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PRELIMINARY AMENDMENT

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

December 21, 2016

Sir:

Prior to examination, please amend the above-identified application as follows.

Amendments to the Specification begin on page 2;

Remarks are included following the amendments.

IN THE SPECIFICATION:

Please amend the first paragraph on page 1 of the specification following the heading "CROSS REFERENCE TO RELATED APPLICATION" as follows:

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application No. 14/661,227 filed March 18, 2015, which is a continuation of U.S. patent application No. 14/264,243, filed April 29, 2014, now U.S. Patent No. 9,100,604, which is a continuation of U.S. application serial no. 13/681,495, filed November 20, 2012, now U.S. Patent No. 8,736,729, which is a continuation of U.S. application serial no. 12/845,266, filed July 28, 2010, now U.S. Patent No. 8,339,493, issued December 25, 2012, 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 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 all the above is incorporated by reference herein.

REMARKS

Entry of the above amendments prior to examination is respectfully requested.

No new matter is added by the amendments.

Please charge any shortage in fees due in connection with the filing of this paper, or credit any overpayment of fees, to the deposit account of MATTINGLY & MALUR, PC, Deposit Account No. 50-1417.

Respectfully submitted,

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ELECTRIC CAMERA

CROSS REFERENCE TO RELATED APPLICATION

5 This application is a continuation of U.S. application serial no. 13/681,495, filed November 20, 2012, which is a continuation of U.S. application serial no. 12/845,266, filed July 28, 2010, now U.S. Patent No. 8,339,493, issued December 25, 2012, 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
10 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 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 all the above is incorporated by reference herein.

15 BACKGROUND OF THE INVENTION

 The present invention relates to a photography related 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.

20 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 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.

25 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 designed to produce output signals conforming to a television system such as NTSC and

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 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 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 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 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, are arranged in such a way that the combination of 20 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 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 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 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 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 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 × 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 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 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 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 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 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 scan-
ning 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 conver-
sion 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 enhance-
ment. 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 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 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 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 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 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 photographing, 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 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 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 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 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 nth

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 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 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.

$$\text{A field: } S_n' = (S_n \times 19/20) + (S_{n-1} \times 1/20)$$

$$\text{B field: } S_n' = (S_n \times 19/20) + (S_{n+1} \times 1/20)$$

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 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, 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 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 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 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 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 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.

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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.

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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
15 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
20 the image sensing device).

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
25 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.

The operations of the moving video mode, the
30 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 - 240×3) 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 signal level produced as a result of the 3-pixel mixing is 3/4 the signal level of the 4-pixel mixing, the gain 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 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 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 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 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 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 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.

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 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 (=240×3) 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
15 desired number of output lines of mixed signal charges can 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 scanning period, the transfer operation for one output line is
20 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 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 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 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 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.

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 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 complementary 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 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 easily.

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 out put signals of the image sensing device.

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.

