorian's testimony no weight because it is not tied to the time of the invention. As a result, we are not persuaded by Petitioner's contentions about how an ordinarily skilled artisan would have found the “display” limitation obvious.

For these reasons, Petitioner has failed to establish a reasonable likelihood of showing the cited art teaches or suggests “a display unit with a display screen, that displays an image corresponding to the image signals.” Petitioner has not established a reasonable likelihood of showing that it would prevail in its challenge to claims 1 and 3 based on the combination of Parulski '406, Parulski '343, and Ishizuka.

C. Asserted Obviousness of Claims 2 and 4 In View of Parulski '406

Petitioner challenges dependent claims 2 and 4 as obvious in view of Parulski '406 (Ex. 1003). Pet. 9, 38–39. Petitioner's presentation is short and conclusory. *See id.* Patent Owner argues, “[c]laims 2 and 4 depend from claims 1 and 3, respectively and therefore require each and every feature of their base claims” and “Petitioner has failed to show obviousness of claims 2 and 4 for at least the same reasons as discussed above with respect to claims 1 and 3.” Prelim. Resp. 33. More particularly, Patent Owner argues:

Petitioner repeatedly asserts that claims 2 and 4 are obvious in view of Parulski '406 alone. Pet. at 9 and 38-39. This, however, is not possible because as Petitioner admits in Ground A, Parulski '406 alone does not teach or suggest each and every element of claims 1 and 3, and therefore cannot teach or suggest each and every element of dependent claims 2 and 4.

Prelim. Resp. 33.

We agree with Patent Owner. With respect to claims 2 and 4, Petitioner cites only Parulski '406. Pet. 38–39. Yet dependent claims 2 and 4 include all the limitations from independent claims 1 and 3, respectively. 35 U.S.C. § 112 (“A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.”). Petitioner makes no showing that the limitations of independent claims 1 and 3 would have been obvious over Parulski '406 alone. Moreover, in its analysis for the Parulski '406-Parulski '343-Ishizuka ground, Petitioner relies on, and cites to, Parulski '343 and Ishizuka for teachings relating to multiple limitations recited in claims 1 and 3. Pet. 24–26, 30–32, 36–38. This is a further indication that Parulski '406 alone would not have taught or

suggested the limitations in the base claims. As such, Petitioner fails to explain how Parulski '406 alone teaches all the limitations of claims 2 and 4 or how Parulski '406 alone renders claims 2 and 4 obvious.

In its presentation relating to claims 2 and 4, Petitioner also cites the Mansoorian Declaration in support of this conclusion: “it would’ve been obvious to a POSITA that the view angle for still image could be larger or smaller than the video image and vice versa depending on how the view angle is adjusted by the zoom in/out button or how the lens is focused.” Pet. 39 (citing Ex. 1002 ¶ 115). For the reasons discussed above, we do not give any weight to Dr. Mansoorian’s testimony as to what would have been obvious because it relates to the wrong time period.

For at least these reasons, Petitioner has not established a reasonable likelihood of showing that it would prevail in its challenge to claims 2 and 4 based on Parulski '406.

D. Asserted Obviousness of Claims 1 and 3 In View of Dunton, Parulski '335, and Ishizuka

Petitioner challenges independent claims 1 and 3 as obvious in view of Dunton (Ex. 1006), Parulski '335 (Ex. 1007), and Ishizuka (Ex. 1005). Pet. 9, 40–55.

The “Display” Limitation

Claims 1 and 3 recite “a display unit configured to display an image corresponding to the image signals formed by the signal processing unit.” Ex. 1001, 16:17–19, 16:27–29 (the “display” limitation). For this ground, Petitioner relies on Parulski '335 as teaching the “display” limitation. Pet. 46–47. The Petition states:

Parulski '335 teaches "Referring initially to FIG. 1 ... a control and display section 14 for user interface with the camera...)." Ex. 1007 at 3:25-39. "The microprocessor controller 82 also controls a display element 50a in the viewfinder 50 (for indicating flash ready, under/over exposure, and the like), and receives exposure data from the photocell 54... While the processing and storage section 12 automatically controls image exposure upon the CCD sensor 28 by means of data input from the photocell 54, a plurality of switches are provided in the control and display section 14 for manually activating a variety of additional features. (Some switches directly activate the respective features, while other switches activate a menu of choices on a liquid crystal display (LCD) 90.)" *Id.* at 4:55-66 (emphasis added).

Id. The passages Petitioner cites in Parulski '335 (Ex. 1007, 3:25–39, 4:55–66) refer to two displays: (1) display element 50a in the viewfinder 50 and (2) LCD 90. *See* Ex. 1007, Fig. 1. Patent Owner argues:

nowhere in the sections cited by Petitioner or [i]n Puralski '335 is there any discussion of display element 50a or LCD 90 displaying an image corresponding to **the** image signals that, according to claims 1 and 3, are formed by a signal processing unit with a ["predetermined view angle by using effective pixels of the image sensing device."

Prelim. Resp. 35 (citing Ex. 1001, 16:1–3).

We agree with Patent Owner that Parulski '335 does not expressly disclose display element 50a or LCD 90 displaying an image corresponding to the image signals. Figure 1 of Parulski '335 is reproduced below (red boxes around viewfinder 50 and LCD 90 added).

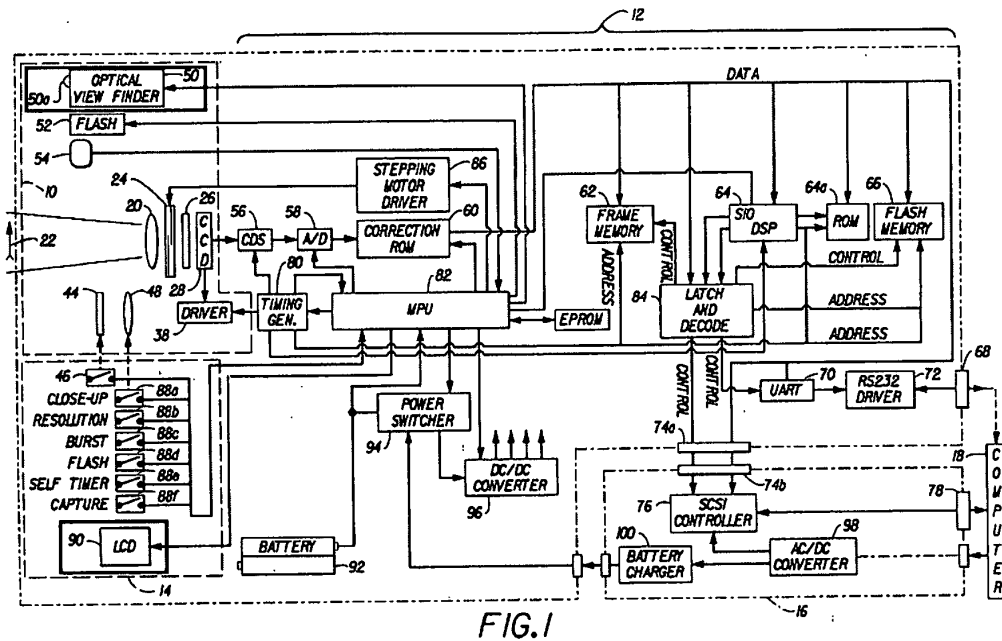


Figure 1 depicts the elements of an electric camera in block form. Ex. 1007, 3:26–27. There is no indication in Figure 1 that display element 50a in viewfinder 50 or LCD 90 are connected in the depicted device in such a way as to receive any data allowing for display of an image corresponding to the image signals. To the contrary, neither display element 50a in viewfinder 50 nor LCD 90 are shown to receive any output from the charge-coupled (CCD) image sensor 28 or from the image data processing and storage apparatus in the upper right corner of Figure 1. We agree with Patent Owner that “the still image data from A/D 58 through correction ROM 60 and through DSP 64 is routed to the computer without a path to the LCD [90] or the optical viewfinder 50.” Prelim. Resp. 37.

Furthermore, Parulski '335 teaches that its displays are used for other purposes. Parulski '335 states that “display element 50a in the viewfinder 50” is “for indicating flash ready, under/over exposure, and the like.”

Ex. 1007, 4:56–57. LCD 90 displays “a menu of choices.” *Id.* at 4:65–5:10.

Parulski '335 states:

switches activate *a menu of choices on a liquid crystal display (LCD) 90*. For instance, a switch 88a moves the close-up lens 48 into position, a switch 88b allows the user to select which of two (high or low) different resolution levels of sensor data are stored in the frame buffer memory 62, a switch 88c activates a low resolution “burst” mode in which several pictures are rapidly taken, as switch 88d activates the flash unit 52, and a switch 88e activates a self-timer delay mode. A capture switch 88f initiates each exposure. *The liquid crystal display (LCD) 90 indicates the selected feature values.*

Id. (emphases added). Parulski '335 provides no support for finding the display element 50a in viewfinder 50 or the LCD 90 display is an image corresponding to the image signals. Parulski '335 does not expressly teach the “display” limitation.

In the absence of any express teaching on the “display” limitation in Parulski '335, Petitioner alludes to the knowledge of a person of ordinary skill in the art (“POSITA”) and relies on the Mansoorian Declaration. The Petition states:

A POSITA at the time the alleged invention was made would look at Parulski '335 to implement a display unit to display a captured image corresponding to the image signal formed by the processing unit. Ex. 1002 ¶¶125-126.

It would have been obvious to a POSITA that an electric camera would include a display screen. *Id.* The display screen would present the captured object on a display so that the user to review image, activate additional features if needed, such as zoom in/out, and make decisions, such as delete, save or transfer the image. *Id.* A POSITA would have been motivated to combine Dunton '541 with Parulski '335 teaching a camera

having a display unit configured to display an image corresponding to the image signals formed by the signal processing unit. *Id.*

Pet. 46. The only evidence cited in support of the conclusion that it would be obvious that an electric camera would include a display screen for displaying images are paragraphs 125 and 126 of the Mansoorian Declaration (Ex. 1002). For the reasons discussed above, we do not give any weight to Dr. Mansoorian's testimony as to what would have been obvious because it relates to the wrong time period.

As is also discussed above, Petitioner's showing with regard to the "display" limitation is inconsistent with Petitioner's construction of this limitation. Petitioner argues the "display" limitation should be construed as "[t]he structure for the term should be 'display screen of a television system' or other screen compatible with NTSC or PAL format." Pet. 16–17 (citing Ex. 1001, 1:35–36, 3:22–23, 10:19–21). Petitioner makes no showing that Parulski '335 teaches a television screen or other screen compatible with either the NTSC or the PAL format. *Id.* at 46–47. Patent Owner argues, "Grounds A-D [all asserted grounds] should not be instituted at least due to Petitioner's clear error of not applying its own proposed construction when setting forth its grounds of obviousness." Prelim Resp. 13. For the same reasons discussed above, Petitioner's showing with regard to the "display" limitation violates 37 C.F.R. § 42.104(b)(3) and (4) and is not reasonably likely to succeed.

Thus, Petitioner has failed to establish a reasonable likelihood of showing the cited art teaches or suggests "a display unit with a display screen, that displays an image corresponding to the image signals." For at

least this reason, Petitioner has not established a reasonable likelihood of showing that it would prevail in its challenge to claims 1 and 3 based on the combination of Dunton, Parulski '335, and Ishizuka.

E. Asserted Obviousness of Claims 2 and 4 In View of Dunton

Petitioner challenges dependent claims 2 and 4 as obvious in view of Dunton (Ex. 1006). Pet. 9, 56. Petitioner's presentation is short and conclusory. *See Id.* Patent Owner argues, "Claims 2 and 4 depend from claims 1 and 3, respectively and therefore require each and every feature of their base claims" and "Petitioner has failed to show obviousness of claims 2 and 4 for at least the same reasons as discussed above with respect to claims 1 and 3." Prelim. Resp. 51. More particularly, Patent Owner argues:

Petitioner repeatedly asserts that claims 2 and 4 are obvious in view of Dunton alone. Pet. at 9 and 56-57. This, however, is not possible because as Petitioner admits in Ground C, Dunton alone does not teach or suggest each and every element of claims 1 and 3, and therefore cannot teach or suggest each and every element of dependent claims 2 and 4.

Prelim. Resp. 51.

We agree with Patent Owner. With regard to claims 2 and 4, Petitioner cites only Dunton. Pet. 56. Yet dependent claims 2 and 4 include all the limitations from independent claims 1 and 3, respectively. 35 U.S.C. § 112 ("A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers."). Petitioner makes no showing that the limitations of independent claims 1 and 3 would have been obvious over Dunton alone. Moreover, in its analysis for the Dunton-Paulski '335-Ishizuka ground, Petitioner relies on, and cites to, Parulski '335 and Ishizuka for teachings relating to multiple limitations

recited in claims 1 and 3. Pet. 43–44, 46–47, 52, 54–55. This is a further indication that Dunton alone would not have taught or suggested the limitations in the base claims. As such, Petitioner fails to explain how Dunton alone teaches all the limitations of claims 2 and 4 or how Dunton alone renders claims 2 and 4 obvious.

In its presentation relating to claims 2 and 4, Petitioner also cites the Mansoorian Declaration in support of this conclusion: “it would’ve been obvious to a POSITA that the view angle for still image could be either larger or smaller than the video image and vice versa depending on how the view angle is adjusted by the zoom lens.” Pet. 56 (citing Ex. 1002 ¶ 149). For the reasons discussed above, we do not give any weight to Dr. Mansoorian’s testimony as to what would have been obvious because it relates to the wrong time period.

For at least these reasons, Petitioner has not established a reasonable likelihood of showing that it would prevail in its challenge to claims 2 and 4 based on Dunton.

F. Conclusion

We conclude that Petitioner has not demonstrated a reasonable likelihood that at least one of the challenged claims is unpatentable based on the asserted grounds. We therefore do not institute an *inter partes* review on any of the asserted grounds as to any of the challenged claims of U.S. Patent No. 8,736,729 B2.

IPR2018-00238
Patent 8,736,729 B2

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied* as to all challenged claims and all grounds and no trial is instituted.

IPR2018-00238
Patent 8,736,729 B2

PETITIONER:

Steven A. Moore
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Cheng (Jack) Ko
Howard N. Wisnia
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PATENT OWNER:

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AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court _____ for the Eastern District of Texas, Texarkana Division _____ on the following
☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED 11/18/2016	U.S. DISTRICT COURT for the Eastern District of Texas, Texarkana Division
PLAINTIFF HITACHI MAXELL, LTD.		DEFENDANT ZTE CORP. and ZTE USA, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 5,396,443	3/7/1995	Hitachi Maxell, Ltd.
2 6,748,317	6/8/2004	Hitachi Maxell, Ltd.
3 8,339,493	12/25/2012	Hitachi Maxell, Ltd.
4 8,736,729	5/27/2014	Hitachi Maxell, Ltd.
5 6,408,193	6/18/2002	Hitachi Maxell, Ltd.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court _____ for the Eastern District of Texas, Texarkana Division _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO.	DATE FILED 11/18/2016	U.S. DISTRICT COURT for the Eastern District of Texas, Texarkana Division
PLAINTIFF HITACHI MAXELL, LTD.		DEFENDANT ZTE CORP. and ZTE USA, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 5,396,443	3/7/1995	Hitachi Maxell, Ltd.
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3 8,339,493	12/25/2012	Hitachi Maxell, Ltd.
4 8,736,729	5/27/2014	Hitachi Maxell, Ltd.
5 6,408,193	6/18/2002	Hitachi Maxell, Ltd.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/681,495	05/27/2014	8736729	500.38315CC4	3960

20457 7590 05/07/2014
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Takahiro Nakano, Tokyo, JAPAN;
Ryuji Nishimura, Tokyo, JAPAN;
Toshiro Kinugasa, Tokyo, JAPAN;
HITACHI, LTD., Tokyo, JAPAN

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

Please enter ADS filed on 03/07/2014

/L.T.N./

04/17/2014

PTO/AIA/14 (08-12)
Approved for use through 01/31/2014. OMB 0851-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	<u>13/681,485</u>
Title of Invention	ELECTRIC CAMERA		
<small>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</small>			

Secrecy Order 37 CFR 5.2

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Takahiro		Nakano	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	<u>Tokyo</u>	Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country i	JP	
Inventor 2 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Ryuji		Nishimura	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	<u>Tokyo</u>	Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country i	JP	
Inventor 3 Remove				
Legal Name				

PART B- FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450**

Or Fax **(571) 273-2885**

500.38315CC4

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks I through 5 should be completed where appropriate. All Further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for Maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)
020457 7590 01/16/2014

ANTONELLI, TERRY STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying Papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope Addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO. 13/681,495	FILING DATE 11/20/2012	FIRST NAMED INVENTOR TAKAHIRO NAKANO	ATTORNEY DOCKET NO. 500.38315CC4	CONFIRMATION NO. 3960
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TITLE OF INVENTION: ELECTRIC CAMERA

APPL. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE (\$)	DATE DUE
Nonprovisional	NO	\$960	\$0	\$0	\$960	04/16/2014

EXAMINER NGUYEN, LUONG TRUNG	ART UNIT 2663	CLASS-SUBCLASS 348-302000
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<p>1. Change of correspondence address or indication of "Fee Address: (37 CFR 1.363).</p> <p>☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122 attached.</p> <p>☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of Customer Number is required.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) the names of up to 3 registered patent attorneys 1 ANTONELLI, TERRY, STOUT & KRAUS, LLP.</p> <p>Or agents OR, alternatively,</p> <p>(2) the name of single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed no name will be printed.</p>
---	---

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Hitachi Consumer Electronics Co., Ltd.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Tokyo, Japan

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☒ Advance Order- # of Copies 2

4b. Payment of Fee (s):

- ☐ A check is enclosed.
☒ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number **01-2135**

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above. NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States patent and Trademark Office.

Authorized Signature /Alan E. SchiavelliDate: **April 15, 2014**Typed or printed name **Alan E. Schiavelli**Registration No. **32,087**

Electronic Patent Application Fee Transmittal				
Application Number:		13681495		
Filing Date:		20-Nov-2012		
Title of Invention:		ELECTRIC CAMERA		
First Named Inventor/Applicant Name:		Takahiro Nakano		
Filer:		Alan Edwin Schiavelli/Sharon Dickenson		
Attorney Docket Number:		500.38315CC4		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	960	960
Publ. Fee- Early, Voluntary, or Normal	1504	1	0	0

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Printed Copy of Patent - No Color	8001	2	3	6
Total in USD (\$)				966

Electronic Acknowledgement Receipt	
EFS ID:	18769934
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Alan Edwin Schiavelli/Sharon Dickenson
Filer Authorized By:	Alan Edwin Schiavelli
Attorney Docket Number:	500.38315CC4
Receipt Date:	15-APR-2014
Filing Date:	20-NOV-2012
Time Stamp:	16:33:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 966
RAM confirmation Number	3089
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Issue Fee Payment (PTO-85B)	38315CC4IF.pdf	194581 f8b9bfe0d71cf8405df7090388b5efc6c927849b	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	33503 9721cc016da5bad4f6ef10cdb9e5f8594a4b007f	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			228084		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/681,495	11/20/2012	2663	1390	500.38315CC4	1	1

CONFIRMATION NO. 3960

CORRECTED FILING RECEIPT



OC000000067295442

20457

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

Date Mailed: 03/21/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Takahiro Nakano, Tokyo, JAPAN;
Ryuji Nishimura, Tokyo, JAPAN;
Toshiro Kinugasa, Tokyo, JAPAN;

Applicant(s)

HITACHI, LTD., Tokyo, JAPAN

Assignment For Published Patent Application

Hitachi, Ltd., Tokyo, JAPAN

Power of Attorney: The patent practitioners associated with Customer Number 020457

Domestic Priority data as claimed by applicant

This application is a CON of 12/845,266 07/28/2010 PAT 8339493
which is a CON of 10/660,710 09/12/2003 PAT 8059177
which is a DIV of 09/520,836 03/08/2000 PAT 6765616

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)
JAPAN 00-006064 01/11/2000

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 12/13/2012

page 1 of 3

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/681,495**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
Title

ELECTRIC CAMERA

Preliminary Class

348

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

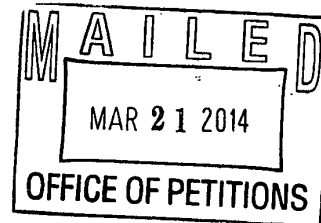
The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON VA 22209-3873



In re Application of :
Nakano, et al. :
Application No. 13/681,495 : DECISION ON PETITION
Filed: November 20, 2012 : UNDER 37 CFR 1.78(e)
Attorney Docket No. 500.38315CC4 :

This is a decision on the petition under 37 CFR § 1.78(e), filed March 7, 2014, to accept an unintentionally delayed claim under 35 U.S.C. § 120 for the benefit of priority to the prior-filed nonprovisional applications set forth in the concurrently filed Application Data Sheet (ADS). This is also a decision on the petition to expedite under 37 CFR 1.182.

DECISION UNDER 37 CFR 1.182

In general, decisions on petitions are rendered in the order in which they are received by the USPTO. However, the USPTO will consider expediting the rendering of a decision on petition provided petitioner submits a petition to expedite (and required fee) under 37 CFR 1.182.

The instant petition under 37 CFR 1.78(e) was accompanied by a petition to expedite under 37 CFR 1.182 (along with required petition fee).

In view thereof, the petition to expedite under 37 CFR 1.182 is hereby **GRANTED**.

DECISION UNDER 37 CFR 1.78(e)

The petition under 37 CFR 1.78(e) is **GRANTED**.

A petition for acceptance of a claim for late priority under 37 CFR § 1.78(e) is only applicable to those applications filed after the expiration of the period specified in 37 CFR § 1.78(d)(3). In addition, the petition under 37 CFR § 1.78(e) must be accompanied by:

- (1) the reference required by 35 U.S.C. § 120 and 37 CFR § 1.78(d)(2) of the prior-filed application, which must be filed in an Application Data Sheet, unless previously submitted;
- (2) the petition fee set forth in § 1.17(m); and
- (3) a statement that the entire delay between the date the claim was due under 37 CFR § 1.78(d)(3) and the date the claim was filed was

unintentional. The Director may require additional where there is a question whether the delay was unintentional.

All the above requirements having been satisfied, the late claim for benefit of priority under 35 U.S.C. § 120 is accepted as being unintentionally delayed.

The granting of the petition to accept the delayed benefit claim to the prior-filed applications under 37 CFR § 1.78(e) should not be construed as meaning that this application is entitled to the benefit of the filing date of the prior-filed applications. In order for this application to be entitled to the benefit of the prior-filed applications, all other requirements under 35 U.S.C. §120 and under 1.78 must be met. Similarly, the fact that the corrected Filing Receipt accompanying this decision on petition includes the prior-filed applications should not be construed as meaning that applicant is entitled to the claim for benefit of priority to the prior-filed applications noted thereon. Accordingly, the examiner will, in due course, consider this benefit claim and determine whether the application is entitled to the benefit of the earlier filing date.

A corrected Filing Receipt, which includes the priority claim to the prior-filed applications, accompanies this decision on petition.

Any questions concerning this matter may be directed to the undersigned at (571) 272-3205. All other inquiries concerning either the examination procedures or status of the application should be directed to the Technology Center.

This application is being forwarded to the Office of Data Management for further processing.

/ALESIA M. BROWN/

Alesia M. Brown
Attorney Advisor
Office of Petitions

ATTACHMENT: Corrected Filing Receipt



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/681,495	11/20/2012	2663	1390	500.38315CC4	1	1

CONFIRMATION NO. 3960

CORRECTED FILING RECEIPT



OC000000067295442

20457

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

Date Mailed: 03/21/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Takahiro Nakano, Tokyo, JAPAN;
Ryuji Nishimura, Tokyo, JAPAN;
Toshiro Kinugasa, Tokyo, JAPAN;

Applicant(s)

HITACHI, LTD., Tokyo, JAPAN

Assignment For Published Patent Application

Hitachi, Ltd., Tokyo, JAPAN

Power of Attorney: The patent practitioners associated with Customer Number 020457

Domestic Priority data as claimed by applicant

This application is a CON of 12/845,266 07/28/2010 PAT 8339493
which is a CON of 10/660,710 09/12/2003 PAT 8059177
which is a DIV of 09/520,836 03/08/2000 PAT 6765616

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)
JAPAN 00-006064 01/11/2000

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 12/13/2012

page 1 of 3

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/681,495**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
Title

ELECTRIC CAMERA

Preliminary Class

348

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. NAKANO, et al.
Application No.: 13/681,495
Filed: November 20, 2012
Title: ELECTRIC CAMERA
Group AU: 2663
Examiner: Luong Trung Nguyen
Confirm. No.: 3960

**PETITION FOR UNINTENTIONALLY DELAYED DOMESTIC BENEFIT CLAIM
UNDER 37 C.F.R. §1.78(c)(2) and §1.78(d) and 35 U.S.C. § 120 and
PETITION UNDER 37 C.F.R. §1.182 REQUESTING EXPEDITED HANDLING**

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

March 7, 2014

SIR:

Applicants hereby petitions, in accordance with 37 C.F.R. § 1.78(c)(2) and 1.78(d), to claim the benefit under 35 U.S.C. § 120, for the above-identified application, of Application No. 12/845,566, filed July 28, 2010; and Application No. 10/660,710, filed September 12, 2003 (now U.S. Patent No. 8,059,177); and Application No. 09/520,836, filed March 8, 2000 (now U.S. Patent No. 6,765,616).

Applicants hereby state that the entire delay between the date the benefit claim was due under 37 C.F.R. §1.78(c)(3) and the date the benefit claim was filed was unintentional. Applicants note that the benefit claim is recited in page 1 of the original specification.

Attached herewith is a new Application Data Sheet.

Docket No. **500.38315CC4**
Application No. 13/681,495
March 6, 2014

Enclosed are the surcharge fee of \$1,700.00 set forth in §1.17(m) as required by 37 C.F.R. §1.55 (c)(1) and the surcharge fee of \$400.00 as set forth in §1.17(f) as required by 37 C.F.R. §1.182.

Applicants request any shortage or excess in fees in connection with the filing of this paper, including extension of time fees, and for which no other form of payment is offered, be charged or credited to Deposit Account No. 01-2135 (Docket No. 500.38315CC4).

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon /
Ayal I. Sharon
Registration No. 55,986

AIS/kmh
1300 N. Seventeenth Street
Suite 1800
Arlington, Virginia 22209
Tel: 703-312-6600
Fax: 703-312-6666

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681.495
Title of Invention	ELECTRIC CAMERA		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Takahiro		Nakano	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	Tokyo	Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country i	JP	
Inventor 2 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Ryuji		Nishimura	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	Tokyo	Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country i	JP	
Inventor 3 Remove				
Legal Name				

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4	
		Application Number	13/681,495	
Title of Invention	ELECTRIC CAMERA			
Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		Kinugasa	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	Tokyo		Country of Residence	JP
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country	JP	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.				

Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	020457
Email Address	

Add Email

Remove Email

Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

EFS Web 2.2.5

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	<u>13/681,495</u>
Title of Invention	ELECTRIC CAMERA		
<p>Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.</p>			
Please Select One:			
☒ Customer Number		☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	020457		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
<u>13681495</u>	<u>Continuation of</u>	<u>12845266</u>	<u>2010-07-28</u>		
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12845266	Continuation of	10660710	2003-09-12	8059177	2011-11-15
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10660710	Division of	09520836	2000-03-08 <u>2000-04</u>	6765616	2004-07-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

				Remove
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed	
00-006064	JP	2000-01-11	☒ Yes ☐ No	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.				

Authorization to Permit Access:

EFS Web 2.2.5

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	<u>13/681,495</u>
Title of Invention	ELECTRIC CAMERA		

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

☐ Assignee ☐ Legal Representative under 35 U.S.C. 117 ☐ Joint Inventor

☐ Person to whom the inventor is obligated to assign. ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name Hitachi, Ltd.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	<u>13/681,495</u>
Title of Invention	ELECTRIC CAMERA		

Mailing Address Information:			
Address 1		6-6, Marunouchi 1-chome, Chiyoda-ku	
Address 2			
City	Tokyo	State/Province	
Country	JP	Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1				
Complete this section only if non-applicant assignee information is desired to be included on the patent application publication in accordance with 37 CFR 1.215(b). Do not include in this section an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest), as the patent application publication will include the name of the applicant(s).				
If the Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information:				
Address 1				
Address 2				
City		State/Province		
Country		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee Data may be generated within this form by selecting the Add button.				

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	<u>13/681,495</u>
Title of Invention	ELECTRIC CAMERA		

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Ayal I. Sharon/		Date (YYYY-MM-DD)	2014-03-10	
First Name	Ayal	Last Name	Sharon	Registration Number	55986
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:		13681495		
Filing Date:		20-Nov-2012		
Title of Invention:		ELECTRIC CAMERA		
First Named Inventor/Applicant Name:		Takahiro Nakano		
Filer:		Ayal I. Sharon/Krista Hargrove		
Attorney Docket Number:		500.38315CC4		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Petition fee- 37 CFR 1.17(f) (Group I)	1462	1	400	400
Pet. Delay Sub or Restore Priority-Claim	1454	1	1700	1700
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2100

Electronic Acknowledgement Receipt	
EFS ID:	18402392
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon/Krista Hargrove
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	07-MAR-2014
Filing Date:	20-NOV-2012
Time Stamp:	13:37:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$2100
RAM confirmation Number	11441
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Petition for review by the Office of Petitions.	38315Petition.pdf	55689 2cae5393e310babdcf042f7c5a78a2e8064a c1fd	no	2
Warnings:					
Information:					
2	Application Data Sheet	38315ADS4.pdf	2000739 c825102aa021e8125b8343f10417063ddf 48c7	no	7
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3	Fee Worksheet (SB06)	fee-info.pdf	31808 d6649e7b17cbb5461f28a52adb62cd83d3 d9b3aa	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			2088236		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

20457 7590 01/16/2014
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 01/16/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4	3960

TITLE OF INVENTION: ELECTRIC CAMERA

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	04/16/2014

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

20457 7590 01/16/2014
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4	3960

TITLE OF INVENTION: ELECTRIC CAMERA

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	04/16/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, LUONG TRUNG	2663	348-302000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4	3960

20457	7590	01/16/2014
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873		

EXAMINER	
NGUYEN, LUONG TRUNG	

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 01/16/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/681,495	Applicant(s) NAKANO ET AL.	
	Examiner LUONG T. NGUYEN	Art Unit 2663	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to See Continuation Sheet.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-4. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☒ All b) ☐ Some *c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 3. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material 4. ☒ Interview Summary (PTO-413),
Paper No./Mail Date <u>01/06/2014</u>. | <ol style="list-style-type: none"> 5. ☒ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____. |
|---|---|

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2663

Continuation of Item 1. This communication is responsive to :

Amendment filed on 12/20/2013, Interview on 01/06/2014, and Terminal Disclaimer filed on 01/09/2014.

1. The present application is being examined under the pre-AIA first to invent provisions.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Ayal Sharon on 01/06/2014.

3. The application has been amended as follows:

CLAIMS

Claim 3 (line 13), "operations including: monitoring an image in the static image mode" has been changed to --operations including: a monitoring of an image in the static image mode--.

Claim 3 (line 14), "recording an image in the static image mode" has been changed to --a recording of an image in the static image mode--.

Claim 3 (line 16), "operations including: recording an image in the moving video mode" has been changed to --operations including: a recording of an image in the moving video mode--.

Claim 3 (line 17), "wherein when the selected operation is monitoring an image in the static" has been changed to --wherein when the selected operation is the monitoring of an image in the static--.

Claim 3 (line 20), “wherein when the selected operation is recording an image in the static image” has been changed to --wherein when the selected operation is the recording of an image in the static image--.

Claim 3 (line 23), “wherein when the selected operation is recording an image in the moving” has been changed to --wherein when the selected operation is the recording of an image in the moving--.

Claim 3 (line 26), “which are a portion of the pixels of the image sensing device” has been changed to --which is a portion of the array of pixels of the image sensing device--.

REASONS FOR ALLOWANCE

4. Claims 1-4 are allowed.

5. The following is an examiner’s statement of reasons for allowance:

Claims 1-4 are allowed in view of Applicant’s Arguments made in Amendment filed on 12/30/2013 and Terminal Disclaimer filed on 01/09/2014.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571)272-7315. The examiner can normally be reached on 7:30AM - 5:00PM, MONDAY -THURSDAY.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TWYLER HASKINS can be reached on (571) 272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2663
01/10/14

Issue Classification 	Application/Control No. 13681495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.	
	Examiner LUONG T NGUYEN	Art Unit 2663	

CPC			Type	Version
Symbol				

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	4	
/LUONG T NGUYEN/ Primary Examiner.Art Unit 2663	01/10/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

Issue Classification 	Application/Control No. 13681495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION													
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED								
348		294				H	0	4	N	5 / 335 (2011.01.01)									
CROSS REFERENCE(S)																			
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																		
348	312	322																	

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	4	
/LUONG T NGUYEN/ Primary Examiner. Art Unit 2663	01/10/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

It's OK to enter
/L. T. N./
01/10/2014

500.38315CC4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: T. NAKANO, et al.
Serial No: 13/681,495
Filed: November 20, 2012
Title: ELECTRIC CAMERA
Group: 2663
Examiner: Luong Trung Nguyen
Conf. No.: 3960

AMENDMENT AFTER FINAL OFFICE ACTION
UNDER 37 CFR § 1.116

MS: AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

December 30, 2013

Sir:

In response to the Office Action dated August 28, 2013, the period of response for which extension is requested by the attached Petition for Extension of Time, and in accordance with the provisions of 37 CFR § 1.114, please amend the present application as listed below and as set forth on the following pages:

Amendments to the Claims

Remarks are included following the amendments.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S63	3	12/845266	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 15:15
S64	5	10/660710	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 15:28
S65	5	10/660711	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 15:29
S66	2	"6765616".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 15:31
S67	2	"8059177".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 15:32
S68	1	13/681495	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 15:41
S69	739	nakano-takahiro\$6.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 17:38
S70	168767	(mix\$3 or combin\$3 or cull\$3 or	US-PGPUB;	OR	ON	2014/01/06

		add\$3) same (pixel\$1 or charge\$1 or signal\$1) same (sensor\$1 or CCD\$1)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			17:39
S71	9	S69 and S70	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 17:40
S72	8	S69 and (view adj3 angle)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 17:41
S73	19	S69 and zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 17:42
S74	8	S69 and (detect\$3 with (unstability or instability))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 17:46
S75	88	nishimura-ryuji\$6.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 17:47
S76	231	kinugasa-toshiro\$6.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 17:49
S77	297	record\$3 with ((mov\$3 or motion) near5 mode) same pixel\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:14
S78	47	S77 and (@ad<"20000111" or @riad<"20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2014/01/06 18:15

			IBM_TDB			
S79	3445	348/294.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:19
S80	37	S79 and (view adj3 angle)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:19
S81	667	S79 and S70	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:21
S82	102	S81 and (@ad<"20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:21
S83	505	(scan\$3 with line\$1) and (NTSC or standard) same (television or TV) and (mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same (sensor\$1 or OCD\$1) and camera\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:23
S84	13	S83 and (view adj3 angle)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:24
S85	25	S83 and (effective near4 pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:25
S86	1863	348/220.1,312,322.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:26
S87	30	S83 and S86	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2014/01/06 18:27

			JPO; DERWENT; IBM_TDB			
S88	145	S86 and (effective near4 pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:28
S89	32	S88 and (@ad<"20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:28
S90	37	S86 and (view adj3 angle)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 18:58
S91	4164	H04N5/23245.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:17
S92	16	S91 and S83	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:17
S93	75	S91 and (view adj3 angle) and (effective ear3 pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:19
S94	8333	H04N5/23248.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:20
S95	112	S94 and (view adj3 angle) and (effective ear3 pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:21
S96	16	S95 and (@ad<"20000111" or @rlad<="20000111")	US-PGPUB; USPAT;	OR	ON	2014/01/06 19:21

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S98	13	S94 and S83	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:22
S99	3422	H04N5/23258.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:24
S100	398	H04N5/23274.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:24
S101	10	(S99 or S100) and S83	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:24
S102	51	(S99 or S100) and (view adj3 angle) and (effective ear3 pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:25
S103	743	H04N5/343.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:25
S104	252	H04N5/345.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:26
S105	194	H04N5/3452.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:26

EAST Search History

S106	12	(S103 or S104 or S105) and S83	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:26
S107	8	(S103 or S104 or S105) and (view adj3 angle) and (effective ear3 pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:27
S108	9	(detect\$3 with (unstability or instability)) same (effective near3 pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:29
S109	23	(detect\$3 with (unstability or instability)) and (S91 or S94 or S99 or S100 or S103 or S104 or S105)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/06 19:30

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S115	0	((effective near3 pixel\$1) and (static near6 mode) and (mov\$3 near6 mode)).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/06 19:36
S116	12	(pixel\$1 and (static near6 mode) and (mov\$3 near6 mode)).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/06 19:37
S117	180	(pixel\$1 and (still near6 mode) and (mov\$3 near6 mode)).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/06 19:39
S118	0	(pixel\$1 and (still near6 mode) and (mov\$3 near6 mode) and (instability or unstability)).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/06 19:40
S119	2	(pixel\$1 and (static near6 mode) and (mov\$3 near6 mode) and (instability or unstability)).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/06 19:40

1/ 10/ 2014 11:16:47 AM

C:\Users\Inguyen2\Documents\EAST\Workspaces\13681495.wsp



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BIB DATA SHEET

CONFIRMATION NO. 3960

SERIAL NUMBER 13/681,495	FILING or 371(c) DATE 11/20/2012 RULE	CLASS 348	GROUP ART UNIT 2663	ATTORNEY DOCKET NO. 500.38315CC4		
APPLICANTS HITACHI, LTD., Tokyo, JAPAN INVENTORS Takahiro Nakano, Tokyo, JAPAN; Ryuji Nishimura, Tokyo, JAPAN; Toshiro Kinugasa, Tokyo, JAPAN; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** JAPAN 00-006064 01/11/2000 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/13/2012						
Foreign Priority claimed ☒ Yes ☐ No	35 USC 119(a-d) conditions met ☒ Yes ☐ No	☐ Met after Allowance	STATE OR COUNTRY JAPAN	SHEETS DRAWINGS 8	TOTAL CLAIMS 1	INDEPENDENT CLAIMS 1
Verified and /LUONG TRUNG NGUYEN/ Acknowledged Examiner's Signature	Initials					
ADDRESS ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873 UNITED STATES						
TITLE ELECTRIC CAMERA						
FILING FEE RECEIVED 1390	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit			

Search Notes 	Application/Control No. 13681495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

CPC- SEARCHED		
Symbol	Date	Examiner
H04N 5/23245, 5/23248, 5/23274, 5/23258, 5/343, 5/345, 5/3452	1/06/2014	LTN

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
348/294, 322, 312, 317, 311, 273, 220.1	2/22/2013	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS)	2/22/2013	LTN
348/220.1, 240.2	8/25/2013	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS)	8/25/2013	LTN
348/294, 322, 312, 220.1	1/06/2014	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS)	1/06/2014	LTN
Inventorship search	1/06/2014	LTN

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	USPAT; USPGPUB; UPAD text search, see interference search history	1/06/2014	LTN

	/L.T.N./ Primary Examiner.Art Unit 2663
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Application Number 	Application/Control No. 13/681,495	Applicant(s)/Patent under Reexamination NAKANO ET AL.	
Document Code - DISQ		Internal Document – DO NOT MAIL	

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 1/9/14	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

Janice Ford

TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 500.38315CC4
<p>In re Application of: T. NAKANO, et al.</p> <p>Application No.: 13/681,495</p> <p>Filed: November 20, 2012</p> <p>For: ELECTRIC CAMERA</p> <p>The owner*, <u>Hitachi, Ltd</u>, of <u>100</u> percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent No. <u>8339493 & 6765616</u> as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.</p> <p>In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:</p> <ul style="list-style-type: none">expires for failure to pay a maintenance fee;is held unenforceable;is found invalid by a court of competent jurisdiction;is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;has all claims canceled by a reexamination certificate;is reissued; oris in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer. <p>Check either box 1 or 2 below, if appropriate.</p> <p>1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.</p> <p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.</p> <p>2. ☒ The undersigned is an attorney or agent of record. Reg. No. <u>55,986</u></p> <div style="margin-top: 20px;"><div style="display: flex; justify-content: space-between;"><div style="width: 60%; text-align: center;"><u>/Ayal I. Sharon/</u> Signature</div><div style="width: 35%; text-align: center;"><u>January 9, 2014</u> Date</div></div><div style="display: flex; justify-content: center; margin-top: 10px;"><u>Ayal I. Sharon</u> Typed or printed name</div><div style="display: flex; justify-content: flex-end; margin-top: 20px;"><u>703-312-6600</u> Telephone Number</div></div> <p>☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.</p> <p style="text-align: center;">WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.</p> <p><small>*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this certification. See MPEP § 324.</small></p>	

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

500.38315CC4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: T. NAKANO, et al.
Serial No: 13/681,495
Filed: November 20, 2012
Title: ELECTRIC CAMERA
Group: 2663
Examiner: Luong Trung Nguyen
Conf. No.: 3960

TRANSMITTAL OF TERMINAL DISCLAIMER

MS:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

January 9, 2014

Sir:

Responsive to the Examiner Interview on January 7, 2013 with
Examiner Luong Trung Nguyen, attached please find a Terminal Disclaimer
regarding the two patents mentioned in the interview (U.S. 8,339,493 and
U.S. 6,765,616).

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Antonelli, Terry, Stout & Kraus, LLP Deposit Account No. 01-2135 (Docket No. 500.38315CC4), and please credit any excess fees to such deposit account.

Respectfully submitted,
ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon/
Ayal I. Sharon
Registration No. 55,986

AIS/kmh
1300 North Seventeenth Street, Suite 1800
Arlington, Virginia 22209
Telephone: (703) 312-6600
Facsimile: (703) 312-6666

Electronic Patent Application Fee Transmittal				
Application Number:		13681495		
Filing Date:		20-Nov-2012		
Title of Invention:		ELECTRIC CAMERA		
First Named Inventor/Applicant Name:		Takahiro Nakano		
Filer:		Ayal I. Sharon/Krista Hargrove		
Attorney Docket Number:		500.38315CC4		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Statutory or Terminal Disclaimer	1814	1	160	160
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				160

Electronic Acknowledgement Receipt	
EFS ID:	17864384
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon/Krista Hargrove
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	09-JAN-2014
Filing Date:	20-NOV-2012
Time Stamp:	12:31:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$160
RAM confirmation Number	12165
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Terminal Disclaimer Filed	38315CC4TermDis.pdf	373613	no	2
			9d9596afbd36ea431778b14ad847bdb2967349bc		
Warnings:					
Information:					
2	Transmittal Letter	38315CoverTerDis.pdf	61430	no	2
			f88eea9aad580a618fea2cb0e2dd294bc81fe89e		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	29873	no	2
			67f61db8b144e3cc407e36e4b30bcfd0dd0c5f9af		
Warnings:					
Information:					
Total Files Size (in bytes):			464916		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: T. NAKANO, et al.
Serial No: 13/681,495
Filed: November 20, 2012
Title: ELECTRIC CAMERA
Group: 2663
Examiner: Luong Trung Nguyen
Conf. No.: 3960

AMENDMENT AFTER FINAL OFFICE ACTION
UNDER 37 CFR § 1.116

MS: AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

December 30, 2013

Sir:

In response to the Office Action dated August 28, 2013, the period of response for which extension is requested by the attached Petition for Extension of Time, and in accordance with the provisions of 37 CFR § 1.114, please amend the present application as listed below and as set forth on the following pages:

Amendments to the Claims

Remarks are included following the amendments.

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A camera comprising:

an image sensing device having an array of pixels arranged vertically and

horizontally in a grid pattern;

an image-instability detector, configured to detect an amount of image-
instability of the camera;

a signal processing unit configured to form image signals with a
predetermined view angle by using effective pixels of the image sensing device, and:

during monitoring in a static image mode, to form image signals with a
first view angle by using a first effective set of pixels of the image sensing
device,

during recording in the static image mode, to form image signals by
using all effective pixels of the image sensing device, and

during recording in a moving video mode, to form image signals with a
second view angle, different from the first view angle, by using a second
effective set of pixels which ~~are~~is a portion of the array of pixels of the image
sensing device, and to change a position of the second effective set of pixels
according to ~~an~~the amount of image-instability detected by the image-
instability detector, in order to correct the image-instability; and

a display unit configured to display an image corresponding to the ~~formed~~
image signals formed by the signal processing unit. ; -and

~~an image instability detector configured to detect an image instability of the camera.~~

2. (Previously Presented) A camera according to the claim 1, wherein the first view angle is larger than the second view angle.

3. (Currently Amended) A method for operating a camera, the camera including an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern, a signal processing unit that forms configured to form image signals at a predetermined view angle by using effective pixels of the image sensing device, a display unit which displays configured to display an image corresponding to the ~~formed~~ image signals formed by the signal processing unit, and an image-instability detector which detects configured to detect an amount of image-instability of the camera, the method for operating the camera comprising the steps of:

selecting between a static image mode and a moving video mode; and

selecting an operation from a list of operations, as follows:

when in the static image mode, selecting an operation from a list of operations including: monitoring an image in the static image mode, and recording an image in the static image mode, and

when in the moving video mode, selecting an operation from a list of operations including: recording an image in the moving video mode;

wherein when the selected operation is monitoring an image in the static image mode, the signal processing unit forms image signals with a first view angle, by using a first effective set of pixels of the image sensing device;

wherein when the selected operation is recording an image in the static image mode, the signal processing unit forms image signals by using all effective pixels of the image sensing device; and

wherein when the selected operation is recording an image in the moving video mode, the signal processing unit forms image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which are a portion of the pixels of the image sensing device, a position of the second effective set of pixels being changed according to ~~an~~the amount of image-instability detected by the image-instability detector, in order to correct the image-instability.

4. (Previously Presented) A method for operating a camera of claim 3, wherein the first view angle is larger than the second view angle.

REMARKS

This Amendment After Final Office Action is filed in response to the Final Office Action dated August 28, 2013. In the office action, claims 1-4 were objected to, due to minor informalities. In addition, claims 1-4 were also rejected under (pre-AIA) 35 U.S.C. § 112, first and second paragraphs.

By the present amendment, independent claims 1 and 3 have been amended. No new claims have been added, no new matter has been added, and no claims have been cancelled. The Applicants submit that the amendments to the claims place the application in condition for allowance, and therefore should be entered into the record and considered.

At entry of this paper, claims 1-4 will be pending for further consideration and examination in the application. All objections and rejections are traversed regarding the claims as previously presented, and are also traversed in so far as the rejections are applicable to the present claims. Reconsideration and allowance of this application, as amended, is respectfully requested.

OBJECTIONS

In the Office Action, claims 1-4 were objected to, due to minor informalities. Most of the Examiner's suggested amendments to the claims have been implemented in the current response, however, the following objections are traversed.

First, the Applicants traverse the objection to the following phrase in claim 3: "selecting an operation from a list", which the Examiner has suggested should be "the selecting the operation from the list". It is noted that the objected phrase is a step in a method claim. (The spacing of the elements of the preamble has been

changed in the present response, in order to emphasize that claim 3 is a method claim).

The Examiner's suggested amendment would introduce antecedent basis errors into the claim, where none currently exist. Therefore, the objection is traversed, and the suggested amendment has not been implemented.

Second, the Applicants traverse the objection to the following phrase in claim 3: "an image", which the Examiner has suggested should be "the image". The objected phrase is recited in options that are independent from one another, as follows:

when in the static image mode, selecting an operation from a list of operations including: monitoring an image in the static image mode, and recording an image in the static image mode, and
when in the moving video mode, selecting an operation from a list of operations including: recording an image in the moving video mode;

The Examiner's suggested amendment would introduce a linkage between these independent options, where none is currently claimed. Therefore, the objection is traversed, and the suggested amendment has not been implemented.

In view of the foregoing amendments and remarks, Applicant respectfully submits that the objections to claims 1-4 should be withdrawn.

REJECTIONS UNDER 35 USC §112

In the Office Action, claims 1-4 were rejected under (pre-AIA) 35 U.S.C. § 112, first and second paragraphs. More specifically, the § 112, first paragraph, rejection holds that the following phrase in claims 1 and 3 lack written description in the specification:

"and to change the second effective set of pixels according to an amount of image-instability detected by the instability detector, in order to correct the image-instability" (claim 1)

“the second effective set of pixels being changed according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability” (claim 3).

The features of claims 1 and 3 have been amended in the present response, and now recite the following:

“and to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability” (claim 1)

“a position of the second effective set of pixels being changed according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability” (claim 3).

Support for these amendments to claims 1 and 3 can be found, for example, in page 16, lines 8-12 of the originally filed specification, which states:

“Based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-instability.”

Therefore, the Applicants submit that the § 112, first paragraph, rejection of claims 1 and 3 (on the grounds of lack of written description) should be withdrawn.

Claim 1 were also rejected under § 112, second paragraph, for indefiniteness, on the grounds that it was not clear whether or not “image-instability” in line 24 of claim 1 was the same as “image-instability” in line 27 of claim 1. The rejection also held that it was not clear whether or not “the instability detector” in line 24 of claim 1 was the same as “an image-instability detector” in line 27 of claim 1.

The relevant section of claim 1 has been amended, and now recites the following features:

and to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability[.]

Also, for the sake of clarity, the recitation of “an image-instability detector” has been moved from the end of claim 1 to the beginning of claim 1, and now recites: “an

image-instability detector, configured to detect an amount of image-instability of the camera”.

In view of the foregoing amendments and remarks, the Applicants respectfully submit that the (pre-AIA) 35 U.S.C. § 112, first and second paragraph rejections should be withdrawn, and that the claims in the application are now in condition for allowance.

EXAMINER INVITED TO TELEPHONE

The Examiner is herein invited to telephone the undersigned attorneys at the local Washington, D.C. area telephone number of 703/312-6600 for discussing any Examiner's Amendments or other suggested actions for accelerating prosecution and moving the present application to allowance.

CONCLUSION

In view of the foregoing amendments and remarks, the Applicants respectfully submit that the claims listed above as presently being under consideration in the application are now in condition for allowance.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Antonelli, Terry, Stout & Kraus, LLP Deposit Account No. 01-2135 (Docket No. 500.38315CC4), and please credit any excess fees to such deposit account.

Respectfully submitted,
ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon/
Ayal I. Sharon
Registration No. 55,986

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CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0		
Practitioner Docket No.: 500.38315cc4	Application No.: 13/681,495	Filing Date: 11/20/2012
First Named Inventor: NAKANO	Title: Electric Camera	
<p>APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.</p> <ol style="list-style-type: none"> 1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (<i>e.g.</i>, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c). 2. The above-identified application contains an outstanding final rejection. 3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect. 4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection. 5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response. 6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web). 7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.] 8. By filing this certification and request, applicant acknowledges the following: <ul style="list-style-type: none"> • Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0. • The examiner will verify that the AFCP 2.0 submission is compliant, <i>i.e.</i>, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions: <ul style="list-style-type: none"> ○ The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, by mailing an advisory action. ○ If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview. <ul style="list-style-type: none"> ▪ The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate. ▪ If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116. 		
Signature	Date	
Name (Print/Typed)	Practitioner Registration No.	
<p>Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.</p>		
<p>☐ * Total of _____ forms are submitted.</p>		

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:		13681495		
Filing Date:		20-Nov-2012		
Title of Invention:		ELECTRIC CAMERA		
First Named Inventor/Applicant Name:		Takahiro Nakano		
Filer:		Ayal I. Sharon		
Attorney Docket Number:		500.38315CC4		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	1251	1	200	200

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				200

Electronic Acknowledgement Receipt	
EFS ID:	17779062
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon
Filer Authorized By:	
Attorney Docket Number:	500.38315CC4
Receipt Date:	30-DEC-2013
Filing Date:	20-NOV-2012
Time Stamp:	15:09:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$200
RAM confirmation Number	1429
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Response After Final Action	38315cc4_af_amendment.pdf	86361	no	10
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Warnings:					
Information:					
2	After Final Consideration Program Request	38315cc4_afcp_form.pdf	224716	no	2
			231d2ed10ee59a4598f8dc4499f950e99b020bec		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	29872	no	2
			ccdc201313f3efccc8a4e2afe72636babc6865b		
Warnings:					
Information:					
Total Files Size (in bytes):			340949		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0		
Practitioner Docket No.: 500.38315cc4	Application No.: 13/681,495	Filing Date: 11/20/2012
First Named Inventor: NAKANO	Title: Electric Camera	
<p>APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.</p> <ol style="list-style-type: none"> 1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (<i>e.g.</i>, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c). 2. The above-identified application contains an outstanding final rejection. 3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect. 4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection. 5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response. 6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web). 7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.] 8. By filing this certification and request, applicant acknowledges the following: <ul style="list-style-type: none"> • Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0. • The examiner will verify that the AFCP 2.0 submission is compliant, <i>i.e.</i>, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions: <ul style="list-style-type: none"> ○ The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, by mailing an advisory action. ○ If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview. <ul style="list-style-type: none"> ▪ The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate. ▪ If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116. 		
Signature /Ayal I. Sharon/	Date December 30, 2013	
Name (Print/Typed) Ayal I. Sharon	Practitioner Registration No. 55,986	
<p>Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.</p>		
<p>☐ * Total of _____ forms are submitted.</p>		

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	17779218
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon
Filer Authorized By:	
Attorney Docket Number:	500.38315CC4
Receipt Date:	30-DEC-2013
Filing Date:	20-NOV-2012
Time Stamp:	15:15:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	After Final Consideration Program Request	38315cc4_afcp_form.pdf	225933 7e96a4a52b9b1725a22d0db7ad28462dfbf3cb9e	no	2

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/681,495		Filing Date 11/20/2012		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		X \$ =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		X \$ =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	12/30/2013	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 4	Minus	** 20	= 0	X \$80 =		0	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$420 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>									

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4	3960

20457 7590 08/28/2013
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2663

MAIL DATE	DELIVERY MODE
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08/28/2013

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/681,495	Applicant(s) NAKANO ET AL.	
	Examiner LUONG T. NGUYEN	Art Unit 2663	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/24/2013.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-4 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-4 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some * c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 4) ☐ Other: ____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1 and newly added claims 2-4 filed on 06/24/2013 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Claim Objections

2. Claims 1-4 are objected to because of the following informalities:

Claim 1 (lines 21-23), claim 3 (lines 26-27), "a second effective set of pixels which are a portion of the pixels of the image sensing device" should be changed to --a second effective set of pixels which is a portion of the array of pixels of the image sensing device--.

Claim 3 (lines 13, 16), "selecting an operation from a list" should be changed to --the selecting the operation from the list--.

Claim 3 (lines 14, 15, 17, 18, 21, 24), "an image" should be changed to --the image--.

Claim 3 (line 28), "an amount of image-instability" should be changed to --an amount of the image-instability--.

Claim 3 (line 29), "the instability detector" should be changed to --the image-instability detector--.

Claim 2 is objected as being dependent from claim 1.

Claim 4 is objected as being dependent from claim 3.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(a):
(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), first paragraph:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-4 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the Applicants amended claim 1 with newly added limitation “during recording in a moving video mode, to form image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which are a portion of the pixels of the image sensing device, and to change the second effective set of pixels according to an amount of image-instability detected by the instability detector, in order to correct the image-instability,” which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding newly added claim 3, the Applicants recited claim 3 with newly added limitation “wherein when the selected operation is recording an image in the moving video mode, the signal processing unit forms image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which are a portion of the pixels of the image sensing device, the second effective set of pixels being changed according to an amount of image-instability detected by the instability detector, in order to correct the image-instability,” which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 2 is rejected as being dependent from claim 1.

Claim 4 is rejected as being dependent from claim 3.

5. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-4 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 1 (line 24) added new limitation “amount of image-instability detected by the instability detector,” claim 1 (lines 27-28) added new limitation “an image-instability detector configured to detect an image-instability of the camera.” It is not unclear that the limitation “image-instability” on line 24 is the same or different from the limitation “an image-instability” on line 27. Also, it is not unclear that the limitation “the instability detector” on line 24 is the same or different from the limitation “an image-instability detector” on line 27.

Claim 2 is rejected as being dependent from claim 1.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571)272-7315. The examiner can normally be reached on 7:30AM - 5:00PM, MONDAY -THURSDAY.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LIN YE can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2663
08/25/13

<i>Index of Claims</i> 	Application/Control No. 13681495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
CLAIM		DATE													
Final	Original	02/22/2013	08/25/2013												
	1	✓	✓												
	2		✓												
	3		✓												
	4		✓												

Search Notes 	Application/Control No. 13681495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
348/294, 322, 312, 317, 311, 273, 220.1	2/22/2013	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS)	2/22/2013	LTN
348/220.1, 240.2	8/25/2013	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS)	8/25/2013	LTN

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: T. NAKANO, et al.
Serial No: 13/681,495
Filed: November 20, 2012
Title: ELECTRIC CAMERA
Group: 2663
Examiner: Luong Trung Nguyen
Conf. No.: 3960

AMENDMENT

MS: Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

June 24, 2013

Sir:

In response to the Office Action dated February 26, 2013, the period of response for which extension is requested by the attached Petition for Extension of Time, please amend the above-identified application as listed below and as set forth on the following pages:

Amendments to the Claims

Remarks are included following the amendments.

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) ~~An electric~~ A camera comprising:
an image sensing device ~~with a light receiving surface having~~ an array of pixels arranged vertically and horizontally in a grid pattern; N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines m of a display screen of a television system;
~~— a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels of every K pixels to product a number of lines of output signals which corresponds to the number of effective scanning lines M, K being at least one of integers equal to or less than an integral part of a quotient of N divided by M; and~~
a signal processing unit ~~to generate image signals by using the out put signals of the image sensing device configured to form image signals with a predetermined view angle by using effective pixels of the image sensing device, and:~~
— during monitoring in a static image mode, to form image signals with a first view angle by using a first effective set of pixels of the image sensing device,
— during recording in the static image mode, to form image signals by using all effective pixels of the image sensing device, and

during recording in a moving video mode, to form image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which are a portion of the pixels of the image sensing device, and to change the second effective set of pixels according to an amount of image-instability detected by the instability detector, in order to correct the image-instability;
a display unit configured to display an image corresponding to the formed image signals; and
an image-instability detector configured to detect an image-instability of the camera.

2. (New) A camera according to the claim 1, wherein the first view angle is larger than the second view angle.

3. (New) A method for operating a camera, the camera including
an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern,
a signal processing unit that forms image signals at a predetermined view angle by using effective pixels of the image sensing device,
a display unit which displays an image corresponding to the formed image signals, and
an image-instability detector which detects an image-instability of the camera,
the method for operating the camera comprising the steps of:
selecting between a static image mode and a moving video mode; and

selecting an operation from a list of operations, as follows:

when in the static image mode, selecting an operation from a list of operations including: monitoring an image in the static image mode, and recording an image in the static image mode, and

when in the moving video mode, selecting an operation from a list of operations including: recording an image in the moving video mode;

wherein when the selected operation is monitoring an image in the static image mode, the signal processing unit forms image signals with a first view angle, by using a first effective set of pixels of the image sensing device;

wherein when the selected operation is recording an image in the static image mode, the signal processing unit forms image signals by using all effective pixels of the image sensing device; and

wherein when the selected operation is recording an image in the moving video mode, the signal processing unit forms image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which are a portion of the pixels of the image sensing device, the second effective set of pixels being changed according to an amount of image-instability detected by the instability detector, in order to correct the image-instability.

4. (New) A method for operating a camera of claim 3, wherein the first view angle is larger than the second view angle.

REMARKS

This Amendment is filed in response to the Office Action dated February 26, 2013. In the office action, claim 1 was objected to, due to minor informalities. Claim 1 was also rejected on the grounds of nonstatutory obviousness double-patenting over claim 13 of U.S. Patent 6,765,616, and over claim 1 of U.S. Patent 8,059,177. In addition, claim 1 was also rejected under 35 U.S.C. § 102(e) as being anticipated by Kijima et al. (U.S. Patent 6,661,451, "Kijima").

By the present amendment, claim 1 has been amended. New claims 2-4 have been added. No new matter has been added. Support for the amendment and new claims can be found, for example, in Figures 1, 3, and 5, and in the section of the originally filed specification that corresponds to paragraphs [0041]-[0047] of the application's U.S. PG-PUB 2013/0093933.

At entry of this paper, claims 1-4 will be pending for further consideration and examination in the application. All rejections are traversed regarding the claims as previously presented, and are also traversed in so far as the rejections are applicable to the present claims. Reconsideration and allowance of this application, as amended, is respectfully requested.

OBJECTIONS

In the office action, claim 1 was objected to, due to minor informalities. The objection is traversed. The objected features have all been deleted. Therefore, all of the objections should be withdrawn.

DOUBLE PATENTING REJECTIONS

In the office action, claim 1 was rejected on the grounds of nonstatutory obviousness-type double-patenting over claim 13 of U.S. Patent 6,765,616, and over claim 1 of U.S. Patent 8,059,177. Both double-patenting rejections are traversed. Claim 1 has been amended extensively in the present response, such that neither claim 13 of U.S. Patent 6,765,616, nor claim 1 of U.S. Patent 8,059,177, are obvious in view of claim 1 of the present application. Therefore, both nonstatutory obviousness-type double-patenting rejections of claim 1 should be withdrawn.

REJECTIONS UNDER 35 USC §102

In the office action, claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by Kijima. The 35 USC §102 rejection is traversed.

In order to properly support a §102 anticipatory-type rejection, "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." In re Robertson, 169 F.3d 743 (Fed. Cir. 1999). The applied art does not adequately support a §102 anticipatory-type rejection because, at minimum, such applied art does not disclose (or suggest) the following discussed features of Applicant's claims.

In regards to independent claim 1, the rejection should be withdrawn, at minimum, because the Kijima reference fails to disclose the following claimed features:

a signal processing unit configured to form image signals with a predetermined view angle by using effective pixels of the image sensing device, and:
during monitoring in a static image mode, to form image signals with a first view angle by using a first effective set of pixels of the image sensing device,
during recording in the static image mode, to form image signals by using all effective pixels of the image sensing device, and

during recording in a moving video mode, to form image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which are a portion of the pixels of the image sensing device, and to change the second effective set of pixels according to an amount of image-instability detected by the instability detector, in order to correct the image-instability.

In regards to independent claim 3, the rejection should be withdrawn, at minimum, because the Kijima reference fails to disclose the following claimed features:

wherein when the selected operation is monitoring an image in the static image mode, the signal processing unit forms image signals with a first view angle, by using a first effective set of pixels of the image sensing device;
wherein when the selected operation is recording an image in the static image mode, the signal processing unit forms image signals by using all effective pixels of the image sensing device; and
wherein when the selected operation is recording an image in the moving video mode, the signal processing unit forms image signals with a second view angle, different from the first view angle, by using a second effective set of pixels which are a portion of the pixels of the image sensing device, the second effective set of pixels being changed according to an amount of image-instability detected by the instability detector, in order to correct the image-instability.

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims listed above as presently being under consideration in the application are now in condition for allowance.

EXAMINER INVITED TO TELEPHONE

The Examiner is herein invited to telephone the undersigned attorneys at the local Washington, D.C. area telephone number of 703/312-6600 for discussing any Examiner's Amendments or other suggested actions for accelerating prosecution and moving the present application to allowance.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims listed above as presently being under consideration in the application are now in condition for allowance.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Antonelli, Terry, Stout & Kraus, LLP Deposit Account No. 01-2135 (Docket No. 500.38315CC4), and please credit any excess fees to such deposit account.

Respectfully submitted,
ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon/
Ayal I. Sharon
Registration No. 55,986

AIS
1300 North Seventeenth Street, Suite 1800
Arlington, Virginia 22209
Telephone: (703) 312-6600
Facsimile: (703) 312-6666

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: TANAKA, et al.

Serial No.: 13/681,495

Filed: November 20, 2012

For: ELECTRIC CAMERA

Group: 2663

Examiner: Luong Trung Nguyen

Conf. No.: 3960

PETITION FOR EXTENSION OF TIME

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

June 24, 2013

Sir:

In the matter of the above-identified application, Applicants hereby respectfully petition for an extension of time to permit filing a response within the first month subsequent to expiration of the shortened statutory period set in the outstanding Office Action mailed February 26, 2013. An electronic payment in the amount of \$200.00 to cover the fee required for the requested extension of time is being submitted concurrently herewith.

It is respectfully requested that any shortage in the fee be charged to the account of Antonelli, Terry, Stout & Kraus, LLP, Account No. 01-2135 (500.38315CC4) and excess fees credited to account.

Respectfully submitted,

/Ayal I. Sharon /
Ayal I. Sharon
Registration No. 55,986
ANTONELLI, TERRY, STOUT & KRAUS, LLP

AIS/kmh
(703) 312-6600

Electronic Patent Application Fee Transmittal				
Application Number:	13681495			
Filing Date:	20-Nov-2012			
Title of Invention:	ELECTRIC CAMERA			
First Named Inventor/Applicant Name:	Takahiro Nakano			
Filer:	Ayal I. Sharon/Krista Hargrove			
Attorney Docket Number:	500.38315CC4			
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	1251	1	200	200

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				200

Electronic Acknowledgement Receipt	
EFS ID:	16127417
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon/Krista Hargrove
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	24-JUN-2013
Filing Date:	20-NOV-2012
Time Stamp:	08:09:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$200
RAM confirmation Number	19816
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Amendment/Req. Reconsideration-After Non-Final Reject	38315AMD.pdf	77041 0cbf376878047408d5370b64478a39cf762 751e9	no	9
Warnings:					
Information:					
2	Extension of Time	38315EOT.pdf	56192 27ecbdb4b0e628a31867b7378d801293d8 bd4378	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	29996 688b7d1e99b62a1c7978642aa1731c39aee 87154	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			163229		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/681,495		Filing Date 11/20/2012		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	06/24/2013		CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(i))		* 4		Minus	** 20	= 0		
	Independent (37 CFR 1.16(h))		* 2		Minus	*** 3	= 0		
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						RATE (\$)		ADDITIONAL FEE (\$)	
						X \$80 =		0	
						X \$420 =		0	
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(i))		*		Minus	**	=		
	Independent (37 CFR 1.16(h))		*		Minus	***	=		
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						RATE (\$)		ADDITIONAL FEE (\$)	
						X \$ =			
						X \$ =			
						TOTAL ADD'L FEE			
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>									

LIE
/DONNA 1. SMALLS LOGAN/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4

CONFIRMATION NO. 3960

20457

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

PUBLICATION NOTICE



OC000000060543550

Title:ELECTRIC CAMERA

Publication No.US-2013-0093933-A1

Publication Date:04/18/2013

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): NAKANO, et al
Application No.: 13/681,495
Filed: November 20, 2012
For: ELECTRIC CAMERA
Conf. No.: 3960

SUBMISSION OF APPLICATION DATA SHEET

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

April 11, 2013

Sir:

Attached hereto is an Application Data Sheet, to include the address of the listed inventors and the Domestic Priority data as claimed by applicant. Accordingly, Applicants respectfully request issuance of a corrected filing receipt which indicates the updated information as indicated above.

Please charge any shortages in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Docket No. 500.38315CC4) and please credit any excess fees to such deposit account.