FIG.1

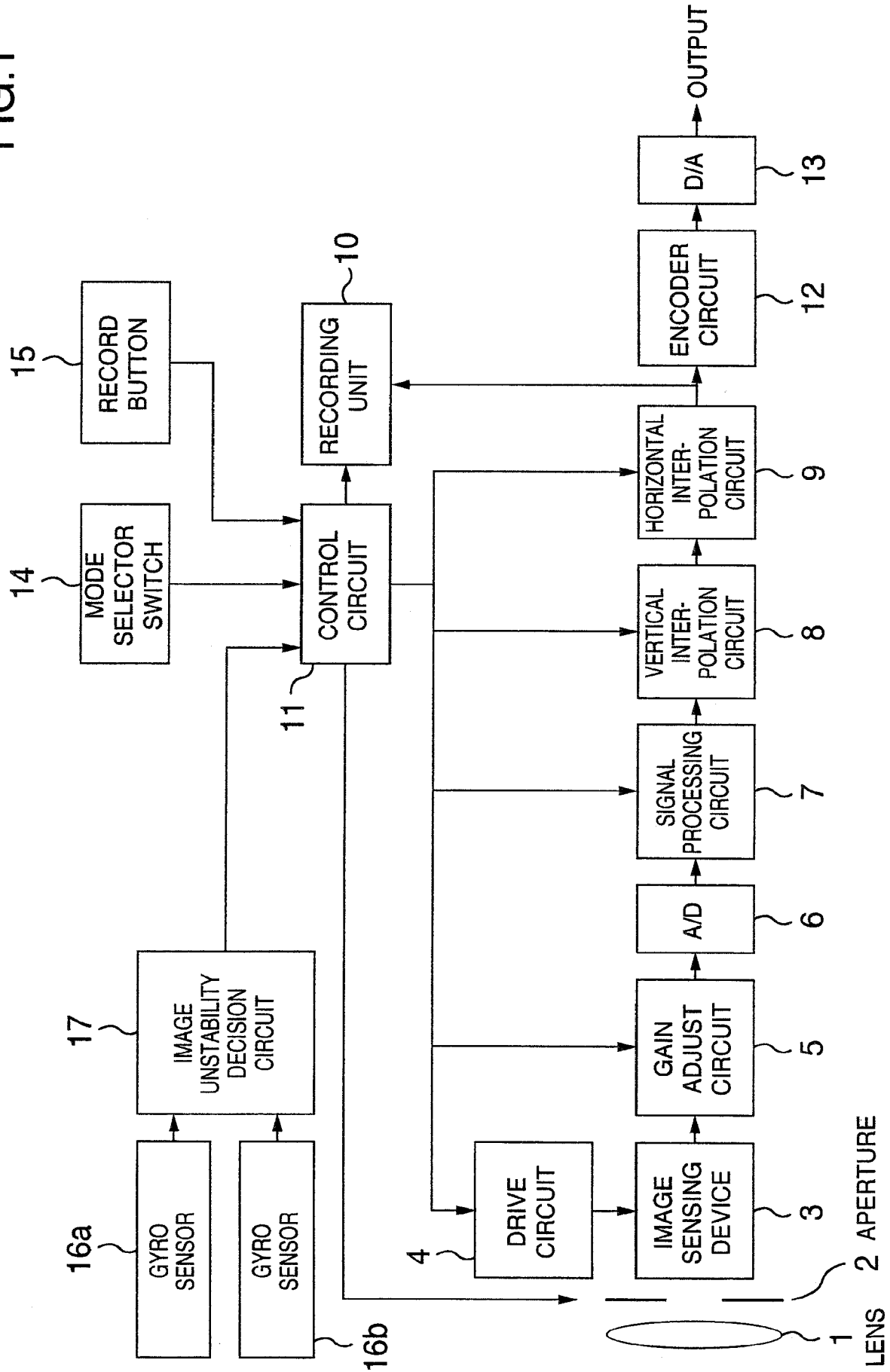


FIG.2

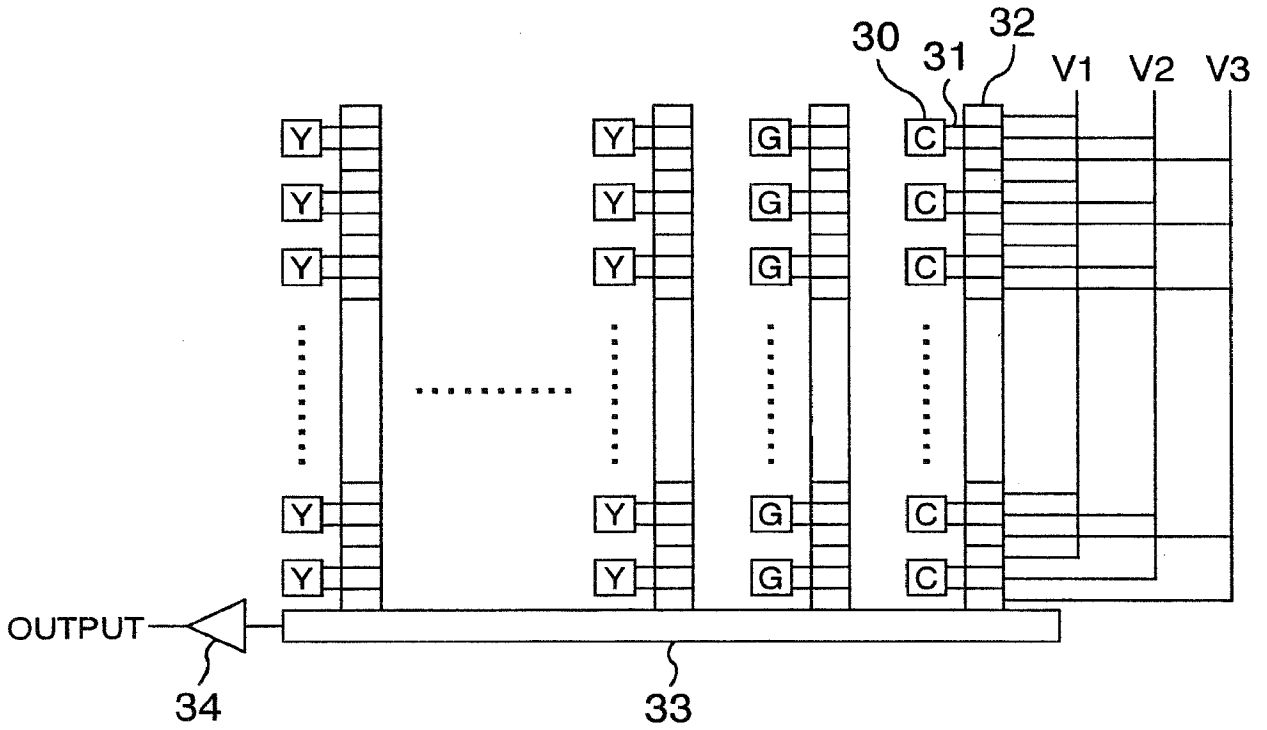


FIG.4

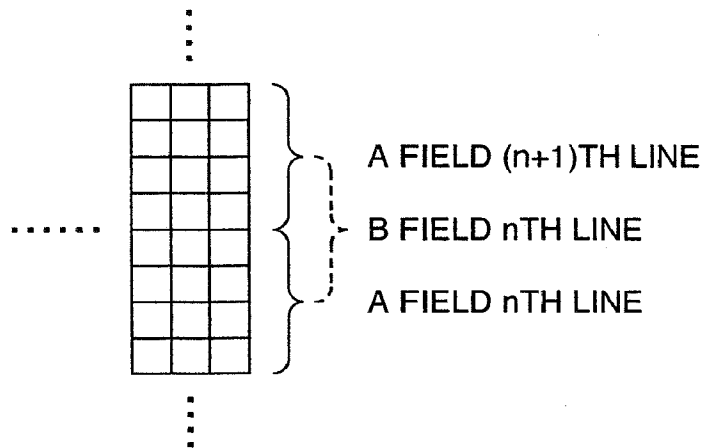


FIG.3

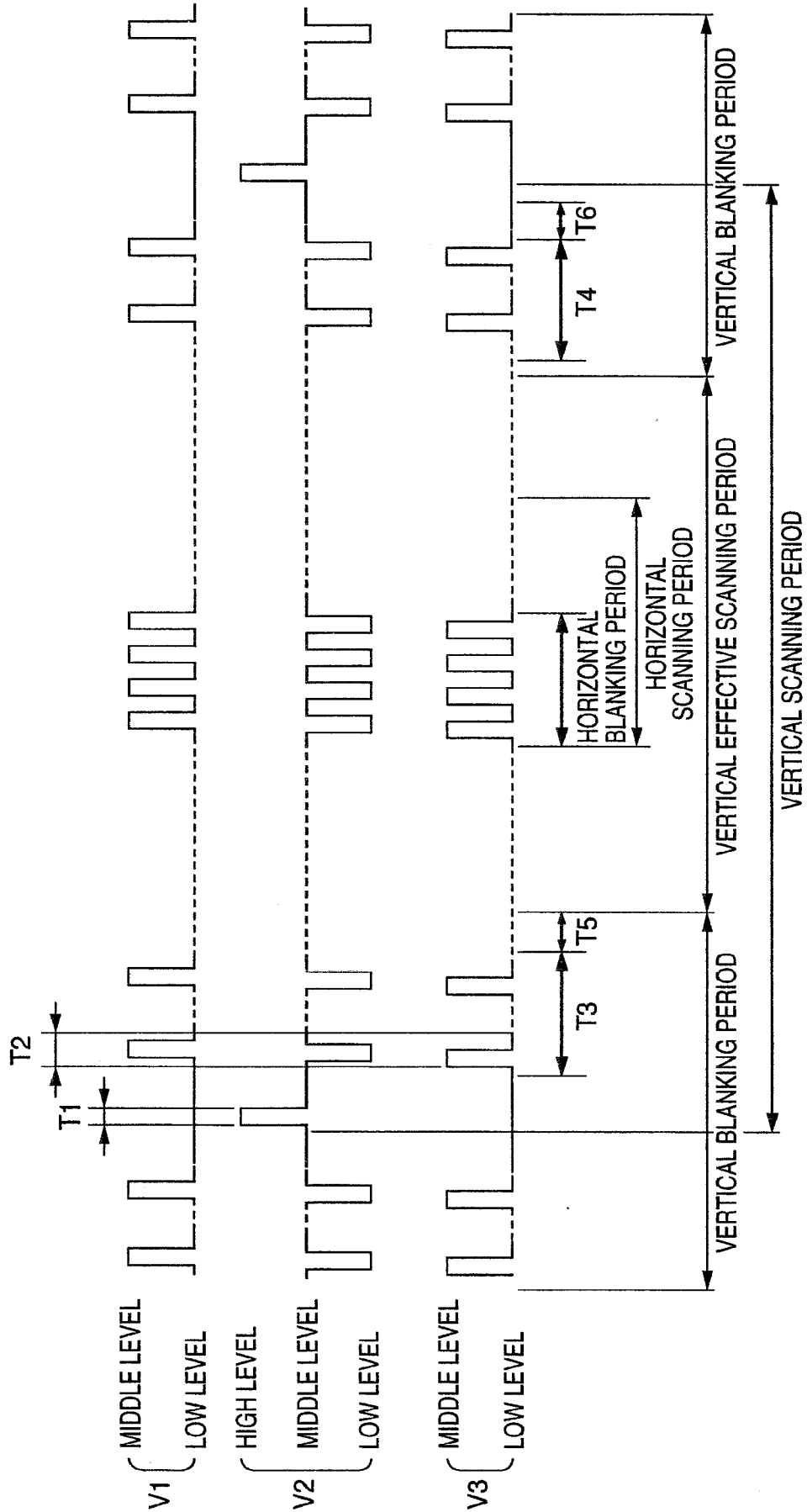


FIG.5

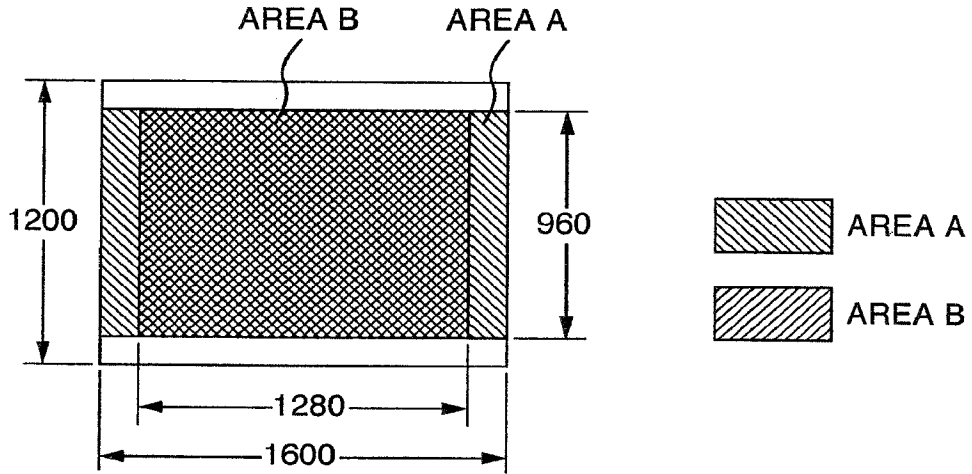


FIG.6

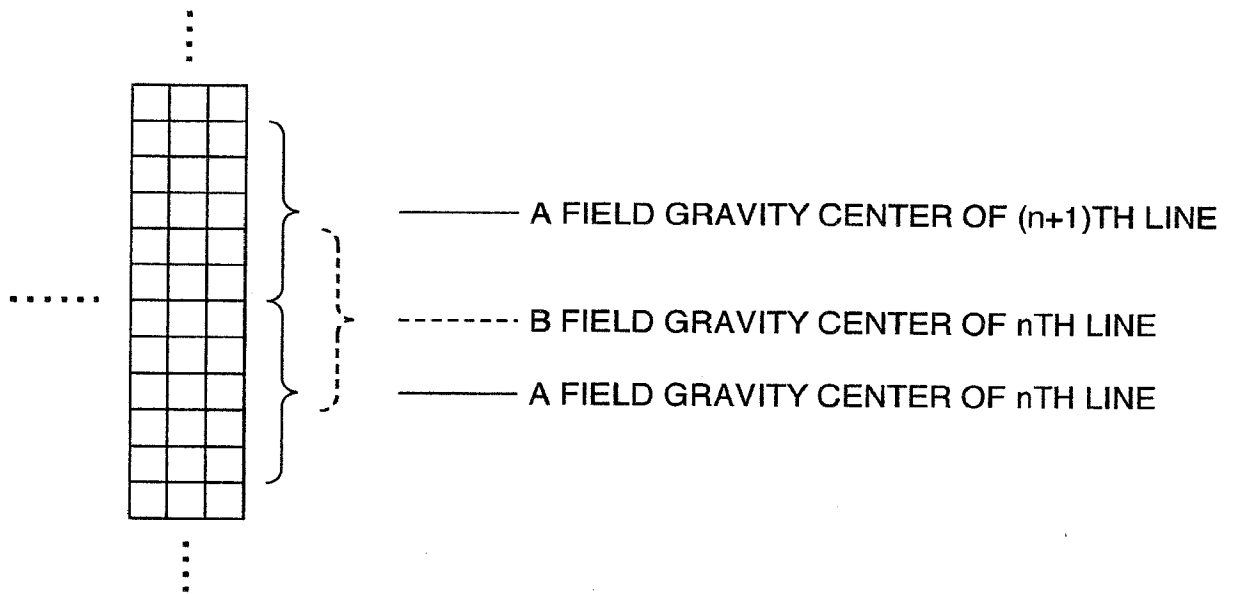


FIG. 7

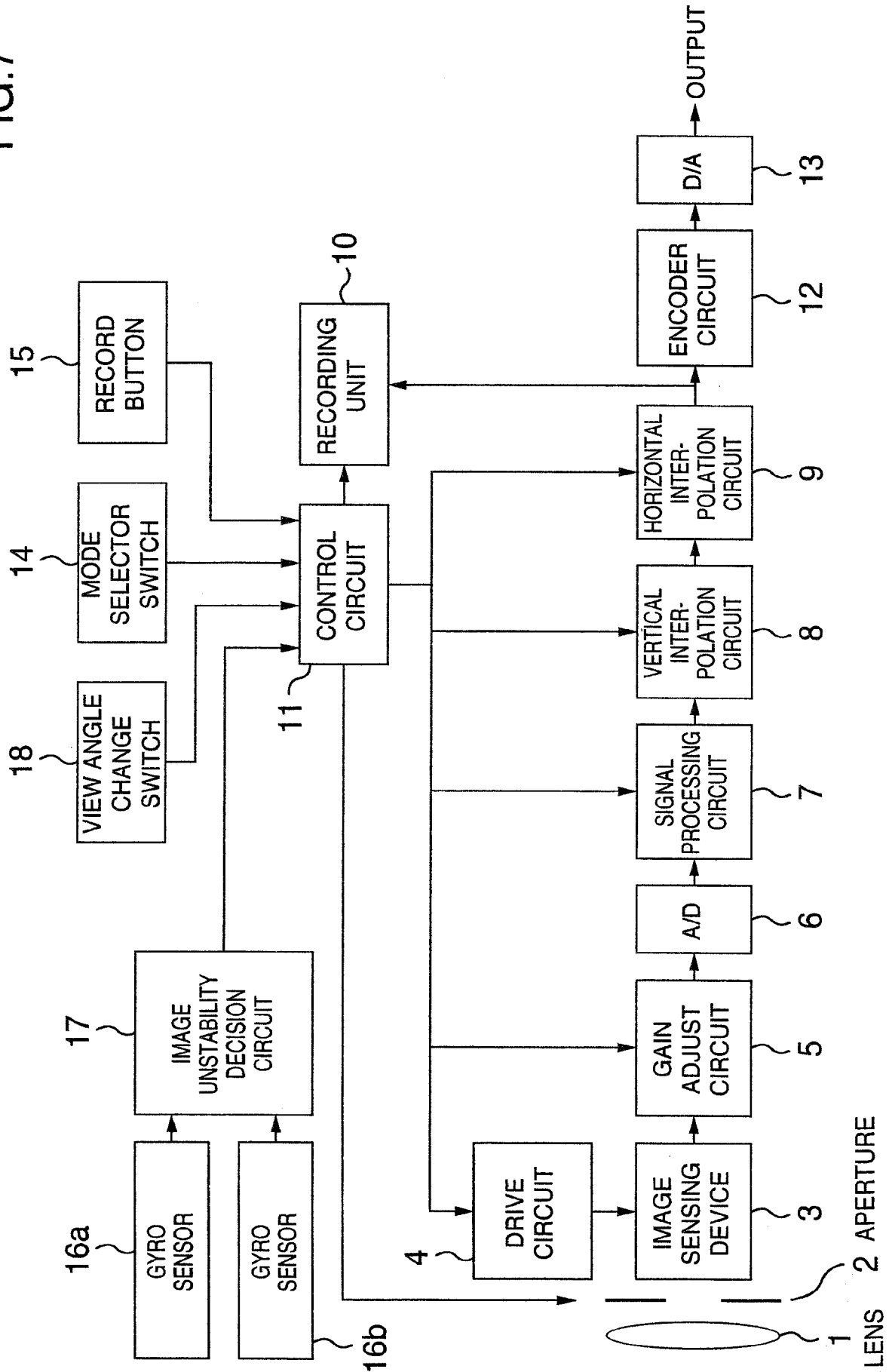


FIG.8

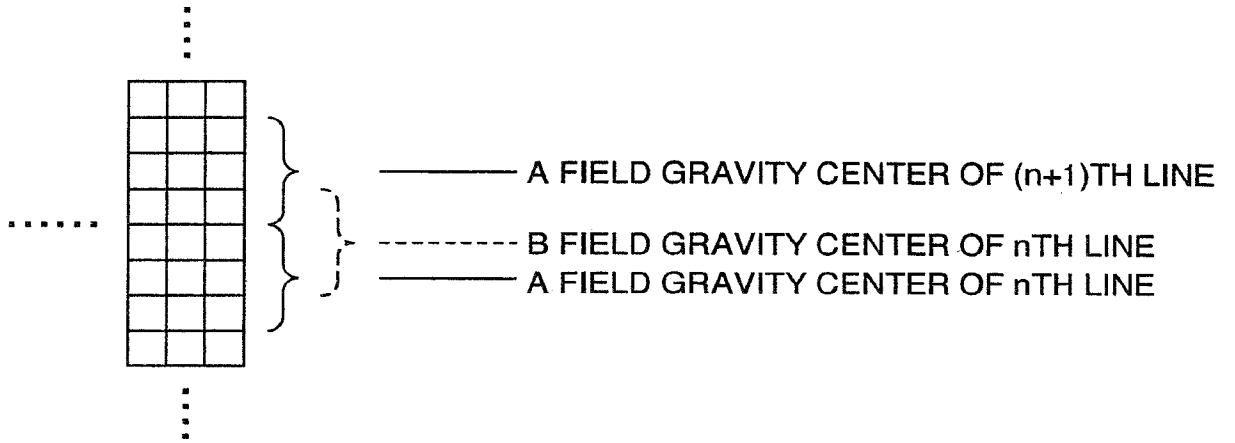


FIG.9

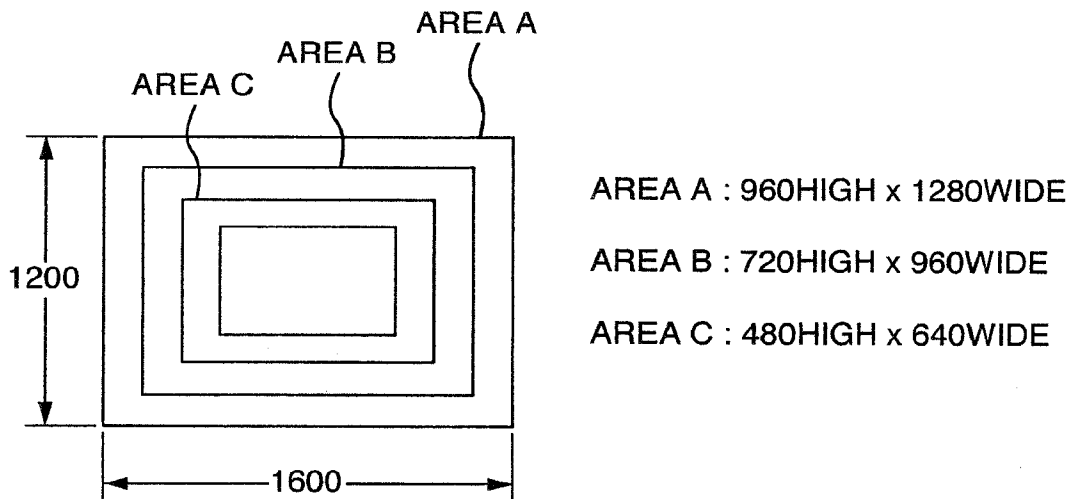


FIG.10

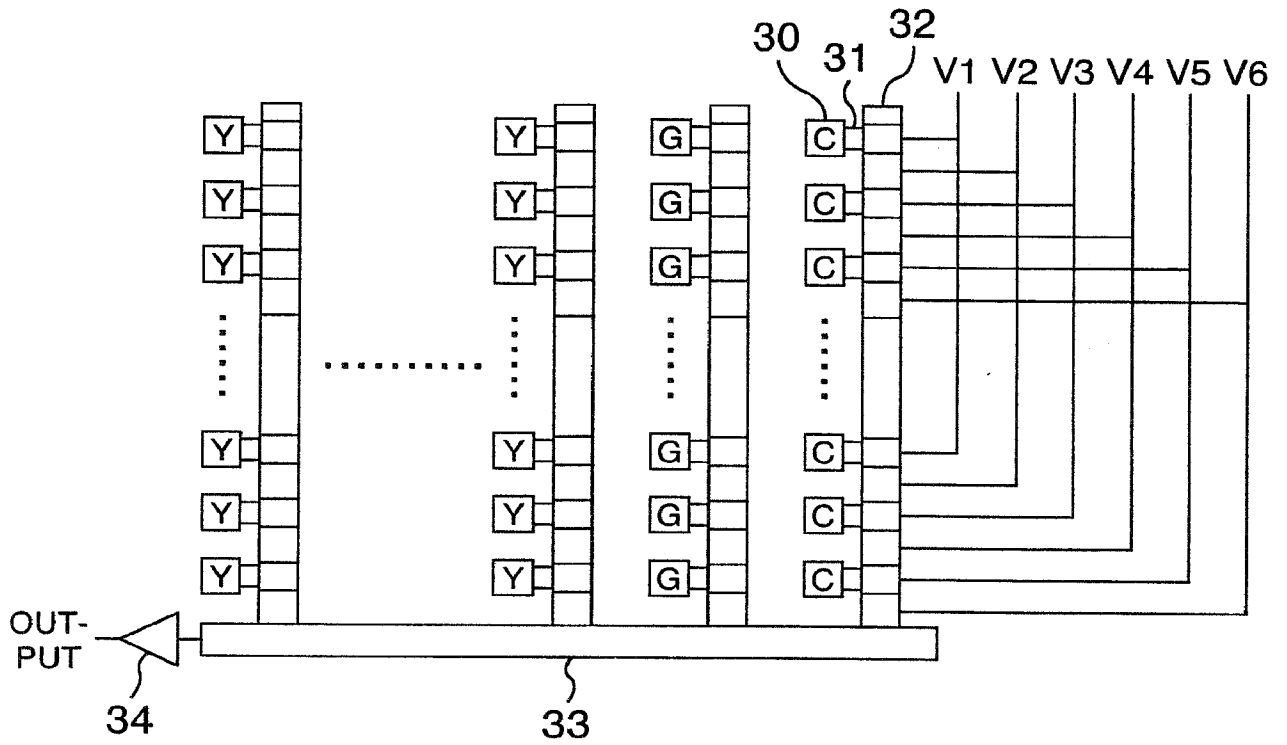


FIG.12

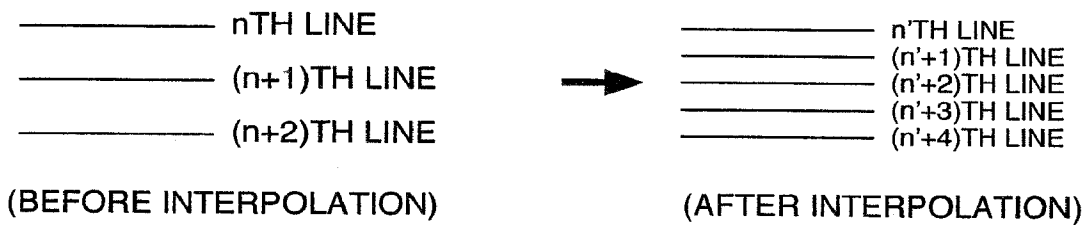


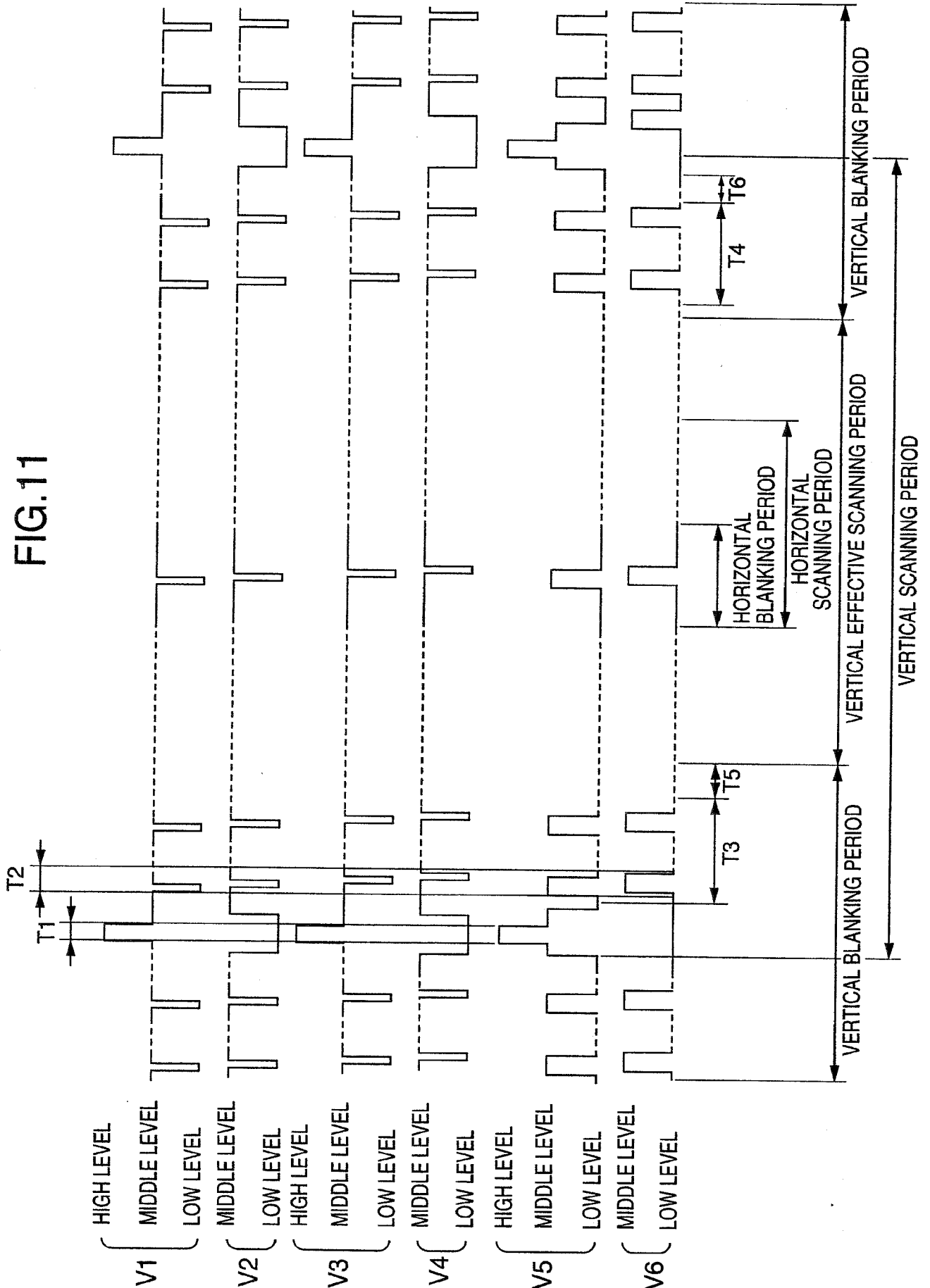
FIG.13A

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



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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

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発明者の正式氏名:
LEGAL NAME OF INVENTOR: Takahiro NAKANO

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日付(任意):
Date (Optional): Dec. 17, 2012

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発明者の正式氏名:
LEGAL NAME OF INVENTOR: Ryuji NISHIMURA

署名:
Signature: *Ryuji Nishimura* 日付(任意):
Date (Optional): *Dec. 18 / 2012*

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発明者の正式氏名:
LEGAL NAME OF INVENTOR: Toshiro KINUGASA

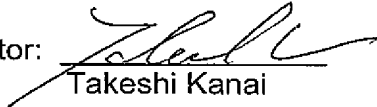
署名:
Signature: Toshiro Kinugasa 日付(任意):
Date (Optional): 12/19/12

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.

CERTIFICATE OF TRANSLATION

I, the below-named translator, of 6-6, Marunouchi 1-chome, Chiyoda-ku, Tokyo, Japan hereby declare that I am conversant with the Japanese and English languages and that to the best of my knowledge and belief the attached Declaration includes a true and accurate translation into English of the Japanese text contained in the Declaration.

Dated July 17, 2014

Signature of Translator: 
Takeshi Kanai

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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	To be assigned
Filing Date	December 21, 2016
First Named Inventor	T. NAKANO
Title	ELECTRIC CAMERA
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-9606-08

SIGNATURE of Applicant or Patent Practitioner

Signature	/JOHN R. MATTINGLY/	Date (Optional)	December 21, 2016
Name	JOHN R. MATTINGLY	Registration Number	30293
Title (if Applicant is a juristic entity)	ATTORNEY		
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 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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出願人による委任状 POWER OF ATTORNEY BY APPLICANT

私はここに、添付の伝送書もしくは下記枠内で特定された出願に対して、現時点より前に与えられたすべての委任状を被棄します。
I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

出願番号 Application Number	出願日 Filing Date

(注記: PTO/AIA/82Aに同じ情報が明記されている場合、上の枠内は空欄でも可)
(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



私は、下記顧客番号に関連する特許弁護士を、当方の弁護士あるいは代理人に指名し、添付の伝送書 (PTO/ATA/82A) 内もしくは上記に記載の特許出願に関連した米国特許商標庁との業務の全てを同弁護士あるいは代理人に委任します。

I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

又は
OR

24956

私は、添付のリスト (PTO/ATA/82C) に記載の特許弁護士を、当方の弁護士あるいは代理人に指名し、添付の伝送書 (PTO/ATA/82A) 内もしくは上記に記載の特許出願に関連した米国特許商標庁との業務の全てを同弁護士あるいは代理人に委任します。(注記: PTO/AIA/82C を記入すること。)



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

添付の伝送書又は上記枠内にて特定された出願に対する郵便物送付先を下記のいずれかに登録または変更してください。

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:



上記顧客番号に付随する住所

The address associated with the above-mentioned Customer Number

又は
OR



顧客番号に付随する住所

The address associated with Customer Number:

又は
OR

事務所または個人名
Firm or Individual Name

住所
Address

市
City

州
State

郵便番号
Zip

国
Country

電話番号
Telephone

メールアドレス
Email

This collection of information is required by 37 CFR 1.131, 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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出願人による委任状
POWER OF ATTORNEY BY APPLICANT


私は出願人であり（出願人が法人の場合、出願人名を下記枠内に記入）：
 I am the Applicant (if the Applicant is a Juristic entity, list the Applicant name in the box):

HITACHI MAXELL, LTD.

- 発明者もしくは共同発明者である（下記役職の明記は不要）
 Inventor or Joint Inventor (title not required below)
- 死亡したもしくは成年被後見人である発明者の法定代理人である（下記役職の明記は不要）
 Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- 被譲渡人もしくは発明者が譲渡する義務を負う人物である
 Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a Juristic entity)
- 上記以外で、十分な独占的所有権を示す人物である（例：37 CFR 1.46(b)(2)に基づき申請が本出願において認められた、又は本書類と共にその申請がなされている場合）（出願人が法人の場合、署名者の役職を明記すること）
 Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

特許出願人の署名
SIGNATURE of Applicant for Patent

下記署名者（役職は下記に記載）は出願人の代理人と認められている（出願人が法人の場合等）
 The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

署名 Signature		署名日（任意） Date (Optional)	27/08/2014
氏名 Name	Yoshihiro SENZAI		
役職 Title	President & Chief Executive Officer, HITACHI MAXELL, LTD.		

注記: 署名 本書類は37 CFR 1.33に基づき署名されなければならない。署名の要件および証明に関しては37 CFR 1.4を参照、出願人が複数いる場合は、複数の書類を使うこと。

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

提出書類 計 _____ 枚。
 Total of _____ forms are submitted.

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:	
Filing Date:	
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-9606-08

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	280	280
UTILITY SEARCH FEE	1111	1	600	600
UTILITY EXAMINATION FEE	1311	1	720	720

Pages:

Claims:

Miscellaneous-Filing:

Petition:

Patent-Appeals-and-Interference:

IPR2020-00597

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1600

Electronic Acknowledgement Receipt

EFS ID:	27860037
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly
Filer Authorized By:	
Attorney Docket Number:	ASA-9606-08
Receipt Date:	21-DEC-2016
Filing Date:	
Time Stamp:	15:13:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1600
RAM confirmation Number	122216INTEFSW15140000
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	9606-08-ads.pdf	1793627	no	9
			afb99bb4bc399e4b8e65bdae5882fc0f1a63404a		
Warnings:					
Information:					
2	Transmittal Letter	9606-08- NoticeRelatedPatentsLitigation. pdf	17315	no	1
			7c44fe9a65207c14c1ab86d63c10f1900483dd46		
Warnings:					
Information:					
3	Transmittal Letter	9606-08-IDS.pdf	16003	no	2
			624e949ed377d4414c6fac211a9936c72f7761f		
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	9606-08-SB08.pdf	613282	no	6
			64fd19b407122f247a5c4bdec5d47bdee01c0957		
Warnings:					
Information:					
5	Preliminary Amendment	9606-08-prelim.pdf	18598	no	3
			3634bb72812f1d80e4ba8bfa96e619b88c127711		
Warnings:					
Information:					
6		9606-08-spec.pdf	2386723	yes	40
			7e55bb95bcb62d26917c8db279a93ca13d6ca766		
Warnings:					
Information:					
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
			IPR2020-00597		

	Specification		1	38
	Claims		39	39
	Abstract		40	40
Warnings:				
Information:				
7	Drawings-only black and white line drawings	9606-08-drawings.pdf	195922 6182feb1f3a8bb9581b75b10e012918c47013fa3	no 8
Warnings:				
Information:				
8	Oath or Declaration filed	9606-08-AIA-declarations.pdf	225995 8967b89f7744acc370f51df6695e92ad2262e0a	no 4
Warnings:				
Information:				
9	Power of Attorney	9606-08-POA.pdf	243513 65d3fb76c49ae79fb9d189ed60fb218f6ee676c	no 4
Warnings:				
Information:				
10	Fee Worksheet (SB06)	fee-info.pdf	34790 f10435df735d309d112fde88db555259dec4d1ec	no 2
Warnings:				
Information:				
Total Files Size (in bytes):			5545768	

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.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ASA-9606-08
		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 <input type="radio"/> Non US Residency Active US Military Service					
City	Tokyo	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				
City	Chiyoda-ku, 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 <input checked="" type="radio"/> Non US Residency Active US Military Service					
City	Tokyo	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				
City	Chiyoda-ku, Tokyo	State/Province			
Postal Code	100-8220	Country ⁱ	JP		
Inventor	3				Remove
Legal Name					

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ASA-9606-08
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Toshiro		KINUGASA	
Residence Information (Select One)				
US Residency		<input checked="" type="radio"/> Non US Residency		Active US Military Service
City	Tokyo	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			
City	Chiyoda-ku, Tokyo	State/Province		
Postal Code	100-8220	Country ⁱ	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	24956		
Email Address	ptomail@mmpiaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	ELECTRIC CAMERA		
Attorney Docket Number	ASA-9606-08	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country ⁱ

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ASA-9606-08
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Publication Information:

<input type="checkbox"/>	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/>	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:

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:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	24956		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim 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. When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending					Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)			
	Continuation of	14661227	2015-03-18			
Prior Application Status	Patented					Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
14661227	Continuation of	14264243	2014-04-29	9100604	2015-08-04	
Prior Application Status	Patented					Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
14264243	Continuation of	13681495	2012-11-20	8736729	2014-05-27	
Prior Application Status	Patented					Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
13681495	Continuation of	12845266	2010-07-28	8339493	2012-12-25	

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ASA-9606-08			
		Application Number				
Title of Invention	ELECTRIC CAMERA					
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.					Add	

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. 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. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
00-006064	JP	2000-01-11	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

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

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ASA-9606-08
		Application Number	
Title of Invention	ELECTRIC CAMERA		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is 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 State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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	ASA-9606-08
	Application Number	
Title of Invention	ELECTRIC CAMERA	

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	<input type="button" value="Remove"/>
<p>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.</p>		
<input type="button" value="Clear"/>		
<input checked="" type="radio"/> 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:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor: <input type="text"/>		
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>		
Organization Name	Hitachi Maxell, Ltd.	
Mailing Address Information For Applicant:		
Address 1	1-88, Ushitora 1-Chome	
Address 2		
City	baraki-shi, Osaka	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. <input type="button" value="Add"/>		

Assignee Information including 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.

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	ASA-9606-08
	Application Number	
Title of Invention	ELECTRIC CAMERA	

Assignee	1
-----------------	---

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here.

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

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

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/John R. Mattingly/		Date (YYYY-MM-DD)	2016-12-21	
First Name	John R.	Last Name	Mattingly	Registration Number	30293

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

Add

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	ASA-9606-08
	Application Number	
Title of Invention	ELECTRIC CAMERA	

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : To be assigned Confirmation No. :
Applicant : Hitachi Maxell, Ltd. TC/GAU :
Filed : December 21, 2016 Examiner :
Title : ELECTRIC CAMERA

Customer No.: 24956

NOTICE OF RELATED PATENTS INVOLVED IN LITIGATION

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

December 21, 2016

Sir:

Applicant notifies the Office that two related patents, U.S. Patent Nos. 8,339,493 and 8,736,729, which matured from applications 12/845,266 and 13/681,495, respectively, and from which the above-identified application claims priority under 35 U.S.C. 120, are involved in the following litigation:

Hitachi Maxell, Ltd. v. ZTE CORP. and ZTE USA INC., Civil Action No. 5:16-cv-179 RWS (E.D. Tex.), filed November 18, 2016.

A Complaint for Patent Infringement was filed on November 18, 2016 and an Answer was filed on December 14, 2016. To date, none of the documents submitted to the Court present material information which should be brought to the attention of the U.S. Patent and Trademark Office in the above identified application.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly, Reg. No. 30,293
(703) 684-1120

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s) : T. NAKANO et al. Confirmation No.: TBD
Serial No. : To be assigned
Filed : December 21, 2016
For : ELECTRIC CAMERA
Group : To be assigned
Examiner : To be assigned
Docket No. : ASA-9606-08
Customer No.: 24956

INFORMATION DISCLOSURE STATEMENT (IDS)
UNDER § 1.97 AND § 1.98

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

December 21, 2016

Sir:

In the matter of the above-identified application, Applicant is submitting herewith a copy, where required, of the documents listed in the attached form PTO/SB/08a. It is requested that the information be considered by the Examiner during prosecution of the application, and that the references be made of record therein.

Applicants note that:

One or more references cited on the attached PTO/SB/08a was cited by or submitted to the U.S. Patent and Trademark Office in parent application No. 14/661,227, filed March 18, 2015, which is relied upon for an earlier filing date under 35 U.S.C. §120. No copies of the references are attached pursuant to 37 CFR §1.98(d).

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417.

If the PTO determines that part(s) of the required content is inadvertently omitted, then it is requested that the Applicant(s) be given additional time and specific identification of such omission(s) to enable full compliance.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2016-12-21
	First Named Inventor	T. NAKANO	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ASA-9606-08

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	6765616	B1	2004-07-20	NAKANO et al.		
	2	7403226	B2	2008-07-22	NAKANO et al.		
	3	6781634	B1	2004-08-24	SHIOZAKI et al.		
	4	5402173		1995-03-28	NOGUCHI et al.		
	5	5438365		1995-08-01	YAMASHITA et al.		
	6	5638132		1997-06-10	HOKARI et al.		
	7	7352391	B1	2008-04-01	HATAKEYAMA		
	8	6661451	B1	2003-12-09	KIJIMA et al.		

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name		
Attorney Docket Number		ASA-9606-08

9	7154539	B1	2006-12-26	NISHIMURA et al.
10	5828406		1998-10-27	PARULSKI et al.
11	4054915		1977-10-18	SUGIHARA
12	5170249		1992-12-08	OHTSUBO et al.
13	5187569		1993-02-16	TANI
14	6195125	B1	2001-02-27	UDAGAWA et al.
15	6906746	B2	2005-06-14	HIJISHIRI et al.
16	6519000	B1	2003-02-11	UDAGAWA
17	5847758		1998-12-08	WIZUKA
18	6970191	B1	2005-11-29	SASE et al.
19	6734424		1998-03-31	SASAKI

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name		
Attorney Docket Number	ASA-9606-08	

20	6798448	B1	2004-09-28	MOTONO et al.
21	5287192		1994-02-15	IZUKA
22	8059177	B2	2011-11-15	NAKANO et al.
23	9100604	B2	2015-08-04	NAKANO; Takahiro
24	5986698	A	1999-11-16	NOBUOKA; Kousuke

If you wish to add additional U.S. Patent citation information please click the Add button.

Add

U.S.PATENT APPLICATION PUBLICATIONS

Remove

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button.

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FOREIGN PATENT DOCUMENTS

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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	9-270959	JP		1997-10-14	SONY CORP.		

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name		
Attorney Docket Number		ASA-9606-08

2	11-187306	JP		1999-07-09	SHARP CORP.
3	04-323973	JP		1992-11-13	HITACHI, LTD.
4	11-004456	JP		1999-01-06	FUJI PHOTO FILM CO., LTD.
5	11-355665	JP		1999-12-24	FUJI PHOTO FILM CO., LTD.

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name		
Attorney Docket Number	ASA-9606-08	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2016-12-21
Name/Print	John R. Mattingly	Registration Number	30293

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 1 hour 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.**

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.



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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

Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 15/386,656, 12/21/2016, 2673, 1600, ASA-9606-08, 1, 1

CONFIRMATION NO. 3687

FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314



Date Mailed: 01/05/2017

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 Maxell, Ltd., Osaka, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 14/661,227 03/18/2015 PAT 9544517
which is a CON of 14/264,243 04/29/2014 PAT 9100604
which is a CON of 13/681,495 11/20/2012 PAT 8736729
which 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

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If Required, Foreign Filing License Granted: 01/03/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/386,656**

Projected Publication Date: 04/13/2017

Non-Publication Request: No

Early Publication Request: No
Title

ELECTRIC CAMERA

Preliminary Class

358

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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.

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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

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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/386,656 12/21/2016 Takahiro NAKANO ASA-9606-08 3687

24956 7590 02/08/2017
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT PAPER NUMBER

2663

NOTIFICATION DATE DELIVERY MODE

02/08/2017

ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmlplaw.com

DETAILED ACTION

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

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d). The certified copy has been filed in parent Application No. 14/661,227, filed on 03/18/2015.

It should be noted that the certified copy, which has been filed in parent Application No. 14/661227, is foreign application number **JP 2000-006064**, filed on 01/11/2000; however, the Application Data Sheet indicates in Foreign Priority Information the foreign application number **JP 00-006064**, filed on 01/11/2000; therefore, the correction of Foreign Priority Information in Application Data Sheet is required.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 12/21/2016 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

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

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

Appropriate correction is required.

Claim Interpretation - 35 USC § 112

5. The following is a quotation of 35 U.S.C. 112(f):

(f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

6. Use of the word “means” (or “step for”) in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is invoked is rebutted when the function is recited with sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word “means” (or “step for”) in a claim creates a rebuttable presumption that the claim element is not to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112,

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sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

Claim elements in this application that use the word “means” (or “step for”) are presumed to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action. Similarly, claim elements that do not use the word “means” (or “step for”) are presumed not to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action.

7. Claim limitation “signal processing unit” as recited in claim 1 has been interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because it uses a generic placeholder “unit” coupled with functional language “to generate image signals” without reciting sufficient structure to achieve the function. Furthermore, the generic placeholder is not preceded by a structural modifier. Note that “signal processing” is not a structural modifier.

Since the claim limitation invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, claim 1 has been interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph limitation:

“signal processing circuit 7” disclosed in Figures 1, 7, Specification, pages 9, 27 for claim limitation “signal processing circuit unit.”

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If applicant wishes to provide further explanation or dispute the examiner's interpretation of the corresponding structure, applicant must identify the corresponding structure with reference to the specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does not intend to have the claim limitation(s) treated under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may amend the claim(s) so that it/they will clearly not invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, or present a sufficient showing that the claim recites/recite sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

For more information, see MPEP § 2173 *et seq.* and *Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

Double Patenting

8. 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 improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue 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 reference application or patent either is shown to be commonly owned with

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this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(1)(1) - 706.02(1)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/forms/. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to <http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp>.

9. Claim 1 is rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 13 of U.S. Patent No. 6,765,616. Although the claims at issue 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 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 patentably distinct from the earlier patent claim and as such is unpatentable for obvious-type double patenting.

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10. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,403,226. 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 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 patently distinct from the earlier patent claim and as such is unpatentable for obvious-type double patenting.

11. 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 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 patently distinct from the earlier patent claim and as such is unpatentable for obvious-type double patenting.

12. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 9,100,604. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

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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 patently distinct from the earlier patent claim and as such is unpatentable for obvious-type double patenting.

13. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4 of U.S. Patent No. 9,544,517. 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 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 patently distinct from the earlier patent claim and as such is unpatentable for obvious-type double patenting.

Claim 1 of the instant application is anticipated by patent claim 4 in that claim 4 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.

Claim Rejections - 35 USC § 102

14. 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:

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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.

15. 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 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 (image processing portion 26, figure 1, column 2, lines 62-67) to generate image signals by using the output signals of the image sensing device.

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Conclusion

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

Alston (US 4,541,010) discloses electronic imaging camera.

Nobuoka (US 5,986,698) discloses image sensing apparatus with a moving image mode and a still image mode.

Nishimura et al. (US 7,154,539) discloses image pickup device for still and motion images.

Silver (US 4,691,253) discloses electronic imaging camera for recording either moving or still images.

17. 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.

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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
02/01/17

/TWYLER HASKINS/
Supervisory Patent Examiner, Art Unit 2663

Notice of References Cited	Application/Control No. 15/386,656	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	CPC Classification	US Classification
*	A	US-5,986,698 A	11-1999	Nobuoka; Kousuke	H04N5/23248	348/208.3
*	B	US-7,154,539 B1	12-2006	Nishimura; Ryuji	H04N5/232	348/220.1
*	C	US-4,691,253 A	09-1987	Silver; Bruce R.	H04N1/0044	358/906
*	D	US-4,541,010 A	09-1985	Alston; Lawrence E.	H04N1/0044	348/283
*	E	US-9,544,517 B2	01-2017	Nakano; Takahiro	H04N5/23248	1/1
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
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FOREIGN PATENT DOCUMENTS

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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	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.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	2	14/661227	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 14:44
S2	268	((("NAKANO") near3 ("Takahiro")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 14:55
S3	39	((("NISHIMURA") near3 ("Ryuji")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 15:03
S4	41	((("KINUGASA") near3 ("Toshiro")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 15:07
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S7	114	S5 and S6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 15:21
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S9	1	("6075565").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 15:25
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S12	485	S5 and S11	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 15:32
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S14	10	("20030122941" "5170249" "5343243" "5502483" "5668597" "5734427" "5786852" "5986698" "6148031" "6614477").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 15:38
S15	4	("4714963" "5051832" "5734933" "5809353").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 15:40
S16	9	("4541010" "4691253" "4714963" "4876590" "4928137" "5418565" "5440343" "5444483" "5943335").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 15:42
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S22	514	S21 and (S6 or S11)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 15:54
S23	98	S22 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 15:54
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S26	581	H04N5/23274.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 16:24
S27	142	S26 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 16:24
S28	9	("4638362" "4689686" "4858020" "4942473" "4963981" "5019912" "5144445" "5196939" "5402169").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 16:26
S29	42	S26 and (S5 or S21)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 16:33
S30	10	("20020171759" "20040105029" "20040212732" "20050001929" "20050094030" "20050180654" "20050264692" "5832101" "6493008" "6931062").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 16:36
S31	4	("5420631" "5894325" "6091449" "6215113").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/01 16:37
S32	16	S26 and S17	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 16:38
S33	17	(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 or CMOS) same (quotient or ratio) same (display\$3 or monitor or screen) same television	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 16:40
S34	16633	(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 or CMOS) same ratio	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 16:42
S35	513	S34 and (S6 or S11 or S26)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/01 16:43
S36	97	S35 and (@ad<="20000111" or	US-PGPUB;	OR	ON	2017/02/01

IPR2020-00597

Apple EX1024 Page 104


@rlad<="20000111")	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	16:43
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EAST Search History (Interference)

< This search history is empty >

2/ 1/ 2017 8:34:18 PM

C:\ Users\ Inguyen2\ Documents\ EAST\ Workspaces\ 15386656.wsp

Index of Claims 	Application/Control No. 15386656	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	02/01/2017							
	1	✓							

Doc code: IDS
 Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
 Approved for use through 07/31/2012. 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2016-12-21
	First Named Inventor	T. NAKANO	
	Art Unit		
	Examiner Name	NGUYEN, L.	
	Attorney Docket Number	ASA-9606-08	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	6765616	B1	2004-07-20	NAKANO et al.	
	2	7403226	B2	2008-07-22	NAKANO et al.	
	3	6781634	B1	2004-08-24	SHIOZAKI et al.	
	4	5402173		1995-03-28	NOGUCHI et al.	
	5	5438365		1995-08-01	YAMASHITA et al.	
	6	5638132		1997-06-10	HOKARI et al.	
	7	7352391	B1	2008-04-01	HATAKEYAMA	
	8	6661451	B1	2003-12-09	KIJIMA et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name	NGUYEN, L.	
Attorney Docket Number	ASA-9606-08	

9	7154539	B1	2006-12-26	NISHIMURA et al.
10	5828406		1998-10-27	PARULSKI et al.
11	4054915		1977-10-18	SUGIHARA
12	5170249		1992-12-08	OHTSUBO et al.
13	5187569		1993-02-16	TANI
14	6195125	B1	2001-02-27	UDAGAWA et al.
15	6906746	B2	2005-06-14	HIJISHIRI et al.
16	6519000	B1	2003-02-11	UDAGAWA
17	5847758		1998-12-08	WIZUKA
18	6970191	B1	2005-11-29	SASE et al.
19	6734424		1998-03-31	SASAKI

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name	NGUYEN, L.	
Attorney Docket Number	ASA-9606-08	

20	6798448	B1	2004-09-28	MOTONO et al.
21	5287192		1994-02-15	IZUKA
22	8059177	B2	2011-11-15	NAKANO et al.
23	9100604	B2	2015-08-04	NAKANO; Takahiro
24	5986698	A	1999-11-16	NOBUOKA; Kousuke

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	9-270959	JP		1997-10-14	SONY CORP.		

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name	NGUYEN, L	
Attorney Docket Number	ASA-9606-08	

2	11-187306	JP	1999-07-09	SHARP CORP.
3	04-323973	JP	1992-11-13	HITACHI, LTD.
4	11-004456	JP	1999-01-06	FUJI PHOTO FILM CO., LTD.
5	11-355665	JP	1999-12-24	FUJI PHOTO FILM CO., LTD.

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/LUONG T NGUYEN/	Date Considered	02/01/2017
--------------------	------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name		
Attorney Docket Number		ASA-9606-08

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2016-12-21
Name/Print	John R. Mattingly	Registration Number	30293


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 1 hour 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.**

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.

Search Notes 	Application/Control No. 15386656	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

CPC- SEARCHED		
Symbol	Date	Examiner
H04N5/372; H04N5/23248; H04N5/3741; H04N5/23258; H04N9/045; H04N5/3454; H04N5/23274	2/1/2017	LTN

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	2/1/2017	LTN
Inventorship search	2/1/2017	LTN

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

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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

BIB DATA SHEET

CONFIRMATION NO. 3687

SERIAL NUMBER 15/386,656	FILING or 371(c) DATE 12/21/2016 RULE	CLASS 348	GROUP ART UNIT 2663	ATTORNEY DOCKET NO. ASA-9606-08		
APPLICANTS Hitachi Maxell, Ltd., Osaka, JAPAN; INVENTORS Takahiro NAKANO, Tokyo, JAPAN; Ryuji NISHIMURA, Tokyo, JAPAN; Toshiro KINUGASA, Tokyo, JAPAN; ** CONTINUING DATA ***** This application is a CON of 14/661,227 03/18/2015 PAT 9544517 which is a CON of 14/264,243 04/29/2014 PAT 9100604 which is a CON of 13/681,495 11/20/2012 PAT 8736729 which 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 ***** JAPAN 00-006064 01/11/2000 2000-006064 01/11/2000 ** IF REQUIRED, FOREIGN FILING I						
Foreign Priority claimed <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 35 USC 119(a-d) conditions met <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Verified and /LUONG TRUNG NGUYEN/ Acknowledged Examiner's Signature		<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY JAPAN	SHEETS DRAWINGS 8	TOTAL CLAIMS 1	INDEPENDENT CLAIMS 1
ADDRESS MATTINGLY & MALUR, PC 1800 DIAGONAL ROAD SUITE 210 ALEXANDRIA, VA 22314 UNITED STATES						
TITLE ELECTRIC CAMERA						
FILING FEE RECEIVED 1600	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit			

CORRECTED ADS FORM

Application Number	15386656
Title of Invention	ELECTRIC CAMERA

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number		
Name		

Residence Information

Residency		
City		
State		
Country of Residence		

Mailing Address of Inventor

Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Application Information

	Data of Record	Updated Data
Title of Invention	ELECTRIC CAMERA	
Attorney Docket Number	ASA-9606-08	
Entity Type	Regular Undiscounted	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(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(a).

	Data of Record	Updated Data
Prior Application Status		
Application Number		
Continuity Type		
Prior Application Number		
Filing Date (YYYY-MM-DD)		
Patent Number		
Issue Date (YYYY-MM-DD)		

Foreign Priority Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to claim priority to a foreign application. 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. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

	Data of Record	Updated Data
Application Number	00-006064	<u>2000-006064</u>
Country	JP	
Filing Date	2000-01-11	
Access Code		

Applicant Information****If no data is shown, no data has been corrected****

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.

	Data of Record	Updated Data
Applicant Type		
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		
Applicant is an Organization		
Name		
Organization Name		
Address 1		
Address 2		

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

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****

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

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		
Organization Name		

Mailing Address

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

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/John R. Mattingly/	Registration Number	30293
First Name	John	Last Name	Mattingly

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 15/386,656 Confirmation No. : 3687
Applicant(s) : Hitachi Maxell, Ltd. TC/GAU : 2663
Filed : December 21, 2016 Examiner : NGUYEN, L. T.

Title : ELECTRIC CAMERA

Customer No.: 24956

**REQUEST TO CHANGE CLAIM FOR PRIORITY BY CORRECTING FOREIGN
PRIORITY APPLICATION NUMBER AND
REQUEST FOR CORRECTED OFFICIAL FILING RECEIPT**

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

February 9, 2017

Sir:

Applicant submits the following request to change the claim for Foreign Priority by correcting the Foreign Priority Application Number.

Applicants submit herewith a corrected Application Data Sheet correcting the Foreign Priority Information section. The Application Number should read "2000-006064". It is also respectfully requested that a Corrected Official Filing Receipt be issued in connection with this filing.

Applicant hereby requests a Corrected Official Filing Receipt. The Foreign Applications section currently reads "JAPAN 00-006064 01/11/2000" and should read "JAPAN 2000-006064 01/11/2000". A copy of the Official Filing Receipt with the changes indicated thereon is attached hereto.

Atty Docket No.: ASA-9606-08

The Commissioner is hereby authorized to charge any fee or additional fee that may be required and credit any excess to Deposit Account No. 50-1417.

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly, Reg. No. 30,293
(703) 684-1120



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
www.uspto.gov

Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 15/386,656, 12/21/2016, 2673, 1600, ASA-9606-08, 1, 1

CONFIRMATION NO. 3687

FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314



Date Mailed: 01/05/2017

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 Maxell, Ltd., Osaka, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 14/661,227 03/18/2015 PAT 9544517
which is a CON of 14/264,243 04/29/2014 PAT 9100604
which is a CON of 13/681,495 11/20/2012 PAT 8736729
which 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-
JAPAN 2000-006064 01/11/2000

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Electronic Acknowledgement Receipt

EFS ID:	28301260
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Scotti
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	09-FEB-2017
Filing Date:	21-DEC-2016
Time Stamp:	14:59:55
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 to update/ correct info	CorrectedADS.pdf	63760 <small>05bF9126b3966b06945246a1bcb81ac5217 7b2b0</small>	no	5

Warnings:

IPR2020-00597

Information:					
2	Transmittal Letter	9606-08-ReqChgPriority.pdf	15198 3ae2f6ac0a99081016d2fad4b8274cf9f27c0bc	no	2
Warnings:					
Information:					
3	Request for Corrected Filing Receipt	9606-08-MarkedUpOFR.pdf	960226 4460d76b23c7c32281b02604d0cf12a443bde637	no	1
Warnings:					
Information:					
Total Files Size (in bytes):				1039184	
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CONFIRMATION NO. 3687
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24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314



Date Mailed: 02/14/2017

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

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Domestic Priority data as claimed by applicant

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which is a CON of 14/264,243 04/29/2014 PAT 9100604
which is a CON of 13/681,495 11/20/2012 PAT 8736729
which 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 2000-006064 01/11/2000

Permission to Access Application via Priority Document Exchange: Yes

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/386,656**

Projected Publication Date: 04/13/2017

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: No

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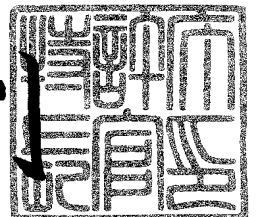
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出 願 人
Applicant(s): 株式会社日立製作所

2017年 2月15日

特許庁長官
Commissioner,
Japan Patent Office

小宮義則



【提出物件の目録】

【物件名】 明細書 1

【物件名】 図面 1

【物件名】 要約書 1

【プルーフの要否】 要

【書類名】 明細書

【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たり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、VTR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】

CCD (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が存在している。

【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、NTSC、PAL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、NTSC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、これを實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實現している。

【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→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→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（Ye）、緑（G）、シアン（Cy）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つ

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 3 3 は、垂直転送部 3 2 から転送された電荷を水平方向に転送し、出力アンプ 3 4 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 1 4 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 1 2 0 0 であるため、NTSC 方式の場合のフィールド有効走査線数を 2 4 0 ラインとすると、垂直方向に 5 (= 1 2 0 0 画素 / 2 4 0 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 1 2 0 0 画素の内、9 6 0 (= 2 4 0 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 2 4 0 (= 1 2 0 0 (全画素) - 9 6 0 (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、V 1, V 2, V 3 は前記垂直転送部 3 2 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 T 1 において駆動パルス V 2 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 V 2 ゲート下に転送される。次に T 2 で示す期間における動作、すなわち V 2 パルスがミドルレベルの期間に V 3 パルスをローレベルからミドルレベルに変化させ、次に V 3 パルスがミドルレベルの期間に V 2 パルスをミドルレベルからローレベルに変化させた後、V 1 パルスをローレベルからミドルレベルに変化させ、次に V 1 パルスがミドルレベルの期間に V 3 パルスをミドルレベルからローレベルに変化させた後、V 2 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 V 1 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。

【0020】

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240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240行分の信号電荷を垂直帰線期間中に水平転送部33に転送する。例えば期間T 3 で120回、期間T 4 で120回の一連の転送を行うと、受光面上の上下それぞれ120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33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。

【0021】

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33に転送され水平転送部33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33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122行、期間T 4 の転送行数を118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有る。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MP E G (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系で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面素領域の内、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 × 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 × 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 1 1 に示したパルスタイミング図の T 2 期間において、V 1 パルスのみをハイレベルとし V 1 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 V 3 パルスをハイレベルとして V 3 ゲートに隣接した画素の信号電荷を読み出し、最後に V 5 パルスをハイレベルとして V 5 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 1 0 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。

【 0 0 6 8 】

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。

【 0 0 6 9 】

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。

【 0 0 7 0 】

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 1 3 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カラインの信号から R, G, B の各原色信号を生成できる。図 1 3 (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) フィルター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。