Respectfully submitted,

/Ayal I. Sharon/ *as.*
Ayal I. Sharon
Registration No. 55,986

AIS/kmh
(703) 312-6600

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)	
--	--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Takahiro		Nakano		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Tokyo	Country of Residence	JP		
Mailing Address of Inventor:					
Address 1		c/o Hitachi, Ltd., Intellectual Property Group			
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku			
City	Tokyo	State/Province			
Postal Code	100-8220	Country	JP		
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Ryuji		Nishimura		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Tokyo	Country of Residence	JP		
Mailing Address of Inventor:					
Address 1		c/o Hitachi, Ltd., Intellectual Property Group			
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku			
City	Tokyo	State/Province			
Postal Code	100-8220	Country	JP		
Inventor 3					Remove
Legal Name					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		Kinugasa	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	Tokyo	Country of Residence	JP	

Mailing Address of Inventor:

Address 1	c/o Hitachi, Ltd., Intellectual Property Group			
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku			
City	Tokyo	State/Province		
Postal Code	100-8220	Country	JP	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	020457
Email Address	Add Email Remove Email

Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4								
		Application Number	13/681,495								
Title of Invention	ELECTRIC CAMERA										
<p>Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.</p>											
<table border="1"> <tr> <td>Please Select One:</td> <td>☒ Customer Number</td> <td>☐ US Patent Practitioner</td> <td>☐ Limited Recognition (37 CFR 11.9)</td> </tr> <tr> <td>Customer Number</td> <td colspan="3">020457</td> </tr> </table>				Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)	Customer Number	020457		
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)								
Customer Number	020457										

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
13681495	Continuation of	12845266	2010-07-28		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12845266	Continuation of	10660710	2003-09-12	8059177	2011-11-15
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10660710	Division of	09520836	2000-03-08	6765616	2004-07-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove			
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed
00-006064	JP	2000-01-11	☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Authorization to Permit Access:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		

☐ **Authorization to Permit Access to the Instant Application by the Participating Offices**

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.		
Applicant 1		
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.		
<input type="button" value="Clear"/>		
☐ Assignee	☐ Legal Representative under 35 U.S.C. 117	☐ Joint Inventor
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
Name of the Deceased or Legally Incapacitated Inventor : <input type="text"/>		
If the Applicant is an Organization check here. ☒		
Organization Name	Hitachi, Ltd.	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		

Mailing Address Information:

Address 1		6-6, Marunouchi 1-chome, Chiyoda-ku	
Address 2			
City	Tokyo	State/Province	
Country	JP	Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section only if non-applicant assignee information is desired to be included on the patent application publication in accordance with 37 CFR 1.215(b). Do not include in this section an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest), as the patent application publication will include the name of the applicant(s).

If the Assignee is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information:

Address 1			
Address 2			
City		State/Province	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the Add button.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Ayal I. Sharon/			Date (YYYY-MM-DD)	2013-04-11
First Name	Ayal	Last Name	Sharon	Registration Number	55986
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Takahiro		Nakano		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Tokyo	Country of Residence	JP		
Mailing Address of Inventor:					
Address 1	c/o Hitachi, Ltd., Intellectual Property Group				
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku				
City	Tokyo	State/Province			
Postal Code	100-8220	Country	JP		
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Ryuji		Nishimura		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Tokyo	Country of Residence	JP		
Mailing Address of Inventor:					
Address 1	c/o Hitachi, Ltd., Intellectual Property Group				
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku				
City	Tokyo	State/Province			
Postal Code	100-8220	Country	JP		
Inventor 3					Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681.495
Title of Invention	ELECTRIC CAMERA		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		Kinugasa	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				

City	Tokyo	Country of Residence	JP
-------------	-------	-----------------------------	----

Mailing Address of Inventor:

Address 1	c/o Hitachi, Ltd., Intellectual Property Group		
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province	
Postal Code	100-8220	Country	JP

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ An Address is being provided for the correspondence information of this application.

Customer Number	020457		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	<u>13/681,495</u>
Title of Invention	ELECTRIC CAMERA		

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	020457		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
<u>13681495</u>	<u>Continuation of</u>	<u>12845266</u>	<u>2010-07-28</u>	<u>8339493</u>	<u>2012-12-25</u>
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
<u>12845266</u>	<u>Continuation of</u>	<u>10660710</u>	<u>2003-09-12</u>	<u>8059177</u>	<u>2011-11-15</u>
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
<u>10660710</u>	<u>Division of</u>	<u>09520836</u>	<u>2000-03-08</u>	<u>6765616</u>	<u>2004-07-20</u>
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove			
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed
<u>00-006064</u>	<u>JP</u>	<u>2000-01-11</u>	☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		

☐ **Authorization to Permit Access to the Instant Application by the Participating Offices**

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

- ☐ Assignee
 ☐ Legal Representative under 35 U.S.C. 117
 ☐ Joint Inventor
- ☐ Person to whom the inventor is obligated to assign.
 ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☒

Organization Name Hitachi, Ltd.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		

Mailing Address Information:

Address 1		6-6, Marunouchi 1-chome, Chiyoda-ku	
Address 2			
City	Tokyo	State/Province	
Country	JP	Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section only if non-applicant assignee information is desired to be included on the patent application publication in accordance with 37 CFR 1.215(b). Do not include in this section an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest), as the patent application publication will include the name of the applicant(s).

If the Assignee is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information:

Address 1			
Address 2			
City		State/Province	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the Add button.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	13/681,495
Title of Invention	ELECTRIC CAMERA		

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Ayal I. Sharon/			Date (YYYY-MM-DD)	2013-04-11
First Name	Ayal	Last Name	Sharon	Registration Number	55986
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	15496552
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon/Ricardo Perez
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	11-APR-2013
Filing Date:	20-NOV-2012
Time Stamp:	16:53:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	Letter.pdf	1239635 3e66b5774e66542f3f3f10cd23d5c987857e d9e1	no	8

Warnings:

Information:

2	Application Data Sheet	ApplicationDataSheet.pdf	1168200 cad6fce650cb2b1dfa7ff06baa232d6ba97c5d58	no	7
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			2407835		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4

CONFIRMATION NO. 3960

IMPROPER CFR REQUEST



20457
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

Date Mailed: 02/28/2013

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Continuity, Priority Claims, Petitions, and Non-Publication Requests

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- To correct or update the benefit claim of a U.S. prior-filed application, applicant must submit a corrected application data sheet (ADS) with the desired benefit claim. If a corrected ADS is submitted, any deletions should be shown with strikethrough and any additions should be shown with underlining. A domestic benefit claim that is presented after the time period set forth in 37 CFR 1.78 must be accompanied by a petition under 37 CFR 1.78. Note that once a benefit claim is deleted, applicant will not be able to claim such prior-filed application again, if the above-identified application was filed on or after November 29, 2000.

/tran/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4	3960

20457 7590 02/26/2013
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2663

MAIL DATE	DELIVERY MODE
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02/26/2013

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	13/681,495	NAKANO ET AL.	
	Examiner	Art Unit	
	LUONG T. NGUYEN	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 11/20/2012.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☒ Claim(s) 1 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 20 November 2012 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.

4) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 11/20/2012 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

3. Claim 1 is objected to because of the following informalities:

Claim 1 (line 2), "alight receiving surface" should be changed to --a light receiving surface--.

Claim 1 (line 4), "scanning lines m" should be changed to --scanning lines M--.

Claim 1 (line 7), "to product a number" should be changed to --to produce a number--.

Claim 1 (line 11), "the out put" should be changed to --the output--.

Appropriate correction is required.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

Art Unit: 2663

improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of U.S. Patent No. 6,765,616. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

Claim 1 of the instant application is anticipated by patent claim 13 in that claim 13 of the patent contains all the limitations of claim 1 of the instant application. Claim 1 of the instant application therefore is not patently distinct from the earlier patent claim and as such is unpatentable for obvious-type double patenting.

6. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 8,059,177. Although the conflicting claims

Art Unit: 2663

are not identical, they are not patentably distinct from each other because of the following reasons.

Claim 1 of the instant application is anticipated by patent claim 1 in that claim 1 of the patent contains all the limitations of claim 1 of the instant application. Claim 1 of the instant application therefore is not patentably distinct from the earlier patent claim and as such is unpatentable for obvious-type double patenting.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kijima et al. (US 6,661,451).

Regarding claim 1, Kijima et al. discloses an electric camera comprising:

an image sensing device (CCD 12, figure 1, column 3, lines 25-34; column 4, line 57 – column 5, line 42) with a light receiving surface having N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines M of a display screen of a television system;

a driver (figure 1, column 3, lines 25-34; column 4, line 57 – column 5, line 42) to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels

of K pixels to produce, during a vertical effective scanning period of the television system, a number of lines of output signals which corresponds to $1/K$ the number of vertically arranged pixels N of the image sensing device, K being an integer equal to or less than an integral part of a quotient of N divided by M; and

a signal processing unit (image processing portion 26, figure 1, column 2, lines 62-67) having a function of generating image signals by using the output signals of the image sensing device.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sase (US 6,970,191).

Sasaki (US 5,734,424).

Motono et al. (US 6,798,448).

Iizuka (US 5,287,192).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571)272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHIEH M. FAN can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2663

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2663
02/22/13

Notice of References Cited	Application/Control No. 13/681,495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.	
	Examiner LUONG T. NGUYEN	Art Unit 2663	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,970,191	11-2005	Sase et al.	348/220.1
*	B	US-5,734,424	03-1998	Sasaki, Takashi	348/222.1
*	C	US-6,798,448	09-2004	Motono et al.	348/222.1
*	D	US-5,287,192	02-1994	Iizuka, Tetsuya	348/311
*	E	US-6,765,616	07-2004	Nakano et al.	348/322
*	F	US-8,059,177	11-2011	Nakano et al.	348/294
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 13681495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
348/294, 322, 312, 317, 311, 273, 220.1	2/22/2013	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS)	2/22/2013	LTN

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	485	(scan\$3 with line\$1) and (NTSC or standard) same (television or TV) and (mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same (sensor\$1 or CCD\$1) and camera\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:00
S2	2555	348/294.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:01
S3	10	S1 and S2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:01
S4	593	(scan\$3 with line\$1) and (NTSC or standard) same (television or TV) and (mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same (sensor\$1 or CCD\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:04
S5	10	S4 and S2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:04
S6	3	("4426664" "4879601" "4996000").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/02/22 11:07
S7	589	348/312.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:09
S8	11	S4 and S7	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2013/02/22 11:09

			DERWENT; IBM_TDB			
S9	2	12/845266	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:15
S10	12	("4054915" "5170249" "5187569" "5828406" "5847758" "6195125" "6519000" "6661451" "6765616" "6906746" "7154539" "7403226").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/02/22 11:17
S11	18	("4591900" "4630105" "4740828" "4779137" "4831453" "5239380" "5287192" "5489945" "5512945" "5528291" "5668597" "5751348" "5828406" "5926215" "5990952" "6084634" "6342921" "6538696").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/02/22 11:18
S12	9	("4618990" "4882619" "5402171" "5418565" "5541648" "5734424" "5764285" "5781236" "5907353").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/02/22 11:20
S13	5	("4479143" "4500915" "4553159" "4821088" "5737017").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/02/22 11:22
S14	1388	348/311,317,322.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:23
S15	25	S4 and S14	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:23
S16	1710	348/220.1,273.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:25
S17	29	S4 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:25
S18	398	S4 and "348"/\$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2013/02/22 11:26

			JPO; DERWENT; IBM_TDB			
S19	251	S18 and @ad<"20000111"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:27
S20	142180	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same (sensor\$1 or CCD\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:30
S21	1604	S20 and (S2 or S7 or S14 or S16)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:31
S22	438	S21 and @ad<"20000111"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:31
S23	40	S22 and ((scan\$3 with line\$1) and (NTSC or standard) same (television or TV))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:32
S24	14	("4963980" "5231500" "5264939" "5349385" "5440343" "5444482" "5838373" "5841471" "6011583" "6124888" "6356306" "6377301" "6515703" "6519000").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/02/22 11:33
S25	2	"6661451".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/22 11:38
S26	18	("4591900" "4630105" "4740828" "4779137" "4831453" "5239380" "5287192" "5489945" "5512945" "5528291" "5668597" "5751348" "5828406" "5926215" "5990952" "6084634" "6342921" "6538696").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2013/02/22 11:38

EAST Search History (Interference)

< This search history is empty >

2/ 22/ 2013 1:21:37 PM

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
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 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 3960

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
13/681,495	11/20/2012	348	2663	500.38315CC4		
APPLICANTS Takahiro Nakano, Tokyo, JAPAN; Ryuji Nishimura, Tokyo, JAPAN; Toshiro Kinugasa, Tokyo, JAPAN; Hitachi, Ltd., Tokyo, JAPAN ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** JAPAN 00-006064 01/11/2000 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/13/2012						
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and /LUONG TRUNG NGUYEN/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY JAPAN	SHEETS DRAWINGS 8	TOTAL CLAIMS 1	INDEPENDENT CLAIMS 1
ADDRESS ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873 UNITED STATES						
TITLE ELECTRIC CAMERA						
FILING FEE RECEIVED 1390	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

<i>Index of Claims</i> 	Application/Control No. 13681495	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant		☐ CPA		☐ T.D.		☐ R.1.47			
CLAIM		DATE							
Final	Original	02/22/2013							
	1	✓							

Receipt date: 11/20/2012

13681495 - GAU: 2663

PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Complete if Known	
		Application Number	To be assigned
		Filing Date	November 20, 2012
		First Named Inventor	T. NAKANO, et al.
		Art Unit (expected)	2022
Sheet 1 of 1	Attorney Docket Number	500.38315CC4	

U.S. PATENT DOCUMENTS					
Examiner Initials ¹	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,661,451	12-2003	Kijima, et al.	
		US- 7,154,539	12-2006	Nishimura, et al.	
		US- 5,828,406	10-1998	Parulski et al.	
		US- 4,054,915	10-1977	Sugihara, Yasumasa	
		US- 5,170,249	12-1992	Ohtsubo, et al.	
		US- 5,187,569	02-1993	Tani, Nobuhiro	
		US- 7,403,226	07-2008	Nakano, et al.	
		US-6,195,125	02-2001	Udagawa et al.	
		US-6,765,616	07-2004	Nakano et al.	
		US-6,906,746	06-2005	Hijishiri et al.	
		US-6,519,000	02-2003	Udagawa, Yoshirou	
		US-5,847,758	12-1998	Iizuka, Tetsuya	

FOREIGN PATENT DOCUMENTS						
Examiner Initials ¹	Cite No. ¹	Foreign Patent Document Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		JP 9-270959	10-97			
		JP 11-187306	07-99			
		JP 04-323973	11/13/1992	Hitachi, Ltd.		
		JP 11-004456	01/06/1999	Fuji Photo Film Co., Ltd.		
		JP 11-355665	12/24/1999	Fuji Photo Film Co., Ltd.		

Examiner Signature	/Luong Nguyen/	Date Considered	02/21/2013
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kind's Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /LN/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): T. NAKANO, et al
Application No.: 13/681,495
Filed: November 20, 2012
For: ELECTRIC CAMERA
Group AU: 2661
Conf. No.: 3960

RESPONSE TO NOTICE TO FILE MISSING PARTS

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

February 15, 2013

Sir:

In response to the Notice to File Missing Parts dated December 18, 2012, in connection with the above-identified application, attached hereto is an executed Declaration for the above-identified patent application, in compliance with 37 CFR 1.63.

The fee of \$130.00 required to satisfy the requirements set forth in 37 CFR 1.16(f) has already been charged to our deposit account on December 20, 2012.

Please charge any shortages in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Docket No. 500.38315CC4) and please credit any excess fees to such deposit account.

Respectfully submitted,

/Ayal I. Sharon /
Ayal I. Sharon
Registration No. 55,986

AIS/kmh
(703) 312-6600

申請データシート(37 CFR 1.76)を使った実用及び意匠登録出願宣言書(37 CFR 1.63) DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)	
発明の名称 Title of Invention	ELECTRIC CAMERA
<p>下記発明者である私は、つぎのことがらを宣言します。 As the below named inventor, I hereby declare that: 本宣言は This declaration is directed to:</p> <p>☐ 添付されている、あるいは The attached application, or</p> <p>_____に、米国出願あるいは PCT 国際出願番号 _____として出願されているものに ☒ 宛てられています。 United States application or PCT international application number <u>13/681495</u> filed on <u>November 20, 2012</u> .</p> <p>上記の出願は私自身、あるいは私が権限を譲与したものによって行われたものです。 The above-identified application was made or authorized to be made by me.</p> <p>私は本出願書中にあらわれるもともとの発明者、あるいはもともとの共同発明者です。 I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>私は本宣言書において故意に虚偽の申し立てを行った場合は 18 U.S.C. 1001 により、罰金あるいは最高五(5)年の禁固刑、あるいはその両方による罰則の対象となることを認めます。 I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.</p> <p>私は、特許請求の範囲を含む上記の明細書を確認し内容を理解しています。 I have reviewed and understand the contents of the above-identified application, including the claims.</p> <p>私は、連邦規則法典第 37 編規則 1.56 に定義されている、特許性について重要な情報を開示する義務があることを認めます。 I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.</p>	
発明者の正式氏名: LEGAL NAME OF INVENTOR: Takahiro NAKANO	
署名: Signature:	日付(任意): Date (Optional): Dec. 17, 2012
備考: 出願データシート(PTO/AIA/14 あるいはその同等用紙)は、発明の自主独立体全体の命名を含め、本用紙に添付すること。 なお残余の発明者ごとにこの用紙の写しを使用する。 Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional copy of the present form for each additional inventor.	

申請データシート(37 CFR 1.76)を使った実用及び意匠登録出願宣言書(37 CFR 1.63) DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)	
発明の名称 Title of Invention	ELECTRIC CAMERA
<p>下記発明者である私は、つぎのことがらを宣言します。 As the below named inventor, I hereby declare that:</p> <p>本宣言は This declaration is directed to:</p> <p>☐ 添付されている、あるいは The attached application, or</p> <p>_____に、米国出願あるいは PCT 国際出願番号_____として出願されているものに ☒ 宛てられています。 United States application or PCT international application number <u>13/681495</u> filed on <u>November 20, 2012</u> .</p> <p>上記の出願は私自身、あるいは私が権限を譲与したものによって行われたものです。 The above-identified application was made or authorized to be made by me.</p> <p>私は本出願書中にあらわれるもとの発明者、あるいはもとの共同発明者です。 I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>私は本宣言書において故意に虚偽の申し立てを行った場合は 18 U.S.C. 1001 により、罰金あるいは最高五(5)年の禁固刑、あるいはその両方による罰則の対象となることを認めます。 I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.</p> <p>私は、特許請求の範囲を含む上記の明細書を確認し内容を理解しています。 I have reviewed and understand the contents of the above-identified application, including the claims.</p> <p>私は、連邦規則法典第 37 編規則 1.56 に定義されている、特許性について重要な情報を開示する義務があることを認めます。 I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.</p>	
発明者の正式氏名: LEGAL NAME OF INVENTOR: Ryuji NISHIMURA	
署名: Signature:	日付(任意): Date (Optional):
備考: 出願データシート(PTO/AIA/14 あるいはその同等用紙)は、発明の自主独立体全体の命名を含め、本用紙に添付すること。 なお残余の発明者ごとにこの用紙の写しを使用する。 Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional copy of the present form for each additional inventor.	

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発明の名称 Title of Invention	ELECTRIC CAMERA
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発明者の正式氏名: LEGAL NAME OF INVENTOR: <u>Toshiro KINUGASA</u>	
署名: Signature: <u>Toshiro Kinugasa</u>	日付(任意): Date (Optional): <u>12/19/12</u>
備考: 出願データシート(PTO/AIA/14 あるいはその同等用紙)は、発明の自主独立体全体の命名を含め、本用紙に添付すること。 なお残余の発明者ごとにこの用紙の写しを使用する。 Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional copy of the present form for each additional inventor.	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. NAKANO, ET AL.

Application No: 13/681,495

Filed: November 20, 2012

For: ELECTRIC CAMERA

Group AU: 2661

Examiner:

Conf. No.: 3960

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

February 15, 2013

SIR:

In response to the Response to Request for Corrected Filing Receipt received from the Patent and Trademark Office on January 18, 2013, please find enclosed a Application Data Sheet correcting the filing date of the continuing application data from 2000-04-08 to 2000-03-08 in connection with U.S. Patent No. 6,765,616.

Kindly charge any shortage in fees due in connection with the filing of this paper to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Deposit

Account No. 01-2135 (case 500.38315CC4), and credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon /
Ayal I. Sharon
Registration No. 55,986

AIS/kmh
1300 17th Street N., Suite 1800
Arlington, Virginia 22209
Tel: 703-312-6600
Fax: 703-312-6666

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Takahiro		Nakano	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City		Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country	JP	
Inventor 2 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Ryuji		Nishimura	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City		Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country	JP	
Inventor 3 Remove				
Legal Name				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		Kinugasa	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				

City		Country of Residence	JP
------	--	----------------------	----

Mailing Address of Inventor:

Address 1	c/o Hitachi, Ltd., Intellectual Property Group		
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province	
Postal Code	100-8220	Country	JP

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ An Address is being provided for the correspondence information of this application.

Customer Number	020457		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
<p>Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.</p>			
<p>Please Select One: ☒ Customer Number ☐ US Patent Practitioner ☐ Limited Recognition (37 CFR 11.9)</p>			
Customer Number	020457		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.					
Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
12845266	Continuation of	10660710	2003-09-12		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10660710	Division of	09520836	2000-04-08 03-08	6765616	2004-07-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).			
			Remove
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed
00-006064	JP	2000-01-11	☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

☐ Assignee	☐ Legal Representative under 35 U.S.C. 117
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :	
--	--

If the Assignee is an Organization check here. ☒

Organization Name	Hitachi, Ltd.
-------------------	---------------

Mailing Address Information:

Address 1		6-6, Marunouchi 1-chome, Chiyoda-ku	
Address 2			
City	Tokyo	State/Province	
Country	JP	Postal Code	
Phone Number		Fax Number	

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Ayal I. Sharon/		Date (YYYY-MM-DD)	2013-02-06	
First Name	Ayal	Last Name	Sharon	Registration Number	55986
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	14972099
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon/Krista Hargrove
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	15-FEB-2013
Filing Date:	20-NOV-2012
Time Stamp:	14:44:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	38315cc42013reponsetomissin gparts.pdf	36630 74b36e3dbe94d5f036e4148389f5f37e9a9d 4efa	no	1

Warnings:

Information:

2	Oath or Declaration filed	38315cc42013declaration.pdf	190763 500ce81e806e8676a4c8dcf621cecae6abeb86e7	no	3
Warnings:					
Information:					
3	Request for Corrected Filing Receipt	38315cc42013reponsetorequest.pdf	41489 11a671967779e74f3f163313786d82773c7b6789	no	2
Warnings:					
Information:					
4	Application Data Sheet	38315cc42013correctedads.pdf	430245 8b38a533116eb14c95f63a767f01ea58288b9401	no	6
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			699127		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Takahiro		Nakano	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City		Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country	JP	
Inventor 2 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Ryuji		Nishimura	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City		Country of Residence	JP	
Mailing Address of Inventor:				
Address 1		c/o Hitachi, Ltd., Intellectual Property Group		
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province		
Postal Code	100-8220	Country	JP	
Inventor 3 Remove				
Legal Name				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		Kinugasa	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City		Country of Residence	JP	

Mailing Address of Inventor:

Address 1	c/o Hitachi, Ltd., Intellectual Property Group		
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	State/Province	
Postal Code	100-8220	Country	JP
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. <div style="text-align: right;"> <input type="button" value="Add"/> </div>			

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	020457
Email Address	<input type="button" value="Add Email"/> <input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)	
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.	

Representative Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
<p>Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.</p>			
<p>Please Select One: ☒ Customer Number ☐ US Patent Practitioner ☐ Limited Recognition (37 CFR 11.9)</p>			
Customer Number	020457		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.					
Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
12845266	Continuation of	10660710	2003-09-12		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10660710	Division of	09520836	2000-04-08 03-08	6765616	2004-07-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).			
			Remove
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed
00-006064	JP	2000-01-11	☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant 1			
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
☐ Assignee	☐ Legal Representative under 35 U.S.C. 117		
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest		
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor : <input type="text"/>			
If the Assignee is an Organization check here. ☒			
Organization Name	Hitachi, Ltd.		
Mailing Address Information:			
Address 1	6-6, Marunouchi 1-chome, Chiyoda-ku		
Address 2			
City	Tokyo	State/Province	
Country	JP	Postal Code	
Phone Number		Fax Number	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Ayal I. Sharon/		Date (YYYY-MM-DD)	2013-02-06	
First Name	Ayal	Last Name	Sharon	Registration Number	55986
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	14972207
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon/Krista Hargrove
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	15-FEB-2013
Filing Date:	20-NOV-2012
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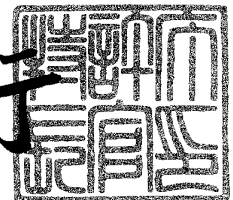
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【発明の名称】 撮像装置

【請求項の数】 16

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【発明の名称】 撮像装置

【特許請求の範囲】

【請求項 1】

テレビジョン方式の一表示画面の有効走査線数 M の3倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記有効走査線数 M に相当するライン数の出力信号を得るように該撮像素子を駆動する駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する信号処理手段とを備えていることを特徴とする撮像装置。

【請求項 2】

前記駆動手段は、前記撮像素子の垂直方向の画素数 N から前記混合または間引き周期 K と前記有効走査線数 M との積 $K \cdot M$ を減じた数の垂直画素に対応する画素領域の信号電荷を前記テレビジョン方式の垂直帰線期間内に読み出しまたは掃き捨てることにより、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の画素の内 $K \cdot M$ の垂直画素に相当する画素領域の信号電荷を切り出して、前記有効走査線数 M に相当するライン数の出力信号を得るように前記撮像素子を駆動することを特徴とする請求項 1 記載の撮像装置。

【請求項 3】

前記信号処理手段は、該撮像素子の該受光面の内、該切り出した垂直領域に対して該テレビジョン方式の縦横比と略等しくなる水平領域部分に相当する出力信号期間のみを切り出して該テレビジョン方式の有効水平走査期間全体にわたって出力する機能を有することを特徴とする請求項 1 または 2 記載の撮像装置。

【請求項 4】

前記駆動手段は、該テレビジョン方式の表示周期毎に該混合または間引きの画素位置をずらすことによりインターレース信号を出力するように該撮像素子を駆動することを特徴とする請求項 1 ～ 3 のいずれか 1 項に記載の撮像装置。

【請求項 5】

前記信号処理手段は、該混合または間引きによって得られるインターレース出力信号の垂直方向の重心位置が表示周期毎に 180 度の位相差となるように補間する機能を有することを特徴とする請求項 4 記載の撮像装置。

【請求項 6】

前記撮像素子は、該垂直方向の画素数 N を該有効走査線数 M で除した商の整数部またはそれ以下の整数の内少なくとも二つの整数画素周期で垂直方向に混合または間引きすることができ、該駆動手段は、該少なくとも二つの整数に対応した少なくとも二つのモードで、該撮像素子を駆動することを特徴とする請求項 1～5 のいずれか 1 項に記載の撮像装置。

【請求項 7】

前記撮像素子の該駆動手段は、装置内部または外部に設けたズームスイッチ等の画角変化を指示するスイッチ手段からの入力情報に対応して、該混合または間引きの画素周期を変化させることを特徴とする請求項 6 記載の撮像装置。

【請求項 8】

前記撮像素子の出力信号の利得を調整する利得調整手段を有し、該撮像素子の混合の画素周期が変化した時にも、該利得調整手段の出力信号レベルが同一になるように、混合画素周期に対応して該利得調整手段の利得を変化させることを特徴とする請求項 6 または 7 記載の撮像装置。

【請求項 9】

前記撮像装置の手振れを検出する手振れ検出手段を有し、該手振れ検出手段で検出した手振れ量に応じて、該受光面内における垂直方向及び水平方向の切り出し位置を、該手振れを補正するように変化させることを特徴とする請求項 1～8 のいずれか 1 項に記載の撮像装置。

【請求項 10】

テレビジョン方式の一表示画面の有効走査線数 M の 3 倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面を備えた撮像素子と、該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部より大きな整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記テレビ

ジョン方式の有効垂直走査期間内に、前記撮像素子の垂直画素数 N の K 分の一のライン数の出力信号を得るように前記撮像素子を駆動する駆動手段と、
前記撮像素子の出力信号を用いて画像信号を生成する機能を有する信号処理手段とを備えていることを特徴とする撮像装置。

【請求項 1 1】

テレビジョン方式の一表示画面の有効走査線数 M の 3 倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記有効走査線数 M に相当するライン数の出力信号を得るように該撮像素子を駆動する第 1 の駆動手段と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部より大きな整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の垂直画素数 N の K 分の一のライン数の出力信号を得るように前記撮像素子を駆動する第 2 の駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する信号処理手段とを備え、前記第 1 の駆動手段による駆動と前記第 2 の駆動手段による駆動とを、装置内部または外部に設けたスイッチ手段からの入力情報に対応して選択、切り替えを行うことを特徴とする撮像装置。

【請求項 1 2】

シャッターボタン等のトリガー手段を有し、該トリガー手段によりトリガーが発生した時には、該撮像素子の各画素に蓄積した信号電荷を混合せずに全画素独立で読み出すことを特徴とする請求項 1 ～ 1 1 のいずれか 1 項に記載の撮像装置。

【請求項 1 3】

前記撮像素子の受光面を構成する画素配列の各画素に対して、水平方向に第一、第二、および第三の各色を各々透過する色フィルターを三画素周期で周期的に配し、垂直方向には同一種類の色を透過する色フィルターを配したことを特徴と

する請求項 1 ～ 1 2 のいずれか 1 項に記載の撮像装置。

【請求項 1 4】

前記第一、第二、および第三の各色は各々黄色、緑、シアンであることを特徴とする請求項 1 3 記載の撮像装置。

【請求項 1 5】

前記第一、第二、および第三の各色は各々黄色、白色、シアンであることを特徴とする請求項 1 3 記載の撮像装置。

【請求項 1 6】

前記第一、第二、および第三の各色は各々赤、緑、青であることを特徴とする請求項 1 3 記載の撮像装置。

【発明の詳細な説明】

【0 0 0 1】

【発明の属する技術分野】

本発明は、固体撮像素子を用いたビデオカメラ、V T R 一体型カメラ、電子スチルカメラ等の撮像技術に係り、特に、画素数の多い固体撮像素子を用いた撮像装置に関する。

【0 0 0 2】

【従来の技術】

C C D (Charge Coupled Device) 等の固体撮像素子を用いた撮像装置として、動画撮影を目的としたいわゆるビデオカメラと、静止画撮影を目的としたいわゆる電子スチルカメラが存在する。また、近年では、動画撮影用の装置であっても静止画撮影機能を有したもの、或いは静止画撮影用の装置であっても動画撮影機能を有したものも存在している。

【0 0 0 3】

動画撮影を目的としたいわゆるビデオカメラでは、一般的にテレビモニター等の表示装置での表示を前提としており、N T S C、P A L 等のテレビジョン方式に準拠した出力信号を得るように構成されている。そのため、このような装置に用いられる撮像素子の垂直方向の有効画素数は、テレビジョン信号の生成を前提として定まっている。例えば、N T S C 方式ではフィールドあたりの有効走査線

数（フィールドあたりの全走査線数から垂直帰線期間に含まれる走査線数を除いた走査線数であり、実際に表示装置に表示される走査線数の意味）は約240本でかつフィールド毎に飛び越し走査（インターレース走査）を行うが、これを実現するために撮像素子の垂直方向の有効画素数は約480画素が基準となっている。すなわち、各フィールドで垂直方向に隣接する2画素の信号を撮像素子内部或いは撮像素子外部で混合することによって約240本の走査線を生成し、かつフィールド毎に混合する画素の組み合わせを変えることによって飛び越し走査を実現している。

【0004】

また、NTSC方式の動画撮像用の撮像素子として、手振れ補正用の画素領域を有効画素領域に付加して、垂直方向に約480画素以上の有効画素を有するものもあるが、この場合でも約480以上の画素領域は垂直帰線期間中に高速に読み出されて、有効な信号としては用いられず、画像信号はあくまでも垂直約480画素領域の信号から生成される。このような撮像装置で静止画を撮影する場合、動画撮影時と同一の画素領域の信号からJPEG（Joint Photographic Expert Group）等の静止画信号を生成することは比較的容易であるが、得られる画素数が垂直480画素程度に限定されてしまい、より高精細の静止画信号を得ることが出来ないという問題が有る。

【0005】

この問題を軽減する手段として、前述の手振れ補正領域を持つ撮像素子を用いた撮像装置においては、静止画撮影時には手振れ補正用画素領域を含めた全有効画素領域を用いる事が考えられるが、静止画撮影時においても撮影画像確認などの為にモニタリングをする必要が有り、その為には読み出した全有効画素の信号からテレビジョン方式に準拠した信号を生成する必要が有る。

【0006】

このような装置の従来例として特開平11-187306号公報に記載の装置が提案されている。この公報に開示された装置では、先ず、テレビジョン方式の1フィールド期間の複数倍の時間を要して全有効画素の信号を読み出してフィールドメモリー等の記憶手段に記憶し、しかる後に補間処理等によってテレビジ

ンのフィールド周期、水平走査周期に対応した信号への変換を行っている。

【0007】

しかしながら、この従来例では、信号変換のために、フィールドメモリー等の大規模な処理回路が必要であり、また、撮像素子からの読み出し周期がフィールド周期の複数倍となるため動解像度が劣化する。また、このような手段を用いても、静止画信号として得られる画素数は動画時の有効画素数に手振れ補正画素領域を加えた画素数が限度である。

【0008】

一方、静止画撮影を目的としたいわゆる電子スチルカメラでは、より高精細な静止画信号を得るために、近年動画撮影用の撮像素子に対してより多画素化した撮像素子を用いる傾向に有る。このような装置で動画撮影、またはモニタリングを行う場合には、やはりテレビジョン方式に準拠した信号を生成する必要があるが、前記多画素化した撮像素子では、画素数が必ずしもテレビジョン方式の走査線数に対応していないため、何らかの変換手段が必要である。

【0009】

このような変換手段としては、例えば、前述の手振れ補正用画素領域を有した動画撮像装置と同様に、フィールド周期よりも長い時間を用いて撮像素子から信号を読み出し、補間によってテレビジョン信号を生成する方法が有るが、この場合には前述の問題点と共に、画素数が多くなるにつれて、更に読み出し周期が長くなり動解像度が更に劣化する。