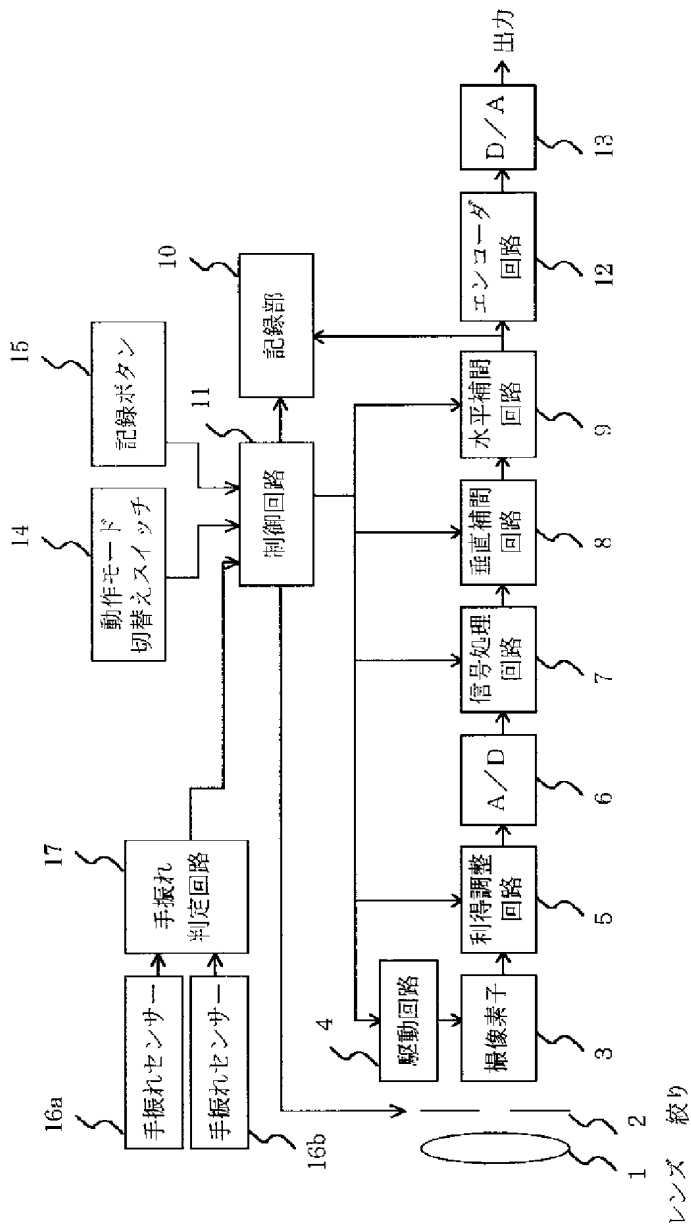
【符号の説明】

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

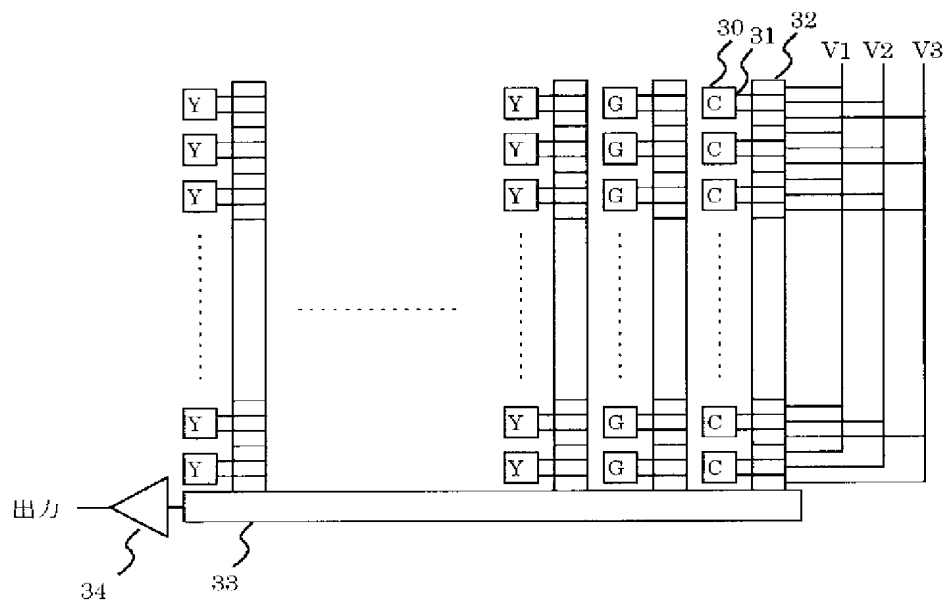
【図 1】

【図 1】



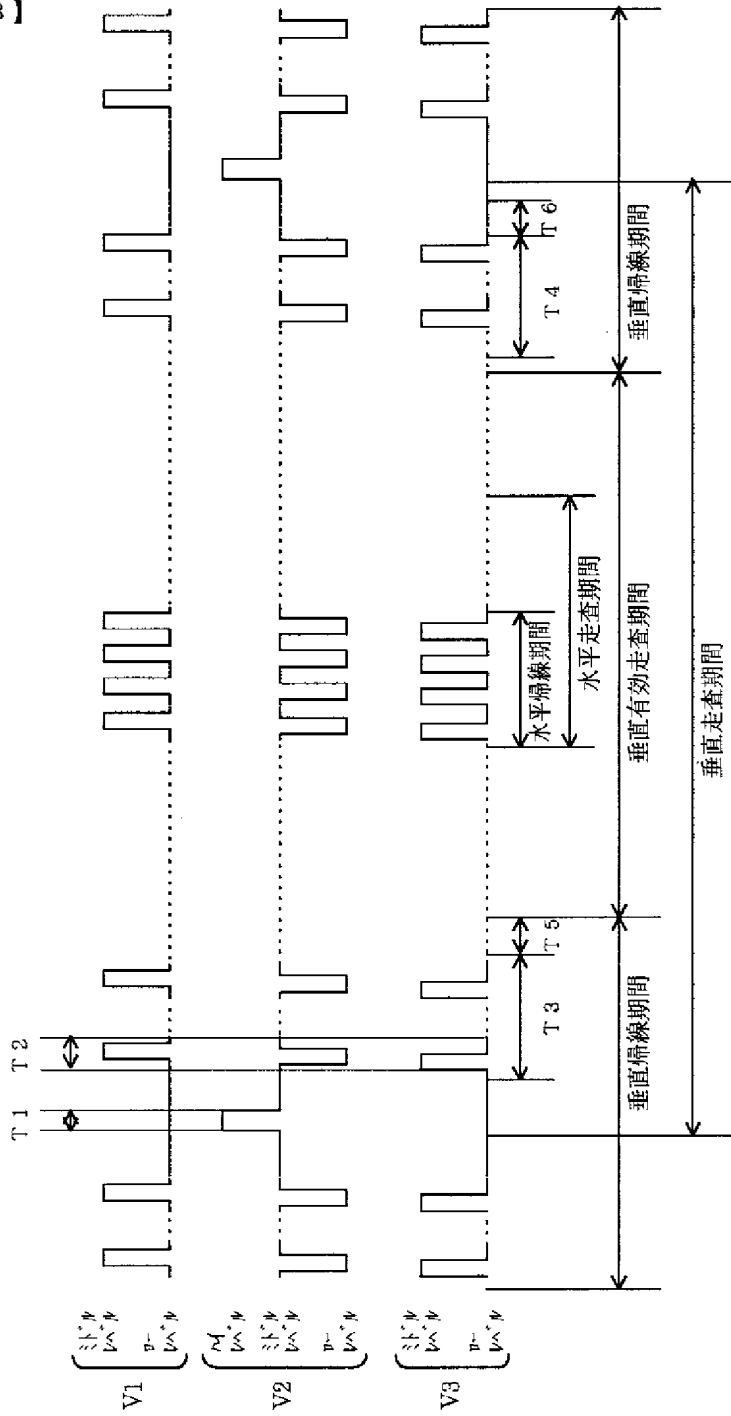
【図 2】

【図 2】



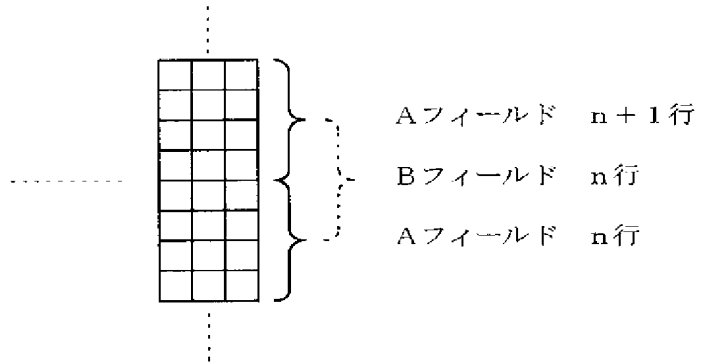
【圖 3】

【圖 3】



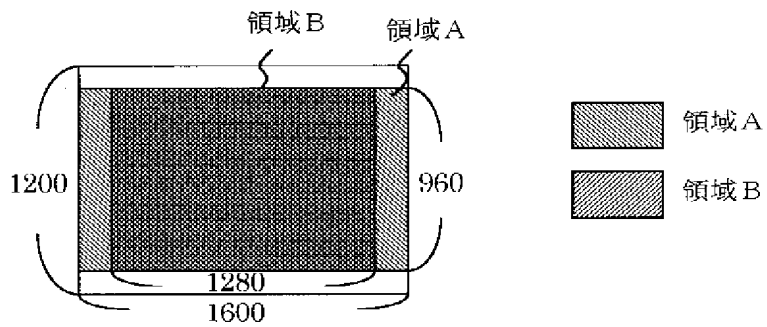
【図4】

【図4】



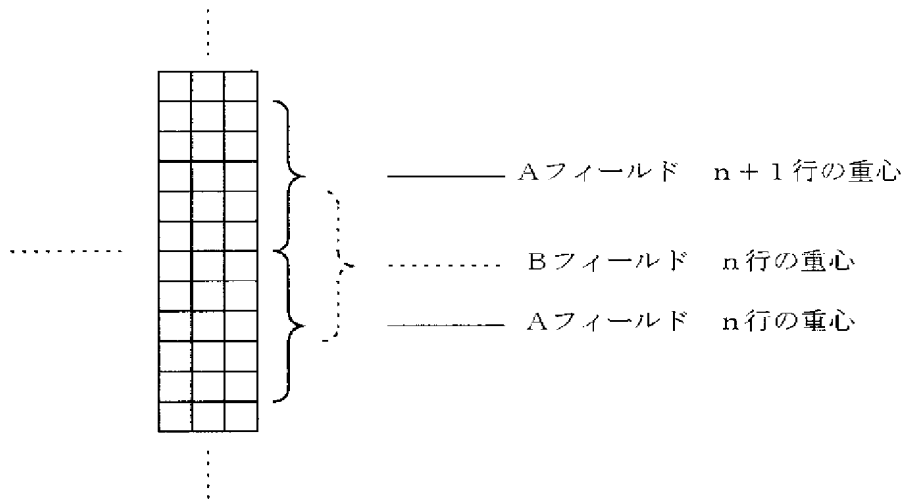
【図5】

【図5】



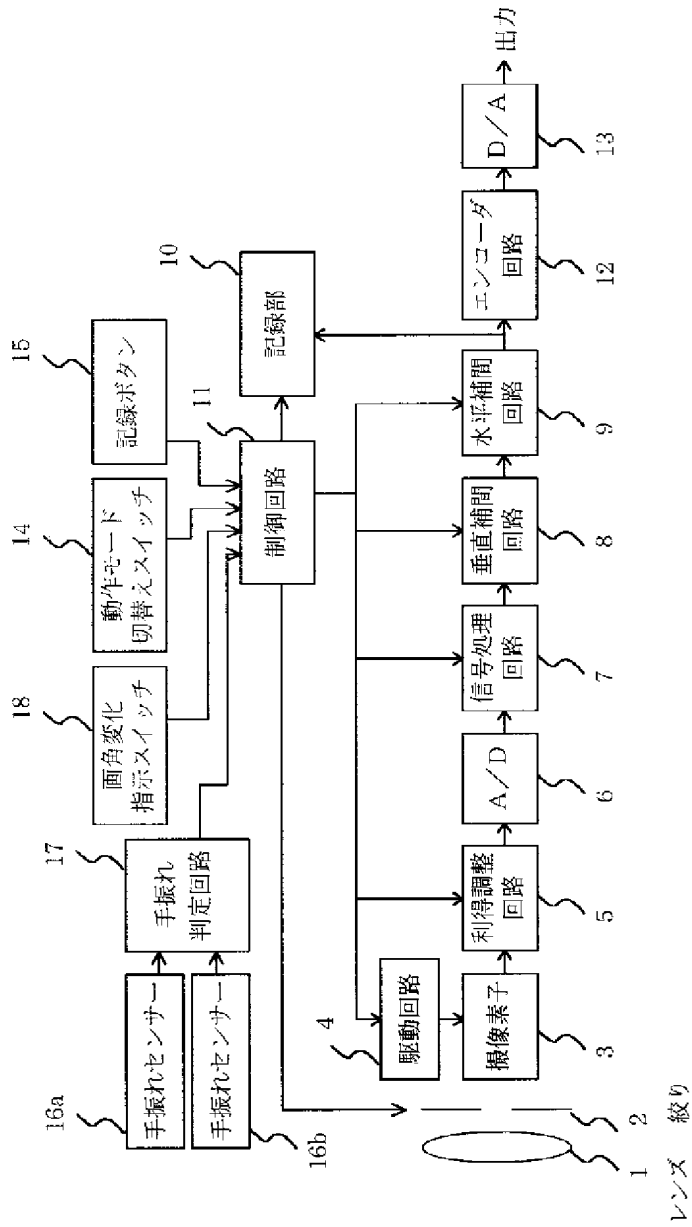
【図 6】

【図 6】



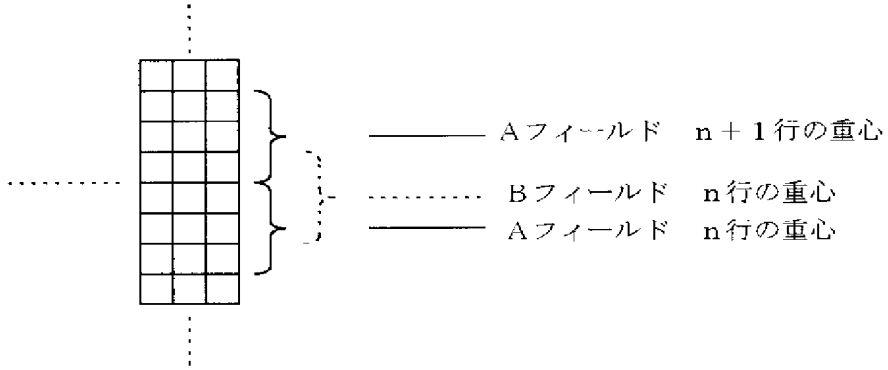
【図 7】

【図 7】



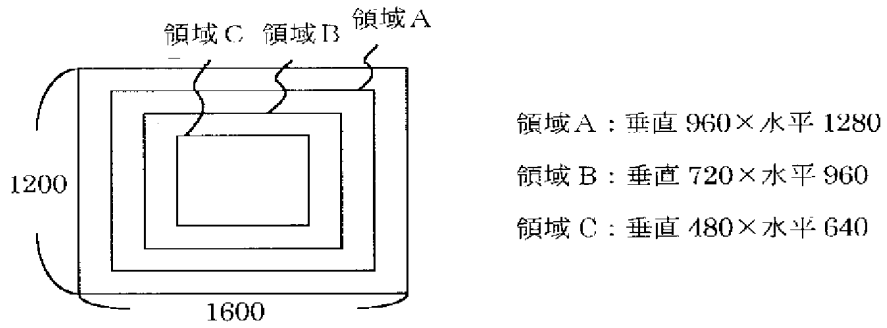
【図 8】

【図 8】



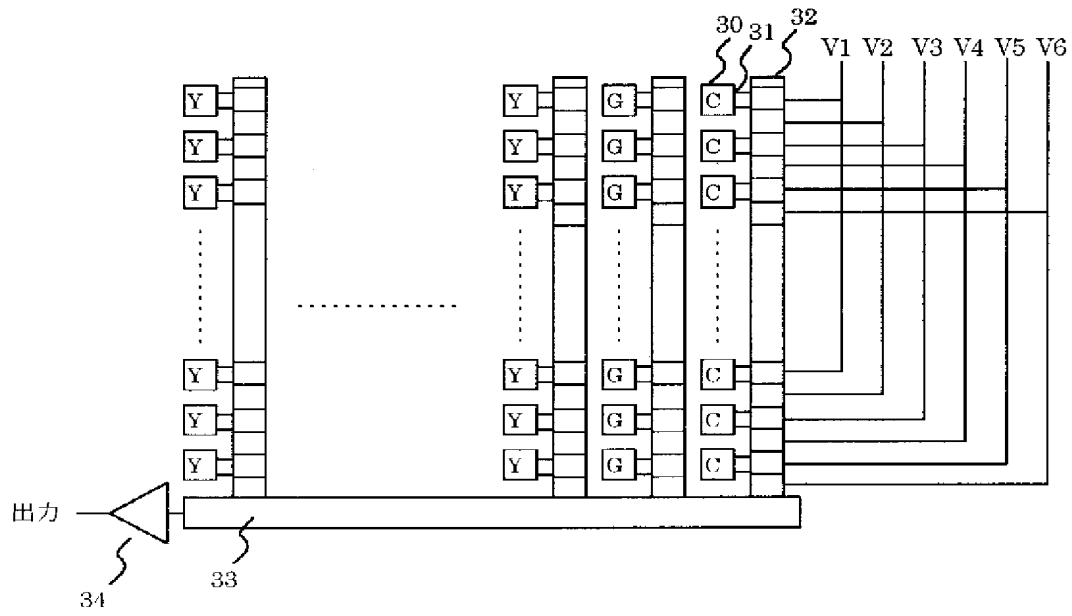
【図 9】

【図 9】



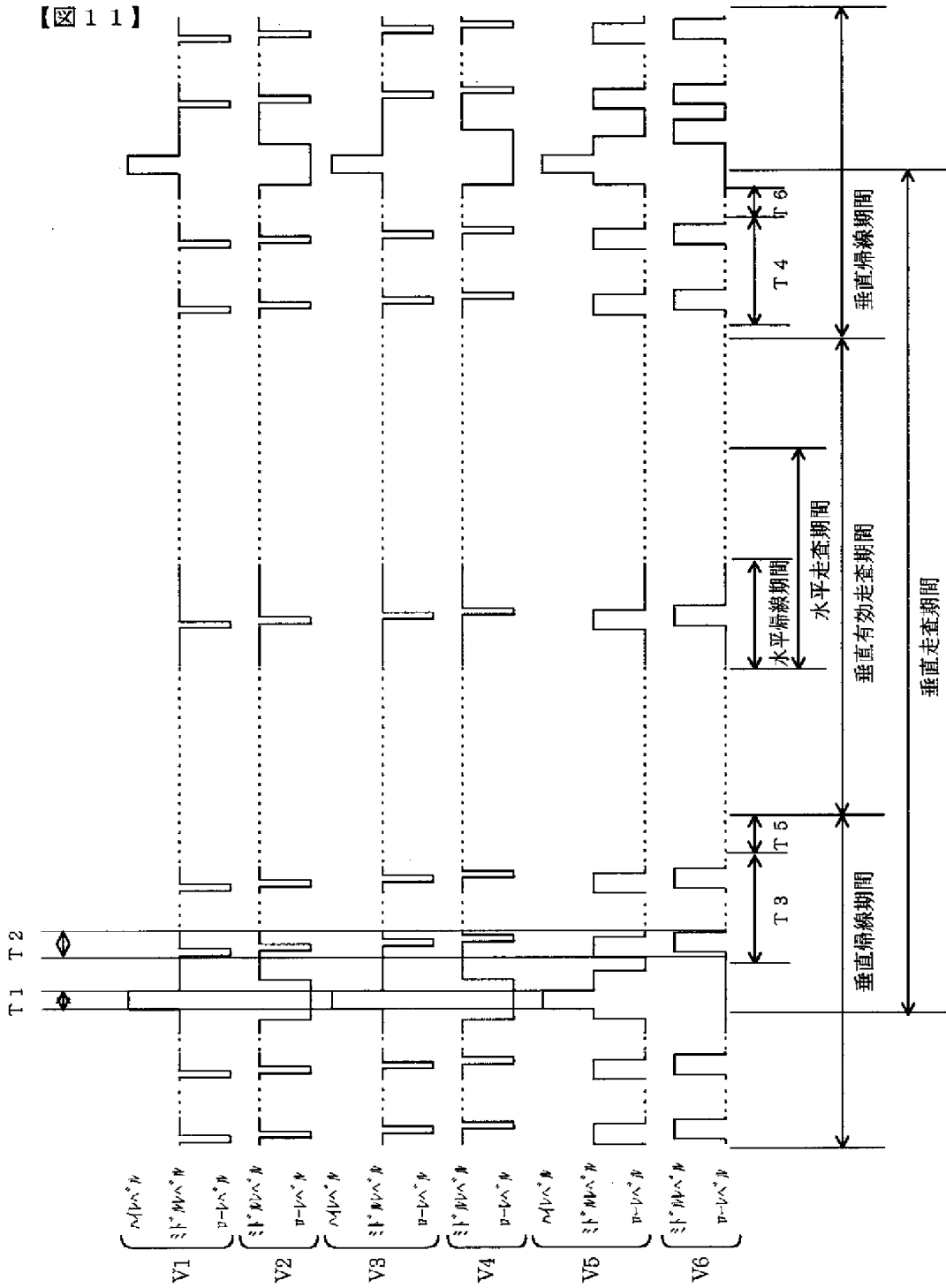
【図10】

【図10】



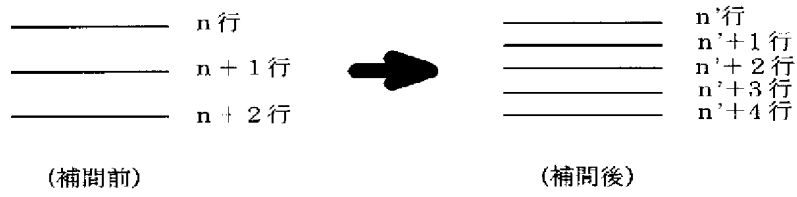
【圖 1 1】

【圖 1 1】



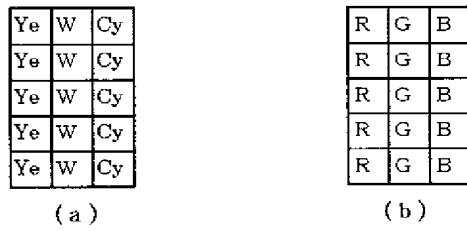
【図 1 2】

【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た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、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う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
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【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

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Table with 4 columns: APPLICATION NUMBER (15/386,656), FILING OR 371(C) DATE (12/21/2016), FIRST NAMED APPLICANT (Takahiro NAKANO), ATTY. DOCKET NO./TITLE (ASA-9606-08)

CONFIRMATION NO. 3687

PUBLICATION NOTICE



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Title:ELECTRIC CAMERA

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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/.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : HITACHI MAXELL, LTD.

Confirmation No.: 3687

Serial No. : 15/386,656

Filed : December 21, 2016

For : ELECTRIC CAMERA

Group : 2663

Examiner : Luong TRUNG NGUYEN

Docket No. : ASA-9606-08

Customer No.: 24956

AMENDMENT

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

August 4, 2017

Sir:

In response to the Office Action mailed February 8, 2017, please amend the above-identified patent application as follows. A fee for a 3-month Extension of Time accompanies this response.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 6 of this paper.

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 camera comprising:

an image sensing device with a light receiving surface having ~~N~~ vertically arranged an array of pixels and an arbitrary number of pixels arranged vertically and 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; and configured to output signals accumulated in the pixels with an interval of a plurality of vertical pixels;~~

~~— 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 configured to generate image signals by using the out put signals of the ~~outputted by the~~ image sensing device; and

a zoom operation unit configured to operate to continuously change a magnification factor;

wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

2. (New) The electric camera according to claim 1,

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels including:

a first state in which the image signals are generated using signals based on a first area of the light receiving surface with a first magnification factor,

a second state in which the image signals are generated using signals based on a second area of the light receiving surface with a second magnification factor, and

a third state in which the image signals are generated using signals based on a third area, and

wherein, while the zoom operation unit is operated to continuously change the magnification factor, the image signals are generated as continuously magnified images while the states of the electric camera are changed stepwise from the first state to the third state via the second state.

3. (New) The electric camera according to claim 2,

wherein, while the state is between the first state and the second state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals with a first interval of vertical pixels,

wherein, while the state is between the second state and the third state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals with a second interval of vertical pixels which is different from the first interval.

4. (New) The electric camera according to claim 3,

wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

5. (New) The electric camera according to claim 3,

wherein, as the zoom operation unit is operated to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

6. (New) The electric camera according to claim 3,

wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the signal processing unit generates the static

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image by using all signals accumulated in all of an effective number of the vertical
pixels.

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REMARKS

Claims 1-6 are pending in this application. Claim 1 has been amended. New claims 2-6 have been added. No new matter has been added.

Claim for Priority

Applicant notes that a Request was submitted on February 9, 2017 to correct the foreign priority information. A corrected Official Filing Receipt was mailed from the Office on February 14, 2017 showing the correct foreign priority information.

Information Disclosure Statement

Applicant appreciates the Examiner's consideration of the references submitted in the Information Disclosure Statement filed December 21, 2016.

Claim Objections

Claim 1 has been amended to overcome the objection.

Rejections Under 35 U.S.C. §112

Claim 1 has been interpreted under 35 U.S.C. §112, sixth paragraph. Claim 1 has been amended to avoid any presumption that §112, sixth paragraph, is invoked.

Double Patenting Rejections

Claim 1 stands rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 4 and 13 of U.S. Patent Nos. 6,765,616, 7,403,226, 8,059,177, 9,100,604 and 9,544,517.

It is submitted that the amendments to claim 1 render the double patenting rejections moot.

Rejections Under 35 U.S.C. §§ 102 and 103

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

Applicants request reconsideration of the rejections in view of the foregoing amendments and for the following reasons.

Claim 1 has been amended for clarification. See US 2017/0104945 at paras. [0071], for example, for support. New claims 2-6 depend on claim 1 as a base claim. According to claim 1, an electric camera includes:

- an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals accumulated in the pixels with an interval of a plurality of vertical pixels;

- a signal processing unit configured to generate image signals by using the signals outputted by the image sensing device; and

- a zoom operation unit configured to operate to continuously change a magnification factor;

- wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

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Responsive to Office Action mailed February 8, 2017

According to MPEP 2131, a claim is anticipated under 35 U.S.C. §102 only if each and every element as set forth in the claim is found in a single prior art reference. Further, the identical invention must be shown in as complete detail as is contained in the claim. As to the foregoing §102 rejection, it is submitted that each and every element set forth in claim 1 is not present in Kijima. In particular, Kijima is silent that “as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise” as recited in claim 1. Moreover, it is submitted that Kijima and the remaining art of record fail to achieve the advantageous effects of the claimed invention as described at para. [0072] of US 2017/0104945.

In view of the foregoing, it is submitted that claim 1 is patentable over the art of record. Further, dependent claims 2-6 are patentable over the art of record at least for being dependent upon a base claim asserted to be allowable. As such, it is respectfully requested that the rejection under 35 U.S.C. §102 be withdrawn.

Serial No. 15/386,656
Amendment filed August 4, 2017
Responsive to Office Action mailed February 8, 2017

Conclusion

In view of the foregoing amendments and remarks, Applicants request reconsideration of the rejection and allowance of the claims.

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417 (referencing Attorney Docket No. ASA-9606-08).

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/

John R. Mattingly
Registration No. 30,293
703-684-1120

Electronic Patent Application Fee Transmittal

Application Number:	15386656
Filing Date:	21-Dec-2016
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-9606-08

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 3 months with \$0 paid	1253	1	1400	1400
Miscellaneous:				
Total in USD (\$)				1400

Electronic Acknowledgement Receipt

EFS ID:	29983939
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly
Filer Authorized By:	
Attorney Docket Number:	ASA-9606-08
Receipt Date:	04-AUG-2017
Filing Date:	21-DEC-2016
Time Stamp:	13:27:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1400
RAM confirmation Number	080417INTEFSW13290300
Deposit Account	501417
Authorized User	John Mattingly

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		9606-08-AMD01.pdf	40825	yes	9
			d8fe32f799bf2717807be409b4e398c58ed6a44a		
Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Amendment/Req. Reconsideration-After Non-Final Reject			1	1	
Claims			2	5	
Applicant Arguments/Remarks Made in an Amendment			6	9	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30663	no	2
			985370fc5f8d30b5256899196c69ee24029eb740		
Warnings:					
Information:					
Total Files Size (in bytes):			71488		

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 15/386,656	Filing Date 12/21/2016	<input type="checkbox"/> To be Mailed
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ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED – PART I

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A	
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	minus 3 =	*	X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	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).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>				
* 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)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	
AMENDMENT	08/04/2017	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR				
	Total <small>(37 CFR 1.16(i))</small>	* 6	Minus	** 20	= 0	X \$80 = 0	
	Independent <small>(37 CFR 1.16(h))</small>	* 1	Minus	***3	= 0	X \$420 = 0	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						
					TOTAL ADD'L FEE	0	

	(Column 1)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR				
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						
					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 number found in the appropriate box in column 1.

LIE
 Frederick Briscoe

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.



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Alexandria, Virginia 22313-1450
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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Values: 15/386,656, 12/21/2016, Takahiro NAKANO, ASA-9606-08, 3687

24956 7590 11/16/2017
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT PAPER NUMBER

2663

NOTIFICATION DATE DELIVERY MODE

11/16/2017

ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmlplaw.com

DETAILED ACTION

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

Priority

2. Receipt is acknowledged of certified copies of papers required by 37 CFR 1.55.

Response to Arguments

3. Applicant's arguments with respect to added claims 2-6 filed on 08/04/2017 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

4. Applicant's arguments, with respect to rejection of claim 1 on the ground of nonstatutory double patenting as being unpatentable over claims 1, 4 of U.S. Patent No. 9,544,517, filed on 08/04/2017 have been fully considered but they are not persuasive.

Since the Applicants fail to specifically point out the error in the rejection of claim 1 on the ground of nonstatutory double patenting as being unpatentable over claims 1, 4 of U.S. Patent No. 9,544,517; the Examiner considers that the patent claims 1, 4 still contain all the limitations of the amended claim 1 of the instant application as discussed below.

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5. Applicant's arguments, with respect to limitation of claim 1 has been interpreted under 35 U.S.C. 112, sixth paragraph, filed 08/04/2017 have been fully considered but they are not persuasive.

The Applicants argued that the Applicant have amended the limitation "a signal processing unit to generate image signals ..." to "a signal processing unit configured to generate image signals ..." to avoid any presumption that § 112, sixth paragraph is invoked.

The Examiner considers that the limitation "**a signal processing unit configured** to generate image signals ..." as amended still being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because it meets three Prong Test, Prong (A): it uses a generic placeholder "unit," Prong (B): the term "unit" coupled with functional language "configured to generate image signals," Prong (C): the term "unit" is not modified by sufficient structure, material, or acts to perform the claimed function.

Therefore, the claim limitation "signal processing unit" as recited in claim 1 still being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

Claim Objections

6. Claims 3-6 are objected to because of the following informalities:

Claim 3 (line 2), "the state" should be changed to --a state--.

Claim 3 (line 5), "the state" should be changed to --a state--.

Claims 4-6 are objected as being dependent from claim 3.

Appropriate correction is required.

Claim Interpretation - 35 USC § 112

7. The following is a quotation of 35 U.S.C. 112(f):

(f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

8. Use of the word “means” (or “step for”) in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is invoked is rebutted when the function is recited with sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word “means” (or “step for”) in a claim creates a rebuttable presumption that the claim element is not to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

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Claim elements in this application that use the word “means” (or “step for”) are presumed to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action.

Similarly, claim elements that do not use the word “means” (or “step for”) are presumed not to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action.

9. Claim limitation “signal processing unit, ” “zoom operation unit, ”as recited in claim 1 has been interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because it uses a generic placeholder “unit” coupled with functional language “configured to generate image signals,” “configured to operate,” without reciting sufficient structure to achieve the function. Furthermore, the generic placeholder is not preceded by a structural modifier. Note that “signal processing,” “zoom operation,” each is not a structural modifier.

Since the claim limitation invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, claim 1 has been interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph limitation:

“signal processing circuit 7” disclosed in Figures 1, 7, Specification, pages 9, 27 for claim limitation “signal processing circuit unit.”

“view angle change switch 18” disclosed in Figure 7, Specification, pages 25-26 for claim limitation “zoom operation unit.”

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If applicant wishes to provide further explanation or dispute the examiner's interpretation of the corresponding structure, applicant must identify the corresponding structure with reference to the specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does not intend to have the claim limitation(s) treated under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may amend the claim(s) so that it/they will clearly not invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, or present a sufficient showing that the claim recites/recite sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

For more information, see MPEP § 2173 *et seq.* and *Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

Claim Rejections - 35 USC § 112

10. 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.

11. Claims 2-6 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

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matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 2 (line 13) recites the limitation “the” in “the states”. There is insufficient antecedent basis for this limitation in the claim.

It should be noted that claim 2 (line 2) recites limitation “at least three states,” claim 2 (line 4) recites limitation “a first state,” claim 2 (line 6) recites limitation “a second state,” claim 2 (line 9) recites limitation “a third state;” it is not known that the limitation “the states” as recited in claim 2 (line 13) corresponds to limitation “at least three states” as recited in claim 2 (line 2) or limitation “a first state” as recited in claim 2 (line 4) and limitation “a second state” as recited in claim 2 (line 6) and limitation “a third state” as recited in claim 2 (line 9).

Claims 3-6 are rejected as being dependent from claim 2.

Double Patenting

12. 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 improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue 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 reference 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. See MPEP § 717.02 for applications subject to examination under

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the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(1)(1) - 706.02(1)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/forms/. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to <http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp>.

13. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4 of U.S. Patent No. 9,544,517. 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 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 1 of the instant application is anticipated by patent claim 4 in that claim 4 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.

The similar limitations of claims 1 and 4 of U.S. Patent No. 9,544,517 and limitations of claim 1 of the instant application are compared as shown in the table below.

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US 9,544,517

1. **An electric camera** comprising:
an image sensing device with a light receiving surface having **an array of vertically and horizontally arranged pixels** including N vertically arranged pixels, where N is an integer greater than or equal to three times an integer of M which is a number of effective scanning lines of a display screen of a television system;

a driver configured to drive the image sensing device to vertically mix or cull signals accumulated in individual pixels, **at intervals of K pixels**, in order to produce a plurality of lines of output signals which correspond to the M effective scanning lines, where K is an integer less than or equal to a whole number portion of a quotient of N divided by M;

a zoom operation unit configured to receive a request **to continuously change a view angle** of a moving image; and

a signal processing unit configured to **generate image signals** of the moving image by using the output signals of the image sensing device, wherein the display screen displays the moving image, wherein, when the request **to continuously change a magnification factor** to magnify the moving image is received by the zoom operation unit, the driver:
drives the image sensing device to vertically mix or cull signals at intervals of K1 pixels in a first area on the image sensing device corresponding to a first image of the moving image, when the first image is displayed on a display unit, and
drives the image sensing device to vertically mix or cull signals at intervals of K2 pixels in a

INSTANT APPLICATION

1. **An electric camera** comprising:
an image sensing device with a light receiving surface having **an array of pixels** arranged vertically and horizontally, and configured to output signals accumulated in the pixels with **an interval of a plurality of vertical pixels**;

a signal processing unit configured to **generate image signals** by using the signals outputted by the image sensing device; and

a zoom operation unit configured to operate **to continuously change a magnification factor**;

wherein, as the *zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.*

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second area on the image sensing device corresponding to a second image of the moving image, when the second image is displayed on the display unit, wherein the magnification factor of the first image is smaller than the magnification factor of the second image, and a value of K1 is larger than a value of K2, and wherein M, K1, and K2 are positive integers greater than 1.

US 9,544,517

4. **An electric camera** comprising:
an image sensing device with a light receiving surface having **an array of vertically and horizontally arranged pixels** including N vertically arranged pixels, where N is an integer greater than or equal to three times an integer of M which is a number of effective scanning lines of a display screen of a television system;

a driver configured to drive the image sensing device to vertically mix or cull signals accumulated in individual pixels, **at intervals of K pixels**, in order to produce a plurality of lines of output signals which correspond to the M effective scanning lines, where K is an integer less than or equal to a whole number portion of a quotient of N divided by M;

an input unit configured to enable a user to input a request **to continuously change a magnification factor to magnify an output image**; and

a signal processing unit configured to **generate image signals of the output image**

INSTANT APPLICATION

1. **An electric camera** comprising:
an image sensing device with a light receiving surface having **an array of pixels** arranged vertically and horizontally, and configured to output signals accumulated in the pixels with **an interval of a plurality of vertical pixels**;

a signal processing unit configured to **generate image signals by using the signals outputted by the image sensing device**; and

a zoom operation unit configured to operate **to continuously change a magnification factor**;

wherein, as *the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.*

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<p>by using the output signals of the image sensing device, <i>wherein the display screen displays the output image, wherein the image sensing device is driven in:</i> <i>a first state in which intervals of $K1$ pixels in a first area on the image sensing device are vertically mixed or culled, and</i> <i>a second state in which intervals of $K2$ pixels in a second area on the image sensing device are vertically mixed or culled,</i> <i>where a value of $K2$ is smaller than a value of $K1$, wherein the first state switches to the second state in response to the request to continuously change the magnification factor,</i> <i>and</i> <i>wherein M, $K1$, and $K2$ are positive integers greater than 1.</i></p>	
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Conclusion

14. **THIS ACTION IS MADE FINAL.** 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

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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 mailing date of this final action.

15. 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.


Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

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.

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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
11/09/17

Search Notes 	Application/Control No. 15386656	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

CPC- SEARCHED		
Symbol	Date	Examiner
H04N5/372; H04N5/23248; H04N5/3741; H04N5/23258; H04N9/045; H04N5/3454; H04N5/23274	2/1/2017	LTN
H04N5/372, H04N5/23248, H04N5/3741, H04N5/23258, H04N9/045	11/9/2017	LTN

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	2/1/2017	LTN
Inventorship search	2/1/2017	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	11/9/2017	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
S38	92	(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 or CMOS) same ratio same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:26
S39	20	S38 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:27
S40	6	("4843475" "4963981" "4969044" "5023722" "5107334" "5420632").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 20:28
S41	1339	(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 or CMOS) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:29
S42	44476	(H04N5/372 or H04N5/23248 or H04N5/3741 or H04N5/23258 or H04N9/045).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:30
S43	127	S41 and S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:30
S44	19	S43 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:30
S45	502	zoom\$3 same (magnification near factor) same (chang\$3 or varying)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/11/09 20:34

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			DERWENT; IBM_TDB			
S46	135	S45 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:34
S47	3	("4974088" "5526041" "5808670").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 20:36
S48	787	zoom\$3 and (magnification near factor) same (chang\$3 or varying)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:37
S49	48	S48 and S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:37
S50	24	("4054915" "5170249" "5187569" "5287192" "5402173" "5438365" "5638132" "5734424" "5828406" "5847758" "5986698" "6195125" "6519000" "6661451" "6765616" "6781634" "6798448" "6906746" "6970191" "7154539" "7352391" "7403226" "8059177" "9100604").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 20:38
S51	6	("3932775" "4761689" "4800435" "4839735" "4980776" "5105264").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 20:39
S52	6	zoom\$3 same (magnification near factor) same (chang\$3 or varying) same pixel\$1 same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:43
S53	171	zoom\$3 and (magnification near factor) and (pixel\$1 same interval)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:44
S54	59	S53 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:44
S55	4446	(mix\$3 or combin\$3 or cull\$3 or add\$3)	US-PGPUB;	OR	ON	2017/11/09

		same (pixel\$1 or charge\$1 or signal\$1) same zoom\$3 and (sensor\$1 or CCD\$1 or CMOS or camera)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			20:45
S56	281	S55 and S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:46
S57	53	S56 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:46
S58	5693	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:48
S59	63	S48 and S58	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:49
S60	11	zoom\$3 same ratio same (chang\$3 or varying) same pixel\$1 same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:51
S61	5	(zoom\$3 near factor) same (chang\$3 or varying) same pixel\$1 same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:52
S62	508	(magnification near factor) and (pixel\$1 same interval)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:52
S63	18	S62 and S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2017/11/09 20:53

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			IBM_TDB			
S64	10	("4286291" "4528585" "4660081" "4774581" "4792856" "4814860" "4951125" "4991022" "5083208" "5333055").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 20:53
S65	13216	(scan\$4 with line) and (NTSC or standard) and (television or TV) and (mix\$3 or combin\$3 or cull\$3 or add\$3) and (pixel\$1 or charge\$1 or signal\$1) and (sensor\$1 or CCD\$1 or CMOS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:54
S66	29	S62 and S65	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:54
S67	584	S42 and S65	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:56
S68	340	S67 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 20:56
S69	10	("20030122941" "5170249" "5343243" "5502483" "5668597" "5734427" "5786852" "5986698" "6148031" "6614477").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 21:06
S70	14	("4057830" "4096530" "4890165" "5019906" "5247367" "5335013" "5422670" "5450129" "5748234" "5786851" "6137920" "6259478" "6285399" "6359654").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 21:06
S71	3081	(magnification near factor) same (area or region)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 21:11
S72	282	(magnification near factor) same (area or region) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 21:11
S73	76	S72 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2017/11/09 21:11

			JPO; DERWENT; IBM_TDB			
S74	4	("5083208" "5307167" "5371539" "5493333").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/11/09 21:21
S75	19	S71 and S65	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 21:27
S76	381	(magnification near ratio) same (area or region) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 21:28
S77	82	S76 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/11/09 21:28

EAST Search History (Interference)

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11/ 9/ 2017 11:20:42 PM**C:\ Users\ Inguyen2\ Documents\ EAST\ Workspaces\ 15386656.wsp**

Index of Claims 	Application/Control No. 15386656	Applicant(s)/Patent Under Reexamination NAKANO ET AL.
	Examiner LUONG T NGUYEN	Art Unit 2663

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	02/01/2017	11/09/2017						
	1	✓	✓						
	2		✓						
	3		✓						
	4		✓						
	5		✓						
	6		✓						

CORRECTED ADS FORM

Application Number	15386656
Title of Invention	ELECTRIC CAMERA

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number		
Name		

Residence Information

Residency		
City		
State		
Country of Residence		

Mailing Address of Inventor

Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Application Information

	Data of Record	Updated Data
Title of Invention	ELECTRIC CAMERA	
Attorney Docket Number	ASA-9606-08	
Entity Type	Regular Undiscounted	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(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(a).

	Data of Record	Updated Data
Prior Application Status		
Application Number		
Continuity Type		
Prior Application Number		
Filing Date (YYYY-MM-DD)		
Patent Number		
Issue Date (YYYY-MM-DD)		

Foreign Priority Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to claim priority to a foreign application. 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. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

	Data of Record	Updated Data
Application Number		
Country		
Filing Date		
Access Code		

Applicant Information

****If no data is shown, no data has been corrected****

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.

	Data of Record	Updated Data
Applicant Type	ASG	
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		
Applicant is an Organization	Yes	
Name		
Organization Name	Hitachi Maxell, Ltd.	<u>Maxell, Ltd.</u>
Address 1		<u>1, Koizumi, Oyamazaki, Oyamazaki-cho Otokuni-gun</u>
Address 2		

City,State/Province,Postal Code	Osaka	<u>Kyoto 618-8525</u>
Country	JP	
Phone Number		
Fax Number		
Email Address		

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****

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

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		
Organization Name		

Mailing Address

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

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/John R. Mattingly/	Registration Number	30293
First Name	John	Last Name	Mattingly

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.

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: 24956

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: 24956

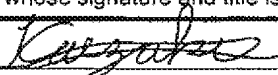
OR

<input type="checkbox"/>	Firm or Individual Name			
<input type="checkbox"/>	Address			
<input type="checkbox"/>	City	State	Zip	
<input type="checkbox"/>	Country			
<input type="checkbox"/>	Telephone	Email		

Assignee Name and Address:
 Maxell, Ltd.
 1, Koizumi, Oyamazaki, Oyamazaki-cho Otokuni-gun, Kyoto 618-8525, Japan

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/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	Oct. 17, 2017
Name	Kazuhiro Kaizaki	Telephone	
Title	Vice President		

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.

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.

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.

<p>REQUEST TO CORRECT OR UPDATE THE NAME OF THE APPLICANT UNDER 37 CFR 1.46(c)(1), OR CHANGE THE APPLICANT UNDER 37 CFR 1.46(c)(2) (FOR USE ONLY IN APPLICATIONS FILED ON OR AFTER SEPTEMBER 16, 2012)</p>	Application Number	15/386,656
	Filing Date	12/21/2016
	First Named Inventor	Takahiro NAKANO
	Art Unit	2663
	Examiner Name	NGUYEN, LUONG TRUNG
	Practitioner Docket Number	ASA-9606-08

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

Applicant hereby requests that the name of the applicant be corrected or updated under 37 CFR 1.46(c)(1), or that the applicant be changed under 37 CFR 1.46(c)(2), in the above-identified application. Requests under 37 CFR 1.46(c)(1) or (c)(2) cannot be submitted after payment of the issue fee or if the application has been patented.

Please check the applicable box(es) below.

1. This request is to **correct or update the name of the applicant (under 37 CFR 1.46(c)(1))** and includes:

An application data sheet (ADS) in accordance with 37 CFR 1.76(c) with the corrected or updated information shown with markings (e.g., underlining for insertions, strikethrough for deletions). A Corrected Web-based ADS may be used.

Note: Requests under 37 CFR 1.46(c)(1) may be filed to correct typographical errors in the name of the § 1.46 applicant, or for updating the name of the § 1.46 applicant (i.e., where there is no change in the applicant itself but just in the applicant's name). See the Manual of Patent Examining Procedure (MPEP) section 605.01.

2. This request is to **change the applicant (under 37 CFR 1.46(c)(2))** and includes:

An application data sheet (ADS) in accordance with 37 CFR 1.76(c) that identifies the changes with proper markings (underlining for insertions and strikethrough for deletions). A Corrected Web-based ADS may be used.

A Statement Under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent). See MPEP 325.

I am the

applicant*

attorney or agent of record
Registration number 30,293.....

attorney or agent acting under 37 CFR 1.34
Registration number _____

Signature /John R. Mattingly/

Typed or printed name John R. Mattingly

Date _____

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. *Juristic entities must be represented by a patent practitioner (See 37 CFR 1.31, applicable to any paper filed on or after September 16, 2012 that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below**.

** Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.36. 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.**

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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 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.



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

Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 15/386,656, 12/21/2016, 2663, 1600, ASA-9606-08, 1, 1

CONFIRMATION NO. 3687
CORRECTED FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314



Date Mailed: 02/14/2017

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 Maxell, Ltd., Osaka, JAPAN; Maxell, Ltd., Kyoto, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 14/661,227 03/18/2015 PAT 9544517
which is a CON of 14/264,243 04/29/2014 PAT 9100604
which is a CON of 13/681,495 11/20/2012 PAT 8736729
which 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 2000-006064 01/11/2000

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Maxell, Ltd.Application No./Patent No.: 15/386,656Filed/Issue Date: December 21, 2016Titled: Electric CameraMaxell, 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 _____, Frame _____, 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: Nakano, T. et al. To: HITACHI, LTD.The document was recorded in the United States Patent and Trademark Office at
Reel 010631, Frame 0900, or for which a copy thereof is attached.2. From: Hitachi, Ltd. To: HITACHI CONSUMER ELECTRONICS CO., LTD.The document was recorded in the United States Patent and Trademark Office at
Reel 030648, Frame 0217, 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.