【0010】

また、この問題を軽減する手段として、撮像素子内部で画素信号を混合または間引きすることにより、読み出すべき信号数を減少し、読み出し周期を短くする装置の例が特開平9-270959号公報に開示されている。この装置においては、前記動解像度劣化の問題は軽減されるが、テレビジョン方式に同期した信号を生成するための時間軸変換を行うために、フィールドメモリー等の大規模な処理回路を必要とし、また、所望の混合、間引きを行うために撮像素子自体も特殊な構造を取る必要が有る。

【0011】

【発明が解決しようとする課題】

上述のように従来技術の撮像装置では、動画撮像装置で静止画撮影を行う場合には画素数の不足、静止画撮像装置で動画撮影する場合には、回路規模の増加と共に、動画画質の劣化という問題が有り、一つの撮像装置で動画、静止画とも十分な画像を得ることが難しい。また、静止画用の多画素撮像素子を用いて十分な動画画質を得るためには、前記問題点の解決の他に、手振れ補正機能等を実現するための読み出し領域の切り出しを行う必要も有るが、上記従来技術ではこれを実現する手段も提供されていない。

【0012】

本発明の目的は、かかる問題を解決し、静止画に対しても十分な画素数をもつ多画素の撮像素子を用いて、高精細な静止画に加えて、フィールドメモリ等により回路規模を増加すること無く、画質劣化を低減した動画撮影を可能とする撮像装置を提供すること、また、併せて手振れ補正機能の実現も可能とした撮像装置を提供することにある。

【0013】

【課題を解決するための手段】

上記目的を達成するため、本発明のうち、その一つとしては、テレビジョン方式の一表示画面の有効走査線数 M の3倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面を備えた撮像素子と、該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記有効走査線数 M に相当するライン数の出力信号を得るように該撮像素子を駆動する駆動手段と、前記撮像素子の出力信号を用いて画像信号を生成する信号処理手段とを備えた撮像装置とする。

【0014】

【発明の実施の形態】

以下、本発明の実施形態を図面を用いて説明する。図1は、本発明の撮像装置の一つの実施形態を示す構成図である。

【0015】

図1において、符号1はレンズ、符号2は絞り、符号3は撮像素子、符号4は撮像素子を駆動する駆動回路、符号5は利得調整回路、符号6はアナログーデジタル変換（A/D変換）回路、符号7は信号処理回路、符号8は垂直方向の補間処理を行う垂直補間回路、符号9は水平方向の補間処理を行う水平補間回路、符号10は画像信号を記録する磁気テープ、半導体メモリー、光ディスク等の記録媒体を含む記録部、符号11は動作状態に応じてこれらの構成要素の制御を行う制御回路、符号12は標準テレビジョン信号への変調処理等を行うエンコーダ回路、符号13はデジタルーアナログ変換（D/A変換）回路、符号14は動画撮影、静止画撮影等の動作モードの切り替えを行うモード切り替えスイッチ、符号15は記録開始／停止の指示を行うための記録ボタン、符号16a、16bはそれぞれ撮像装置の縦方向、横方向の手振れを検出する手振れセンサー、符号17は手振れセンサーの出力信号から撮像装置の手振れを判定する手振れ判定回路を示している。

【0016】

上記の構成において、レンズ1から入射された光は、絞り2を介して撮像素子3の受光面上に結像して電気信号に変換される。本実施形態では、撮像素子3をCCD型撮像素子としている。図2にこの撮像素子3の構成を示す。図2において、符号30はフォトダイオードで構成されている画素であり、水平、垂直方向に格子状に配置されている。格子状に配された画素には、それぞれ黄色（Y e）、緑（G）、シアン（C y）の各色を透過する色フィルターが、水平方向に3画素周期で繰り返し配され、垂直方向には同一の色を配されたいわゆる縦ストライプ状に配されている。画素数は任意であるが、本実施形態では垂直方向に1200画素、水平方向に1600画素が配置されているものとする。垂直転送部32は、V1、V2、V3の3相のパルスで駆動されるCCDである。本CCDは1画素あたり3相パルスに対応する3ゲート構成となっており、各画素の信号電荷を独立で垂直方向に転送することが可能である。画素の電荷を垂直転送部に転送するための転送ゲート31は、垂直転送部32のV2パルスに対応するゲートと共通化されており、共通化されたゲートに対して印加するパルスの波高値によっ

て画素からの電荷を垂直転送部に転送する動作と、垂直方向への転送動作とが区別して行われる。水平転送部33は、垂直転送部32から転送された電荷を水平方向に転送し、出力アンプ34を介して順次出力端子から出力する。

【0017】

図1の説明に戻る。以下、まずモード切り替えスイッチ14によって動画撮影モードが選択された時の動作について説明する。本実施形態における撮像素子の垂直方向の画素数は1200であるため、NTSC方式の場合のフィールド有効走査線数を240ラインとすると、垂直方向に5（＝1200画素／240ライン）画素の混合を行うことにより撮像素子からの出力信号ライン数を有効走査線数と一致させることが出来る。

【0018】

しかしながら、本実施形態では、後に説明する手振れ補正機能を実現するために、動画撮影モード時には、垂直方向に4画素の混合を行うこととする。垂直方向に4画素の混合を行う場合には、垂直方向1200画素の内、960（＝240ライン×4画素）画素分の領域の信号を有効な信号として用い、残りの240（＝1200（全画素）－960（有効画素））画素分の領域の信号は出画に用いない。図3は本動作モードにおける撮像素子の垂直駆動パルスのタイミングを示した図であり、V1、V2、V3は前記垂直転送部32であるCCDの各ゲートに入力される3相の駆動パルスである。

【0019】

図3において、垂直帰線期間に含まれる期間T1において駆動パルスV2をハイレベルの電圧とすることによって各画素に蓄積された信号電荷は垂直CCDのV2ゲート下に転送される。次にT2で示す期間における動作、すなわちV2パルスがミドルレベルの期間にV3パルスをローレベルからミドルレベルに変化させ、次にV3パルスがミドルレベルの期間にV2パルスをミドルレベルからローレベルに変化させた後、V1パルスをローレベルからミドルレベルに変化させ、次にV1パルスがミドルレベルの期間にV3パルスをミドルレベルからローレベルに変化させた後、V2パルスをローレベルからミドルレベルに変化させ、最後にV1パルスをミドルレベルからローレベルに変化させるという一連の動作によ

って、V 2 ゲート下の信号電荷は一ライン分転送されて再び V 2 ゲート下に保持される。

【0 0 2 0】

この一連の動作を繰り返すことによって、信号電荷を任意のライン数分転送することができる。図 3 において、垂直有効走査期間（垂直帰線期間を除いた実際に表示させる画像に対応する垂直走査期間の意味）の前の垂直帰線期間に含まれる期間 T 3 および垂直有効走査期間の後の垂直帰線期間に含まれる期間 T 4 において、合わせて 2 4 0 回上記一行分の転送動作を繰り返すことによって出画に用いない 2 4 0 行分の信号電荷を垂直帰線期間中に水平転送部 3 3 に転送する。例えば期間 T 3 で 1 2 0 回、期間 T 4 で 1 2 0 回の一連の転送を行うと、受光面上の上下それぞれ 1 2 0 行分の信号電荷が垂直帰線期間内の期間 T 3 及び期間 T 4 に水平転送部 3 3 に転送される。その後の垂直帰線期間内の期間 T 5 及び期間 T 6 に水平転送部 3 3 をそれぞれ一定期間駆動することによって水平転送部に転送された電荷は出力端から出力されるが、垂直帰線期間中であるので有効な信号としては用いられない。

【0 0 2 1】

次に、図 3 の垂直有効走査期間では、各水平帰線期間に上記一行分の転送動作を 4 回行うことにより 4 行分の信号電荷が水平転送部 3 3 に転送され水平転送部 3 3 で混合される。その後水平有効走査期間（水平帰線期間を除いた実際に表示させる画像に対応する水平走査期間の意味）に水平転送部 3 3 を駆動して水平転送部の信号電荷を読み出すことによって、テレビジョン方式に同期した出力信号を得ることができる。また、A フィールドで上記動作を行い、B フィールドでは期間 T 3 の転送行数を 1 2 2 行、期間 T 4 の転送行数を 1 1 8 行とすると、フィールド毎に混合される 4 行の組み合わせが 2 行分ずれ、図 4 に示すようにインターレース走査を行う事ができる。（図 4 は撮像素子受光面を示しているため、表示画面上とは上下反転している）

図 1 の説明に戻る。撮像素子 3 の出力信号は利得調整回路 5 で利得調整された後、A/D 変換回路 6 でデジタル信号に変換され、信号処理回路 7 で色信号の生成、ガンマ補正、ホワイトバランス処理、輪郭強調等の色信号処理、輝度信号処

理を施される。ここで本実施形態における撮像素子は、前記黄色（ Y_e ），緑（ G ），シアン（ C_y ）の縦ストライプ状の色フィルターが配されたものであるため、どのような画素数で垂直方向に混合を行っても、常に1ラインの出力信号から、 Y_e ， G ， C_y の各色信号が点順次で得られる。これらの色信号から、3原色信号 R 、 G 、 B 信号は以下の演算で得ることが出来る。

【0022】

$$R = Y_e - G$$

$$B = C_y - G$$

$$G = G$$

R ， G ， B 信号は信号処理回路7でホワイトバランス処理、ガンマ補正処理等を施された後、 $R - Y$ ， $B - Y$ または U ， V 等の色差信号に変換される。その後、輝度信号および色差信号は垂直補間回路8を介して水平補間回路9に入力される。本動作状態では垂直補間回路では処理は行われず通過するのみである。水平補間回路では水平方向の補間処理が行われる。

【0023】

図5は撮像素子の受光面を示した図である。前述のように本実施形態の本動作状態では、垂直有効走査期間に読み出される信号は垂直1200画素の内の960画素に相当し、水平方向は全画素（1600画素）に相当する領域であり、図5に斜線部Aで示している。ここで、撮像素子の受光面全体の縦横比が縦：横＝3：4であった場合、斜線部Aの領域はそれに対して横長となるため、水平方向全画素分の信号をNTSC方式等縦横比3：4のテレビジョン方式の表示機器で表示すると水平方向が圧縮された縦長の画像となる。従って、図5において斜線部Bで示した、テレビジョン方式の縦横比と合致した水平領域の信号のみを水平有効走査期間に出力する必要がある。テレビジョン方式の縦横比が3：4の場合には斜線部Bの水平画素数は1280（＝960（垂直方向有効画素）×（4／3））となる。

【0024】

図1の説明に戻る。水平補間回路9では水平1280画素分の信号を補間処理により水平方向に伸長し水平有効走査期間全体にわたって出力できるようにし、

また、必要に応じてクロックの乗せ替え等を行う。以上の動作によって、受光面上の垂直960画素、水平1280画素の領域を切り出して、テレビジョン方式に同期した信号として得ることが可能となる。その後、輝度信号及び色差信号はエンコーダ12でテレビジョン信号へのエンコード処理を施され、D/A変換回路13でアナログ信号に変換されて出力される。また、記録ボタン15によって記録の指示がなされた場合には、記録部10で信号の記録が行われる。この時、必要に応じてMPEG (Moving Picture Expert Group) 等の圧縮処理を施すこともできる。

【0025】

次に、手振れ補正の動作に関して説明する。撮像装置の縦方向、横方向の手振れを検出する手振れセンサー16a、16bによって検出された振れ情報は手振れ判定回路17に入力され、ここで手振れ量、方向などが判定され、撮像素子の受光面上での垂直方向、水平方向の画素数に換算される。換算された画素数に対して手振れを打ち消す方向に受光面上での切り出し位置（有効画素領域）をずらすことによって手振れを補正することができる。切り出し位置の移動は、垂直方向に関しては、前述の図3の期間T3および期間T4における転送行数を変化させることにより実現でき、水平方向に関しては前述の水平補間回路における、補間開始位置を変化させることにより実現することができる。

【0026】

以上動画撮影モード時の動作に関して説明した。次に、モード切り替えスイッチ14によって静止画撮影モードが選択された時の動作について説明する。

【0027】

静止画撮影モードにおいても、記録ボタン15によって記録の指示がなされるまでは、撮影画角の確認等のためのモニタリングを行うために、テレビジョン方式に準拠した信号の出力を行う。ただし、静止画撮影時にはできるだけ高精細な信号を得るために、本実施形態では、動画撮影時とは異なり撮像素子の全有効画素数を用いて撮影を行う。従って、モニタリング時には、全画素領域の信号から、テレビジョン信号を生成する必要がある。

【0028】

本実施形態の撮像素子の垂直方向の画素数は1200画素であるため、NTSC方式の有効走査線数を240ラインとすると、垂直方向に5（ $=1200/240$ ）画素の混合を行うことにより、出力信号ライン数を有効走査線数と一致させることができる。このように撮像素子を動作させるために、図3に示したパルスタイミング図において、垂直有効走査期間中の各水平帰線期間に前記1行分の転送動作を5回行う。これにより5ライン数分の信号電荷を水平転送部33で混合することができる。また、垂直帰線期間中の期間T3およびT4での転送動作は、インターレース走査を行うために、Bフィールドの期間T3において2行分の転送のみを行い、他の垂直帰線期間では転送動作は行わない（本実施形態では $1200/240=5$ であり、余りが生じないため、上記以外の転送は不要だが、仮に余りが生じる場合には、余りの画素数分を期間T3，T4で転送すれば良い）。

【0029】

水平転送部33で混合された電荷は水平有効走査期間に水平転送部を駆動して読み出す。以上により撮像素子の全画素の信号電荷をテレビジョン方式に同期して読み出すことができる。撮像素子3の出力信号は動画撮影時と同様に利得調整回路5で利得調整された後、A/D変換回路6でデジタル信号に変換され、信号処理回路7で色信号処理、輝度信号処理を施され、垂直補間回路8に入力される。静止画撮影モニタリング時には垂直補間回路8で垂直方向の重心補正の処理を行う。

【0030】

図6に本動作状態におけるAフィールド、Bフィールドにおける混合される画素の組み合わせおよび混合された信号の垂直方向の重心位置を示す。インターレース走査では、Aフィールド、Bフィールドでの走査線の位置は相互に他フィールドの走査線間の中心の位置であるため、これに対応して撮像素子の信号の垂直方向のサンプリングはそれぞれのフィールドで180度の位相差となる必要が有る。ところが、本実施形態の本動作状態では混合画素数が5画素であるため、図6に示すように、Aフィールド、Bフィールドでの出力信号の重心位置が180度

の位相差に対して、36度（＝1／2画素、同一フィールドのライン間距離の1／10）ずれている。これを補正するには、隣接2ラインの信号から補間によって信号を生成すれば良く、例えば同一フィールドのnラインの信号を S_n 、n+1ラインの信号 S_{n+1} とすると、 $S_n' = (S_n \times 9 / 10) + (S_{n+1} \times 1 / 10)$ の演算で得られる S_n' はnラインの信号の重心位置に対して1／10ライン分n+1ライン方向に重心位置のずれた信号である。Bフィールドの信号に対して上記演算を行うことによってサンプリングの重心ずれの補正が可能であるが、本実施形態では、Aフィールド、Bフィールドの補間の影響を均一にするために、nラインの信号を、Aフィールドでは1／20ライン分n-1ライン方向に、Bフィールドでは1／20ライン分n+1ライン方向に補正するために、以下の演算を行う。

【0031】

Aフィールド： $S_n' = (S_n \times 19 / 20) + (S_{n-1} \times 1 / 20)$

Bフィールド： $S_n' = (S_n \times 19 / 20) + (S_{n+1} \times 1 / 20)$

尚、本実施形態では隣接2ラインの信号からの演算によって補間処理を行っているが、更に複数ラインの信号を用いた補間処理を行う事もできる。垂直補間回路8の出力信号は水平補間回路9に入力されるが、本動作状態では水平補間回路では処理は行われず通過するのみである。その後は、動画撮影時と同様に、エンコーダ12でテレビジョン信号へのエンコード処理を施され、D/A変換回路13でアナログ信号に変換されて出力される。以上説明したように、静止画撮影モードでのモニタリング時にも、撮像素子の全画素領域の信号から、テレビジョン信号を生成する事ができる。

【0032】

次に、記録ボタン15によって記録の指示がなされた場合について説明する。静止画撮影モードにおけるモニタリング時には、テレビジョン信号を生成するために、撮像素子内で信号を混合する事によって信号量の削減を行っているが、記録する際には高精細な信号を得るために混合処理を行わずに、全画素の信号を独立で読み出す必要がある。これを実現するためには、図3に示したパルスタイミング図において、垂直有効走査期間中の各水平帰線期間の前記1行分の転送動作

を1回のみ行う。これにより1行分の信号電荷のみが水平転送部33に転送される。その後水平転送部33を駆動して1行分の信号電荷を読み出す。上記動作を垂直画素数分繰り返す事によって全画素の信号電荷を独立で読み出す事ができる。尚、垂直帰線期間中の期間T3およびT4での転送動作は行わない。

【0033】

読み出された信号電荷は、利得調整回路5で利得調整された後、A/D変換回路6でデジタル信号に変換され、信号処理回路7で色信号処理、輝度信号処理を施され、垂直補間回路8、水平補間回路9を介して記録部10で記録される。この時、垂直補間回路8、水平補間回路9では補間処理は行われない。記録部10では、記録に際してJPEG (Joint Photographic Expert Group) 等の圧縮処理を施すこともできる。尚、上記静止画記録動作中はテレビジョン信号の生成はできないため、モニタリング用の出力には、記録開始直前の画像、または単一色の信号等に置き換えたテレビジョン信号を出力する。以上の動作により、撮像素子全画素から得られる高精細な信号を記録する事ができる。なお、本実施形態においては、動画撮影モード時と静止画撮影モード時の記録部は共通としているが、モードによって記録部を各々専用に設けても良い。

【0034】

以上説明したように、本実施形態では、垂直方向の画素数に上限がなくなるため、静止画に対しても十分な画素数をもつ多画素の撮像素子を用いて、高精細な静止画に加えて、良好な動画撮影が可能になる。

【0035】

また、信号の混合と垂直帰線期間中の垂直転送により、多画素の撮像素子においてもテレビジョン方式に同期した信号読み出しを可能とし、よって画質劣化を低減し、かつ手振れ補正機能を有した動画撮影および静止画撮影におけるモニタリングを実現することができる。

【0036】

また、切り出した垂直領域に対してテレビジョン方式の縦横比と略等しくなる水平領域部分に相当する出力信号のみを切り出してテレビジョン方式の有効水平走査期間全体にわたって出力するように構成することによって、垂直方向の切り

出し位置をどのように行っても、テレビジョン方式の縦横比に等しい出力信号を得ることができる。

【0037】

また、テレビジョン方式の表示周期毎に混合する画素位置をずらすことによりインターレース信号を出力するように撮像素子を駆動することによって、多画素の撮像素子を用いてもインターレース走査を行うことができる。

【0038】

また、混合によって得られるインターレース出力信号の垂直方向の重心位置が表示周期毎に180度の位相差となるように補間することによって、混合周期が奇数の場合のようにインターレースの位相ずれが生じる場合であっても、インターレースずれのない出力信号を得ることができる。

【0039】

なお、本実施形態においては、撮像素子の垂直画素数を1200、動画撮影モード時の混合画素数を4、静止画撮影モード時の混合画素数を5としているが、手振れ補正用の画素領域の有無、大きさは任意であるため、各モードにおける混合画素数は、垂直画素数をテレビジョン方式の有効走査線数で除した商の整数部（上記実施例では5）以下であれば任意で良い（必ずしも割り切れる必要はなく、上記例の場合、垂直画素数は1200以上であっても良い）。

【0040】

また、静止画撮影時の画素数はテレビジョン方式のフィールド有効走査線数の3倍以上程度の垂直画素数をもてば良い。また、本実施形態では撮像素子の垂直有効走査期間中の出力ライン数を減じるために垂直方向の画素混合を行ったが、画素からの信号電荷を複数ライン中の一ラインしか読み出さない、いわゆる間引きによっても同様に出力ライン数を減じる事ができる。

【0041】

また、本実施形態では撮像素子の垂直転送部を1画素あたり3相のパルスで駆動するCCDとしたが、上記条件を満たす画素周期での混合または間引きの実現できる形態であれば、撮像素子の構造は任意で良い。

【0042】

また、本実施形態ではNTSC方式の場合について説明を行ったが、PAL方式等有効走査線数の異なるテレビジョン方式であっても同様に実現する事ができる。

【0043】

従って、以上まとめると、テレビジョン方式のフィールド有効走査線数Mの3倍以上の任意の垂直画素数Nをもち、かつ、NをMで除した商の整数部以下の整数の内少なくとも一つの整数周期での垂直方向の混合または間引きを行うことのできる撮像素子を用いる事により、本実施形態と要旨を同一にする種々の構成を取る事ができる。

【0044】

次に本発明による他の実施形態を図7に示した構成図によって説明する。図7の構成図は、図1に示す構成図に対して画角変化指示スイッチ18を追加したものである。図7において図1に示した構成要素と同一の構成要素に対しては同一の符号を付し、同一の動作を行う場合には説明を省略する。

【0045】

本実施形態における、動画撮影モード、静止画撮影モード時のモニタリング、および静止画記録の動作は、通常状態においては図1の構成図により説明した前述の実施形態の動作と同様である。次に動画撮影モード時に画角変化指示スイッチ18により画角変化が指示された時の動作に関して説明する。

【0046】

本実施形態の通常状態では、前述の実施形態にて説明したのと同様、垂直方向4画素の画素混合と垂直帰線期間中の垂直転送、および水平方向の補間処理により全画素領域の内、垂直960画素、水平1280画素の領域を切り出してテレビジョン信号を生成するものとする。ただし、画角変化（垂直方向の画質劣化を伴わないズーム機能の意味）指示スイッチ18により画角変化が指示された時には、まず垂直方向の混合画素数を3画素とし、垂直有効走査期間の前後の垂直帰線期間中に余分な垂直画素領域の信号を読み出す。

【0047】

本実施形態の場合には、 $480 (= 1200 - 240 \times 3)$ 画素分、混合後のライン数としては $160 (= 480 / 3)$ ライン分の信号を垂直帰線期間中に読み出せば良い。これにより、垂直 720 画素分の領域の信号を 240 ラインの信号としてテレビジョン方式に同期して読み出す事ができる。前記読み出しを実現するには、図3に示したパルスタイミング図において、垂直有効走査期間中の各水平帰線期間に3ライン数分の転送動作を行い、垂直帰線期間中の期間T3およびT4での転送行数を 160 ラインとすれば良い。また、フィールド毎に混合の組み合わせを変えてインターレース走査を行う。

【0048】

撮像素子3の出力信号は利得調整回路5に入力されるが、3画素混合時の信号レベルは4画素混合時に比べて $3/4$ 倍になっているため、利得調整回路の利得を4画素混合時に対して $4/3$ 倍して後段の回路の入力信号レベルを同一にする。その後A/D変換回路6、信号処理回路7で各々処理を施され、垂直補間回路8に入力される。3画素混合の場合のAフィールド、Bフィールドにおける混合される画素の組み合わせおよび混合された信号の垂直方向の重心位置は図8に示す通りであり、前述の実施形態における静止画撮影モニタリング時と同様にフィールド間のサンプリング位相が 180 度の位相差からずれているため、垂直補間回路8で垂直方向の重心補正の処理を行う。本動作状態における位相のずれ量は 60 度 ($= 1/2$ 画素、同一フィールドのライン間距離の $1/6$) であり、これを両フィールドで均一に補正するためには、以下の演算を行えば良い。

【0049】

$$\text{Aフィールド: } S_n' = (S_n \times 11 / 12) + (S_{n-1} \times 1 / 12)$$

$$\text{Bフィールド: } S_n' = (S_n \times 11 / 12) + (S_{n+1} \times 1 / 12)$$

尚、前述のように、3ライン以上の複数ラインの信号を用いた補間処理を行う事もできる。次に水平補間回路9で、垂直 720 画素に対して縦横比が $3:4$ となる水平領域（本動作状態では水平 $960 (= 1600 \times 720 / 1200)$ 画素の領域）の信号を補間処理により水平方向に伸長し水平有効走査期間全体にわたって出力できるようにする。以上の動作によって、受光面上の垂直 720 画素

、水平960画素の領域を切り出すことができる。

【0050】

次に、画角変化指示スイッチ18により再度画角変化が指示された時には、垂直方向の混合画素数を2画素とし、垂直480画素分の領域を垂直有効走査期間に読み出し、水平補間回路で640画素分の領域の信号を伸長し水平有効走査期間全体にわたって出力する事により、受光面上の垂直480画素、水平640画素の領域を切り出す（2画素混合時にはインターレースずれが生じないので垂直補間回路での重心補正は行わない）。更に、画角変化指示スイッチ18により画角変化が指示された時には、垂直方向の混合画素数を4画素とし、通常の状態に戻す。

【0051】

以上の動作により、図9に示すように撮像素子受光面上の切り出し領域を（A）垂直960×水平1280、（B）垂直720×水平960、（C）垂直480×水平640の3種類に変化させる事ができ、すなわち、撮影画角を3種類に変化させる事ができる。4画素混合時の領域Aを基準とすると、3画素混合時の領域Bでは1.33倍、2画素混合時の領域Cでは2倍に拡大した画像を得る事ができる。ここで、3種類の領域の読み出しに際しては、画素混合数を変える事によって、常に、撮像素子からの有効出力ライン数をテレビジョン方式の有効走査線数に一致させているため、少ない出力ライン数から補間処理によって有効走査線数の信号を生成する通常のいわゆる電子ズームと比較して、垂直方向の画質劣化の無い良好な画像を保ったまま、画角を変化させる事ができる。なお、静止画モニタリング時においても画素混合数を変化させて切り出し画角を変化させる同様の動作を行っても良い。

【0052】

以上説明したように、本実施形態では、上述の実施形態によって得られる効果のほか、静止画に対しても十分な画素数をもつ多画素の撮像素子を用い、かつ画素混合数を変化させる事によって、画質劣化の少ない画角変化を実現する事ができる。

【0053】

また、混合の画素周期が変化したときに生じる信号レベルの変化を利得調整手段で吸収することにより、後段の信号処理手段の入力信号レベルを一定に保つことができる。

【0054】

なお、本実施形態においては、画角変化指示スイッチによって間欠的に画角変化を行ったが、ズームスイッチによって連続的に変化させても良い。この時には、倍率変化が画素混合を変化させた時の倍率まで達しない間は通常の補間処理による電子ズームを行う事とする。本実施形態の場合には1倍以上1.33倍未満の間は4画素混合、1.33倍以上2倍未満の間は3画素混合、2倍以上では2画素混合となる。また、この時に光学ズーム機構と連動させても良い。

【0055】

また、本実施形態においても前記実施形態の場合と同様に、撮像素子の画素数、撮像素子の構造、テレビジョン方式等にかかわらず、フィールド有効走査線数Mの3倍以上の任意の垂直画素数Nをもち、かつ、NをMで除した商の整数部以下の整数の内少なくとも二つ整数周期での垂直方向の混合または間引きを行うことのできる撮像素子を用いる事により、本実施形態と要旨を同一にする種々の構成を取る事ができる。

【0056】

次に本発明による他の実施形態について説明する。ここで説明する実施形態の全体構成は、図1に示す構成図と同一であるが、撮像素子3の内部構成が異なっている。本実施形態における、撮像素子の構成を図10に示す。図10において、30はフォトダイオードで構成されている画素であり、水平、垂直方向に格子状に配置されており、これらの画素にはそれぞれ黄色(Ye)、緑(G)、シアン(Cy)の各色を透過する色フィルターが縦ストライプ状に配されている。

【0057】

本実施形態においては垂直方向に864画素、水平方向に1152画素が配置されているものとする。垂直転送部32は、V1、V2、V3、V4、V5、V6の6相のパルスで駆動されるCCDであり、1画素あたり2相パルスに対応す

る2ゲート構成となっており、3画素周期で6相パルスに対応する6ゲートが繰り返すように構成されている。画素の電荷を垂直転送部32に転送するための転送ゲート31は、垂直転送部32のV1、V3、V5の各パルスに対応するゲートと共通化されており、共通化されたゲートに対して印加するパルスの波高値によって画素からの電荷を垂直転送部に転送する動作と、垂直方向への転送動作とが区別して行われる。

【0058】

水平転送部33は、垂直転送部32から転送された電荷を水平方向に転送し、出力アンプ34を介して順次出力端子から出力する。本撮像素子は、前記実施形態における撮像素子とは異なり、全画素を独立した状態で垂直転送を行う事はできないが、垂直方向に隣接する3画素の信号電荷を垂直転送部内で混合した後に転送する事ができる。

【0059】

まず、本実施形態における動画撮影モード時の動作について説明する。本実施形態における撮像素子の垂直方向の有効画素数は864であるため、垂直方向に3画素の混合を行うと垂直864画素の内、720(=240×3)画素分の領域の信号を有効な信号として用い、残りの144(=864-720)画素分の領域を手振れ補正領域とする事ができる。

【0060】

図11は本動作モードにおける図10の撮像素子の垂直駆動パルスのタイミングを示した図であり、V1、V2、V3、V4、V5、V6は前記垂直転送部32であるCCDの各ゲートに入力される6相の駆動パルスである。図11において、垂直帰線期間に含まれる期間T1において駆動パルスV1、V3およびV5をハイレベルの電圧とすることによって各画素に蓄積された信号電荷は垂直CCDのV1、V3およびV5ゲート下に各々転送される。その後V2およびV4パルスをローレベルからミドルレベルに変化させる事によって隣接3画素分の電荷を混合し、混合後V5パルスをミドルレベルからローレベルに変化させる事によって、混合された電荷はV1、V2、V3、V4ゲート下に保持される。

【0061】

次に、T2で示す期間における一連の動作（駆動パルスをV1、V2、V3、V4、V5、V6の順にミドルレベルからローレベルあるいはローレベルからミドルレベルに変化させる）によって、信号電荷は混合後の一行分（3画素分）転送されて再びV1、V2、V3、V4ゲート下に保持される。この一連の動作を繰り返すことによって、混合された信号電荷を任意の行数分転送することができる。

【0062】

図11において、垂直有効走査期間の前の垂直帰線期間に含まれる期間T3および垂直有効走査期間の後の垂直帰線期間に含まれる期間T4において、合わせて144回上記一行分の転送動作を繰り返すことによって出画に用いない144行分の信号電荷を垂直帰線期間中に高速に水平転送部33に転送する。その後の垂直帰線期間内の期間T5及びT6に水平転送部33をそれぞれ一定期間駆動することによって水平転送部に転送された電荷は出力端から出力される。

【0063】

次に、図11の垂直有効走査期間では、各水平帰線期間に上記一行分の転送動作を行い、その後水平有効走査期間に水平転送部を駆動して水平転送部33の信号電荷を読み出すことによって、3画素分混合された信号電荷をテレビジョン方式に同期して読み出す事ができる。また、図11に示すように、Aフィールドでは信号を画素から垂直転送部32に転送した後V2、V4パルスをミドルレベルにして混合を行うのに対して、BフィールドではV2、V6パルスをミドルレベルにして混合を行う。これによって、フィールド毎に混合する画素の組み合わせを変えてインターレース走査を実現する事ができる。撮像素子の出力信号は前記実施形態と同様に処理される。ここで、垂直補間回路8では前記実施形態の3画素混合の場合と同様に重心補正の処理がなされ、水平補間回路9ではテレビジョン方式と縦横比を一致させる補間がなされる。

【0064】

次に、静止画撮影モードのモニタリング時の動作について説明する。静止画撮影時には前記実施形態と同様に撮像素子の全有効画素数を用いて撮影を行うもの

とする。本実施形態の撮像素子の垂直方向の画素数は864画素であり、動画撮影時と同様に3画素混合を行った場合には、出力ライン数が288(=864/3)ラインとなりテレビジョン方式に同期して信号を読み出す事ができないため、静止画撮影モードのモニタリング時には、垂直方向6画素の混合を行うものとする。6画素の混合は、垂直転送部内で3画素混合された信号電荷を各水平帰線期間内に2ライン数分水平転送部に転送する事によって行う事ができる。6画素混合を行うと撮像素子からの出力ライン数を144(=864/6)ラインに減少する事ができる。144ラインに減少された撮像素子の出力信号を垂直補間回路8で補間処理によって240ラインの信号に変換することにより、テレビジョン方式に同期した信号を得る事ができる。ここで、144ラインの信号から240ラインの信号を生成する為には、3ラインから5ラインを生成する補間処理を行えば良い(144/240=3/5)。

【0065】

図12に隣接2ラインの信号を用いて補間を行う場合について示す。撮像素子の3ラインの出力信号を n 、 $n+1$ 、 $n+2$ とすると、以下の演算によって5ラインの信号を生成する事ができる。

【0066】

$$n' = n$$

$$n' + 1 = n/2 + (n+1)/2$$

$$n' + 2 = n + 1$$

$$n' + 3 = (n+1)/2 + (n+2)/2$$

$$n' + 4 = n + 2$$

尚、3ライン以上の複数ラインの信号を用いた補間処理を行う事もできる。以上により、静止画撮影モードでのモニタリング時にも、撮像素子の全画素領域の信号から、テレビジョン信号を生成する事ができる。

【0067】

次に、記録ボタン15によって記録の指示がなされた場合について説明する。記録する際には高精細な信号を得るために混合処理を行わずに、全画素の信号を独立で読み出す必要がある。これを実現するためには、まず絞り2を閉じ、次に

図11に示したパルスタイミング図のT2期間において、V1パルスのみをハイレベルとしV1ゲートに隣接した画素の信号電荷のみを垂直転送部に転送し、その後垂直転送部、水平転送部を順次駆動して信号電荷を読み出す。同様にV3パルスをハイレベルとしてV3ゲートに隣接した画素の信号電荷を読み出し、最後にV5パルスをハイレベルとしてV5ゲートに隣接した画素の信号電荷を読み出す。以上により、全画素の電荷を3回に分けて独立に読み出す事ができる。読み出された信号電荷は、記録部10に記録されるが、その際、撮像素子の受光面上での画素配列を再現するように適宜並べ替えを行う。