IPR2020-00597

Apple EX1024 Page 224

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.

STATEMENT UNDER 37 CFR 3.73(c)3. From: HITACHI CONSUMER ELECTRONICS CO., LTD. To: HITACHI MAXELL, LTD.The document was recorded in the United States Patent and Trademark Office at
Reel 033694, Frame 0745, or for which a copy thereof is attached.4. From: HITACHI MAXELL, LTD. To: Maxell, Ltd.The document was recorded in the United States Patent and Trademark Office at
Reel 045142, Frame 0208, 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.

/John R. Mattingly/

Signature

John R. Mattingly

Printed or Typed Name

2018-04-16

Date

30,293

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.

Electronic Acknowledgement Receipt

EFS ID:	32349462
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Scotti
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	16-APR-2018
Filing Date:	21-DEC-2016
Time Stamp:	15:43:28
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 to update/ correct info	CorrectedADS.pdf	64694 <small>fd120db76a4a867036156d9a819f4b0d0208bfdc</small>	no	5

Warnings:

IPR2020-00597

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	9606-08-POA-Maxell-80.pdf	196018 17ace2c46a7465b9c8269bf0d6e245208543e416	no	2
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	9606-08-ReqChgApplicant.pdf	194799 7f60fb8b14b097b465769b74d98460ec17880ba0	no	2
Warnings:					
Information:					
4	Request for Corrected Filing Receipt	9606-08-MarkedUpOFR.pdf	961217 4bdec858152be2957bd94a5ad94f7b29baf731a1	no	1
Warnings:					
Information:					
5	Assignee showing of ownership per 37 CFR 3.73	9606-08-POA-Maxell-373c.pdf	122596 c65debd86b203ced48331cae023d907ca608d10c	no	3
Warnings:					
Information:					
Total Files Size (in bytes):			1539324		
<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>					

Electronic Petition Request	TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT
Application Number	15386656
Filing Date	21-Dec-2016
First Named Inventor	Takahiro NAKANO
Attorney Docket Number	ASA-9606-08
Title of Invention	ELECTRIC CAMERA

- Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action
- This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
MAXELL, LTD.	100%

The owner(s) with percent interest listed above 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 number(s)

9544517

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.

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:

- 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; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

- Small Entity
- Micro Entity
- Regular Undiscounted

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.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

- An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 30293
- A sole inventor
- A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application
- A joint inventor; all of whom are signing this request

Signature	/John R. Mattingly/
Name	John R. Mattingly

*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.

Electronic Patent Application Fee Transmittal

Application Number:	15386656			
Filing Date:	21-Dec-2016			
Title of Invention:	ELECTRIC CAMERA			
First Named Inventor/Applicant Name:	Takahiro NAKANO			
Filer:	John Roberts Mattingly			
Attorney Docket Number:	ASA-9606-08			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
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 (\$)				160

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 15386656

Filing Date: 21-Dec-2016

Applicant/Patent under Reexamination: NAKANO

Electronic Terminal Disclaimer filed on April 16, 2018

APPROVED

This patent is subject to a terminal disclaimer

DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	32349309
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly
Filer Authorized By:	
Attorney Docket Number:	ASA-9606-08
Receipt Date:	16-APR-2018
Filing Date:	21-DEC-2016
Time Stamp:	16:21:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$160
RAM confirmation Number	041718INTEFSW16212700
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33451	no	2
			97979246674a0061c669b85bbb40ee279e306919		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30126	no	2
			ea8081bcd2628252a8c9e5ee5eebff9337c5f528		

Warnings:

Information:

Total Files Size (in bytes): 63577

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2663
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4958915	A	1990-09-25	OKADA et al.	
	2	5060074	A	1991-10-22	KINUGASA et al.	
	3	5440343	A	1995-08-08	PARULSKI et al.	
	4	5493335	A	1996-02-20	PARULSKI et al.	
	5	5497191	A	1996-03-05	YOO et al.	
	6	5497192	A	1996-03-05	ISHIZUKA	
	7	5054052	A	1991-10-01	NONAMI	
	8	5793923	A	1998-08-11	SAWANOBORI	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15386656
Filing Date	2016-12-21
First Named Inventor	NAKANO, T.
Art Unit	2663
Examiner Name	NGUYEN, L. T.
Attorney Docket Number	ASA-9606-08

9	5828406	A	1998-10-27	PARULSKI et al.
10	6512541	B2	2003-01-28	DUNTON et al.

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
1						

If you wish to add additional U.S. Published Application citation information please click the Add button.

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FOREIGN PATENT DOCUMENTS

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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
1								

If you wish to add additional Foreign Patent Document citation information please click the Add button

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NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
1		ZTE (USA) Inc.'s Provisional Preliminary Invalidation Contentions which were filed in the following litigation: HITACHI MAXELL, LTD. v. ZTE CORP. and ZTE USA INC., Civil Action No. 5:16-cv-00179 RWS (E.D. Tex.), filed November 18, 2016	
2		ZTE (USA) Inc.'s Invalidation Contentions which were filed in the following litigation: HITACHI MAXELL, LTD. v. HUAWEI DEVICE USA INC. and HUAWEI DEVICE CO., LTD., Civil Action No. 5:16-cv-00178 RWS (E.D. Tex.) and v. ZTE CORP. and ZTE USA INC., Civil Action No. 5:16-cv-00179 RWS (E.D. Tex.), filed November 18, 2016	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2663
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

3	Asustek Computer Inc. and Asus Computer International's Invalidation Contentions which were filed in the following litigation: MAXELL, LTD. v. ASUSTEK COMPUTER INC. AND ASUS COMPUTER INTERNATIONAL, Civil Action No. 2:17-cv-7528-R-MRW (C.D. CA), filed October 13, 2017
---	---

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2663
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2018-04-16
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 15/386,656 Confirmation No. : 3687
Applicant : Maxell, Ltd. TC/GAU : 2663
Filed : December 21, 2016 Examiner : NGUYEN, L. T.
Title : ELECTRIC CAMERA

Customer No.: 24956

NOTICE OF RELATED PATENTS INVOLVED IN *INTER PARTES* REVIEW

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

April 16, 2018

Sir:

Applicant notifies the Office that two related patents, U.S. Patent Nos. 8,339,493 and 8,736,729, which matured from applications 12/845,266 and 13/681,495, respectively, and from which the above-identified application claims priority under 35 U.S.C. 120, are involved in the following *Inter Partes* Review proceedings:

ZTE CORPORATION and ZTE (USA) Inc. v. Hitachi Maxell, Ltd.,
Petition for Inter Partes Review of U.S. Patent No. 8,736,729, *Inter Partes* Review No. IPR2018-00238; and

ZTE CORPORATION and ZTE (USA) Inc. v. Hitachi Maxell, Ltd.,
Petition for Inter Partes Review of U.S. Patent No. 8,339,493, *Inter Partes* Review No. IPR2018-00236.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly, Reg. No. 30,293
(703) 684-1120

Electronic Acknowledgement Receipt

EFS ID:	32349088
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly
Filer Authorized By:	
Attorney Docket Number:	ASA-9606-08
Receipt Date:	16-APR-2018
Filing Date:	21-DEC-2016
Time Stamp:	16:25:24
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	9606-08-NoticeofLitigation.pdf	20147 <small>46f27d71fca5d1cbe0f09539035a0f38f61051f2</small>	no	2

Warnings:

IPR2020-00597

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3	Non Patent Literature	ZTE-ProvisionalPreliminaryInvalidityContentions.pdf	576028	no	83
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5	Non Patent Literature	ExhibitC-1-Nakano493.pdf	259882	no	9
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6	Non Patent Literature	ExhibitC-2-Nakano493.pdf	288247	no	12
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Information:					
7	Non Patent Literature	ExhibitC-3-Nakano493.pdf	235788	no	7
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9	Non Patent Literature	ExhibitC-5-Nakano493.pdf	320405	no	10
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Information:					

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Information:					

30	Non Patent Literature	AsustekExhibitA-6.pdf	802077	no	34
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Warnings:					
Information:					
34	Miscellaneous Incoming Letter	9606-08-NoticeofIPR.pdf	19194	no	1
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Warnings:					
Information:					
Total Files Size (in bytes):			22585617		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 15/386,656 Confirmation No. : 3687
Applicant : Maxell, Ltd. TC/GAU : 2663
Filed : December 21, 2016 Examiner : NGUYEN, L. T.
Title : ELECTRIC CAMERA

Customer No.: 24956

NOTICE OF RELATED PATENTS INVOLVED IN LITIGATION

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

April 16, 2018

Sir:

Applicant notifies the Office that three related patents, U.S. Patent Nos. 7,403,226, 8,339,493, 8,736,729 and 9,544,517 which matured from applications 10/660,711, 12/845,266, 13/681,495 and 14/661,227, respectively, and from which the above-identified application claims priority under 35 U.S.C. 120, are involved in the following litigation:

Hitachi Maxell, Ltd. v. ZTE CORP. and ZTE USA INC., Civil Action No. 5:16-cv-179 RWS (E.D. Tex.), filed November 18, 2016.

Hitachi Maxell, Ltd. v. ZTE CORP. and ZTE USA INC., Civil Action No. 5:16-cv-178 RWS (E.D. Tex.), filed November 18, 2016.

Maxell, Ltd. v. Asustek Computer Inc. and Asus Computer International, Civil Action No. 2:17-cv-7528-R-MRW (C.D. CA), filed October 13, 2017.

Maxell, Ltd. v. BlackBerry Corporation and BlackBerry Ltd., Civil Action No. 1:17-cv-01446-JFB-SRF (DE), filed October 13, 2017.

Maxell, Ltd. v. Blue Products, Inc., Civil Action No. 1:18-cv-21231-CMA (S.D. FL), filed April 3, 2018.

Appl. No. 15/386,656
Attorney Docket No.: ASA-9606-08

Maxell, Ltd. v. Huawei Device USA, Inc. Huawei Device Co., Ltd., Civil
Action No. 5:18-cv-0033-RWS (E.D. Tex), filed March 2, 2018.

Maxell, Ltd. v. ZTE Corporation and ZTE USA, Inc., Civil Action No.
5:18-cv-0034-RWS (E.D. Tex), filed March 2, 2018.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly, Reg. No. 30,293
(703) 684-1120

**REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)**

Application Number	15/386,656	Filing Date	2016-12-21	Docket Number (if applicable)	ASA-9606-08	Art Unit	2663
First Named Inventor	T. NAKANO			Examiner Name	Luong TRUNG NGUYEN		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

Other _____

Enclosed

Amendment/Reply

Information Disclosure Statement (IDS)

Affidavit(s)/ Declaration(s)

Other _____

MISCELLANEOUS

Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 501417

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Patent Practitioner Signature

Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	John R. Mattingly/	Date (YYYY-MM-DD)	2018-04-16
Name	John R. Mattingly	Registration Number	30293

This collection of information is required by 37 CFR 1.114. 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.

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 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:	15386656			
Filing Date:	21-Dec-2016			
Title of Invention:	ELECTRIC CAMERA			
First Named Inventor/Applicant Name:	Takahiro NAKANO			
Filer:	John Roberts Mattingly/Krista Hargrove			
Attorney Docket Number:	ASA-9606-08			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	460	460
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Extension - 2 months with \$0 paid	1252	1	600	600
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1300	1300
Total in USD (\$)				2360

Electronic Acknowledgement Receipt

EFS ID:	32349184
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly
Filer Authorized By:	
Attorney Docket Number:	ASA-9606-08
Receipt Date:	16-APR-2018
Filing Date:	21-DEC-2016
Time Stamp:	16:30:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$2360
RAM confirmation Number	041718INTEFSW16401800
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		9606-08-AMD02-revised_04-16-2018.pdf	42186 66519cc8a06c78057a1c75843db427b58ae87e8e	yes	9
Multipart Description/PDF files in .zip description					
	Document Description		Start		End
	Amendment Submitted/Entered with Filing of CPA/RCE		1		1
	Claims		2		7
	Applicant Arguments/Remarks Made in an Amendment		8		9
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	9606-08_RCE.pdf	1350123 cde38ea32206172a17d3aec58cfe68e6453609e6	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	34169 edf9de2f8aa7da1a97e02c611c3ce54e668d64e7	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1426478		

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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : MAXELL, LTD.

Confirmation No.: 3687

Serial No. : 15/386,656

Filed : December 21, 2016

For : ELECTRIC CAMERA

Group : 2663

Examiner : Luong TRUNG NGUYEN

Docket No. : ASA-9606-08

Customer No.: 24956

AMENDMENT

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

April 16, 2018

Sir:

In response to the Final Office Action mailed November 16, 2017, please amend the above-identified patent application as follows. A fee for a 2-month Extension of Time accompanies this response.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 8 of this paper.

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 camera comprising:

— an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals accumulated in the pixels with an interval of a plurality of vertical pixels;

— a signal processing unit configured to generate image signals by using the signals outputted by the image sensing device; and

a zoom operation unit configured to operate to continuously change a magnification factor;

wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

2. (Canceled).

3. (Currently amended) The electric camera according to ~~claim 2~~claim 1,
wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels including:

a first state of the at least three states in which the image signals are generated using signals based on a first area of the light receiving surface with a first magnification factor,

a second state of the at least three states in which the image signals are generated using signals based on a second area of the light receiving surface with a second magnification factor, and

a third state of the at least three states in which the image signals are generated using signals based on a third area of the light receiving surface with a third magnification factor, and

wherein, while ~~a~~ the-state is between the first state and the second state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals with a first interval of vertical pixels,

wherein, while ~~the~~ a-state is between the second state and the third state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals with a second interval of vertical pixels which is different from the first interval.

4. (Previously presented) The electric camera according to claim 3, wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

5. (Previously presented) The electric camera according to claim 3, wherein, as the zoom operation unit is operated to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

6. (Previously presented) The electric camera according to claim 3, wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the signal processing unit generates the static image by using all signals accumulated in all of an effective number of the vertical pixels.

7. (New) An electric camera comprising:
an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals accumulated in the pixels with an interval of a plurality of vertical pixels;
a processor circuitry configured to control generating image signals by using the signals outputted by the image sensing device and to continuously change a magnification factor in accordance with a zoom operation;
wherein, as the processor circuitry controls to continuously change the magnification factor in accordance with a zoom operation, the image sensing device outputs signals while changing the interval of the plurality of vertical pixels stepwise.

8. (New) An operating method for an electric camera comprising:
receiving light with an image sensing device having a light receiving surface including an array of pixels arranged vertically and horizontally, and outputting signals accumulated in the pixels with an interval of a plurality of vertical pixels;
generating image signals by using the signals outputted by the image sensing device;
continuously changing a magnification factor of a zoom operation; and
wherein, as the zoom operation continuously changes the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals while changing the interval of the plurality of vertical pixels stepwise.

9. (New) The method according to claim 8,
wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and wherein:
the generating of the image signals includes, in a first state of the at least three states, generating the image signals using signals output by the image sensing device based on a first area of the light receiving surface with a first magnification factor,
the generating of the image signals includes, in a second state of the at least three states, generating the image signals using signals output by the image sensing

device based on a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states, generating the image signals using signals output by the image sensing device based on a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation is continuously changing the magnification factor, outputting with the image sensing device signals with a first interval of vertical pixels, and

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device signals with a second interval of vertical pixels which is different from the first interval.

10. (New) The method according to claim 9,

wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

11. (New) The method according to claim 9,

wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the

signals with the image sensing device includes outputting the signals while changing the interval of the plurality of vertical pixels stepwise.

12. (New) The method according to claim 9,

wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

13. (New) An operating method for an electric camera comprising:

receiving light with an image sensing device having a light receiving surface having an array of pixels arranged vertically and horizontally, and outputting signals accumulated in the pixels with an interval of a plurality of vertical pixels;

controlling with processor circuitry generating image signals by using the signals outputted by the image sensing device and controlling to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the zoom operation is controlled with the processor circuitry to continuously change the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals while changing the interval of the plurality of vertical pixels stepwise.

REMARKS

Claims 1 and 3-13 are pending in this application. Claim 2 has been canceled without prejudice and without disclaimer. Claim 3 has been amended. New claims 7-13 have been added. No new matter has been added.

Claim Objections

Claims 3-6 are objected to for informalities. The amendments to claim 3 overcome the objection.

Rejections Under 35 U.S.C. §112

The Examiner has rejected claims 2-6 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.

It is submitted that claim 3, which incorporates the language of claim 2 upon which the rejection is based, has been amended to overcome the rejection under 35 U.S.C. §112. Additionally, Applicant has cancelled claim 2 without prejudice and without disclaimer. Accordingly, the rejection under 35 U.S.C. §112 should be withdrawn.

Serial No. 15/386,656
Amendment filed April 16, 2018
Responsive to Office Action mailed November 16, 2017

Double Patenting Rejections

Claim 1 stands rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 4 and 13 of U.S. Patent No. 9,544,517.

It is submitted that the amendments to claim 1 render the double patenting rejections moot.

Request for Continued Examination

Applicants submit a Request for Continued Examination to ensure entry and consideration of the foregoing amendments to the claims.

Conclusion

In view of the foregoing amendments and remarks, Applicants request reconsideration of the rejection and allowance of the claims.

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417 (referencing Attorney Docket No. ASA-9606-08).

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/

John R. Mattingly
Registration No. 30,293
703-684-1120

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 15/386,656	Filing Date 12/21/2016	<input type="checkbox"/> To be Mailed
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ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> 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 \$80 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		x \$420 =	
<input type="checkbox"/> 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).			
<input type="checkbox"/> 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

AMENDMENT	Date	(Column 1) CLAIMS REMAINING AFTER AMENDMENT	Minus	(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
		04/16/2018					
Total (37 CFR 1.16(i))		* 12	Minus	** 20	= 0	x \$100 =	0
Independent (37 CFR 1.16(h))		* 4	Minus	*** 3	= 1	x \$460 =	460
<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))							
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
						TOTAL ADD'L FEE	460

AMENDMENT	Date	(Column 1) CLAIMS REMAINING AFTER AMENDMENT	Minus	(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
Total (37 CFR 1.16(i))		*	Minus	**	=	x \$0 =	
Independent (37 CFR 1.16(h))		*	Minus	***	=	x \$0 =	
<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))							
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
						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 number found in the appropriate box in column 1.

SLIE
juliet mcmillan

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.**

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UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/386,656	12/21/2016	Takahiro NAKANO	ASA-9606-08

CONFIRMATION NO. 3687

POA ACCEPTANCE LETTER



24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

Date Mailed: 04/19/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/16/2018.

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.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/ylueng/



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Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 15/386,656, 12/21/2016, 2663, 2060, ASA-9606-08, 1, 1

CONFIRMATION NO. 3687
CORRECTED FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314



Date Mailed: 04/19/2018

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)

Maxell, Ltd., Kyoto, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 14/661,227 03/18/2015 PAT 9544517
which is a CON of 14/264,243 04/29/2014 PAT 9100604
which is a CON of 13/681,495 11/20/2012 PAT 8736729
which 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 2000-006064 01/11/2000 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

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: 02/13/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/386,656**

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: No

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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).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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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.

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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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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/386,656	12/21/2016	Takahiro NAKANO	ASA-9606-08	3687

24956 7590 06/15/2018

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314
UNITED STATES OF AMERICA

EXAMINER

ART UNIT PAPER NUMBER

DATE MAILED: 06/15/2018

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

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No.	Applicant(s)
	15/386,656 Examiner	NAKANO ET AL. Art Unit
	LUONG T. NGUYEN	2663

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

The amendment document filed on 16 April 2018 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- 1. Amendments to the specification:
 - A. Amended paragraph(s) do not include markings.
 - B. New paragraph(s) should not be underlined.
 - C. Other _____.
- 2. Abstract:
 - A. Not presented on a separate sheet. 37 CFR 1.72.
 - B. Other _____.
- 3. Amendments to the drawings:
 - A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
 - B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
 - C. Other _____.
- 4. Amendments to the claims:
 - A. A complete listing of all of the claims is not present.
 - B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
 - C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
 - D. The claims of this amendment paper have not been presented in ascending numerical order.
 - E. Other: See Continuation Sheet.
- 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4):

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.
2. Applicant is given **two months** from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action. If any of above boxes 1. to 4. are checked, the correction required is only the **corrected section** of the _____ non-compliant amendment in compliance with 37 CFR 1.121.

Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

Failure to timely respond to this notice will result in:

- Abandonment** of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
- Non-entry** of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2663

Continuation of 4(e) Other:

The status identifier of claim 1, which is indicated as "Currently amended", is improper, since there is no indication of line through for deleted limitation or underline for newly added limitation in claim 1. Claim 1 is not amended.

Applicant is requested to submit a proper amendment based on the claims filed on 08/04/2017, in which the proper status identifier of claim 1 should be indicated as "Previously presented" .

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No.	Applicant(s)
	15/386,656 Examiner	NAKANO ET AL. Art Unit
	LUONG T. NGUYEN	2663

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

The amendment document filed on 16 April 2018 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- 1. Amendments to the specification:
 - A. Amended paragraph(s) do not include markings.
 - B. New paragraph(s) should not be underlined.
 - C. Other _____.
- 2. Abstract:
 - A. Not presented on a separate sheet. 37 CFR 1.72.
 - B. Other _____.
- 3. Amendments to the drawings:
 - A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
 - B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
 - C. Other _____.
- 4. Amendments to the claims:
 - A. A complete listing of all of the claims is not present.
 - B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
 - C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
 - D. The claims of this amendment paper have not been presented in ascending numerical order.
 - E. Other: See Continuation Sheet.
- 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4):

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.
2. Applicant is given **two months** from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action. If any of above boxes 1. to 4. are checked, the correction required is only the **corrected section** of the _____ non-compliant amendment in compliance with 37 CFR 1.121.

Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

Failure to timely respond to this notice will result in:

- Abandonment** of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
- Non-entry** of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2663

Continuation of 4(e) Other:

The status identifier of claim 1, which is indicated as "Currently amended", is improper, since there is no indication of line through for deleted limitation or underline for newly added limitation in claim 1. Claim 1 is not amended.

Applicant is requested to submit a proper amendment based on the claims filed on 08/04/2017, in which the proper status identifier of claim 1 should be indicated as "Previously presented" .

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : MAXELL, LTD.

Confirmation No.: 3687

Serial No. : 15/386,656

Filed : December 21, 2016

For : ELECTRIC CAMERA

Group : 2663

Examiner : Luong TRUNG NGUYEN

Docket No. : ASA-9606-08

Customer No.: 24956

AMENDMENT

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

July 5, 2018

Sir:

In response to the Notice of Non-Compliant Amendment mailed June 15, 2018, reconsideration and withdrawal of the outstanding rejections and allowance of the present application are respectfully requested in view of the following amendments and remarks.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 8 of this paper.