【0068】

以上説明したように、本実施形態では、垂直方向の画素数がテレビジョン方式における走査線数の整数倍でない場合でも、画素混合および垂直方向の補間処理により全有効画素領域の信号からテレビジョン方式に準拠した信号の生成が可能である。

【0069】

なお、本実施形態においても前記実施形態の場合と同様に、撮像素子の画素数、撮像素子の構造、テレビジョン方式等にかかわらず、フィールド有効走査線数Mの3倍以上の任意の垂直画素数Nをもち、かつ、NをMで除した商の整数部より一つ以上大きい整数周期での垂直方向の混合または間引きを行うことのできる撮像素子を用いる事により、本実施形態と要旨を同一にする種々の構成を取る事ができる。

【0070】

次に、本発明による他の実施形態について説明する。ここで説明する実施形態は、上述の各実施形態において撮像素子の色フィルタ配列を異ならせたものである。図13に本実施形態における色フィルタ配列を示す。いずれも縦ストライプ状に配置したものであり垂直方向の混合または間引きの周期にかかわらず一つの出力ラインの信号からR、G、Bの各原色信号を生成できる。図13(a)は前述の実施形態の撮像素子の色フィルタ配列に対して、緑(G)の代わりに白(W=全色透過)フィルタを配したものであり、R、G、B信号は以下の演算によって得る事ができる。

【0071】

$$R = W - C_y$$

$$G = Y_e + C_y - W$$

$$B = W - Y_e$$

本色フィルター配列を用いた場合には、前述の実施例の色フィルター配列を用いた場合に比べてより高感度化が可能である。また、図13(b)は、補色の代わりに原色R、G、Bを透過する色フィルターを配したものであり、原色信号R、G、Bを直接得る事ができる。本色フィルター配列を用いた場合には、色純度、色S/Nの良好な撮像装置を得る事ができる。

【0072】

以上説明したような色フィルター配列とすることにより、いかなる画素周期で垂直方向の混合または間引きを行っても、常に各ラインの信号から3種類の色フィルターに対応する色信号を得ることができるため、容易にテレビジョン方式の色信号を生成することが可能である。

【0073】

【発明の効果】

以上説明したように、本発明によれば、垂直方向の画素数に上限がなくなるため、静止画に対しても十分な画素数をもつ多画素の撮像素子を用いて、高精細な静止画に加えて、良好な動画撮影を可能とした撮像装置を提供することができる。

【図面の簡単な説明】

【図1】

図1は、本発明による撮像装置の一実施形態の構成を示す構成図である。

【図2】

図2は、本発明による撮像装置の一実施形態における撮像素子の構成図である。

【図3】

図3は、本発明による撮像装置の一実施形態における駆動パルスタイミング図である。

【図４】

図４は、本発明による撮像装置の一実施形態における混合動作を説明する図である。

【図５】

図５は、本発明による撮像装置の一実施形態における読み出し領域を説明する図である。

【図６】

図６は、本発明による撮像装置の一実施形態における混合動作を説明する図である。

【図７】

図７は、本発明による撮像装置の一実施形態の構成を示す構成図である。

【図８】

図８は、本発明による撮像装置の一実施形態における混合動作を説明する図である。

【図９】

図９は、本発明による撮像装置の一実施形態における読み出し領域を説明する図である。

【図１０】

図１０は、本発明による撮像装置の一実施形態における撮像素子の構成図である。

【図１１】

図１１は、本発明による撮像装置の一実施形態における駆動パルスタイミング図である。

【図１２】

図１２は、本発明による撮像装置の一実施形態における補間動作を説明する図である。

【図１３】

図１３は、本発明による撮像装置の一実施形態における撮像素子の色フィルター配列を示す図である。

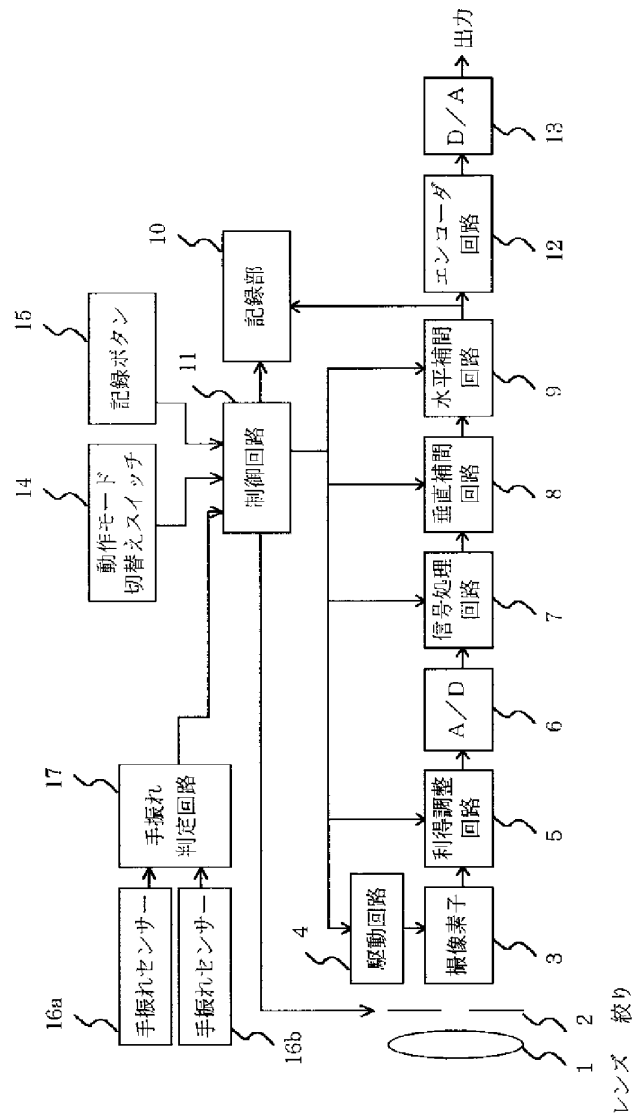
【符号の説明】

1…レンズ、2…絞り、3…撮像素子、4…駆動回路、5…利得調整回路、6…A／D変換回路、7…信号処理回路、8…垂直補間回路、9…水平補間回路、10…記録部、11…制御回路、12…エンコーダ回路、13…D／A変換回路、14…モード切り替えスイッチ、15…記録ボタン、16 a，16 b…手振れセンサー、17…手振れ判定回路、18…画角変化指示スイッチ。

【書類名】 図面

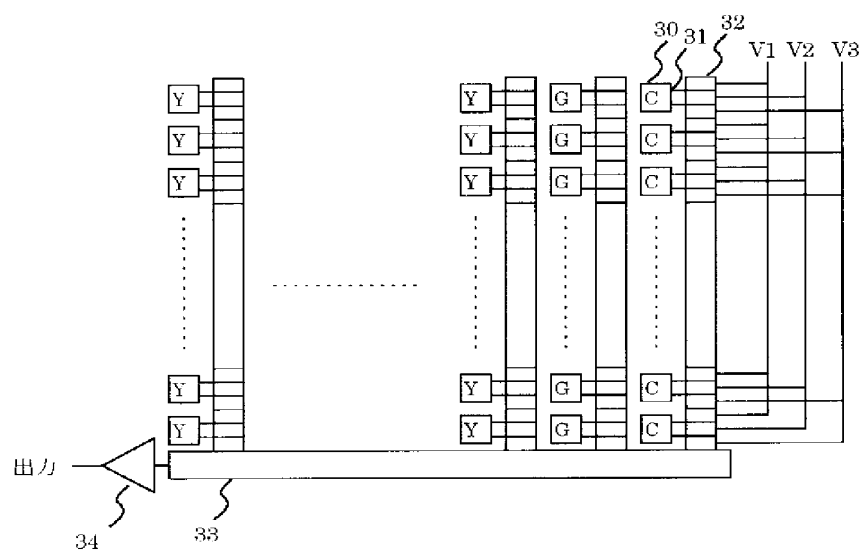
【図 1】

【図 1】



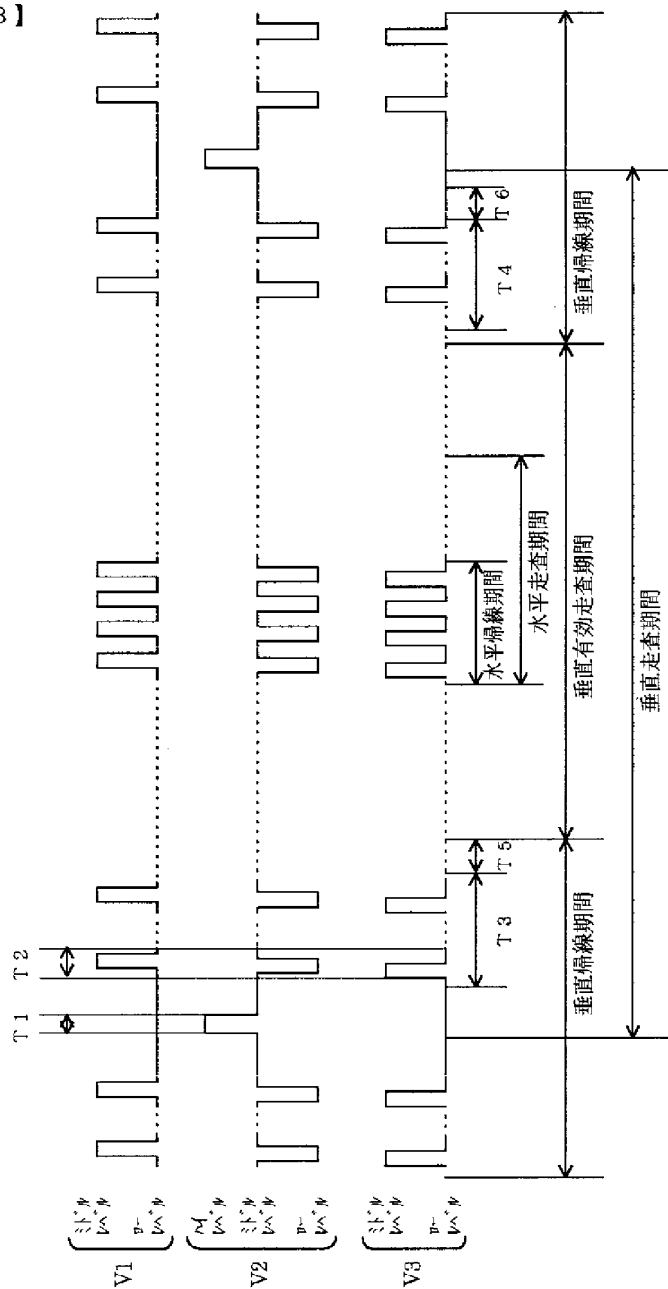
【図 2】

【図 2】



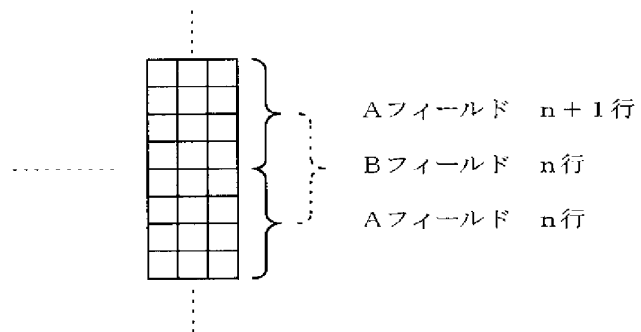
【図3】

【図3】



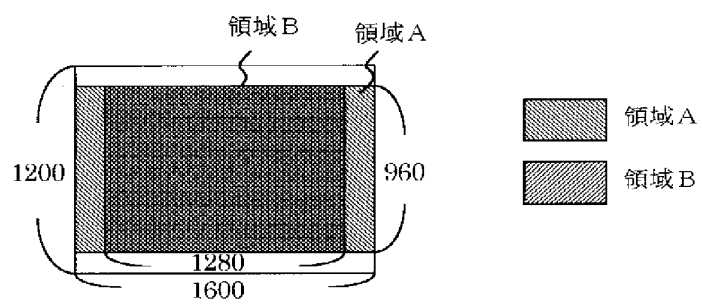
【図 4】

【図 4】



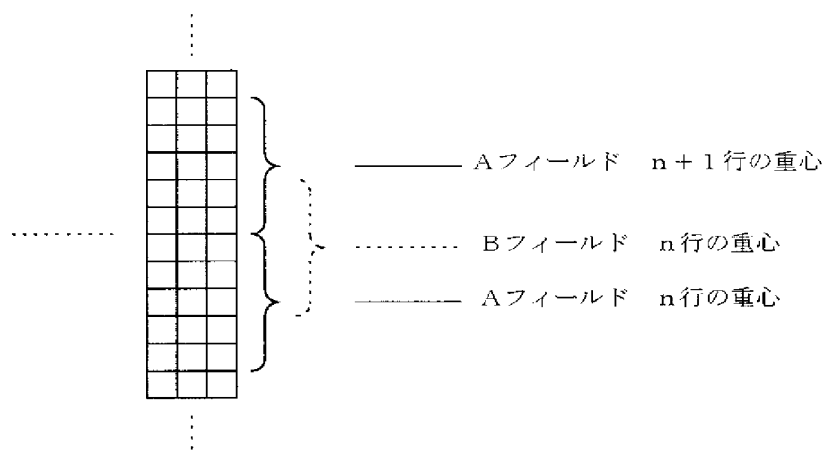
【図 5】

【図 5】



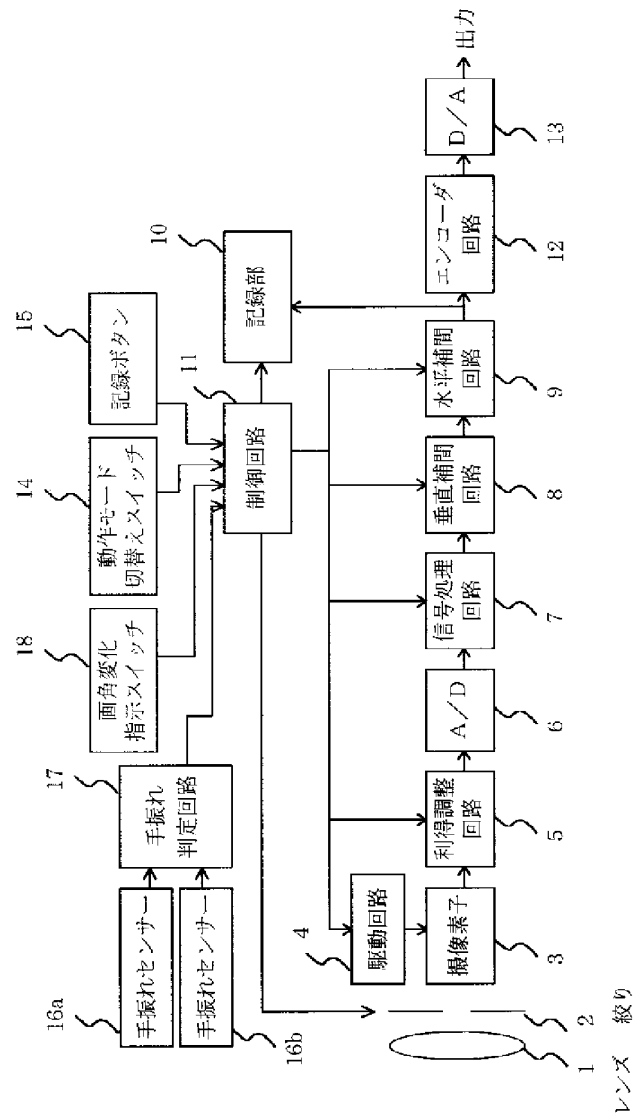
【図6】

【図6】



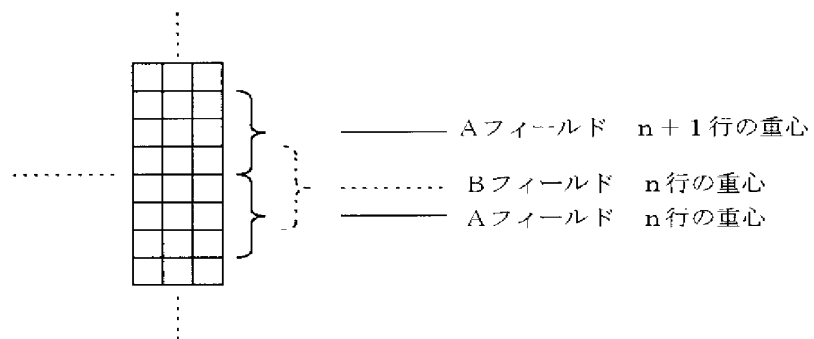
【図 7】

【図 7】



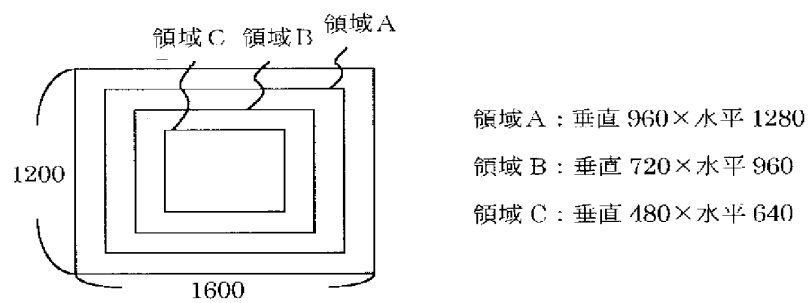
【図 8】

【図 8】



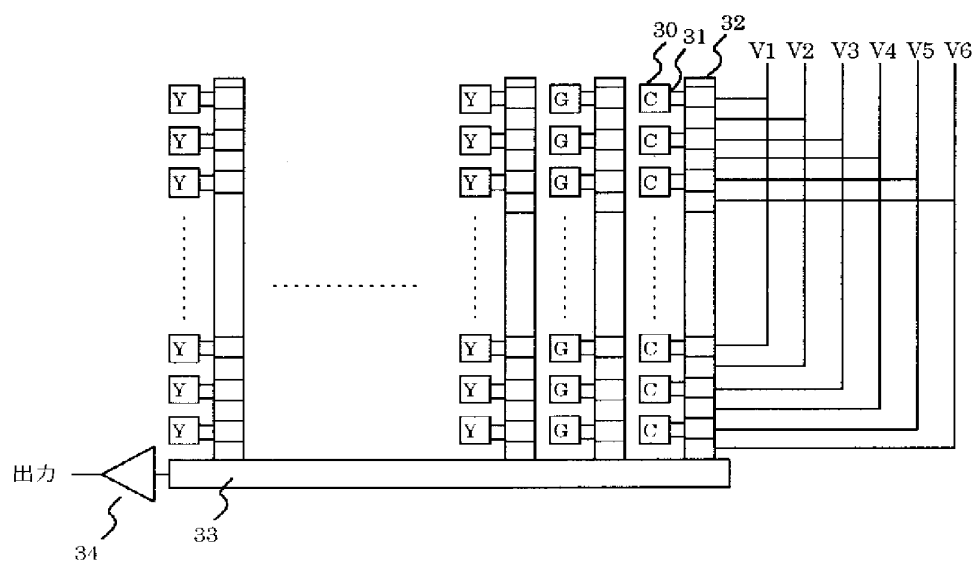
【図 9】

【図 9】

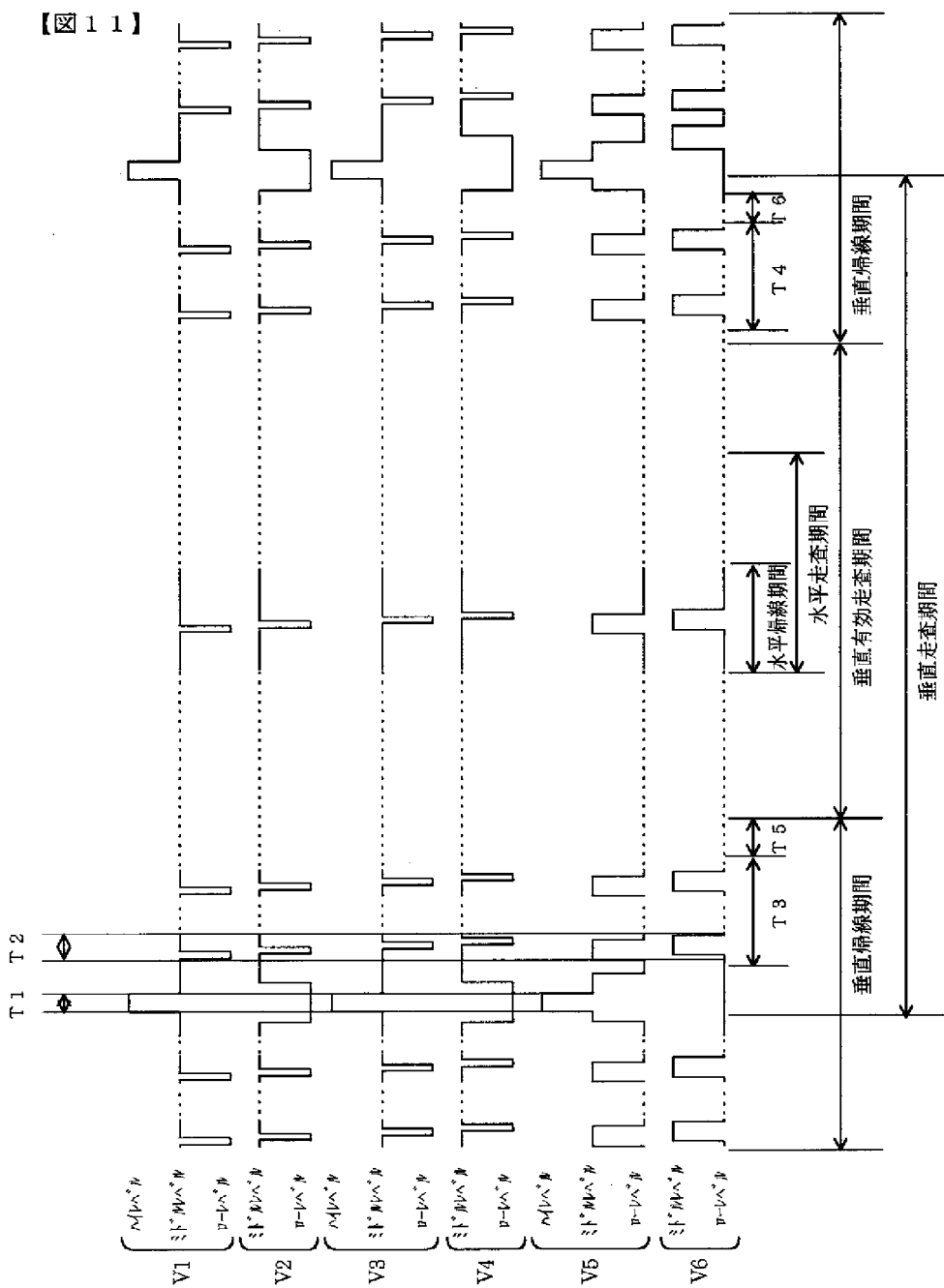


【図 10】

【図 10】

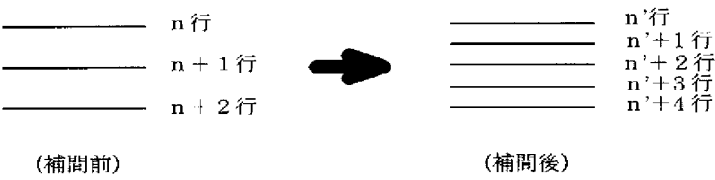


【図 1 1】



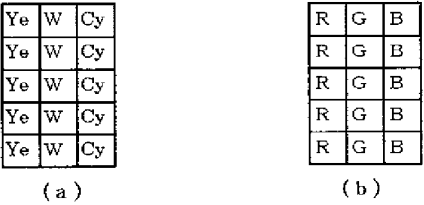
【図 1 2】

【図 1 2】



【図 1 3】

【図 1 3】



【書類名】 要約書

【要約】

【課題】

静止画撮影に対して十分な画素数を持つ多画素の撮像素子を用いて良好な動画撮影および静止画撮影中のモニタリングを可能とすることを目的とする。

【解決手段】

テレビジョン方式の有効走査線数の3倍以上の任意の垂直方向の画素数を持つ撮像素子を用いて、動画撮影時および静止画撮影中のモニタリング時には、画素混合または間引き、垂直帰線期間中の信号読み出し、補間処理によりテレビジョン信号を生成し、静止画記録時には全画素の信号を独立に読み出して記録する。

【選択図】 図1

【書類名】 手続補正書
 【あて先】 特許庁長官 殿
 【事件の表示】
 【出願番号】 特願2000- 6064
 【補正をする者】
 【識別番号】 000005108
 【氏名又は名称】 株式会社日立製作所
 【代理人】
 【識別番号】 100100310
 【弁理士】
 【氏名又は名称】 井上 学
 【発送番号】 366136
 【手続補正1】
 【補正対象書類名】 明細書
 【補正対象項目名】 特許請求の範囲
 【補正方法】 変更
 【補正の内容】
 【特許請求の範囲】

【請求項 1】

テレビジョン方式の一表示画面の有効走査線数 M の3倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面であって、該受光面を構成する画素配列の各画素に対して、水平方向に第一、第二、および第三の各色を各々透過する色フィルターを三画素周期で周期的に配し、垂直方向には同一種類の色を透過する色フィルターを配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記有効走査線数 M に相当するライン数の出力信号を得るように該撮像素子を駆動する駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する信号処理手段と、

該画像信号を、テレビジョン方式の表示画面を備えた表示手段に出力する出力手段と、
 を備え、

該駆動手段は、静止画モニタ時の画像信号を該表示手段が表示する場合には、 K 1 画素周期で垂直方向に混合または間引きを行い、動画時の画像信号を該表示手段が表示する場合には、 K 2 画素周期で垂直方向に混合または間引きを行うことを特徴とする撮像装置。

【請求項 2】

前記駆動手段は、前記撮像素子の垂直方向の画素数 N から前記混合または間引き周期 K と前記有効走査線数 M との積 $K \cdot M$ を減じた数の垂直画素に対応する画素領域の信号電荷を前記テレビジョン方式の垂直帰線期間内に読み出しまたは掃き捨てることにより、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の画素の内 $K \cdot M$ の垂直画素に相当する画素領域の信号電荷を切り出して、前記有効走査線数 M に相当するライン数の出力信号を得るように前記撮像素子を駆動することを特徴とする請求項 1 記載の撮像装置。

【請求項 3】

前記信号処理手段は、該撮像素子の該受光面の内、該切り出した垂直領域に対して該テレビジョン方式の縦横比と略等しくなる水平領域部分に相当する出力信号期間のみを切り出して該テレビジョン方式の有効水平走査期間全体にわたって出力する機能を有することを特徴とする請求項 1 または 2 記載の撮像装置。

【請求項 4】

前記駆動手段は、該テレビジョン方式の表示周期毎に該混合または間引きの画素位置をずらすことによりインターレース信号を出力するように該撮像素子を駆動することを特徴とする請求項 1 ～ 3 のいずれか 1 項に記載の撮像装置。

【請求項 5】

前記信号処理手段は、該混合または間引きによって得られるインターレース出力信号の垂直方向の重心位置が表示周期毎に 180 度の位相差となるように補間する機能を有することを特徴とする請求項 4 記載の撮像素子。

【請求項 6】

前記撮像素子の該駆動手段は、装置内部または外部に設けたズームスイッチ等の画角変化を指示するスイッチ手段からの入力情報に対応して、該混合または間引きの画素周期を変化させることを特徴とする請求項 1 ないし 5 のいずれかに記載の撮像素子。

【請求項 7】

前記撮像素子の出力信号の利得を調整する利得調整手段を有し、該撮像素子の混合の画素周期が変化した時にも、該利得調整手段の出力信号レベルが同一になるように、混合画素周期に対応して該利得調整手段の利得を変化させることを特徴とする請求項 1 ないし 6 のいずれかに記載の撮像素子。

【請求項 8】

前記撮像素子の手振れを検出する手振れ検出手段を有し、該手振れ検出手段で検出した手振れ量に応じて、該受光面内における垂直方向及び水平方向の切り出し位置を、該手振れを補正するように変化させることを特徴とする請求項 1 ～ 7 のいずれか 1 項に記載の撮像素子。

【請求項 9】

テレビジョン方式の一表示画面の有効走査線数 M の 3 倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面であって、該受光面を構成する画素配列の各画素に対して、水平方向に第一、第二、および第三の各色を各々透過する色フィルタを三画素周期で周期的に配し、垂直方向には同一種類の色を透過する色フィルタを配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部より大きな整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の垂直画素数 N の K 分の一のライン数の出力信号を得るように前記撮像素子を駆動する駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する機能を有する信号処理手段と、
該画像信号を、テレビジョン方式の表示画面を備えた表示手段に出力する出力手段と、
を備え、

該駆動手段は、第 1 の画像信号を該表示手段が表示する場合には、 K 1 画素周期で垂直方向に混合または間引きを行い、第 2 の画像信号を該表示手段が表示する場合には、 K 2 画素周期で垂直方向に混合または間引きを行うことを特徴とする撮像素子。

【請求項 10】

テレビジョン方式の一表示画面の有効走査線数 M の 3 倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面であって、該受光面を構成する画素配列の各画素に対して、水平方向に第一、第二、および第三の各色を各々透過する色フィルタを三画素周期で周期的に配し、垂直方向には同一種類の色を透過する色フィルタを配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記有効走査線数 M に相当するライン数の出力信号を得るように該撮像素子を駆動する第 1 の駆動手段と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部より大きな整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の垂直画素数 N の K 分の一のライン数の出力信号を得るように前記撮像素子を駆動する第 2 の駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する信号処理手段と、
該画像信号を、テレビジョン方式の表示画面を備えた表示手段に出力する出力手段と、

を備え、

前記第1の駆動手段は、第1の画像信号を該表示手段が表示する場合には、K1画素周期で垂直方向に混合または間引きを行い、第2の画像信号を該表示手段が表示する場合には、K2画素周期で垂直方向に混合または間引きを行い、

前記第1の駆動手段による駆動と前記第2の駆動手段による駆動とを、装置内部または外部に設けたスイッチ手段からの入力情報に対応して選択、切り替えを行うことを特徴とする撮像装置。

【請求項11】

シャッターボタン等のトリガー手段を有し、該トリガー手段によりトリガーが発生した時には、該撮像素子の各画素に蓄積した信号電荷を混合せずに全画素独立で読み出すことを特徴とする請求項1～10のいずれか1項に記載の撮像装置。

【請求項12】

前記第一、第二、および第三の各色は各々黄色、緑、シアンであることを特徴とする請求項1ないし11のいずれかに記載の撮像装置。

【請求項13】

前記第一、第二、および第三の各色は各々黄色、白色、シアンであることを特徴とする請求項1ないし11のいずれかに記載の撮像装置。

【請求項14】

前記第一、第二、および第三の各色は各々赤、緑、青であることを特徴とする請求項1ないし11のいずれかに記載の撮像装置。

【請求項15】

請求項1ないし14のいずれかにおいて、

前記K1は前記K2よりも小さい値であることを特徴とする撮像装置。

【書類名】 手続補正書
 【あて先】 特許庁長官 殿
 【事件の表示】
 【出願番号】 特願2000- 6064
 【補正をする者】
 【識別番号】 000005108
 【氏名又は名称】 株式会社日立製作所
 【代理人】
 【識別番号】 100100310
 【弁理士】
 【氏名又は名称】 井上 学
 【発送番号】 156904
 【手続補正1】
 【補正対象書類名】 明細書
 【補正対象項目名】 特許請求の範囲
 【補正方法】 変更
 【補正の内容】
 【特許請求の範囲】

【請求項 1】

テレビジョン方式の一表示画面の有効走査線数 M の3倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面であって、該受光面を構成する画素配列の各画素に対して、水平方向に第一、第二、および第三の各色を各々透過する色フィルターを三画素周期で周期的に配し、垂直方向には同一種類の色を透過する色フィルターを配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K_1 画素周期で、垂直方向に混合または間引きを行い、または、該画素配列の各画素に蓄積された信号電荷の一部を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K_2 ($K_1 > K_2$) 画素周期で、垂直方向に混合または間引きを行い、前記有効走査線数 M に相当するライン数の出力信号を得るように該撮像素子を駆動し、または、該画素配列の各画素に蓄積された信号電荷を混合または間引きを行わないで該撮像素子を駆動する駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する信号処理手段と、

該画像信号を、テレビジョン方式の表示画面を備えた表示手段に出力する出力手段と、を備え、

該駆動手段は、静止画モニタ時の画像信号を該表示手段が表示する場合には、該画素配列の各画素に蓄積された信号電荷を K_1 画素周期で垂直方向に混合または間引きを行い、動画時の画像信号を該表示手段が表示する場合には、該画素配列の各画素に蓄積された信号電荷の一部を K_2 画素周期で垂直方向に混合または間引きを行い、静止画を撮像する場合には、混合または間引きを行わないことを特徴とする撮像装置。

【請求項 2】

前記駆動手段は、前記撮像素子の垂直方向の画素数 N から前記混合または間引き周期 K と前記有効走査線数 M との積 $K \cdot M$ を減じた数の垂直画素に対応する画素領域の信号電荷を前記テレビジョン方式の垂直帰線期間内に読み出しまたは掃き捨てることにより、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の画素の内 $K \cdot M$ の垂直画素に相当する画素領域の信号電荷を切り出して、前記有効走査線数 M に相当するライン数の出力信号を得るように前記撮像素子を駆動することを特徴とする請求項 1 記載の撮像装置。

【請求項 3】

前記信号処理手段は、該撮像素子の該受光面の内、該切り出した垂直領域に対して該テレビジョン方式の縦横比と略等しくなる水平領域部分に相当する出力信号期間のみを切り

出して該テレビジョン方式の有効水平走査期間全体にわたって出力する機能を有することを特徴とする請求項 1 または 2 記載の撮像装置。

【請求項 4】

前記駆動手段は、該テレビジョン方式の表示周期毎に該混合または間引きの画素位置をずらすことによりインターレース信号を出力するように該撮像素子を駆動することを特徴とする請求項 1～3 のいずれか 1 項に記載の撮像装置。

【請求項 5】

前記信号処理手段は、該混合または間引きによって得られるインターレース出力信号の垂直方向の重心位置が表示周期毎に 180 度の位相差となるように補間する機能を有することを特徴とする請求項 4 記載の撮像装置。

【請求項 6】

前記撮像素子の該駆動手段は、装置内部または外部に設けたズームスイッチ等の画角変化を指示するスイッチ手段からの入力情報に対応して、該混合または間引きの画素周期を変化させることを特徴とする請求項 1 ないし 5 のいずれかに記載の撮像装置。

【請求項 7】

前記撮像素子の出力信号の利得を調整する利得調整手段を有し、該撮像素子の混合の画素周期が変化した時にも、該利得調整手段の出力信号レベルが同一になるように、混合画素周期に対応して該利得調整手段の利得を変化させることを特徴とする請求項 1 ないし 6 のいずれかに記載の撮像装置。

【請求項 8】

前記撮像装置の手振れを検出する手振れ検出手段を有し、該手振れ検出手段で検出した手振れ量に応じて、該受光面内における垂直方向及び水平方向の切り出し位置を、該手振れを補正するように変化させることを特徴とする請求項 1～7 のいずれか 1 項に記載の撮像装置。

【請求項 9】

テレビジョン方式の一表示画面の有効走査線数 M の 3 倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面であって、該受光面を構成する画素配列の各画素に対して、水平方向に第一、第二、および第三の各色を各々透過する色フィルターを三画素周期で周期的に配し、垂直方向には同一種類の色を透過する色フィルターを配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部より大きな整数であるところの K_1 画素周期で、垂直方向に混合または間引きを行い、または、該画素配列の各画素に蓄積された信号電荷の一部を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K_2 ($K_1 > K_2$) 画素周期で、垂直方向に混合または間引きを行い、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の垂直画素数 N の K 分の一のライン数の出力信号を得るように前記撮像素子を駆動し、または、該画素配列の各画素に蓄積された信号電荷を混合または間引きを行わないで該撮像素子を駆動する駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する機能を有する信号処理手段と、
該画像信号を、テレビジョン方式の表示画面を備えた表示手段に出力する出力手段と、
を備え、

該駆動手段は、第 1 の画像信号を該表示手段が表示する場合には、該画素配列の各画素に蓄積された信号電荷を K_1 画素周期で垂直方向に混合または間引きを行い、第 2 の画像信号を該表示手段が表示する場合には、該画素配列の各画素に蓄積された信号電荷の一部を K_2 画素周期で垂直方向に混合または間引きを行い、第 3 の画像信号を撮像する場合には、混合または間引きを行わないことを特徴とする撮像装置。

【請求項 10】

テレビジョン方式の一表示画面の有効走査線数 M の 3 倍以上の数 N の画素を垂直方向に、任意の数の画素を水平方向に配した受光面であって、該受光面を構成する画素配列の各画素に対して、水平方向に第一、第二、および第三の各色を各々透過する色フィルターを

三画素周期で周期的に配し、垂直方向には同一種類の色を透過する色フィルターを配した受光面を備えた撮像素子と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K_1 画素周期で、垂直方向に混合または間引きを行い、または、該画素配列の各画素に蓄積された信号電荷の一部を、 N を M で除した商の整数部またはそれ以下の整数の内少なくとも一つの整数であるところの K_2 ($K_1 > K_2$) 画素周期で、垂直方向に混合または間引きを行い、前記有効走査線数 M に相当するライン数の出力信号を得るように該撮像素子を駆動し、または、該画素配列の各画素に蓄積された信号電荷を混合または間引きを行わないで該撮像素子を駆動する第1の駆動手段と、

該画素配列の各画素に蓄積された信号電荷を、 N を M で除した商の整数部より大きな整数であるところの K 画素周期で、垂直方向に混合または間引きを行い、前記テレビジョン方式の有効垂直走査期間内に、前記撮像素子の垂直画素数 N の K 分の一のライン数の出力信号を得るように前記撮像素子を駆動する第2の駆動手段と、

前記撮像素子の出力信号を用いて画像信号を生成する信号処理手段と、

該画像信号を、テレビジョン方式の表示画面を備えた表示手段に出力する出力手段と、を備え、

前記第1の駆動手段は、第1の画像信号を該表示手段が表示する場合には、該画素配列の各画素に蓄積された信号電荷を K_1 画素周期で垂直方向に混合または間引きを行い、第2の画像信号を該表示手段が表示する場合には、該画素配列の各画素に蓄積された信号電荷の一部を K_2 画素周期で垂直方向に混合または間引きを行い、第3の画像信号を撮像する場合には、混合または間引きを行わず、

前記第1の駆動手段による駆動と前記第2の駆動手段による駆動とを、装置内部または外部に設けたスイッチ手段からの入力情報に対応して選択、切り替えを行うことを特徴とする撮像装置。

【請求項11】

シャッターボタン等のトリガー手段を有し、該トリガー手段によりトリガーが発生した時には、該撮像素子の各画素に蓄積した信号電荷を混合せずに全画素独立で読み出すことを特徴とする請求項1～10のいずれか1項に記載の撮像装置。

【請求項12】

前記第一、第二、および第三の各色は各々黄色、緑、シアンであることを特徴とする請求項1ないし11のいずれかに記載の撮像装置。

【請求項13】

前記第一、第二、および第三の各色は各々黄色、白色、シアンであることを特徴とする請求項1ないし11のいずれかに記載の撮像装置。

【請求項14】

前記第一、第二、および第三の各色は各々赤、緑、青であることを特徴とする請求項1ないし11のいずれかに記載の撮像装置。

【手続補正2】

【補正対象書類名】 明細書

【補正対象項目名】 0013

【補正方法】 変更

【補正の内容】

【0013】

【課題を解決するための手段】

上記目的を達成するため、本発明では一例として、特許請求の範囲記載の構成を用いる

出願人履歴

0 0 0 0 0 5 1 0 8

19900831

新規登録

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Takahiro NAKANO, et al
Application No.: 13/681,495
Filed: November 20, 2012
Conf. No.: 3960
For: ELECTRIC CAMERA

REQUEST FOR CORRECTED FILING RECEIPT

Mail Stop: MISSING PARTS
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

January 8, 2013

Sir:

Attached please find the Updated Filing Receipt in connection with the above-identified application, wherein it is noted that the Domestic Priority data as claimed by applicant is omitted. Please see the Supplemental Application Data Sheet, Page 3, filed December 20, 2012, and the Specification, Page 1, filed on November 20, 2012, copies attached.

It should read:

**"This application is a CON of 12/845,266 07/28/2010 PAT 8,339,493
which is a CON of 10/660,710 09/12/2003 PAT 8,059,177
which is a DIV of 09/520,836 03/08/2000 PAT 6,765,616"**

Accordingly, Applicants respectfully request issuance of a corrected filing receipt which indicates the Domestic Priority data.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: **500.38315CC4**), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/681,495	11/20/2012	2661	1390	500.38315CC4	1	1

CONFIRMATION NO. 3960

UPDATED FILING RECEIPT



20457
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

Date Mailed: 01/04/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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Hitachi, Ltd., Tokyo, JAPAN

Assignment For Published Patent Application

Hitachi, Ltd., Tokyo, JAPAN

"This application is a CON of 12/845,266 07/28/2010 PAT 8,339,493
which is a CON of 10/660,710 09/12/2003 PAT 8,059,177
which is a DIV of 09/520,836 03/08/2000 PAT 6,765,616"

Power of Attorney: The patent practitioners associated with Customer Number 020457

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see <http://www.uspto.gov> for more information.)
JAPAN 00-006064 01/11/2000

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 12/13/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/681,495**

Projected Publication Date: 04/18/2013

Non-Publication Request: No

Early Publication Request: No
Title

ELECTRIC CAMERA

Preliminary Class

348

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor 1					Remove
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Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		Kinugasa	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
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Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	020457		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
12845266	Continuation of	10660710	2003-09-12		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10660710	Division of	09520836	2000-03-08	6765616	2004-07-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove			
Application Number	Country	Filing Date (YYYY-MM-DD)	Priority Claimed
00-006064	JP	2000-01-11	☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

[Remove](#)

- ☐ Assignee
 ☐ Legal Representative under 35 U.S.C. 117
- ☐ Person to whom the inventor is obligated to assign.
 ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Assignee is an Organization check here. ☒

Organization Name Hitachi, Ltd.

Mailing Address Information:

Address 1	6-6, Marunouchi 1-chome, Chiyoda-ku		
Address 2			
City	Tokyo	State/Province	
Country ⁱ	JP	Postal Code	
Phone Number		Fax Number	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Email Address	
---------------	--

Additional Applicant Data may be generated within this form by selecting the Add button.

Add

Signature:

Remove

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications

Signature	/Ayal I. Sharon/		Date (YYYY-MM-DD)	2012-12-20	
First Name	Ayal	Last Name	Sharon	Registration Number	55986

Additional Signature may be generated within this form by selecting the Add button.

Add

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ELECTRIC CAMERA

CROSS REFERENCE TO RELATED APPLICATION

5 This application is a continuation of U.S. application serial no. 12/845,266,
filed July 28, 2010, which is a continuation of U.S. application serial no.
10/660,710, filed September 12, 2003, now U.S. Patent No. 8,059,177, issued November
15, 2011, and is related to U.S. application serial no. 10/660,711, filed September
12, 2003, now U.S. Patent No. 7,403,226, issued July 22, 2008, both of which are
10 divisional applications of U.S. application Serial No. 09/520,836, filed March 8,
2000, now U.S. Patent No. 6,765,616, issued July 20, 2004, the subject matter of which
is incorporated by reference herein.

BACKGROUND OF THE INVENTION

 The present invention relates to a photography related to video cameras,
15 camcorders, digital still cameras and others using a solid-state image sensing device,
and more particularly to an electric camera using a solid-state image sensing device
with a large number of pixels.

 Electric cameras using solid-state image sensors such as CCDs (charge-coupled
devices) include a so-called video camera or camcorder for taking moving images and a
20 so-called digital still camera for taking still images. In recent years, video cameras
with a still image taking function and digital still cameras with a moving image
taking function have become available.

 In a video camera to photograph moving images, it is generally assumed that the
video is viewed on a display such as television monitor and thus the camera is
25 designed to produce output signals conforming to a television system such as NTSC and

Electronic Acknowledgement Receipt	
EFS ID:	14649356
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ronald J. Shore/Ricardo Perez
Filer Authorized By:	Ronald J. Shore
Attorney Docket Number:	500.38315CC4
Receipt Date:	09-JAN-2013
Filing Date:	20-NOV-2012
Time Stamp:	10:33:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	RCFR.pdf	1775381 fbee6c0467e1a1f0217f401080f344c5172dea3	no	12

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4

CONFIRMATION NO. 3960

20457
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

NOTICE



Date Mailed: 01/04/2013

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
All

Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
13/681,495	11/20/2012	2661	1390	500.38315CC4	1	1

CONFIRMATION NO. 3960

UPDATED FILING RECEIPT



OC000000058359788

20457

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

Date Mailed: 01/04/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Takahiro Nakano, Tokyo, JAPAN;
Ryuji Nishimura, Tokyo, JAPAN;
Toshiro Kinugasa, Tokyo, JAPAN;

Applicant(s)

Hitachi, Ltd., Tokyo, JAPAN

Assignment For Published Patent Application

Hitachi, Ltd., Tokyo, JAPAN

Power of Attorney: The patent practitioners associated with Customer Number 020457

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

JAPAN 00-006064 01/11/2000

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 12/13/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/681,495**

Projected Publication Date: 04/18/2013

Non-Publication Request: No

Early Publication Request: No
Title

ELECTRIC CAMERA

Preliminary Class

348

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/681,495				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	390			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	620			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	250			
TOTAL CLAIMS (37 CFR 1.16(i))	1	minus 20 = *			OR	x 62 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *			OR	x 250 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1260			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. NAKANO, ET AL.
Application No: 13/681,495
Filed: November 20, 2012
For: ELECTRIC CAMERA
Group AU: 2661
Examiner:
Conf. No.: 3960

LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

December 20, 2012

SIR:

In response to the application filed on November 20, 2012, please find enclosed a Supplemental Application Data Sheet correcting the filing date of the continuing application data from 2000-04-08 to 2000-03-08 in connection with U.S. Patent No. 6,765,616.

Kindly charge any shortage in fees due in connection with the filing of this paper to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (case 500.38315CC4), and credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon /
Ayal I. Sharon
Registration No. 55,986

AIS/kmh
1300 17th Street N., Suite 1800
Arlington, Virginia 22209
Tel: 703-312-6600
Fax: 703-312-6666

12/27/2012 HTEKLENI 00000002 012135 13681495
01 FC:1051 130.00 DA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. NAKANO, ET AL.
Application No: 13/681,495
Filed: November 20, 2012
For: ELECTRIC CAMERA
Group AU: 2661
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Conf. No.: 3960

LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

December 20, 2012

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Kindly charge any shortage in fees due in connection with the filing of this paper to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (case 500.38315CC4), and credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon /
Ayal I. Sharon
Registration No. 55,986

AIS/kmh
1300 17th Street N., Suite 1800
Arlington, Virginia 22209
Tel: 703-312-6600
Fax: 703-312-6666

Electronic Acknowledgement Receipt	
EFS ID:	14522229
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro Nakano
Customer Number:	20457
Filer:	Ayal I. Sharon/Krista Hargrove
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	20-DEC-2012
Filing Date:	20-NOV-2012
Time Stamp:	09:41:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	38315ADS.pdf	871089	no	6
			fa5983bab425927025d56c70de7786245bed268f		

Warnings:

Information:

2	Miscellaneous Incoming Letter	38315cc4letter.pdf	33662 7dd4e72dee277ac331efd69eca697a71c0d86fa	no	1
Warnings:					
Information:					
Total Files Size (in bytes):				904751	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Takahiro		Nakano		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City		Country of Residence	JP		
Mailing Address of Inventor:					
Address 1	c/o Hitachi, Ltd., Intellectual Property Group				
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku				
City	Tokyo	State/Province			
Postal Code	100-8220	Country	JP		
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Ryuji		Nishimura		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City		Country of Residence	JP		
Mailing Address of Inventor:					
Address 1	c/o Hitachi, Ltd., Intellectual Property Group				
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku				
City	Tokyo	State/Province			
Postal Code	100-8220	Country	JP		
Inventor 3					Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		500.38315CC4	
		Application Number			
Title of Invention	ELECTRIC CAMERA				
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Toshiro		Kinugasa		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City		Country of Residence	i	JP	
Mailing Address of Inventor:					
Address 1		c/o Hitachi, Ltd., Intellectual Property Group			
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku			
City	Tokyo		State/Province		
Postal Code	100-8220		Country	JP	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	020457
Email Address	Add Email Remove Email

Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed ☐	
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	020457		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
12845266	Continuation of	10660710	2003-09-12		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10660710	Division of	09520836	2000-03-08	6765616	2004-07-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button. Add					

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove			
Application Number	Country i	Filing Date (YYYY-MM-DD)	Priority Claimed
00-006064	JP	2000-01-11	☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button. Add			

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

[Remove](#)

- ☐ Assignee
 ☐ Legal Representative under 35 U.S.C. 117
- ☐ Person to whom the inventor is obligated to assign.
 ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Assignee is an Organization check here.



Organization Name

Hitachi, Ltd.

Mailing Address Information:

Address 1

6-6, Marunouchi 1-chome, Chiyoda-ku

Address 2

City

Tokyo

State/Province

Country i

JP

Postal Code

Phone Number

Fax Number

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Email Address	
---------------	--

Additional Applicant Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications

Signature	/Ayal I. Sharon/			Date (YYYY-MM-DD)	2012-12-20
First Name	Ayal	Last Name	Sharon	Registration Number	55986

Additional Signature may be generated within this form by selecting the Add button.

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/681,495	11/20/2012	2661	1260	500.38315CC4	1	1

CONFIRMATION NO. 3960

20457

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

FILING RECEIPT



OC000000058147356

Date Mailed: 12/18/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Takahiro Nakano, Tokyo, JAPAN;
Ryuji Nishimura, Tokyo, JAPAN;
Toshiro Kinugasa, Tokyo, JAPAN;

Applicant(s)

Hitachi, Ltd., Tokyo, JAPAN

Assignment For Published Patent Application

Hitachi, Ltd., Tokyo, JAPAN

Power of Attorney: The patent practitioners associated with Customer Number 020457

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

JAPAN 00-006064 01/11/2000

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 12/13/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/681,495**

Projected Publication Date: 03/28/2013

Non-Publication Request: No

Early Publication Request: No
Title

ELECTRIC CAMERA

Preliminary Class

348

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4

CONFIRMATION NO. 3960

POA ACCEPTANCE LETTER

20457
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873



Date Mailed: 12/18/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/20/2012.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/sfu/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/681,495				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	390			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	620			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	250			
TOTAL CLAIMS (37 CFR 1.16(i))	1	minus 20 = *			OR	x 62 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *			OR	x 250 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1260			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/681,495	11/20/2012	Takahiro Nakano	500.38315CC4

CONFIRMATION NO. 3960

FORMALITIES LETTER

20457
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873



Date Mailed: 12/18/2012

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing.

Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- A surcharge (for late submission of the basic filing fee, search fee, examination fee or inventor's oath or declaration) as set forth in 37 CFR 1.16(f) of \$ **130** for a non-small entity, must be submitted.

SUMMARY OF FEES DUE:

Total fee(s) required within **TWO MONTHS** from the date of this Notice is \$ **130** for a non-small entity

- \$ **130** Surcharge.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
All

Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.

<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/aabranys/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UTILITY PATENT APPLICATION TRANSMITTAL	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Attorney Docket No.</td> <td>500.38315CC4</td> </tr> <tr> <td>First Inventor</td> <td>T. NAKANO</td> </tr> <tr> <td>Title</td> <td>ELECTRIC CAMERA</td> </tr> <tr> <td>Express Mail Label No.</td> <td></td> </tr> </table>	Attorney Docket No.	500.38315CC4	First Inventor	T. NAKANO	Title	ELECTRIC CAMERA	Express Mail Label No.	
Attorney Docket No.	500.38315CC4								
First Inventor	T. NAKANO								
Title	ELECTRIC CAMERA								
Express Mail Label No.									
<i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>									
<p style="text-align: center;">APPLICATION ELEMENTS <i>SEE MPEP chapter 600 concerning utility patent application contents.</i></p> <p>1. ☐ Fee Transmittal Form (e.g., PTO/SB/17) <i>(Submit an original and a duplicate for fee processing)</i></p> <p>2. ☐ Applicant claims small entity status. See 37 CFR 1.27.</p> <p>3. ☒ Specification [Total Pages <u>39</u>] Both the claims and abstract must start on a new page <i>(For information on the preferred arrangement, see MPEP 608 01(a))</i></p> <p>4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>8</u>]</p> <p>5. Oath or Declaration [Total Sheets _____] a. ☐ Newly executed (original or copy) b. ☐ Copy from a prior application (37 CFR 1.63 (d)) <i>(for continuation/divisional with Box 18 completed)</i> i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) Named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b)</p> <p>6. ☒ Application Data Sheet. See 37 CFR 1.76</p> <p>7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (<i>Appendix</i>) i. ☐ Landscape Table on CD</p> <p>8. Nucleotide and/or Amino Acid Sequence Submission <i>(if applicable, all necessary)</i> a. ☐ Computer Readable Form (CRF) b. Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies</p>	<p style="text-align: center;">ACCOMPANYING APPLICATION PARTS</p> <p>9. ☐ Assignment Papers (cover sheet & documents(s))</p> <p>10. ☐ 37 CFR 3.73(b) Statement ☐ Power of Attorney <i>(when there is an assignee)</i></p> <p>11. ☐ English Translation Document <i>(if applicable)</i></p> <p>12. ☒ Information Disclosure Statement (PTO/SB/08 OR PTO-1449) ☐ Copies of Citations attached</p> <p>13. ☐ Preliminary Amendment</p> <p>14. ☐ Return Receipt Postcard (MPEP 503) <i>(Should be specifically itemized)</i></p> <p>15. ☐ Certified Copy of Priority Document(s) <i>(if foreign priority is claimed)</i></p> <p>16. ☐ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.</p> <p>17. ☐ Other: _____ _____ _____</p>								
<p>18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:</p> <p style="text-align: center;"> ☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: <u>12/845,266</u> </p> <p>Prior application information: Examiner: <u>Luong Trung Nguyen</u> Art Unit: <u>2622</u></p>									
<p>19. CORRESPONDENCE ADDRESS : THE ADDRESS ASSOCIATED WITH CUSTOMER NUMBER 020457</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Signature</td> <td style="width: 40%;">/Ayal I. Sharon /</td> <td style="width: 20%;">Date</td> <td style="width: 20%;">NOVEMBER 20, 2012</td> </tr> <tr> <td>Name <i>(Print/Type)</i></td> <td>Ayal I. Sharon</td> <td>Registration No. <i>(Attorney/Agent)</i></td> <td>55,986</td> </tr> </table>		Signature	/Ayal I. Sharon /	Date	NOVEMBER 20, 2012	Name <i>(Print/Type)</i>	Ayal I. Sharon	Registration No. <i>(Attorney/Agent)</i>	55,986
Signature	/Ayal I. Sharon /	Date	NOVEMBER 20, 2012						
Name <i>(Print/Type)</i>	Ayal I. Sharon	Registration No. <i>(Attorney/Agent)</i>	55,986						

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: T. NAKANO, et al.

Application No./Patent No.: _____ Filed/Issue Date: _____

Titled: Electric Camera

Hitachi, Ltd., a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 010631, Frame 0900, or for which a copy thereof is attached.
- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ayal I. Sharon/

Signature

Ayal I. Sharon

Printed or Typed Name

November 20, 2012

Date

55,986

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:



Practitioners associated with Customer Number:

020457

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:



The address associated with Customer Number:

020457

OR

☐	Firm or Individual Name		
	Address		
	City		
	Country		
	Telephone		Email

Assignee Name and Address: Hitachi, Ltd.
6-6, Marunouchi 1-chome, Chiyoda-ku, Tokyo, Japan

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	September 14, 2012
Name	Takashi SUZUKI	Telephone	
Title	Corporate Officer, General Manager, Intellectual Property Group (Authorized Signing Officer)		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		ELECTRIC CAMERA		
First Named Inventor/Applicant Name:		Takahiro NAKANO		
Filer:		Ayal I. Sharon/Krista Hargrove		
Attorney Docket Number:		500.38315CC4		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	390	390
Utility Search Fee	1111	1	620	620
Utility Examination Fee	1311	1	250	250
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1260

Electronic Acknowledgement Receipt	
EFS ID:	14272665
Application Number:	13681495
International Application Number:	
Confirmation Number:	3960
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	20457
Filer:	Ayal I. Sharon/Krista Hargrove
Filer Authorized By:	Ayal I. Sharon
Attorney Docket Number:	500.38315CC4
Receipt Date:	20-NOV-2012
Filing Date:	
Time Stamp:	10:20:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1260
RAM confirmation Number	10230
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Application Data Sheet	38315ADS.pdf	1116241	no	6
			7586fb0eaac25afe5f2f3d77f5b4521c6fd46d6		
Warnings:					
Information:					
2	Abstract	38315cc42012abstract.pdf	28931	no	1
			546dd980d7b680fe81f2be3bd992e41e9735f370		
Warnings:					
Information:					
3	Claims	38315cc42012CLAIM.pdf	25027	no	1
			2405bd58e9fa19e474825072832d3beca17cba5d		
Warnings:					
Information:					
4	Drawings-only black and white line drawings	38315cc42012DRAWINGS.pdf	293890	no	8
			8575fd57358132bc7b4eb759810d5d6496d0ca76		
Warnings:					
Information:					
5	Transmittal Letter	38315cc42012IDS.pdf	69194	no	2
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Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	38315cc42012SB08.pdf	91228	no	1
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Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
7	Specification	38315cc42012SPEC.pdf	2335244	no	38
			8f47248669a81e9a7f226c0350b4084775ad3d5d		
Warnings:					
Information:					
8	Transmittal of New Application	38315cc42012utility.pdf	88100	no	1
			89ece378af9dd9a329a5f137b0c2551d40322bb8		
Warnings:					
Information:					
9	Assignee showing of ownership per 37 CFR 3.73.	38315statement373.pdf	137380	no	3
			48671b9cca3ecb0b97e43a1cf03e57f02b42cfc9		

Warnings:					
Information:					
10	Power of Attorney	38315cc42012pwerofattorney.pdf	339411 19fa06ef49553a762e3bd51bf18fb3f69beadecc	no	2
Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	32845 4f0d302d7a6de0eb748e75dea0ea0a003f5a63f1	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			4557491		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Takahiro		Nakano		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City		Country of Residence	JP		
Mailing Address of Inventor:					
Address 1		c/o Hitachi, Ltd., Intellectual Property Group			
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City	Tokyo	State/Province			
Postal Code		100-8220	Country	JP	
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Ryuji		Nishimura		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City		Country of Residence	JP		
Mailing Address of Inventor:					
Address 1		c/o Hitachi, Ltd., Intellectual Property Group			
Address 2		6-1, Marunouchi 1-chome, Chiyoda-ku			
City	Tokyo	State/Province			
Postal Code		100-8220	Country	JP	
Inventor 3					Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4	
		Application Number		
Title of Invention	ELECTRIC CAMERA			
Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		Kinugasa	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City		Country of Residence	JP	
Mailing Address of Inventor:				
Address 1	c/o Hitachi, Ltd., Intellectual Property Group			
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku			
City	Tokyo	State/Province		
Postal Code	100-8220	Country	JP	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

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☐ An Address is being provided for the correspondence information of this application.	
Customer Number	020457
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Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	500.38315CC4	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

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☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

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Customer Number	020457		

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Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
12845266	Continuation of	10660710	2003-09-12		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10660710	Division of	09520836	2000-04-08	6765616	2004-07-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove			
Application Number	Country i	Filing Date (YYYY-MM-DD)	Priority Claimed
00-006064	JP	2000-01-11	☒ Yes ☐ No
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Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

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In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

[Remove](#)

- ☐ Assignee
 ☐ Legal Representative under 35 U.S.C. 117
- ☐ Person to whom the inventor is obligated to assign.
 ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Assignee is an Organization check here. ☒

Organization Name Hitachi, Ltd.

Mailing Address Information:

Address 1	6-6, Marunouchi 1-chome, Chiyoda-ku		
Address 2			
City	Tokyo	State/Province	
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	500.38315CC4
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Email Address	
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Signature:

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Signature	/Ayal I. Sharon/			Date (YYYY-MM-DD)	2012-11-20
First Name	Ayal	Last Name	Sharon	Registration Number	55986

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The information provided by you in this form will be subject to the following routine uses:

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ABSTRACT OF THE DISCLOSURE:

An electric camera includes an image sensing device with a light receiving surface having N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines M of a display screen of a television system, a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels of K pixels to produce, during a vertical effective scanning period of the television system, a number of lines of output signals which corresponds to $1/K$ the number of vertically arranged pixels N of the image sensing device, K being an integer equal to or less than an integral part of a quotient of N divided by M , and a signal processing unit having a function of generating image signals by using the output signals of the image sensing device.

CLAIMS:

1. An electric camera comprising:

an image sensing device with a light receiving surface having N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines m of a display screen of a television system;

a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels of every K pixels to produce a number of lines of output signals which corresponds to the number of effective scanning lines M, K being at least one of integers equal to or less than an integral part of a quotient of N divided by M; and

a signal processing unit to generate image signals by using the output signals of the image sensing device.