Amendments to the Claims:

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

Listing of Claims:

1. (Previously presented) An electric camera comprising:
an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals accumulated in the pixels with an interval of a plurality of vertical pixels;

a signal processing unit configured to generate image signals by using the signals outputted by the image sensing device; and

a zoom operation unit configured to operate to continuously change a magnification factor;

wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

2. (Canceled).

3. (Currently amended) The electric camera according to ~~claim 2~~claim 1,
wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels including:

a first state of the at least three states in which the image signals are generated using signals based on a first area of the light receiving surface with a first magnification factor,

a second state of the at least three states in which the image signals are generated using signals based on a second area of the light receiving surface with a second magnification factor, and

a third state of the at least three states in which the image signals are generated using signals based on a third area of the light receiving surface with a third magnification factor, and

wherein, while ~~a~~ the-state is between the first state and the second state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals with a first interval of vertical pixels,

wherein, while ~~the~~ a-state is between the second state and the third state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals with a second interval of vertical pixels which is different from the first interval.

4. (Previously presented) The electric camera according to claim 3, wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

5. (Previously presented) The electric camera according to claim 3, wherein, as the zoom operation unit is operated to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

6. (Previously presented) The electric camera according to claim 3, wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the signal processing unit generates the static image by using all signals accumulated in all of an effective number of the vertical pixels.

7. (New) An electric camera comprising:
an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals accumulated in the pixels with an interval of a plurality of vertical pixels;
a processor circuitry configured to control generating image signals by using the signals outputted by the image sensing device and to continuously change a magnification factor in accordance with a zoom operation;
wherein, as the processor circuitry controls to continuously change the magnification factor in accordance with a zoom operation, the image sensing device outputs signals while changing the interval of the plurality of vertical pixels stepwise.

8. (New) An operating method for an electric camera comprising:
receiving light with an image sensing device having a light receiving surface including an array of pixels arranged vertically and horizontally, and outputting signals accumulated in the pixels with an interval of a plurality of vertical pixels;
generating image signals by using the signals outputted by the image sensing device;
continuously changing a magnification factor of a zoom operation; and
wherein, as the zoom operation continuously changes the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals while changing the interval of the plurality of vertical pixels stepwise.

9. (New) The method according to claim 8,
wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and wherein:
the generating of the image signals includes, in a first state of the at least three states, generating the image signals using signals output by the image sensing device based on a first area of the light receiving surface with a first magnification factor,
the generating of the image signals includes, in a second state of the at least three states, generating the image signals using signals output by the image sensing

device based on a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states, generating the image signals using signals output by the image sensing device based on a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation is continuously changing the magnification factor, outputting with the image sensing device signals with a first interval of vertical pixels, and

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device signals with a second interval of vertical pixels which is different from the first interval.

10. (New) The method according to claim 9,

wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

11. (New) The method according to claim 9,

wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the

signals with the image sensing device includes outputting the signals while changing the interval of the plurality of vertical pixels stepwise.

12. (New) The method according to claim 9,

wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

13. (New) An operating method for an electric camera comprising:

receiving light with an image sensing device having a light receiving surface having an array of pixels arranged vertically and horizontally, and outputting signals accumulated in the pixels with an interval of a plurality of vertical pixels;

controlling with processor circuitry generating image signals by using the signals outputted by the image sensing device and controlling to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the zoom operation is controlled with the processor circuitry to continuously change the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals while changing the interval of the plurality of vertical pixels stepwise.

Serial No. 15/386,656
Amendment filed July 5, 2018
Responsive to Office Action mailed November 16, 2017

REMARKS

Claims 1 and 3-13 are pending in this application. Claim 2 has been canceled without prejudice and without disclaimer. Claim 3 has been amended. New claims 7-13 have been added. No new matter has been added.

Claim Objections

Claims 3-6 are objected to for informalities. The amendments to claim 3 overcome the objection.

Rejections Under 35 U.S.C. §112

The Examiner has rejected claims 2-6 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.

It is submitted that claim 3, which incorporates the language of claim 2 upon which the rejection is based, has been amended to overcome the rejection under 35 U.S.C. §112. Additionally, Applicant has cancelled claim 2 without prejudice and without disclaimer. Accordingly, the rejection under 35 U.S.C. §112 should be withdrawn.

Serial No. 15/386,656
Amendment filed July 5, 2018
Responsive to Office Action mailed November 16, 2017

Double Patenting Rejections

Claim 1 stands rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 4 and 13 of U.S. Patent No. 9,544,517.

It is submitted that the amendments to claim 1 render the double patenting rejections moot.

Request for Continued Examination

Applicants submit a Request for Continued Examination to ensure entry and consideration of the foregoing amendments to the claims.

Conclusion

In view of the foregoing amendments and remarks, Applicants request reconsideration of the rejection and allowance of the claims.

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417 (referencing Attorney Docket No. ASA-9606-08).

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/

John R. Mattingly
Registration No. 30,293
703-684-1120

Electronic Acknowledgement Receipt

EFS ID:	33092309
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	05-JUL-2018
Filing Date:	21-DEC-2016
Time Stamp:	12:33:30
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		9606-08-AMD03.pdf	42231 <small>d7a0202922fe96428c81e52b9d0709c536c99199</small>	yes	9

Multipart Description/PDF files in .zip description			
Document Description		Start	End
Amendment Submitted/Entered with Filing of CPA/RCE		1	1
Claims		2	7
Applicant Arguments/Remarks Made in an Amendment		8	9

Warnings:

Information:

Total Files Size (in bytes):	42231
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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

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 15/386.656, 12/21/2016, Takahiro NAKANO, ASA-9606-08, 3687
Row 2: 24956, 7590, 08/27/2018, EXAMINER NGUYEN, LUONG TRUNG
Row 3: MATTINGLY & MALUR, PC, 1800 DIAGONAL ROAD, SUITE 210, ALEXANDRIA, VA 22314, ART UNIT 2663, PAPER NUMBER
Row 4: NOTIFICATION DATE 08/27/2018, DELIVERY MODE ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmpiaw.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/16/2018 has been entered.

Response to Arguments

3. Applicant's arguments with respect to claim 1 and newly added claims 7-13 filed on 07/05/2018 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 04/16/2018 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Terminal Disclaimer

5. The terminal disclaimer filed on 04/16/2018 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of the full statutory term of

prior U. S. patent number 9,544,517 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Interpretation

6. The following is a quotation of 35 U.S.C. 112(f):

(f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

7. Use of the word “means” (or “step for”) in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is invoked is rebutted when the function is recited with sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word “means” (or “step for”) in a claim creates a rebuttable presumption that the claim element is not to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

Claim elements in this application that use the word “means” (or “step for”) are presumed to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action. Similarly, claim elements that do not use the word “means” (or “step for”) are presumed not to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action.

8. Claim limitation “signal processing unit,” “zoom operation unit,” as recited in claim 1 has been interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because it uses a generic placeholder “unit” coupled with functional language “configured to generate image signals,” “configured to operate,” without reciting sufficient structure to achieve the function. Furthermore, the generic placeholder is not preceded by a structural modifier. Note that “signal processing,” “zoom operation,” each is not a structural modifier.

Since the claim limitation invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, claim 1 has been interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph limitation:

“signal processing circuit 7” disclosed in Figures 1, 7, Specification, pages 9, 27 for claim limitation “signal processing circuit unit.”

“view angle change switch 18” disclosed in Figure 7, Specification, pages 25-26 for claim limitation “zoom operation unit.”

If applicant wishes to provide further explanation or dispute the examiner’s interpretation of the corresponding structure, applicant must identify the corresponding structure with reference to the

specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does not intend to have the claim limitation(s) treated under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may amend the claim(s) so that it/they will clearly not invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, or present a sufficient showing that the claim recites/recite sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

For more information, see MPEP § 2173 *et seq.* and *Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

Claim Rejections - 35 USC § 103

9. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

10. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented 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 said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 7, 8, 13 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Kijima et al. (US 6,661,451) in view of Tamura et al. (US 5,959,670).

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 an array of pixels arranged vertically and horizontally, and configured to output signals accumulated in the pixels with an interval of a plurality of vertical pixels;

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.

Kijima et al. fails to disclose a zoom operation unit configured to operate to continuously change a magnification factor; wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise.

However, Tamura et al. discloses a zoom operation unit (electronic-zoom magnification control part 16b, figure 1, column 5, line 33 - column 6, line 32; column 24, lines 32-67) configured to operate to continuously change a magnification factor; wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals while changing the interval of the plurality of vertical pixels stepwise (an angle of view set by the zooming always coincides with a read-out area of the image pickup surface of the image pickup element. If the electronic-zoom function is operated, the angle of view of an optical image to be actually made incident on the image pickup surface differs from the read-out area of the image pickup element, column 1, lines 30-55; column 3, lines 4-31).

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the device in Kijima et al. by the teaching of Tamura et al. in order to obtain an electronic camera having capability of electronically enlarging the image magnification of a subject (column 1, lines 10-14).

Regarding claim 7, see Examiner's comments regarding claim 1.

Regarding claim 8, claim 8 is a method claim of apparatus claim 1, therefore, claim 8 is rejected for the same reasons given in claim 1.

Regarding claim 13, claim 13 is a method claim of apparatus claim 7, therefore, claim 13 is rejected for the same reasons given in claim 7.

Allowable Subject Matter

12. Claims 3-6, 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

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
08/21/2018

Notice of References Cited

Application/Control No. 15/386,656	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	CPC Classification	US Classification
*	A	US-5959670-A	09-1999	Tamura; Kyoji	G06T3/40	348/229.1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					


FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2663


CPC - Searched*		
Symbol	Date	Examiner
H04N5/372; H04N5/23248; H04N5/3741; H04N5/23258; H04N9/045; H04N5/3454; H04N5/23274	2/1/2017	LTN
H04N5/372, H04N5/23248, H04N5/3741, H04N5/23258, H04N9/045	11/9/2017	LTN
H04N5/372, H04N5/23248, H04N5/3741, H04N5/23258, H04N9/045	08/18/2018	LTN

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

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Search Notes 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2663

Search Notes		
Search Notes	Date	Examiner
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	2/1/2017	LTN
Inventorship search	2/1/2017	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	11/9/2017	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	08/18/2018	LTN
IPR2018-00236 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,339,493	08/18/2018	LTN
IPR2018-00238 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,736,729	08/18/2018	LTN
IPR2018-00904 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,339,493	08/18/2018	LTN
IPR2018-00908 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	08/18/2018	LTN
IPR2018-00909 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	08/18/2018	LTN
IPR2018-00910 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,059,177	08/18/2018	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
S81	1	15/386656	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 15:26
S82	177	(magnification near factor) and (pixel\$1 same interval) and zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 15:28
S83	60	S82 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 15:29
S85	4	(magnification near factor) same (vertical near pixels\$1) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 16:00
S86	248	((magnification near factor) or zoom\$3) same (vertical near pixels\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 16:02
S87	31	S86 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 16:02
S88	0	(magnification near factor) same (vertical near pixels\$1) same (zoom\$3 near (button or switch))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 18:04
S89	0	(zoom near ratio) same (vertical near	US-PGPUB;	OR	ON	2018/08/18

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		pixels\$1) same (zoom\$3 near (button or switch))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			18:04
S90	2	(vertical near pixels\$1) same (zoom\$3 near (button or switch))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 18:04
S91	7	("4589029" "4791308" "5034804" "6411361" "6542201" "6593963" "6614474").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/18 18:06
S93	141	pixels\$1 same (zoom\$3 near (button or switch))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 18:15
S94	12	S93 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 18:15
S95	5	("5986698").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 19:29
S96	4	("5828406").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 19:32
S97	2	("6661451").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 19:40
S98	90	(pixels\$1 near (mix\$3 or combin\$4 or cull\$3)) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/18 19:50
S99	6	S98 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR;	OR	ON	2018/08/18 19:50

			JPO; DERWENT; IBM_TDB			
S121	18	("4479145" "4517599" "4704632" "4779142" "4783840" "4891697" "4933758" "4937676" "4963981" "4969043" "5031036" "5032928" "5083208" "5311328" "5374995" "5384581" "5428391" "5457546").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/18 20:59
S122	14	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same vertical\$2 same (optical near zoom\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:20
S123	20	(mix\$3 or combin\$3 or cull\$3 or add\$3) same inter\$lock\$3 same (optical near zoom\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:22
S124	49124	(H04N5/372 or H04N5/23248 or H04N5/3741 or H04N5/23258 or H04N9/045).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:26
S125	13967	(scan\$4 with line) and (NTSC or standard) and (television or TV) and (mix\$3 or combin\$3 or cull\$3 or add\$3) and (pixel\$1 or charge\$1 or signal\$1) and (sensor\$1 or CCD\$1 or CMOS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:26
S126	600	S124 and S125	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:27
S127	4762	S125 and (@ad<="20000111" or @rld<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:27
S128	5	S127 and (inter\$lock\$3 same (optical near zoom\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:28
S129	39	S127 and (optical near zoom\$3)	US-PGPUB; USPAT;	OR	ON	2018/08/19 11:30

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S130	1665	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same vertical\$2 and zoom\$3 and magnification	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:35
S131	170	S124 and S130	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:36
S132	25	S131 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 11:36
S133	4	"4774581".PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 12:17
S134	71	(magnification near (ratio or factor)) same pixel\$1 same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 12:27
S135	24	S134 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 12:27
S136	6108	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same vertical\$2 same (magnification near ratio or factor)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 12:32
S137	162	S124 and S136	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 12:33

S138	39	S137 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 12:33
S139	46	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same (view adj angle) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 13:51
S140	5959	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 13:55
S141	49124	(H04N5/372 or H04N5/23248 or H04N5/3741 or H04N5/23258 or H04N9/045).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 13:55
S142	316	S140 and S141	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 13:55
S143	66	S142 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 13:56
S144	3	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same zoom\$3 same stepwise	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 14:14
S145	4	"5828406".PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 14:22
S146	59	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same vertical\$2 same (electronic near zoom\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2018/08/19 14:30

			JPO; DERWENT; IBM_TDB			
S159	766	(thin\$4) same (magnification near (factor or ratio))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 16:46
S160	201	S159 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 16:47
S161	1	("5715013").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/19 16:52
S162	611	(thin\$4) same ((electronic near zoom\$3) or (optical near zoom\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 16:53
S163	47	S162 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/08/19 16:53

EAST Search History (Interference)

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8/ 21/ 2018 10:01:35 PM**C:\ Users\ Nguyen2\ Documents\ EAST\ Workspaces\ 15386656.wsp**

Doc code: IDS
 Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
 Approved for use through 11/30/2020. OMB 0651-0031
 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2663
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	4958915	A	1990-09-25	OKADA et al.	
	2	5060074	A	1991-10-22	KINUGASA et al.	
	3	5440343	A	1995-08-08	PARULSKI et al.	
	4	5493335	A	1996-02-20	PARULSKI et al.	
	5	5497191	A	1996-03-05	YOO et al.	
	6	5497192	A	1996-03-05	SHIZUKA	
	7	5054052	A	1991-10-01	NONAMI	
	8	5793923	A	1998-08-11	SAWANOBORI	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15386656	
	Filing Date		2016-12-21	
	First Named Inventor	NAKANO, T.		
	Art Unit		2663	
	Examiner Name	NGUYEN, L. T.		
	Attorney Docket Number		ASA-9606-08	

9	5828406	A	1998-10-27	PARULSKI et al.
10	6512541	B2	2003-01-28	DUNTON et al.

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
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1								

If you wish to add additional Foreign Patent Document citation information please click the Add button.

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
1		ZTE (USA) Inc.'s Provisional Preliminary Invalidation Contentions which were filed in the following litigation: HITACHI MAXELL, LTD. v. ZTE CORP. and ZTE USA INC., Civil Action No. 5:16-cv-00179 RWS (E.D. Tex.), filed November 18, 2016 April 17, 2017	
2		ZTE (USA) Inc.'s Invalidation Contentions which were filed in the following litigation: HITACHI MAXELL, LTD. v. HUAWEI DEVICE USA INC. and HUAWEI DEVICE CO., LTD., Civil Action No. 5:16-cv-00178 RWS (E.D. Tex.) and v. ZTE CORP. and ZTE USA INC., Civil Action No. 5:16-cv-00179 RWS (E.D. Tex.), filed November 18, 2016 June 30, 2017	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15386656
	Filing Date		2016-12-21
	First Named Inventor	NAKANO, T.	
	Art Unit		2663
	Examiner Name	NGUYEN, L. T.	
	Attorney Docket Number		ASA-9606-08

3	Asustek Computer Inc. and Asus Computer International's Invalidity Contentions which were filed in the following litigation: MAXELL, LTD. v. ASUSTEK COMPUTER INC. AND ASUS COMPUTER INTERNATIONAL, Civil Action No. 2:17-cv-7528-R-MRW (C.D. CA), filed October 13, 2017 March 26, 2018
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If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/LUONG T NGUYEN/	Date Considered	08/21/2018
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2663
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2018-04-16
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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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.
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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.
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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : MAXELL, LTD.

Confirmation No.: 3687

Serial No. : 15/386,656

Filed : December 21, 2016

For : ELECTRIC CAMERA

Group : 2663

Examiner : Luong TRUNG NGUYEN

Docket No. : ASA-9606-08

Customer No.: 24956

AMENDMENT

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

February 27, 2019

Sir:

In response to the Non-Final Office Action mailed August 27, 2018, please amend the above-identified patent application as follows. A fee for a 3-month Extension of Time accompanies this response.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 12 of this paper.

Electronic Patent Application Fee Transmittal

Application Number:	15386656
Filing Date:	21-Dec-2016
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-9606-08

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 3 months with \$0 paid	1253	1	1400	1400
Miscellaneous:				
Total in USD (\$)				1400

Electronic Acknowledgement Receipt

EFS ID:	35263835
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	27-FEB-2019
Filing Date:	21-DEC-2016
Time Stamp:	11:59:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1400
RAM confirmation Number	022719INTEFSW12020100
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		9606-08-AMD04-revised.pdf	59092	yes	14
			107d6a90bbd6d2a65fe670d2c739bd4c0f19d480		
Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Amendment/Req. Reconsideration-After Non-Final Reject			1	1	
Claims			2	11	
Applicant Arguments/Remarks Made in an Amendment			12	14	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30664	no	2
			4261d21fb5727211b51da40c9646badd0ae996a3		
Warnings:					
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Total Files Size (in bytes):			89756		

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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		15386656
Filing Date		2016-12-21
First Named Inventor	NAKANO, T.	
Art Unit	2698	
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Attorney Docket Number	ASA-9606-08	

1	ZTE Corporation and ZTE (USA), Inc. v. Hitachi Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,339,493, Inter Partes Review No. IPR2018-00236 filed November 22, 2017
2	ZTE Corporation and ZTE (USA), Inc. v. Hitachi Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,736,729, Inter Partes Review No. IPR2018-00238 filed November 22, 2017
3	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,339,493, Inter Partes Review No. IPR2018-00904 dated June 20, 2018
4	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,100,604, Inter Partes Review No. IPR2018-00908 dated June 20, 2018
5	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,100,604, Inter Partes Review No. IPR2018-00909 dated June 20, 2018
6	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,059,177, Inter Partes Review No. IPR2018-00910 dated June 20, 2018
7	Asustek Computer Inc. and Asus Computer International v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 7,403,226, Inter Partes Review No. IPR2019-00068 dated October 16, 2018
8	Asustek Computer Inc. and Asus Computer International v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,544,517, Inter Partes Review No. IPR2019-00069 dated October 16, 2018
9	BlackBerry Corporation v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 6,765,616, Inter Partes Review No. IPR2019-00087 dated October 15, 2018
10	BlackBerry Corporation v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,100,604, Inter Partes Review No. IPR2019-00097 dated October 16, 2018
11	Huawei Technologies Co., Ltd. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,544,517, Inter Partes Review No. IPR2019-00656 dated February 6, 2019

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15386656
Filing Date	2016-12-21
First Named Inventor	NAKANO, T.
Art Unit	2698
Examiner Name	NGUYEN, L. T.
Attorney Docket Number	ASA-9606-08

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	<input type="text"/>	Date Considered	<input type="text"/>
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15386656		
Filing Date	2016-12-21		
First Named Inventor	NAKANO, T.		
Art Unit	2698		
Examiner Name	NGUYEN, L. T.		
Attorney Docket Number	ASA-9606-08		

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-02-27
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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.
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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).
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:	15386656
Filing Date:	21-Dec-2016
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Filer:	John Roberts Mattingly/Emily Scotti
Attorney Docket Number:	ASA-9606-08

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
Total in USD (\$)				240

Electronic Acknowledgement Receipt

EFS ID:	35262362
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	27-FEB-2019
Filing Date:	21-DEC-2016
Time Stamp:	12:16:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$240
RAM confirmation Number	022719INTEFSW12165900
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	9606-08-NoticeofIPR-2.pdf	22706	no	2
			0b281e692387a3fe7f1c30c423ed74f44ede8273		

Warnings:

Information:

2	Information Disclosure Statement (IDS) Form (SB08)	9606-08-SB08A-IPR-2.pdf	1034839	no	5
			cd9d5b27168fad889022e1d0a09ef1416a9b389c		

Warnings:

Information:

A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.

3	Non Patent Literature	Petition_IPR2018-00236.pdf	1423680	no	56
			87376f0c978c62b5bb76a07e209ef734fe4eb294		

Warnings:

Information:

4	Non Patent Literature	Petition_IPR2018-00238.pdf	728579	no	60
			a9a8ee1aa7a6ae4bc57b185a9d4711039dfaebfcc		

Warnings:

Information:

5	Non Patent Literature	Petition_IPR2018-00904.pdf	1022243	no	86
			d43e215f5d270e422ff05299e1899fc40874ad74		

Warnings:

Information:

6	Non Patent Literature	Petition_IPR2018-00908.pdf	695774	no	78
			80f0c35c71b1af17ca27ddbb5a713c58aa921690		
Warnings:					
Information:					
7	Non Patent Literature	Petition_IPR2018-00909.pdf	2421861	no	83
			1b2aaed83544e1f9a0871236744fa8b21553c5a6		
Warnings:					
Information:					
8	Non Patent Literature	Petition_IPR2018-00910.pdf	2564451	no	82
			d3f6abadda63425ccad88c64ea57e4618d105eef		
Warnings:					
Information:					
9	Non Patent Literature	Petition_IPR2019-00068.pdf	2325088	no	91
			8cb6efb9f33b3fd1a2d9017daea348c291a950f1		
Warnings:					
Information:					
10	Non Patent Literature	Petition_IPR2019-00069.pdf	2431802	no	97
			2bcc4ae47495ba3fdb1b89aadbb977ffd84c297e		
Warnings:					
Information:					
11	Non Patent Literature	Petition_IPR2019-00087.pdf	2733159	no	63
			d3ede703efeedb1af22c807ca0db2c54055065e		
Warnings:					
Information:					
12	Non Patent Literature	Petition_IPR2019-00097.pdf	732431	no	73
			1230bec37b2807a0107ac43d869819d82d638c8e		
Warnings:					
Information:					

13	Non Patent Literature	Petition_IPR2019-00656.pdf	3018069	no	67
			1f718ca703d3bd78d8b8a098970808b7f7f36529		

Warnings:

Information:

14	Fee Worksheet (SB06)	fee-info.pdf	30360	no	2
			6db8f6706907eb1c45e166ea0068d54d247414cc		

Warnings:

Information:

Total Files Size (in bytes):	21185042
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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 15/386,656 Confirmation No. : 3687
Applicant : Maxell, Ltd. TC/GAU : 2698
Filed : December 21, 2016 Examiner : NGUYEN, L. T.
Title : ELECTRIC CAMERA

Customer No.: 24956

NOTICE OF RELATED PATENTS INVOLVED IN *INTER PARTES* REVIEW

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

February 27, 2019

Sir:

Applicant notifies the Office of seven related U.S. Patent Nos. which claim priority under 35 U.S.C. 120 and are involved in the following *Inter Partes* Review proceedings:

1. 6,765,616 which which is the parent of patent nos. 7,403,226 and 8,059,177
2. 7,403,226 which matured from application 09/250,836
3. 8,059,177 which matured from application 09/250,836
4. 8,339,493 which matured from application 10/660,710
5. 8,736,729 which matured from application 12/845,266
6. 9,100,604 which matured from application 13/681,495
7. 9,544,517 which matured from application 14/264,243

ZTE Corporation and ZTE (USA), Inc. v. Hitachi Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 8,339,493, *Inter Partes* Review No. IPR2018-00236.