FIG.1

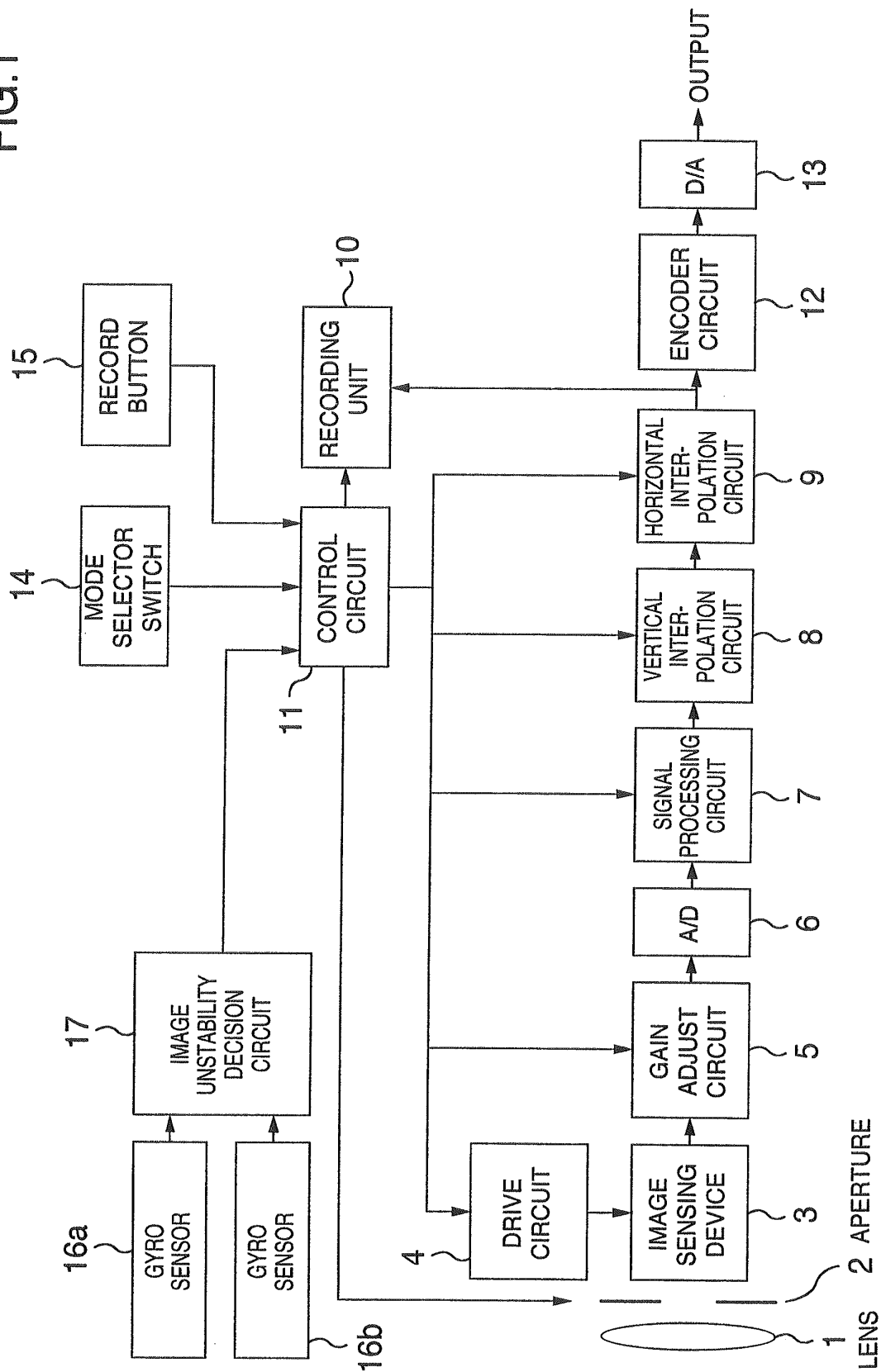


FIG.2

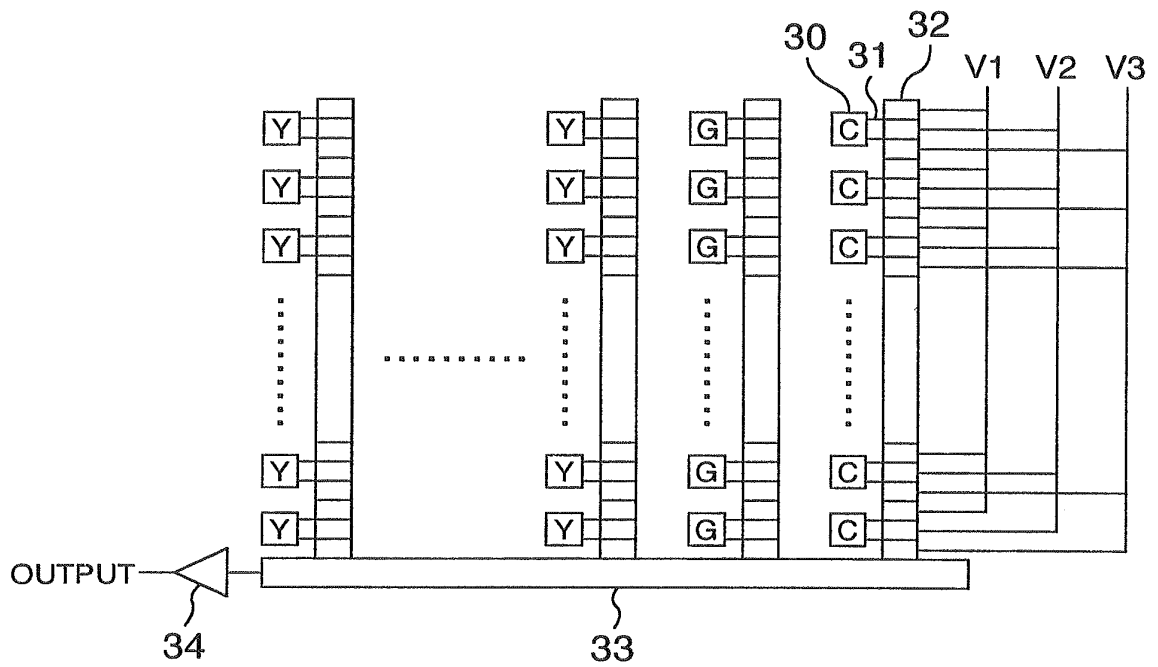


FIG.4

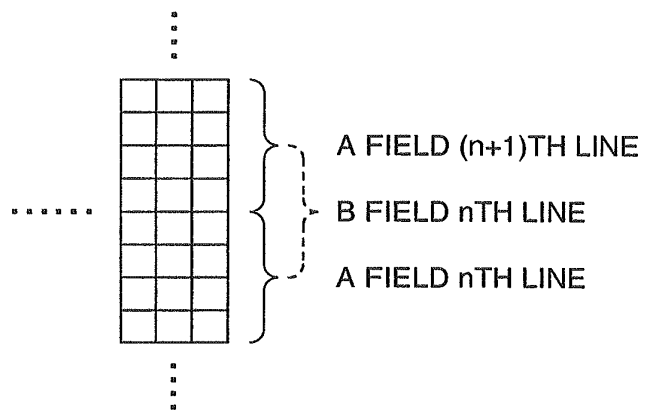


FIG.3

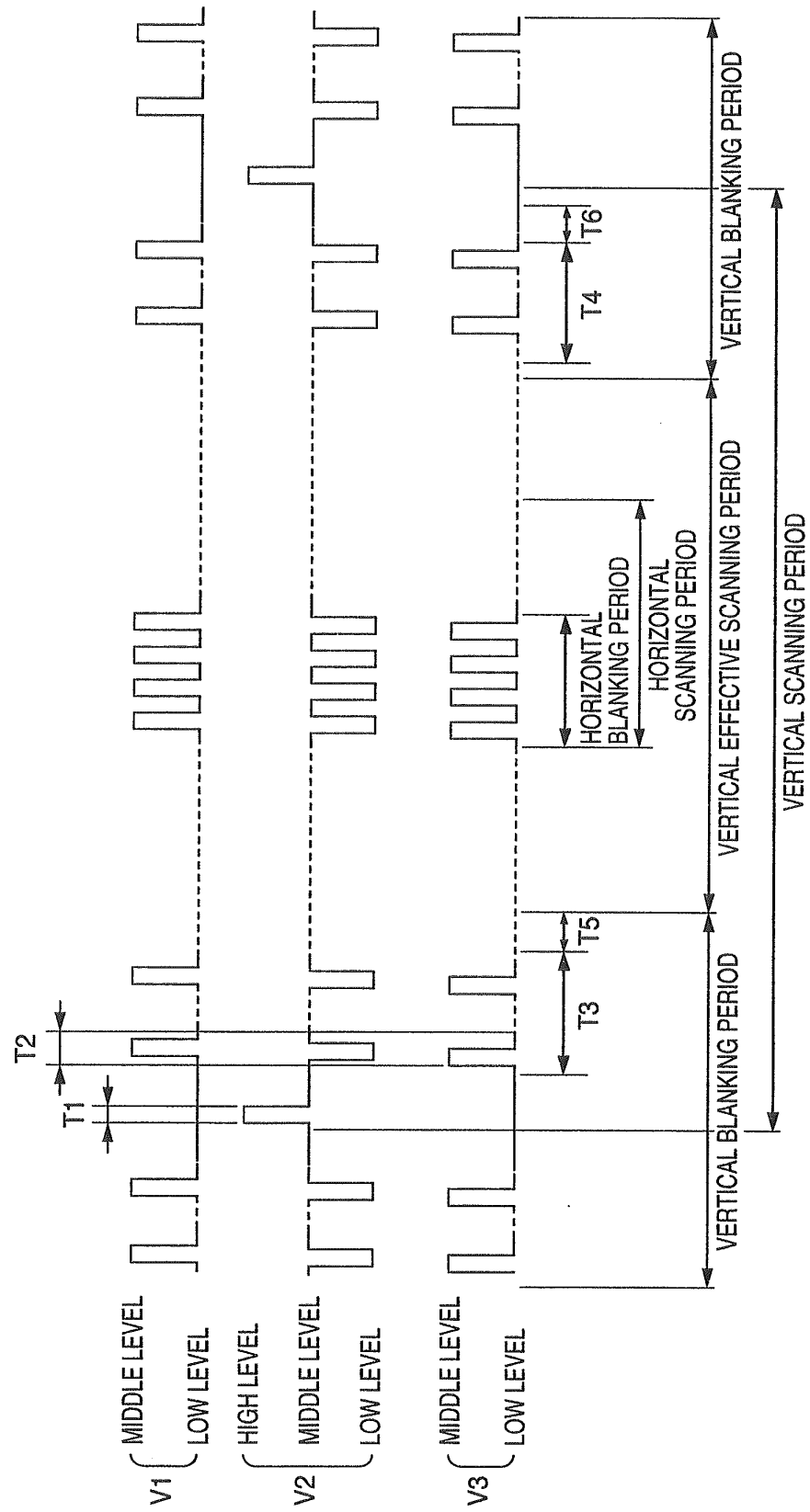


FIG.5

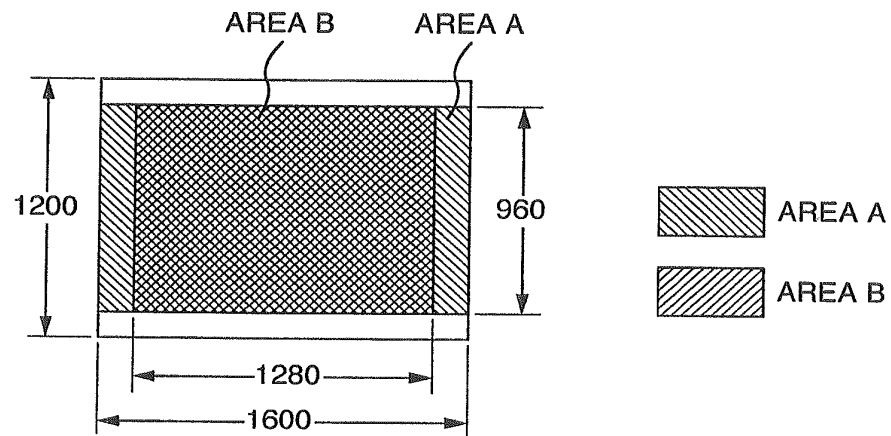
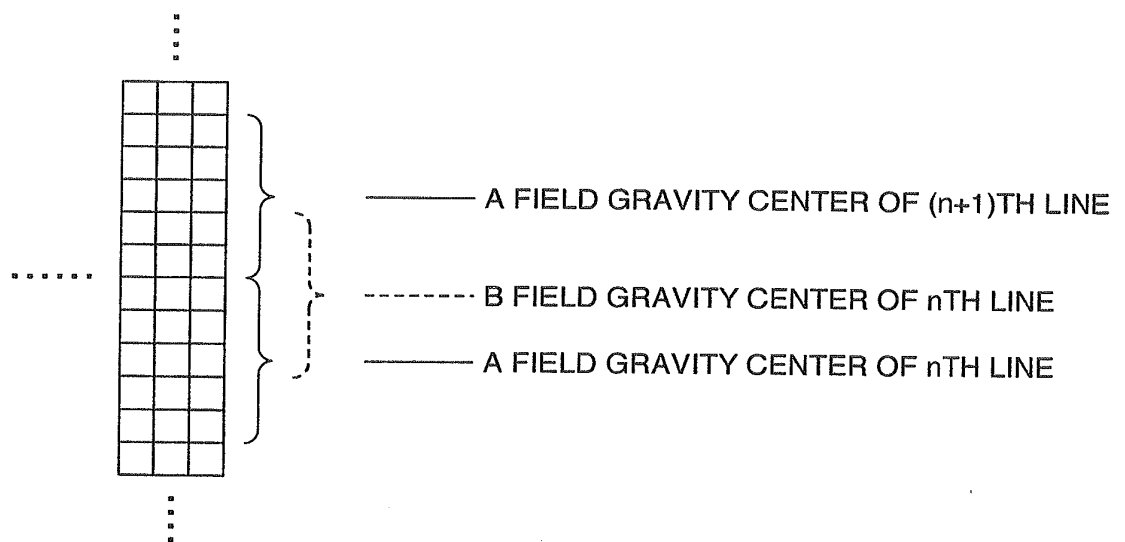


FIG.6



75E

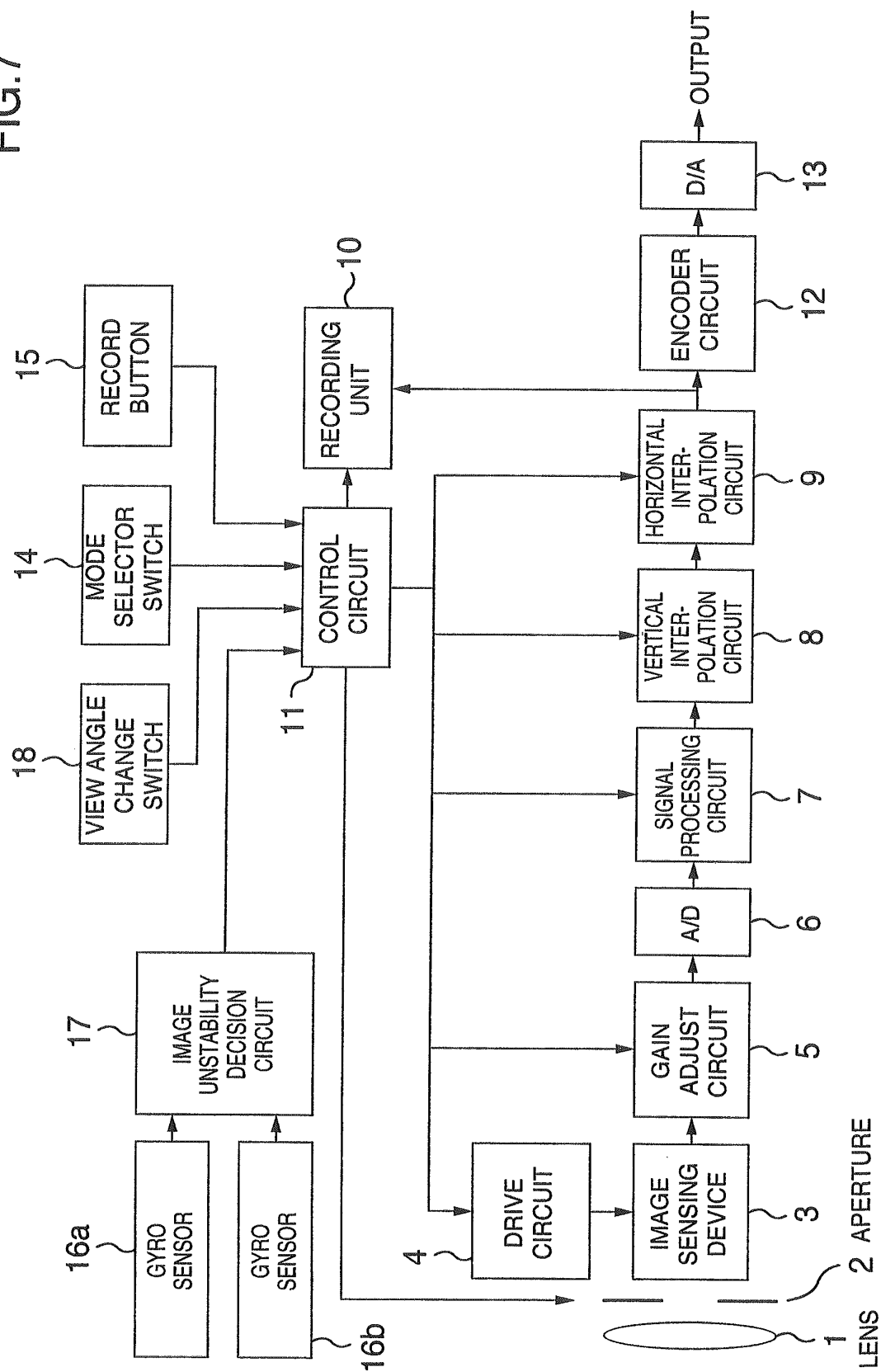


FIG.8

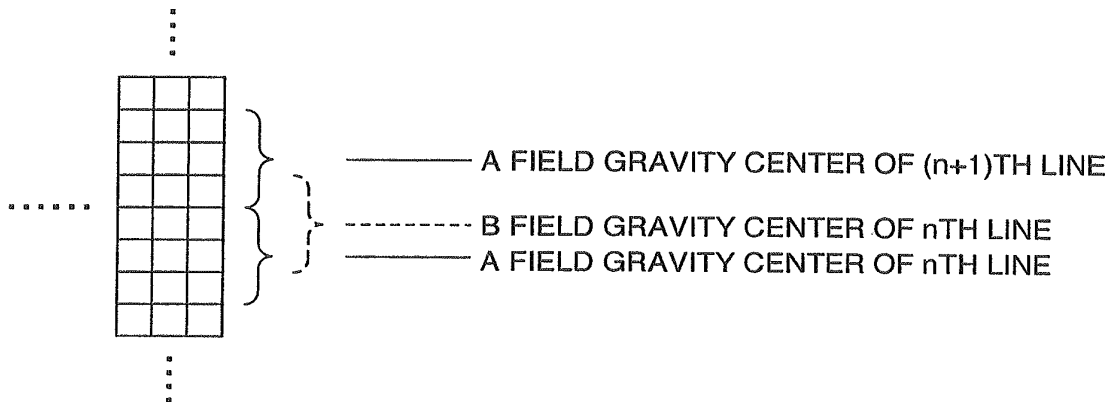


FIG.9

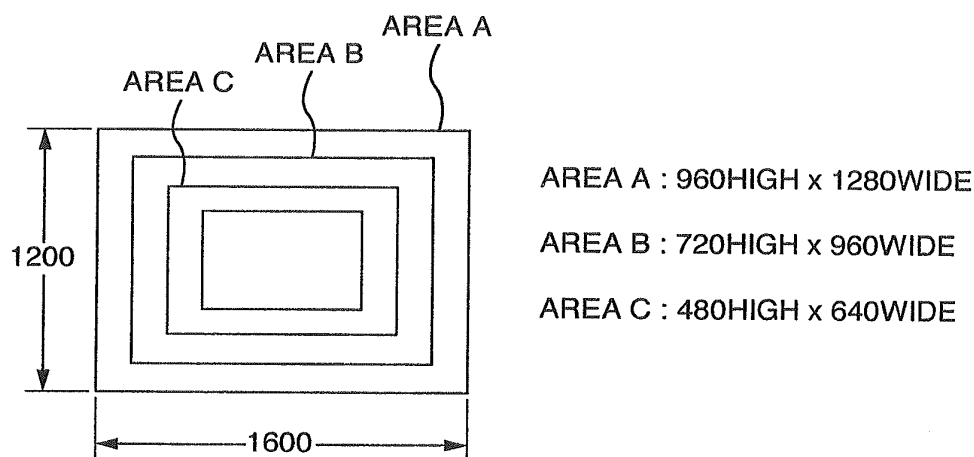


FIG.10

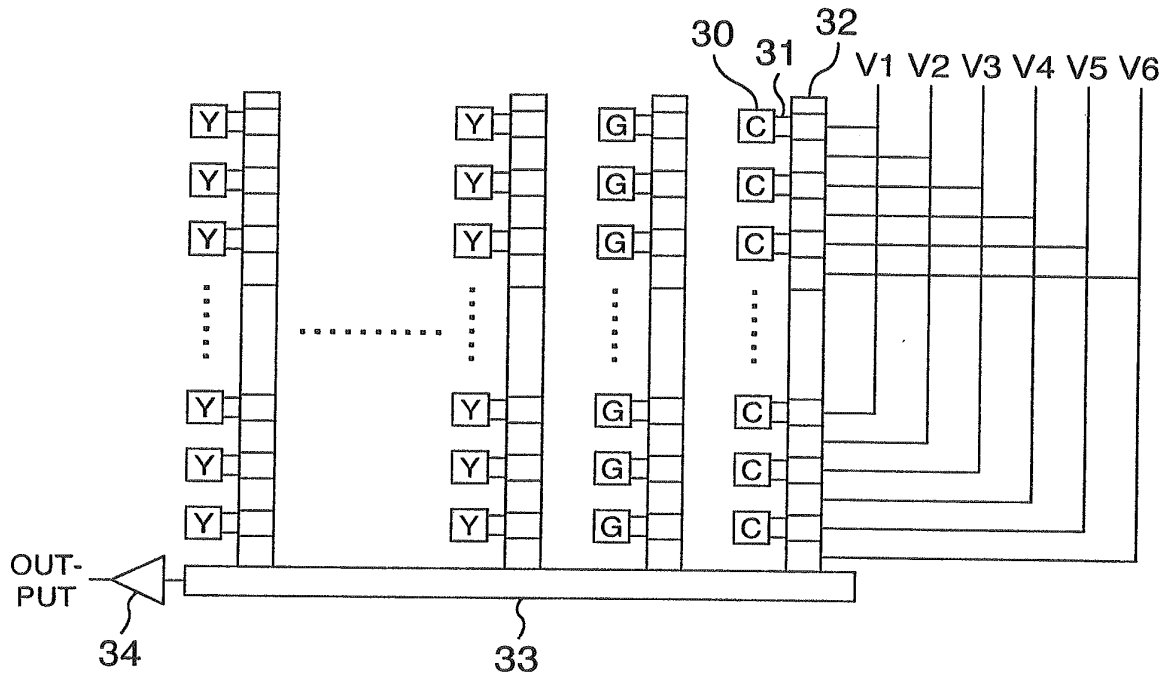


FIG.12

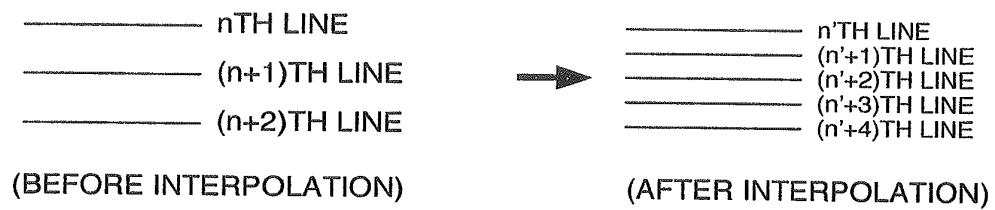


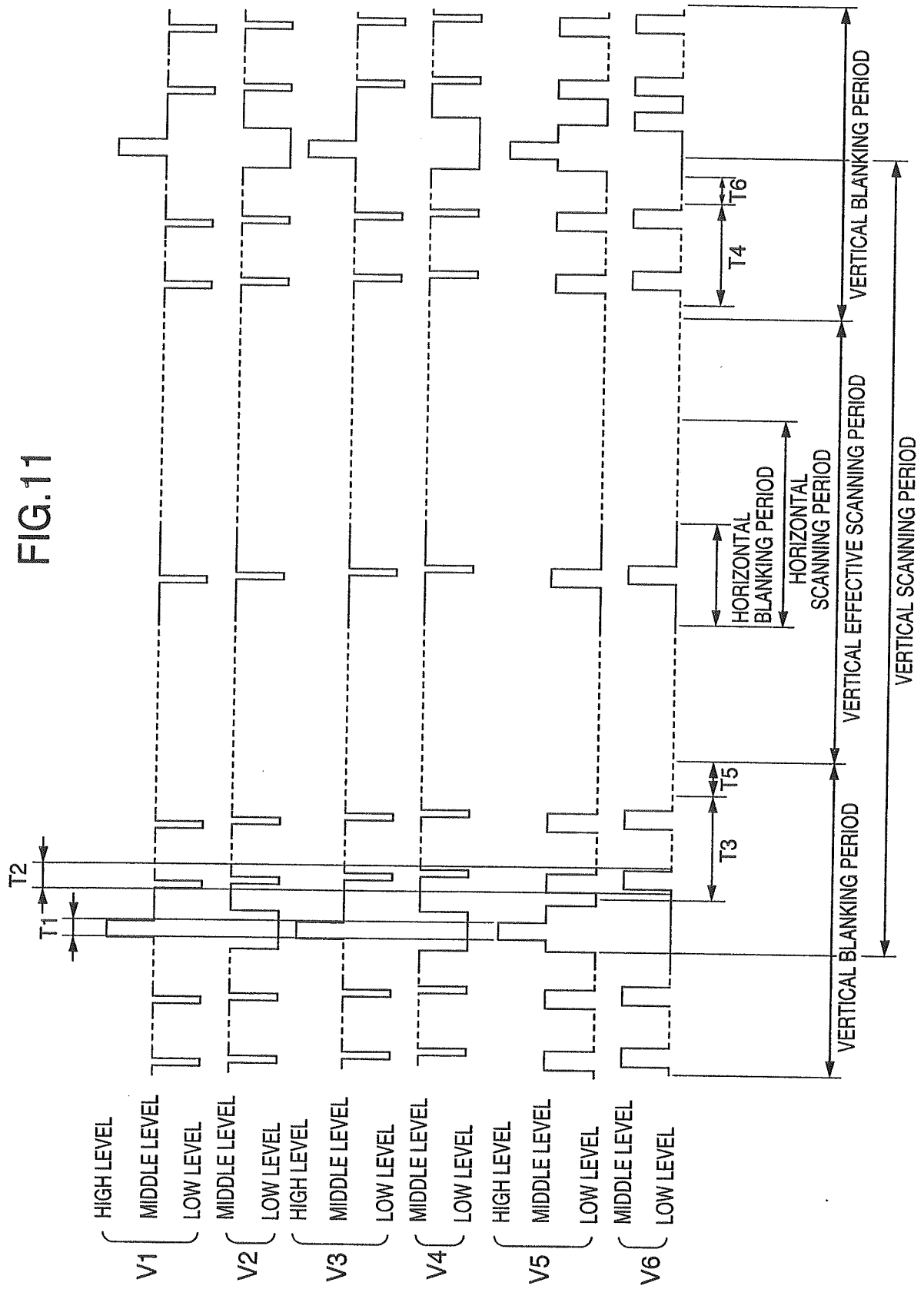
FIG.13A

Ye	W	Cy
Ye	W	Cy
Ye	W	Cy
Ye	W	Cy
Ye	W	Cy

FIG.13B

R	G	B
R	G	B
R	G	B
R	G	B
R	G	B

FIG.11



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. NAKANO, ET AL.
Application No: To be assigned
Filed: November 20, 2012
For: ELECTRIC CAMERA
Group AU: 2622 (Expected)
Examiner: Luong Trung Nguyen (Expected)

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR 1.97 AND 1.98**

Mail Stop: NEW APPS

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

November 20, 2012

SIR:

Pursuant to Applicants' duty of disclosure, enclosed please find a List, on Forms PTO/SB/08A and PTO/SB/08B, of documents cited in connection with a prior application of the above-identified application, that is, Application No. 12/845,266, filed July 28, 2010.

As all of the documents on the enclosed List were cited in connection with a prior application, Application No. 12/845,266, being relied upon under 35 USC 120 in the above-identified application, copies of these listed documents are not enclosed. See 37 CFR 1.98(d).

This Information Disclosure Statement is being submitted concurrently with the filing of the above-identified application. Clearly, requirements of 37 CFR 1.97(b) are satisfied.

To the extent that the documents on the enclosed List are not in English, it is respectfully submitted that requirements of 37 CFR 1.98(a)(3) are satisfied by English-language abstracts submitted with the respective non-English language

documents, and/or by Search Reports/Official Actions in English or with English translations thereof.

In view of all the foregoing, it is respectfully submitted that all applicable requirements of 37 CFR 1.97 and 1.98 have been satisfied, in connection with all of the documents on the enclosed List. Accordingly, consideration of the listed documents, upon examination of the above-identified application, is respectfully requested.

Kindly charge any shortage in fees due in connection with the filing of this paper to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (case 500.38315CC4), and credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By /Ayal I. Sharon /
Ayal I. Sharon
Registration No. 55,986

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Complete if Known	
		Application Number	To be assigned
		Filing Date	November 20, 2012
		First Named Inventor	T. NAKANO, et al.
		Art Unit (expected)	2622
Sheet 1 of 1	Examiner Name (expected)	Luong Trung Nguyen	
	Attorney Docket Number	500.38315CC4	

U.S. PATENT DOCUMENTS					
Examiner Initials ¹	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6,661,451	12-2003	Kijima, et al.	
		US- 7,154,539	12-2006	Nishimura, et al.	
		US- 5,828,406	10-1998	Parulski et al.	
		US- 4,054,915	10-1977	Sugihara, Yasumasa	
		US- 5,170,249	12-1992	Ohtsubo, et al.	
		US- 5,187,569	02-1993	Tani, Nobuhiro	
		US- 7,403,226	07-2008	Nakano, et al.	
		US-6,195,125	02-2001	Udagawa et al.	
		US-6,765,616	07-2004	Nakano et al.	
		US-6,906,746	06-2005	Hijishiri et al.	
		US-6,519,000	02-2003	Udagawa, Yoshirou	
		US-5,847,758	12-1998	Iizuka, Tetsuya	

FOREIGN PATENT DOCUMENTS						
Examiner Initials ¹	Cite No. ¹	Foreign Patent Document Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		JP 9-270959	10-97			
		JP 11-187306	07-99			
		JP 04-323973	11/13/1992	Hitachi, Ltd.		
		JP 11-004456	01/06/1999	Fuji Photo Film Co., Ltd.		
		JP 11-355665	12/24/1999	Fuji Photo Film Co., Ltd.		

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kind's Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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ELECTRIC CAMERA

CROSS REFERENCE TO RELATED APPLICATION

5 This application is a continuation of U.S. application serial no. 12/845,266,
filed July 28, 2010, which is a continuation of U.S. application serial no.
10/660,710, filed September 12, 2003, now U.S. Patent No. 8,059,177, issued November
15, 2011, and is related to U.S. application serial no. 10/660,711, filed September
12, 2003, now U.S. Patent No. 7,403,226, issued July 22, 2008, both of which are
10 divisional applications of U.S. application Serial No. 09/520,836, filed March 8,
2000, now U.S. Patent No. 6,765,616, issued July 20, 2004, the subject matter of which
is incorporated by reference herein.

BACKGROUND OF THE INVENTION

 The present invention relates to a photography related to video cameras,
15 camcorders, digital still cameras and others using a solid-state image sensing device,
and more particularly to an electric camera using a solid-state image sensing device
with a large number of pixels.

 Electric cameras using solid-state image sensors such as CCDs (charge-coupled
devices) include a so-called video camera or camcorder for taking moving images and a
20 so-called digital still camera for taking still images. In recent years, video cameras
with a still image taking function and digital still cameras with a moving image
taking function have become available.

 In a video camera to photograph moving images, it is generally assumed that the
video is viewed on a display such as television monitor and thus the camera is
25 designed to produce output signals conforming to a television system such as NTSC and

-1b-

PAL. Therefore, the effective number of vertically arranged pixels or picture elements on the image sensing device used in such a camera is determined to enable television signals to be generated. The NTSC system, for example, performs
5 interlaced scanning on two fields, each of which has an effective scanning line number of about 240 lines (the number of scanning lines actually

displayed on the monitor which is equal to the number of scanning lines in the vertical blanking period subtracted from the total number of scanning lines in each field). To realize this, the image sensing device has about 480 pixel
5 rows as the standard effective number of vertically arranged pixels. That is, the signals of two vertically adjoining pixels in each field are mixed together inside or outside the image sensing device to generate about 240 scanning lines, and the combinations of pixels to be
10 cyclically mixed together are changed from one field to another to achieve the interlaced scanning.

Some image sensing devices to take moving images according to the NTSC system have an area of pixels for image stabilization added to the area of effective pixel
15 area, thus bringing the effective number of vertically arranged pixels to about 480 or more. In this case, an area beyond 480th pixels is read out at high speed during the vertical blanking period and therefore the signals thus read out are not used as effective signals. Therefore, the
20 video signals can only be generated from those signals coming from the area of about 480 vertically arranged pixels. When such a camera is used to photograph a still image, it is relatively easy to generate a static image signal conforming to, for example, JPEG (Joint Photographic
25 Expert Group) from the signals coming from the same pixel area that is used to take a moving image. A problem remains, however, that the number of vertically arranged pixels obtained is limited to around 480, making it

impossible to produce more detailed static image signals.

In a camera having an image sensing device with the area of pixels for image stabilization mentioned above, a method of alleviating this problem may involve using the
5 entire area of effective pixels including the area of image stabilization pixels in photographing a still image. Even when photographing a still image, however, the photographed image needs to be monitored for check and, for that purpose, it is necessary to generate signals conforming to
10 the television system from signals read out from all effective pixels.

An example of such a conventional camera has been proposed in JP-A-11-187306. In the camera disclosed in this publication, signals from all the effective pixels are
15 read out taking two or more times the field period of the television system, stored in a memory means such as a field memory, and then subjected to interpolation processing for transformation into signals conforming to the field cycle and horizontal scan cycle of television.

20 This conventional camera, however, requires a large processing circuit, such as field memory, for signal conversion. Another drawback is that the image sensing device readout cycle is a plurality of times the field cycle, degrading the dynamic resolution. Even with the use
25 of this circuit, the number of pixels obtained as the static image signals is limited to the number of effective pixels used for moving videos plus the area of image stabilization pixels.

In a digital still camera designed for taking still images, there has been a trend in recent years toward an increasing number of pixels used on the moving video image sensing device in order to obtain higher resolution static image signals. When taking a moving image or monitoring the video, it is necessary to generate signals that conform to the television system. The number of pixels on such an image sensing device, however, does not necessarily match the number of scanning lines of the television system and therefore some form of conversion means is required.

The conversion means may involve, as in the video camera with the area of image stabilization pixels, reading out signals from the image sensing device taking a longer time than the field cycle and interpolating them to generate television signals. This method has, in addition to the problem described above, a drawback that the readout cycle increases as the number of pixels increases, further degrading the dynamic resolution.

To mitigate this problem, JP-A-9-270959 discloses an apparatus which mixes together or culls the pixel signals inside the image sensing device to reduce the number of signals to be read and therefore the read cycle. Although this apparatus alleviates the problem of the degraded dynamic resolution, it requires a large processing circuit such as field memory to perform time-axis transformation to generate signals conforming to the television system and the image sensing device itself needs to have a

special structure for performing desired mixing and culling.

SUMMARY OF THE INVENTION

The present invention relates to a photography of
5 video cameras, camcorders, digital still cameras and others
using a solid-state image sensing device, and more particu-
larly to an electric camera using a solid-state image
sensing device with a large number of pixels.

The conventional electric cameras, as described
10 above, have drawbacks that when taking a still picture by
using a video camera, the number of pixels is not suffi-
cient and that when taking a moving image with a still
camera, the associated circuit inevitably increases and the
dynamic image quality deteriorates. Taking both moving and
15 static images of satisfactory quality with a single camera
is difficult to achieve. In addition to solving the above
problems, to obtain good dynamic picture quality by using
an image sensing device having a large number of pixels
intended for still images requires extracting a pixel area
20 that is used to realize an image stabilizing function. The
conventional art and cameras do not offer a means to
accomplish this function.

An object of the present invention is to provide
an electric camera that solves these problems and which
25 uses an image sensing device with a sufficient number of
pixels for still images and enables taking of highly
detailed still images and a moving video taking with

reduced image quality degradation without increasing circuitry such as field memory. It is also an object of the present
5 invention to provide an electric camera that can also realize the image stabilizing function.

According to one aspect of this invention, the electric camera to realize the above objectives has: an image sensing device with a light receiving surface having N
10 vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines M of a display screen of a television system; a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in
15 individual pixels of every K pixels to produce a number of lines of output signals which corresponds to the number of effective scanning lines M, K being at least one of integers equal to or less than an integral part of a quotient of N divided by M (a number of lines of output signals corresponds to 1/K the number
20 of vertically arranged pixels N of the image sensing device); and a signal processing unit to generate image signals by using the output signals of the image sensing device.

As explained above, since this invention eliminates the limit on the number of vertically arranged pixels, an
25 electric camera can be provided which enables taking of highly detailed still images and a satisfactory moving video taking by using an image sensing device with a large enough pixel number even for still images.

30 BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram showing the configu

ration of a first embodiment of an electric camera according to the present invention.

Figure 2 is a schematic diagram showing the structure of an image sensing device in the first embodiment of the electric camera of the invention.

Figure 3 is a drive pulse timing diagram in the first embodiment of the electric camera of the invention.

Figure 4 is a schematic diagram showing a mixing operation in the first embodiment of the electric camera of the invention.

Figure 5 is a schematic diagram showing a readout area in the first embodiment of the electric camera of the invention.

Figure 6 is a schematic diagram showing a mixing operation in the first embodiment of the electric camera of the invention.

Figure 7 is a block diagram showing the configuration of a second embodiment of an electric camera according to the present invention.

Figure 8 is a schematic diagram showing a mixing operation in the second embodiment of the electric camera of the invention.

Figure 9 is a schematic diagram showing a readout area in the second embodiment of the electric camera of the invention.

Figure 10 is a schematic diagram showing the structure of an image sensing device in a third embodiment of the electric camera according to the present invention.

Figure 11 is a drive pulse timing diagram in the third embodiment of the electric camera of the invention.

Figure 12 is a schematic diagram showing an interpolation operation in the third embodiment of the
5 electric camera of the invention.

Figures 13A and 13B are schematic diagrams showing the arrangement of color filters in the image sensing device in a fourth embodiment of the electric camera according to the present invention.

10 DESCRIPTION OF THE EMBODIMENTS

Now embodiments of the present invention will be described by referring to the accompanying drawings.

Figure 1 is a block diagram showing the configuration of one embodiment of an electric camera according to the
15 invention.

In Figure 1, reference number 1 represents a lens, 2 an aperture, 3 an image sensing device, 4 a drive circuit, 5 a gain adjust circuit, 6 an analog-digital (A/D) conversion circuit, 7 a signal processing circuit, 8 a
20 vertical interpolation circuit to perform interpolation in a vertical direction, 9 a horizontal interpolation circuit to perform interpolation in a horizontal direction, 10 a recording unit including recording media such as magnetic tape, semiconductor memory and optical disk to record a
25 video signal, 11 a control circuit to control these constitutional elements according to the operating state, 12 an encoder circuit to modulate the video signal into a

standard television signal, 13 a digital-analog (D/A) conversion circuit, 14 a mode selector switch to change over the operation mode between the moving video taking and the still image taking, 15 a record button to start or stop the recording, 16a and 16b gyro sensors to detect vertical image-unstability and lateral image-unstability, respectively, and 17 an image-unstability decision circuit to determine the image-instability from signals output from the gyro sensors.

10 In the above configuration, light coming from the lens 1 through the aperture 2 is focused on a light receiving surface of the image sensing device 3 where it is converted into an electric signal. In this embodiment the image sensing device 3 is of a CCD type. Figure 2 shows
15 the structure of this image sensing device 3. In Figure 2, denoted 30 are pixels each formed of a photodiode, which are arranged horizontally and vertically in a grid pattern. On these grid-arrayed pixels three types of color filters that pass yellow (Ye), green (G) and cyan (Cy), respectively,
20 are arranged in such a way that the combination of these three colors is repeated horizontally every three pixels and that the filters of the same colors are lined vertically in so-called vertical stripes. Although an arbitrary number of pixels may be used, this embodiment has
25 an array of 1200 pixels vertically and 1600 pixels horizontally. A vertical transfer unit 32 is a CCD which is driven by three phase pulses V1, V2, V3. This CCD has a three-gate structure in which each pixel corresponds to

three phase pulses and thus can vertically transfer a signal charge of each pixel independently. Transfer gates 31 for transferring the charge of each pixel to the vertical transfer unit 32 are commonly connected to a gate 5 of the vertical transfer unit 32 that corresponds to the V2 pulse. An operation to transfer the charge from each pixel to the vertical transfer unit 32 in response to a peak value of the pulse applied to the commonly connected gate and an operation to transfer the charge vertically are 10 performed separately. A horizontal transfer unit 33 horizontally transfers the charges supplied from the vertical transfer units 32 and outputs them successively through an output amplifier 34 from the output terminal.

Referring back to Figure 1, the operation 15 performed when the moving video mode is selected by the mode selector switch 14 will be explained. The number of vertically arranged pixels on the image sensing device in this embodiment is 1200, so if the number of effective scanning lines in the field of the NTSC system is assumed 20 to be 240 lines, then vertically mixing five pixels (= 1200 pixel rows/240 scanning lines) can match the number of lines of output signals from the image sensing device to the number of effective scanning lines.

However, in this embodiment, to realize the image 25 stabilizing function described later, four vertically arranged pixels are mixed together during motion image taking mode. When four vertically arranged pixels are to be cyclically mixed together, the signals from the area of

960 pixels (= 240 scanning lines $\times$ 4 pixels) out of the 1200 vertically arranged pixels are used as effective signals and the remaining 240 pixels (= 1200 (all pixels) - 960 (effective pixels)) are not used for image forming.

- 5 Figure 3 shows the timing of a vertical drive pulse for the image sensing device in this operation mode, with V1, V2 and V3 representing three phase drive pulses applied to each gate of the CCD or vertical transfer unit 32.

In Figure 3, in a period T1 included in the
10 vertical blanking period, the drive pulse V2 is held high to transfer the signal charge accumulated in each pixel to under the V2 gate of the vertical CCD. Next, in a period T2, while the V2 pulse is still at middle level, the V3 pulse is raised from low level to middle level; next, while
15 the V3 pulse is at middle level, the V2 pulse is changed from middle level to low level, after which the V1 pulse is changed from low level to middle level; next, while the V1 pulse is at middle level, the V3 pulse is changed from middle level to low level, after which the V2 pulse is
20 changed to middle level and finally the V1 pulse is changed from middle level to low level. With this sequence of pulse operations, the signal charges under the V2 gate for one pixel row are transferred and held again under the V2 gate.

- 25 By repeating this series of operations, the signal charges for a desired number of pixel rows can be transferred. In Figure 3, during a period T3 included in the vertical blanking period before the vertical effective

scanning period (the vertical scanning period minus the vertical blanking period which corresponds to the actually displayed image) and during a period T4 included in the vertical blanking period after the vertical effective
5 scanning period, the above transfer operation for one pixel row is repeated a total of 240 times to transfer the signal charges of the 240 pixel rows not used for image generation to the horizontal transfer unit 33 during the vertical blanking period. For example, if this transfer operation
10 is performed 120 times during the period T3 and 120 times during the period T4, the signal charges from upper 120 pixel rows and lower 120 pixel rows on the light receiving surface are transferred to the horizontal transfer unit 33 during the period T3 and period T4 within the vertical
15 blanking period. During each of the subsequent periods T5 and T6 in the vertical blanking period, the horizontal transfer unit 33 is driven for a predetermined period to output the charges transferred to the horizontal transfer unit 33 from the output terminal. These charges are not
20 used as valid signals as they are output during the vertical blanking period.

Next, in the vertical effective scanning period of Figure 3, the above one-pixel-row transfer operation is performed four times during each horizontal blanking period
25 to transfer the signal charges of four pixel rows to the horizontal transfer unit 33 where they are mixed together. Then, during a horizontal effective scanning period (the horizontal scanning period minus the horizontal blanking

period which corresponds to the actually displayed image), the horizontal transfer unit 33 is driven to read out the signal charges from the horizontal transfer unit to produce an output signal conforming to the television system. If
5 the above operation is performed on the A field and if, on the B field, the number of pixel rows transferred during the period T3 is set to 122 rows and that during the period T4 is set to 118 rows, then the combination of four pixel rows to be cyclically mixed together shifts by two rows
10 between the two fields, thus allowing the interlaced scanning to be performed as shown in Figure 4. (Figure 4 shows the light receiving surface of the image sensing device and its relation to the displayed screen is vertically inverted.)

15 Let us return to Figure 1. The output signal from the image sensing device 3 is adjusted in gain by the gain adjust circuit 5 and then converted by the A/D conversion circuit 6 into a digital signal. The digital signal is then processed by the signal processing circuit 7 that
20 performs color signal processing and luminance signal processing, such as generation of color signals, gamma correction, white balance processing and outline enhancement. The image sensing device in this embodiment has an array of vertical stripes of yellow (Ye), green (G) and
25 cyan (Cy) color filters, so the color signals for Ye, G and Cy are obtained as a series of color points from one line of output signals at all times no matter how many pixels are vertically combined. From these color signals three

primary color signals R, G, B can be obtained from the following calculations.

$$R = Y_e - G$$

$$B = C_y - G$$

5 $G = G$

The R, G and B signals undergoes the white balance processing and gamma correction processing in the signal processing circuit 7 and are then converted into color difference signals such as R-Y, B-Y or U and V. The
10 luminance signals and the color difference signals are then entered through the vertical interpolation circuit 8 into the horizontal interpolation circuit 9. In this operation state the signals just pass through the vertical interpolation circuit 8 without being processed. The horizontal
15 interpolation circuit 9 performs interpolation on the signals in the horizontal direction.

Figure 5 shows the light receiving surface of the image sensing device. As described above, in the operating state of this embodiment, the signals read out during the
20 vertical effective scanning period correspond to an area having 960 of the 1200 vertically arranged pixels and a horizontal width of 1600 pixels, as shown shaded at A in Figure 5. If the entire light receiving surface of the image sensing device has a 4-to-3 (width to height) aspect
25 ratio, the shaded area A is more laterally elongate than this aspect ratio. Hence, if the signals of all horizontal pixels of the light receiving surface are displayed, for example, on an NTSC standard television monitor with the

4-to-3 aspect ratio, the image displayed is compressed horizontally and looks vertically elongate, compared with the original image. It is therefore necessary to output during the horizontal effective scanning period only those
5 signals coming from a pixel area with the horizontal width conforming to the aspect ratio of the television system, as shown by a shaded area B. When the television system has an 4-to-3 aspect ratio, the number of pixels in the horizontal width of the shaded area B is 1280 (= 960
10 (vertical effective pixels) $\times$ 4/3).

Returning back to Figure 1, the horizontal interpolation circuit 9 performs interpolation processing on the signals from the horizontal 1280 pixels to expand the signals so that they can be output over the entire
15 horizontal effective scanning period. It also performs switching among different clocks as required. With the above operation, an area having 960 pixels in height and 1280 pixels in width is demarcated from the light receiving surface as signals conforming to the television system.
20 Then, the luminance signal and the color difference signal are encoded by the encoder circuit 12 into television signals, which are then converted by the D/A conversion circuit 13 into analog signals for output. When the recording is specified by the record button 15, the signals
25 are recorded by the recording unit 10. At this time, the signals may be compressed in the MPEG (Moving Picture Expert Group) format.

Next, the image stabilizing operation will be

explained. Image-unstability information obtained by the gyro sensors 16a, 16b that detect vertical and horizontal image-unstabilities is entered into the image-unstability decision circuit 17, which checks the received information
5 for the amount and direction of the image-unstability and converts them into the number of pixels in vertical and horizontal directions on the light receiving surface of the image sensing device. Based on the converted pixel numbers, the position of an extracted area (effective pixel
10 area) on the light receiving surface is shifted in a direction that cancels the image-unstability. This can correct the image-unstability. The positional shifting of the extracted area is performed as follows. The shifting in the vertical direction can be made by changing the
15 number of pixel rows transferred during the periods T3 and T4 in Figure 3 and the shifting in the horizontal direction made by changing the interpolation start position in the horizontal interpolation circuit 9.

The operation during the moving video mode has
20 been described above. Next, the operation performed when the static image mode is selected by the mode selector switch 14 will be explained.

In the static image mode, too, until the recording is requested by the record button 15, the camera
25 outputs signals compatible with the television system to monitor the angle of view. Unlike the moving video photographing, all of the effective pixels on the image sensing device are used in this embodiment during the still image

photographing to produce signals with as high a resolution as possible. Hence, during the monitoring the television signals need to be generated from the signals coming from the entire pixel area.

5 The image sensing device of this embodiment has 1200 vertically arranged pixels, and the number of lines of output signals from the image sensing device can be made to match the number of effective scanning lines of NTSC system, which is assumed to have 240 scanning lines, by
10 vertically mixing five pixels ($= 1200/240$). To make the image sensing device operate in this manner, the one-pixel-row transfer operation is performed five times during each horizontal blanking period in the vertical effective scanning period shown in the pulse timing diagram of Figure
15 3. With this operation, the signal charges of five pixel rows can be mixed by the horizontal transfer unit 33. As for the transfer operations during the periods T3 and T4 in the vertical blanking period, because the interlaced scanning is carried out, only two pixel rows are transferred
20 during the period T3 on the B field, with no transfer operations performed in other vertical blanking periods (In this embodiment, $1200/240 = 5$ with no remainder produced, so no further transfer is necessary; if, however, a remainder occurs, the remaining pixels need only be trans-
25 ferred during the periods T3 and T4).

The charges mixed by the horizontal transfer unit 33 are read out by driving the horizontal transfer unit 33 during the horizontal effective scanning period. With the

above operations, the signal charges of all pixels on the image sensing device can be read out in a manner conforming to the television system. The output signal from the image sensing device 3 is, as during the moving image photo-
5 graphing, adjusted in gain by the gain adjust circuit 5 and converted by the A/D conversion circuit 6 into a digital signal, which is then subjected to the color signal processing and the luminance signal processing in the signal processing circuit 7 before being entered into the
10 vertical interpolation circuit 8. During the static image monitoring, the vertical interpolation circuit 8 performs a vertical gravity center correction on the received signals.

Figure 6 shows combinations of pixels to be cyclically mixed on the A field and the B field and also
15 the vertical position of the gravity center of the mixed signals. In the interlaced scanning, scanning lines of the A field and the B field are located at the centers of adjoining scanning lines on other field. Hence, the signal samplings in the camera system for the two fields must be
20 180 degrees out of phase in the vertical direction. In the operating state of this embodiment, however, because five pixels are mixed together, the gravity centers of the output signals for the A field and the B field are deviated 36 degrees ($= 1/2$ pixel or $1/10$ the line-to-line distance
25 on the same field) from the ideal sampling phase difference of 180 degrees, as shown in Figure 6. To correct this requires generating a signal from two adjoining output lines by interpolation. For example, if we let an n th

output line on a field be S_n and an $(n+1)$ th output line on the same field be S_{n+1} , then a signal S_n' obtained by calculating $S_n' = (S_n \times 9/10) + (S_{n+1} \times 1/10)$ is one whose gravity center is shifted by $1/10$ output line from the
5 gravity center of the n th output line toward the $(n+1)$ th output line. The above calculation can also be performed on the signals for the B field to correct the gravity center deviation of sampling. In this embodiment, however, to equalize the effects of interpolation of the A field and
10 the B field, the following calculations are performed to correct the n th output line by $1/20$ line toward the $(n-1)$ line on the A field and by $1/20$ line toward the $(n+1)$ th line on the B field.

A field: $S_n' = (S_n \times 19/20) + (S_{n-1} \times 1/20)$

15 B field: $S_n' = (S_n \times 19/20) + (S_{n+1} \times 1/20)$

While this embodiment performs the interpolation based on the calculation of two adjoining lines of output signals, a greater number of lines may be used for the interpolation processing. The output signal of the
20 vertical interpolation circuit 8 is supplied to the horizontal interpolation circuit 9, which in this operating state does nothing but passes the signal. Then, as in the case of the moving image photographing, the signal is encoded by the encoder circuit 12 into a television signal,
25 which is then converted by the D/A conversion circuit 13 into an analog signal for output. As described above, the television signals can be generated from all of the pixel area of the image sensing device also during the static

image mode.

Next, the operation performed when the recording is requested by the record button 15 will be described. During the monitoring in the static mode, the signals are mixed together inside the image sensing device to reduce the number of signals and thereby generate television signals. During recording, however, the mixing processing is not performed and all the pixel signals need to be read out independently of each other in order to produce high resolution signals. To realize this, the one-pixel-row transfer operation is performed only once during each horizontal blanking period in the vertical effective scanning period shown in the pulse timing diagram of Figure 3. This causes only the signal charges for one pixel row to be transferred into the horizontal transfer unit 33, which is then driven to read out the signal charges for one pixel row. Repeating this operation the number of times equal to the number of vertically arranged pixel rows enables the signal charges of all pixel rows to be read out independently of each other. The transfer operation is not done during the periods T3 and T4 in the vertical blanking period.

The signal charges thus read out are adjusted in gain by the gain adjust circuit 5 and converted by the A/D conversion circuit 6 into digital signals, which are then subjected to the color signal processing and the luminance signal processing in the signal processing circuit 7, after which the signals are supplied through the vertical inter-

polation circuit 8 and the horizontal interpolation circuit 9 to the recording unit 10 where they are recorded. At this time, no interpolation processing is performed by the vertical interpolation circuit 8 or horizontal interpolation circuit 9. The recording unit 10 may compress the signals in the JPEG (Joint Photographic Expert Group) format, for example. Because during the static image recording, no television signal can be generated, an image immediately before starting the recording or a single color image is output as the television signal for monitoring purpose. With the above operation, high resolution signals obtained from all the pixels of the image sensing device can be recorded. Although in this embodiment the recording unit is used commonly for the moving video mode and for the static image mode, dedicated recording units may be provided separately for these modes.

As explained above, since there is no limit on the number of vertically arranged pixels in this embodiment, an image sensing device with a large enough pixel number even for still images can be used to photograph highly detailed still images and satisfactory moving images.

Further, the signal mixing and the vertical signal transfer during the vertical blanking period allow the signals from the image sensing device with a large number of pixels to be read out in a manner that conforms to the television system. This in turn can reduce image quality degradation and realize the moving image photo-

graphing with an image stabilizing function and the monitoring during still image photographing.

Only the output signals from that horizontal segment which virtually corresponds to the television system's aspect ratio with respect to the vertical segment are extracted and output over the entire horizontal effective scanning period of the television system. This ensures that the output signals obtained conform to the television system's aspect ratio regardless of the extracted vertical segment position.

Further, the image sensing device is driven in such a way as to shift the position of the pixels to be cyclically mixed together every display cycle of the television system in order to output interlaced signals. With this arrangement, the interlaced scanning can be performed even when an image sensing device with a large number of pixels is used.

Further, the output signals produced by the mixing are interpolated so that the gravity centers of the output signals interlaced every display cycle have a phase difference of 180 degrees in the vertical direction. This ensures that the interlaced output signals have no deviation from the ideal 180-degree phase difference during interlacing even when an interlace phase deviation would normally occur, as when odd numbered pixels are mixed together.

In this embodiment, the image sensing device has 1200 vertically arranged pixels, and four pixels are mixed

together during the moving video mode and five pixels during the static image mode. Because the area of image-stabilization pixels may or may not be used and set to any desire size, the number of pixels to be cyclically mixed
5 together in each mode needs only to be equal to or less than the integral part of a quotient of the number of vertically arranged pixels divided by the number of television system's effective scanning lines (in the above example, 5 or less). (The number of vertically arranged
10 pixels does not need to be divisible and, in the above example, may be more than 1200).

The number of vertically arranged pixels for static image photographing needs only to be three or more times the number of effective scanning lines on each field
15 of the television system. In this embodiment the vertically adjoining pixels are mixed together to reduce the number of output lines from the image sensing device during the vertical effective scanning period. The number of lines of output signals can also be reduced by a so-called
20 culling operation, by which only one line of signal charges of pixels is read out for every predetermined number of lines.

While in this embodiment the vertical transfer unit of the image sensing device is formed as a CCD that is
25 driven by three phase pulses for each pixel, the image sensing device may have any desired structure as long as it can realize the mixing or culling of pixels that meets the above conditions.

5

Although this embodiment described the case of NTSC system, the invention can also be applied to other television systems, such as PAL standard, with different numbers of effective scanning lines.

10

In summary, a variety of constructions essentially equal in the working principle to this embodiment can be realized by the use of an image sensing device that has an arbitrary number of vertically arranged pixels N three or more times the number of effective scanning lines M of each field of the television system and which allows the vertical mixing or culling of that number of pixels which is at least one of integers equal to or less than the integral part of a quotient of N divided by M (a number of lines of output signals corresponds to $1/K$ the number of vertically arranged pixels N of the image sensing device).

15

20

Next, another embodiment of the present invention will be described by referring to Figure 7 showing the configuration of the embodiment. The configuration shown in Figure 7 differs from that of Figure 1 in that it has a view angle change switch 18. In Figure 7 constitutional elements identical with those shown in Figure 1 are assigned like reference numbers and explanations on the constitutional elements performing the same operations as those in Figure 1 are omitted here.

25

30

The operations of the moving video mode, the monitoring during the static image mode and the static image recording are similar in normal condition to the operations of the previous embodiment which was explained with reference to the configuration diagram of Figure 1. An operation performed when during the moving video mode a

request to change the angle of view is made by the view angle change switch 18 will be described.

In the normal condition of this embodiment, as explained in the previous embodiment, the mixing of four
5 vertically arranged pixels, the vertical transfer during the vertical blanking period and the horizontal interpolation processing are performed to extract an area of 960 pixels in height and 1280 pixels in width from the entire pixel area to generate television signals. When a view
10 angle change (which means a zooming function without image quality degradations in the vertical direction) is requested by the view angle change switch 18, three vertically arranged pixels are mixed together and the signals from the excess vertically arranged pixels are read
15 out during the vertical blanking periods before and after the vertical effective scanning period.

In this embodiment, signals of 480 pixels ($= 1200 - 240 \times 3$) or 160 lines of output signals after mixing
($= 480/3$) need to be read out during the vertical blanking
20 period. This allows the signals of 720 vertically arranged pixels to be read out as 240 lines of output signals conforming to the television system. To carry out this reading requires, in the pulse timing diagram of Figure 3, transferring the signals of three pixel rows during each
25 horizontal blanking period in the vertical effective scanning period and also transferring a total of 480 pixel rows ($= 160$ lines of output signals) during the T3 and T4 periods in the vertical blanking period. The combinations

of pixels to be cyclically mixed together are changed from one field to another to achieve the interlaced scanning.

The output signals of the image sensing device 3 are supplied to the gain adjust circuit 5. Because the
5 signal level produced as a result of the 3-pixel mixing is $3/4$ the signal level of the 4-pixel mixing, the again of the gain adjust circuit 5 is increased to $4/3$ the gain of the 4-pixel mixing to make the 3- and 4-pixel-mixed input signal levels to the subsequent circuit equal. Then, the
10 signals are processed by the A/D conversion circuit 6 and the signal processing circuit 7 before being supplied to the vertical interpolation circuit 8. The combinations of pixels to be cyclically mixed on the A field and the B field and the vertical positions of the gravity centers of
15 the mixed signals are shown in Figure 8. As in the static image monitoring of the previous embodiment, the phase difference between the two fields is 180 degrees. Because the sampling phases of the fields are deviated from the ideal 180-degree phase difference, the vertical position of
20 the gravity centers are corrected by the vertical interpolation circuit 8. The amount of phase deviation in this operating state is 60 degrees ($= 1/2$ pixel or $1/6$ the line-to-line distance on the same field). To correct the phase deviation evenly on the both fields, the following calculations should be performed.

$$\text{A field: } S_n' = (S_n \times 11/12) + (S_{n-1} \times 1/12)$$

$$\text{B field: } S_n' = (S_n \times 11/12) + (S_{n+1} \times 1/12)$$

As described earlier, the interpolation process-

ing may use three or more output lines. Next, the horizontal interpolation circuit 9 horizontally expands the signals from that horizontal segment which corresponds to the 4-to-3 aspect ratio with respect to the 720 vertically
5 arranged pixels (i.e., signals from a horizontal 960-pixel segment ($=1600 \times 720/1200$) in this operating state) so that the expanded signals can be output during the entire horizontal effective scanning period. With the above operation, an area of 720 pixels in height and 960 pixels
10 in width can be extracted from the light receiving surface.

Next, when the view angle change is requested again by the view angle change switch 18, two vertically arranged pixels are mixed together, an area of 480 vertically arranged pixels is read out during the vertical
15 effective scanning period, and the horizontal interpolation circuit 9 expands the signals from the horizontal 640-pixel segment and outputs the expanded signals during the entire horizontal effective scanning period to extract an area of 480 pixels in height and 640 pixels in width. (During the
20 two-pixel mixing, because the interlace phase deviation does not occur, the gravity center position correction by the vertical interpolation circuit 8 is not performed.) If a further view angle change is requested by the view angle change switch 18, the operation is restored to a normal
25 state where four vertically arranged pixels are mixed together.

As a result of the above operation, the area extracted from the light receiving surface of the image

sensing device can be changed to three different areas: (A) 960 pixels high by 1280 pixels wide, (B) 720 pixels high by 960 pixels wide and (C) 4880 pixels high by 640 pixels wide. That is, the angle of view can be changed to three
5 different angles. With the area A produced by the 4-pixel mixing taken as a reference, the area B produced by the 3-pixel mixing can provide an image enlarged by 1.33 times and the area C produced by the 2-pixel mixing can provide an image enlarged by two times. It should be noted here
10 that because the three different areas are chosen by changing the number of pixel to be cyclically mixed together in order to make the number of the effective output lines from the imaging device agree with the number of the effective scanning lines of the television system,
15 the angle of view can be changed while maintaining a good image with no image quality degradation in the vertical direction, when compared with an ordinary so-called digital zoom which generates effective scanning lines of signals by interpolating a small number of output lines. During the
20 monitoring of a static image, too, it is possible to perform the similar operation of changing the angle of view by changing the number of pixel rows to be cyclically mixed together.

As described above, in addition to the advantages
25 provided by the previous embodiment, this embodiment can also realize the view angle change with little image quality degradation even for still images by using an image sensing device with a large number of pixels and changing

the number of pixels to be cyclically mixed together.

Further, because changes in signal level caused when the number of pixels to be cyclically mixed is changed are absorbed by the gain adjust means, the input signal
5 level to the subsequent signal processing means can be kept constant.

While in this embodiment, the view angle change is performed by the view angle change switch 18, the angle of view may be changed continuously by a zoom switch. In
10 this case, when the magnification factor does not reach the value that is obtained by changing the pixel mixing, the digital zoom performs the ordinary interpolation processing. In this embodiment, when the magnification factor is 1 or more and less than 1.33, the 4-pixel mixing is
15 performed; for the factor of 1.33 or more and less than 2, the 3-pixel mixing is done; and for the factor of 2 or higher, the 2-pixel mixing is carried out. The mixing operation may be interlocked with an optical zooming mechanism.

20 Regardless of the number of pixels in the image sensing device, the structure of the image sensing device or the television system employed, this embodiment, as in the previous embodiment, may also use an image sensing device that has an arbitrary number of vertically arranged
25 pixels N three or more times the number of effective scanning lines M of each field and which allows the vertical mixing or culling of those numbers of pixels which are at least two of integers equal to or less than the integral

part of a quotient of N divided by M. The use of this image sensing device can form a variety of constructions essentially equal in the working principle to this embodiment.

5 Next, a further embodiment of the present invention will be described. The overall configuration of this embodiment is similar to that of Figure 1, except that the inner structure of the image sensing device 3 is different. The configuration of the image sensing device
10 in this embodiment is shown in Figure 10. In Figure 10, denoted 30 are pixels formed of photodiodes, which are arranged horizontally and vertically in a grid pattern. On these grid-arrayed pixels three types of color filters that pass yellow (Ye), green (G) and cyan (Cy), respectively,
15 are arranged in so-called vertical stripes.

 In this embodiment, the image sensing device has an array of pixels measuring 864 pixels vertically and 1152 pixels horizontally. A vertical transfer unit 32 is a CCD which is driven by six phase pulses V1, V2, V3, V4, V5, V6.
20 This CCD has a two-gate structure in which each pixel corresponds to two phase pulses and six gates corresponding to the six phase pulses are repeated for every three pixels. Transfer gates 31 for transferring the signal charge of each pixel to the vertical transfer unit 32 are
25 commonly connected to respective gates of the vertical transfer unit 32 corresponding to the pulses V1, V3, V5. An operation to transfer the signal charge from each pixel to the vertical transfer unit 32 in response to peak values

of pulses applied to the commonly connected gates and an operation to transfer the charge vertically are performed separately.

A horizontal transfer unit 33 horizontally
5 transfers the charges supplied from the vertical transfer units 32 and outputs them successively through an output amplifier 34 from the output terminal. This image sensing device, unlike the one in the previous embodiment, cannot vertically transfer all pixels independently of each other,
10 but can mix together the signal charges of three vertically adjoining pixels inside the vertical transfer unit 32 before transferring them.

First, the operation performed in this embodiment during the moving video mode will be explained. In the
15 image sensing device of this embodiment the effective number of vertically arranged pixels is 864. If three pixels are vertically mixed, the signals of the 720
($=240 \times 3$) of the 864 vertically arranged pixels can be used as the effective signals and the remaining 144 ($= 864 -$
20 720) pixels can be used as the image-unstability correction pixel area.

Figure 11 shows the timings of vertical drive pulses for the image sensing device of Figure 10 during this operation mode, with V1, V2, V3, V4, V5, V6 represent-
25 ing the six phase drive pulses applied to the respective gates of the CCD or vertical transfer unit 32. In Figure 11, during a period T1 included in the vertical blanking period, the drive pulses V1, V3 and V5 are held high to

cause the signal charge of each pixel to be transferred to under the V1, V3 and V5 gates of the vertical CCD. Then, the V2 and V4 pulses are changed from low level to middle level to mix the charges of the adjoining three pixels.

- 5 After the mixing, the V5 pulse is changed from middle level to low level to hold the mixed signal charges under the V1, V2, V3, V4 gates.

Next, a series of operations performed during a period T2 (changing the drive pulses from middle level to
10 low level or from low level to middle level in the order of V1, V2, V3, V4, V5 and V6) causes one mixed output line (3 pixel rows) to be transferred and held again under the V1, V2, V3, V4 gate. By repeating this series of operations, a desired number of output lines of mixed signal charges can
15 be transferred.

In Figure 11, during a period T3 included in the vertical blanking period before the vertical effective scanning period and during a period T4 included in the vertical blanking period after the vertical effective scan-
20 ning period, the transfer operation for one output line is repeated a total of 144 times to transfer 144 output lines of signal charges not used for image forming to the horizontal transfer unit 33 at high speed during the vertical blanking periods. During subsequent periods T5
25 and T6 in the vertical blanking periods, the horizontal transfer unit 33 is driven for predetermined periods to output the signal charges transferred to the horizontal transfer unit 33 from the output terminal.

Next, in the vertical effective scanning period of Figure 11, the one-output-signal-line transfer operation is performed during each horizontal blanking period. Then, during the horizontal effective scanning period, the

5 horizontal transfer unit 33 is driven to read out the signal charges from the horizontal transfer unit 33. With this operation the signal charges of three pixels mixed together can be read out in a way conforming to the television system. As shown in Figure 11, the signals for

10 the A field are mixed by changing the V2 and V4 pulses to middle level after transferring the signals from the pixels to the vertical transfer unit 32. The signals for the B field, on the other hand, are mixed by changing the V2 and V6 pulses to middle level. With this mixing method, the

15 combinations of pixels to be cyclically mixed together can be changed from one field to another, thereby realizing the interlaced scanning. The output signals from the image sensing device are processed in the similar manner to that of the previous embodiment. A vertical interpolation

20 circuit 8 performs the gravity center correction, as in the 3-pixel mixing in the previous embodiment, and a horizontal interpolation circuit 9 performs interpolation processing to match the aspect ratio with that of the television system.

25 Next, the operation during the monitoring in the static image mode will be explained. It is assumed that the still image photographing is done by using all effective pixels of the image sensing device, as in the previous

embodiment. The image sensing device of this embodiment has 864 vertically arranged pixels and, when 3-pixel mixing is done as in the moving video taking, the number of output lines is 288 ($=864/3$), which means that these signal lines cannot be read out in a manner conforming to the television system. Hence, during the monitoring in the static image mode, vertical 6-pixel mixing is performed. The 6-pixel mixing can be achieved by transferring to the horizontal transfer unit 33 in each horizontal blanking period two output lines of signal charges each of which line has been generated by vertically mixing three pixels within the vertical transfer unit 32. The 6-pixel mixing can reduce the number of output lines from the image sensing device down to 144 ($= 864/6$) lines. The output signals of the image sensing device that were reduced to 144 output lines are interpolated by the vertical interpolation circuit 8 to transform the 144 output lines of signals into 240 lines of signals, which conform to the television system. To generate 240 lines of signals from the 144 lines requires interpolation processing that generates five lines from three lines ($144/240 = 3/5$).

Figure 12 shows how the interpolation is performed using two adjoining output lines. Let three output lines of the image sensing device be n , $n+1$ and $n+2$. The five output lines of signals can be generated from the following calculations.

$$n' = n$$

$$n' + 1 = n/2 + (n+1)/2$$

$$n' + 2 = n + 1$$

$$n' + 3 = (n+1)/2 + (n+2)/2$$

$$n' + 4 = n + 2$$

Three or more output lines of signals may be used
5 for interpolation processing. With the above operation,
television signals can be generated by using signals of all
pixels of the image sensing device also during the monitor-
ing in the static image mode.

Next, the operation performed when the recording
10 is requested by the record button 15 will be explained. In
the recording process, the mixing processing is not
performed and signals of all pixels need to be read
independently of each other in order to obtain high-
resolution signals. To realize this, the aperture 2 is
15 first closed and then, during the period T2 in the pulse
timing diagram of Figure 11, only the V1 pulse is raised to
high level to transfer the signal charge of only the pixel
adjacent to the V1 gate to the vertical transfer unit 32.
Then, the vertical transfer unit 32 and the horizontal
20 transfer unit 33 are successively driven to read out the
signal charges. Similarly, the V3 pulse is raised to high
level to read the signal charge of the pixel adjacent to
the V3 gate, followed by raising the V5 pulse to high level
to read the signal charge of the pixel adjacent to the V5
25 gate. With the above processing, the signal charges of all
pixels can be read out independently in three successive
operations. The signal charges thus read out are recorded
in the recording unit 10. At this time, they are

rearranged properly to reconstruct the pixel arrangement on the light receiving surface of the image sensing device.

As described above, this embodiment offers the following advantages. If the number of vertically arranged
5 pixels is not an integral multiple of the number of scanning lines of the television system, the signals conforming to the television system can be generated from the whole area of effective pixels by performing the pixel mixing and the vertical interpolation.

10 In this embodiment, as in the previous embodiment, regardless of the number of pixels in the image sensing device, the structure of the image sensing device or the television system employed, a variety of constructions essentially equal in the working principle to this
15 embodiment can be realized by using an image sensing device that has an arbitrary number of vertically arranged pixels N three or more times the number of effective scanning lines M of each field and which allows the vertical mixing or culling of that number of pixels which is greater by at
20 least one than the integral part of a quotient of N divided by M .

Next, a further embodiment of the present invention will be explained. This embodiment differs from the previous embodiments in that the image sensing device
25 have different arrangements of color filters. Figures 13A and 13B show arrangements of color filters in this embodiment. These color filters in both examples are arranged in vertical stripes and, regardless of the number of pixels to

be vertically mixed or culled, the R, G, B primary color signals can be generated from one line of output signals. Figure 13A shows a color filter arrangement on the image sensing device in which white filters (W = passing all
5 colors) are used instead of the green (G) filters used in the previous embodiment. The R, G, B signals can be obtained by the following calculations.

$$R = W - Cy$$

$$G = Ye + Cy - W$$

10 $B = W - Ye$

When this color filter arrangement is used, a higher sensitivity can be obtained than the color filter arrangement of the previous embodiment. Figure 13B show a color filter arrangement that uses, in stead of comple-
15 mentary colors, color filters that pass the primary colors R, G, B. This color filter arrangement can directly produce the primary color signals, R, G, B and can provide a camera with good color purity and good color S/N.

With the above color filter arrangements, it is
20 possible to produce color signals corresponding to the three kinds of color filters from each line of output signals at all times no matter how many pixels are vertically mixed or culled. Therefore, color signals conforming to the television system can be generated
25 easily.