ZTE Corporation and ZTE (USA), Inc. v. Hitachi Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 8,736,729, *Inter Partes* Review No. IPR2018-00238.

Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 8,339,493, *Inter Partes* Review No. IPR2018-00904.

Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 9,100,604, *Inter Partes* Review No. IPR2018-00908.

Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 9,100,604, *Inter Partes* Review No. IPR2018-00909.

Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 8,059,177, *Inter Partes* Review No. IPR2018-00910.

Asustek Computer Inc. and Asus Computer International v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 7,403,226, *Inter Partes* Review No. IPR2019-00068.

Asustek Computer Inc. and Asus Computer International v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 9,544,517, *Inter Partes* Review No. IPR2019-00069.

BlackBerry Corporation v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 6,765,616, *Inter Partes* Review No. IPR2019-00087.

BlackBerry Corporation v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 9,100,604, *Inter Partes* Review No. IPR2019-00097.

Huawei Technologies Co., Ltd. v. Maxell, Ltd., Petition for *Inter Partes* Review of U.S. Patent No. 9,544,517, *Inter Partes* Review No. IPR2019-00656.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly, Reg. No. 30,293
(703) 684-1120

REMARKS

Claims 1, 4-8 and 10-19 are pending in this application. Claim 2 was previously canceled without prejudice and without disclaimer. Claims 3 and 9 have been canceled without prejudice and without disclaimer. Claims 1, 4-8 and 10-13 have been amended. New claims 14-19 have been added. No new matter has been added.

Information Disclosure Statement

Applicants appreciate the Examiner's consideration of the references submitted in the Information Disclosure Statement filed April 16, 2018.

Rejections Under 35 U.S.C. § 103

Claims 1, 7, 8 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kijima et al. (U.S. 6,661,451) in view of Tamura et al. (U.S. 5,959,670).

Without admitting to the propriety of the rejection under 35 U.S.C. §103, it is submitted that amended claims 1, 7, 8 and 13 render the rejection moot.

Allowable Subject Matter

The Examiner has objected to claims 3-6 and 9-12 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Serial No. 15/386,656
Amendment filed February 27, 2019
Responsive to Office Action mailed August 27, 2018

Claim 1 has been amended to incorporate allowable claim 3. Claims 4-6 have been amended to depend on claim 1.

Claim 7 has been amended to incorporate subject matter similar to allowable claim 3. New claims 14-16 depend on claim 7.

Claim 8 has been amended to incorporate allowable claim 9. Claims 10-12 have been amended to depend on claim 8.

Claim 13 has been amended to incorporate subject matter similar to allowable claim 9. New claims 17-19 depend on claim 13.

As such, it is submitted that claims 1, 4-8 and 10-19 are in condition for allowance.

Conclusion

In view of the foregoing amendments and remarks, Applicants request reconsideration of the rejection and allowance of the claims.

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417 (referencing Attorney Docket No. ASA-9606-08).

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120

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 camera comprising:

an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

a signal processing unit configured to generate image signals by using the signals outputted by the image sensing device; and

a zoom operation unit configured to operate to continuously change a magnification factor;

wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels including:

a first state of the at least three states in which the image signals are generated using signals based on a first area of the light receiving surface with a first magnification factor,

a second state of the at least three states in which the image signals are generated using signals based on a second area of the light receiving surface with a second magnification factor, and

a third state of the at least three states in which the image signals are generated using signals based on a third area of the light receiving surface with a third magnification factor, and

wherein, while a state is between the first state and the second state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals to generate image signals based on signal charges accumulated with a first interval of vertical pixels,

wherein, while a state is between the second state and the third state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs signals to generate image signals based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

2.-3. (Canceled).

4. (Currently amended) The electric camera according to ~~claim 3~~claim 1,

wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

5. (Currently amended) The electric camera according to ~~claim 3~~claim 1, wherein, as the zoom operation unit is operated to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

6. (Currently amended) The electric camera according to ~~claim 3~~claim 1, wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the signal processing unit generates the static image by using all signals accumulated in all of an effective number of the vertical pixels.

7. (Currently amended) An electric camera comprising:
an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

a processor circuitry configured to control generating image signals by using the signals outputted by the image sensing device and to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the processor circuitry controls to continuously change the magnification factor in accordance with a zoom operation, the image sensing device outputs signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels including:

a first state of the at least three states in which the image signals are generated using signals based on a first area of the light receiving surface with a first magnification factor,

a second state of the at least three states in which the image signals are generated using signals based on a second area of the light receiving surface with a second magnification factor, and

a third state of the at least three states in which the image signals are generated using signals based on a third area of the light receiving surface with a third magnification factor, and

wherein, while a state is between the first state and the second state when continuously changing the magnification factor in accordance with the zoom operation, the image sensing device outputs signals to generate image signals based on signal charges accumulated with a first interval of vertical pixels,

wherein, while a state is between the second state and the third state when continuously changing the magnification factor in accordance with the zoom operation, the image sensing device outputs signals to generate image signals based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

8. (Currently amended) An operating method for an electric camera comprising:

receiving light with an image sensing device having a light receiving surface including an array of pixels arranged vertically and horizontally, and outputting signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

generating image signals by using the signals outputted by the image sensing device;

continuously changing a magnification factor of a zoom operation; and

wherein, as the zoom operation continuously changes the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and

wherein:

the generating of the image signals includes, in a first state of the at least three states, generating the image signals using signals output by the image sensing device based on a first area of the light receiving surface with a first magnification factor,

the generating of the image signals includes, in a second state of the at least three states, generating the image signals using signals output by the image sensing device based on a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states, generating the image signals using signals output by the image sensing device based on a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a first interval of vertical pixels, and

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

9. (Canceled).

10. (Currently amended) The operating method according to ~~claim 9~~claim 8,

wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

11. (Currently amended) The operating method according to ~~claim 9~~claim 8,

wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the signals with the image sensing device includes outputting the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

12. (Currently amended) The operating method according to ~~claim 9~~claim 8,

wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

13. (Currently amended) An operating method for an electric camera comprising:

receiving light with an image sensing device having a light receiving surface having an array of pixels arranged vertically and horizontally, and outputting signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

controlling with processor circuitry generating image signals by using the signals outputted by the image sensing device and controlling to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the zoom operation is controlled with the processor circuitry to continuously change the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and

wherein:

the generating of the image signals includes, in a first state of the at least three states, generating the image signals using signals output by the image sensing device based on a first area of the light receiving surface with a first magnification factor,

the generating of the image signals includes, in a second state of the at least three states, generating the image signals using signals output by the image sensing device based on a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states, generating the image signals using signals output by the image sensing device based on a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a first interval of vertical pixels, and

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

14. (New) The electric camera according to claim 7,
wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

15. (New) The electric camera according to claim 7,
wherein, as the processor circuitry controls to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

16. (New) The electric camera according to claim 7,
wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the processor circuitry controls to generate the static image by using all signals accumulated in all of an effective number of the vertical pixels.

17. (New) The operating method according to claim 13,
wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

18. (New) The operating method according to claim 13,
wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the

signals with the image sensing device includes outputting the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

19. (New) The operating method according to claim 13,
wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

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ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> 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 \$80 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		x \$420 =	
<input type="checkbox"/> 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).			
<input type="checkbox"/> 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)	RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	02/27/2019		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	*	16	Minus	** 20	= 0
	Independent (37 CFR 1.16(h))	*	4	Minus	*** 4	= 0
<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						0
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	*		Minus	**	= 0
	Independent (37 CFR 1.16(h))	*		Minus	***	= 0
<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/TRINA RIDDICK/
*** 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 number found in the appropriate box in column 1.						

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.**

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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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmlplaw.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 02/27/2019 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 4-8, 10-13 and newly added claims 14-19 filed on 02/27/2019 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Claim Rejections - 35 USC § 112

4. 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.

5. Claims 1, 4-8, 10-19 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 6) recites limitation “image signals;” it is unclear that limitation “image signals” as recited in claim 1 (line 6) is the same or different from newly added limitation “image signals” as amended in claim 1 (line 4).

Claim 1 (lines 11-12) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 1 (lines 11-12) corresponds to limitation “image signals” as amended in claim 1 (line 4) or corresponds to limitation “image signals” as recited in claim 1 (line 6).

Claim 1 (line 12) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 1 (line 12) is the same or different from newly added limitation “signal charges” as amended in claim 1 (line 4).

Claim 1 (line 16) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 1 (line 16) corresponds to limitation “image signals” as amended in claim 1 (line 4) or corresponds to limitation “image signals” as recited in claim 1 (line 6) or corresponds to limitation “image signals” as amended in claim 1 (lines 11-12).

Claim 1 (line 19) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 1 (line 19) corresponds to limitation “image signals” as amended in claim 1 (line 4) or corresponds to limitation “image signals” as recited in claim 1 (line 6) or corresponds to limitation “image signals” as amended in claim 1 (lines 11-12).

Claim 1 (line 22) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 1 (line 22) corresponds to limitation “image signals” as amended in claim 1 (line 4) or corresponds to limitation “image signals” as recited in claim 1 (line 6) or corresponds to limitation “image signals” as amended in claim 1 (lines 11-12).

Claim 1 (line 27) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 1 (line 27) corresponds to limitation “signals” as recited in claim 1 (line 3) or

corresponds to limitation “the signals” as recited in claim 1 (lines 6-7) or corresponds to limitation “signals” as amended in claim 1 (line 17).

Claim 1 (line 27) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 1 (line 27) corresponds to limitation “image signals” as amended in claim 1 (line 4) or corresponds to limitation “image signals” as recited in claim 1 (line 6) or corresponds to limitation “image signals” as amended in claim 1 (lines 11-12) or corresponds to limitation “the image signals” as amended in claim 1 (line 16).

Claim 1 (lines 27-28) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 1 (lines 27-28) corresponds to limitation “signal charges” as amended in claim 1 (line 4) or corresponds to limitation “signal charges” as amended in claim 1 (line 12).

Claim 1 (line 31) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 1 (line 31) corresponds to limitation “image signals” as amended in claim 1 (line 4) or corresponds to limitation “image signals” as recited in claim 1 (line 6) or corresponds to limitation “image signals” as amended in claim 1 (lines 11-12) or corresponds to limitation “the image signals” as amended in claim 1 (line 19).

Claim 1 (line 31) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 1 (line 31) corresponds to limitation “signals” as recited in claim 1 (line 3) or corresponds to limitation “the signals” as recited in claim 1 (lines 6-7) or corresponds to limitation “signals” as amended in claim 1 (line 20).

Claim 1 (lines 31-32) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 1 (lines 31-32) corresponds to limitation “signal charges” as amended in claim 1 (line 4) or corresponds to limitation “signal charges” as amended in claim 1 (line 12).

Claim 5 (line 4) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 5 (line 4) corresponds to limitation “image signals” as amended in claim 1

(line 4) or corresponds to limitation “image signals” as recited in claim 1 (line 6) or corresponds to limitation “image signals” as amended in claim 1 (lines 11-12).

Claim 5 (lines 4-5) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 5 (lines 4-5) corresponds to limitation “signal charges” as amended in claim 1 (line 4) or corresponds to limitation “signal charges” as amended in claim 1 (line 12).

Claim 7 (line 6) recites limitation “image signals;” it is unclear that limitation “image signals” as recited in claim 7 (line 6) is the same or different from newly added limitation “image signals” as amended in claim 7 (line 4).

Claim 7 (line 11) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 7 (line 11) corresponds to limitation “image signals” as amended in claim 7 (line 4) or corresponds to limitation “image signals” as recited in claim 7 (line 6).

Claim 7 (line 11) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 7 (line 11) is the same or different from newly added limitation “signal charges” as amended in claim 7 (line 4).

Claim 7 (line 11) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 7 (line 11) is the same or different from newly added limitation “signals” as recited in claim 7 (line 3).

Claim 7 (line 15) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 7 (line 15) corresponds to limitation “image signals” as amended in claim 7 (line 4) or corresponds to limitation “image signals” as recited in claim 7 (line 6) or corresponds to limitation “image signals” as amended in claim 7 (lines 11).

Claim 7 (line 18) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 7 (line 18) corresponds to limitation “image signals” as amended in

claim 7 (line 4) or corresponds to limitation “image signals” as recited in claim 7 (line 6) or corresponds to limitation “image signals” as amended in claim 7 (line 11).

Claim 7 (line 21) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 7 (line 21) corresponds to limitation “image signals” as amended in claim 7 (line 4) or corresponds to limitation “image signals” as recited in claim 7 (line 6) or corresponds to limitation “image signals” as amended in claim 7 (line 11).

Claim 7 (line 16) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 7 (line 16) corresponds to limitation “signals” as recited in claim 7 (line 3) or corresponds to limitation “the signals” as recited in claim 7 (line 7) or corresponds to limitation “signals” as amended in claim 7 (line 11).

Claim 7 (line 18) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 7 (line 18) corresponds to limitation “image signals” as amended in claim 7 (line 4) or corresponds to limitation “image signals” as recited in claim 7 (line 6) or corresponds to limitation “image signals” as amended in claim 7 (line 11) or corresponds to limitation “the image signals” as amended in claim 7 (line 15).

Claim 7 (line 27) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 7 (line 27) corresponds to limitation “signal charges” as amended in claim 7 (line 4) or corresponds to limitation “signal charges” as amended in claim 7 (line 11).

Claim 7 (line 30) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 7 (line 30) corresponds to limitation “image signals” as amended in claim 7 (line 4) or corresponds to limitation “image signals” as recited in claim 7 (line 6) or corresponds to limitation “image signals” as amended in claim 7 (line 11) or corresponds to limitation “the image signals” as amended in claim 7 (line 18).

Claim 7 (line 30) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 7 (line 30) corresponds to limitation “signals” as recited in claim 1 (line 3) or corresponds to limitation “the signals” as recited in claim 7 (line 7) or corresponds to limitation “signals” as recited in claim 7 (line 11).

Claim 7 (line 31) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 7 (line 31) corresponds to limitation “signal charges” as amended in claim 7 (line 4) or corresponds to limitation “signal charges” as amended in claim 17 (line 11).

Claim 8 (line 7) recites limitation “image signals;” it is unclear that limitation “image signals” as recited in claim 8 (line 7) is the same or different from newly added limitation “image signals” as amended in claim 8 (line 5).

Claim 8 (line 12) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 8 (line 12) corresponds to limitation “image signals” as amended in claim 8 (line 5) or corresponds to limitation “image signals” as recited in claim 8 (line 7).

Claim 8 (line 12) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 8 (line 12) is the same or different from newly added limitation “signal charges” as amended in claim 8 (line 5).

Claim 8 (line 17) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 8 (line 17) corresponds to limitation “image signals” as amended in claim 8 (line 5) or corresponds to limitation “image signals” as recited in claim 8 (line 7) or corresponds to limitation “image signals” as amended in claim 8 (line 12).

Claim 8 (line 21) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 8 (line 21) corresponds to limitation “image signals” as amended in claim 8 (line 5) or corresponds to limitation “image signals” as recited in claim 8 (line 7) or corresponds to limitation “image signals” as amended in claim 1 (line 12).

Claim 8 (line 25) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 8 (line 25) corresponds to limitation “image signals” as amended in claim 8 (line 5) or corresponds to limitation “image signals” as recited in claim 8 (line 7) or corresponds to limitation “image signals” as amended in claim 8 (line 12).

Claim 8 (line 31) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 8 (line 31) corresponds to limitation “signals” as recited in claim 8 (line 5) or corresponds to limitation “the signals” as recited in claim 8 (line 12) or corresponds to limitation “signals” as amended in claim 8 (line 18).

Claim 8 (line 31) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 8 (line 31) corresponds to limitation “image signals” as amended in claim 8 (line 5) or corresponds to limitation “image signals” as recited in claim 8 (line 7) or corresponds to limitation “image signals” as amended in claim 8 (line 12) or corresponds to limitation “the image signals” as amended in claim 8 (line 17).

Claim 8 (line 31) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 8 (line 31) corresponds to limitation “signal charges” as amended in claim 8 (line 5) or corresponds to limitation “signal charges” as amended in claim 8 (line 12).

Claim 8 (line 31) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 8 (line 31) corresponds to limitation “image signals” as amended in claim 8 (line 5) or corresponds to limitation “image signals” as recited in claim 8 (line 7) or corresponds to limitation “image signals” as amended in claim 8 (line 12) or corresponds to limitation “the image signals” as amended in claim 8 (line 17).

Claim 8 (line 31) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 8 (line 31) corresponds to limitation “signals” as recited in claim 8 (line 5) or

corresponds to limitation “the signals” as recited in claim 8 (line 7) or corresponds to limitation “the signals” as recited in claim 8 (line 12).

Claim 8 (line 31) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 8 (line 31) corresponds to limitation “signal charges” as amended in claim 8 (line 5) or corresponds to limitation “signal charges” as amended in claim 8 (line 12).

Claim 11 (line 6) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 11 (line 6) corresponds to limitation “image signals” as amended in claim 8 (line 5) or corresponds to limitation “image signals” as recited in claim 8 (line 7) or corresponds to limitation “image signals” as amended in claim 8 (line 12).

Claim 11 (line 6) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 11 (line 6) corresponds to limitation “signal charges” as amended in claim 8 (line 5) or corresponds to limitation “signal charges” as amended in claim 8 (line 12).

Claim 13 (line 7) recites limitation “image signals;” it is unclear that limitation “image signals” as recited in claim 13 (line 7) is the same or different from newly added limitation “image signals” as amended in claim 13 (line 5).

Claim 13 (line 12) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 13 (line 12) corresponds to limitation “image signals” as amended in claim 13 (line 5) or corresponds to limitation “image signals” as recited in claim 13 (line 7).

Claim 13 (line 13) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 13 (line 13) is the same or different from newly added limitation “signal charges” as amended in claim 8 (line 5).

Claim 13 (line 18) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 13 (line 18) corresponds to limitation “image signals” as amended in

claim 13 (line 5) or corresponds to limitation “image signals” as recited in claim 13 (line 7) or corresponds to limitation “image signals” as amended in claim 13 (line 12).

Claim 13 (line 22) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 13 (line 22) corresponds to limitation “image signals” as amended in claim 13 (line 5) or corresponds to limitation “image signals” as recited in claim 13 (line 7) or corresponds to limitation “image signals” as amended in claim 13 (line 12).

Claim 13 (line 27) amended with limitation “the image signals;” it is unclear that limitation “the image signals” as amended in claim 13 (line 27) corresponds to limitation “image signals” as amended in claim 13 (line 5) or corresponds to limitation “image signals” as recited in claim 13 (line 7) or corresponds to limitation “image signals” as amended in claim 13 (line 12).

Claim 13 (line 32) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 13 (line 32) corresponds to limitation “signals” as recited in claim 13 (line 4) or corresponds to limitation “the signals” as recited in claim 13 (line 12) or corresponds to limitation “signals” as amended in claim 13 (line 19).

Claim 13 (line 32) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 13 (line 32) corresponds to limitation “image signals” as amended in claim 13 (line 5) or corresponds to limitation “image signals” as recited in claim 13 (line 7) or corresponds to limitation “image signals” as amended in claim 13 (line 12) or corresponds to limitation “the image signals” as amended in claim 13 (line 18).

Claim 13 (line 32) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 13 (line 32) corresponds to limitation “signal charges” as amended in claim 13 (line 5) or corresponds to limitation “signal charges” as amended in claim 13 (line 13).

Claim 13 (line 32) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 3 (line 32) corresponds to limitation “image signals” as amended in claim

13 (line 5) or corresponds to limitation “image signals” as recited in claim 13 (line 7) or corresponds to limitation “image signals” as amended in claim 13 (line 12) or corresponds to limitation “the image signals” as amended in claim 13 (line 18).

Claim 13 (line 32) amended with limitation “signals;” it is unclear that limitation “signals” as amended in claim 13 (line 32) corresponds to limitation “signals” as recited in claim 13 (line 4) or corresponds to limitation “the signals” as recited in claim 13 (lines 6-7) or corresponds to limitation “the signals” as recited in claim 13 (line 12).

Claim 13 (line 32) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 13 (line 32) corresponds to limitation “signal charges” as amended in claim 13 (line 5) or corresponds to limitation “signal charges” as amended in claim 13 (line 13).

Claim 15 (line 4) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 15 (line 4) corresponds to limitation “image signals” as amended in claim 7 (line 4) or corresponds to limitation “image signals” as recited in claim 7 (line 6) or corresponds to limitation “image signals” as amended in claim 7 (line 11).

Claim 15 (lines 4-5) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 15 (lines 4-5) corresponds to limitation “signal charges” as amended in claim 7 (line 4) or corresponds to limitation “signal charges” as amended in claim 7 (line 11).

Claim 18 (line 5) amended with limitation “image signals;” it is unclear that limitation “image signals” as amended in claim 18 (line 5) corresponds to limitation “image signals” as amended in claim 13 (line 5) or corresponds to limitation “image signals” as recited in claim 13 (line 7) or corresponds to limitation “image signals” as amended in claim 13 (line 12).

Claim 18 (line 5) amended with limitation “signal charges;” it is unclear that limitation “signal charges” as amended in claim 18 (line 5) corresponds to limitation “signal charges” as amended in claim 13 (line 5) or corresponds to limitation “signal charges” as amended in claim 13 (line 13).

Claims 4-6 are rejected as being dependent from claim 1.

Claims 10-12 are rejected as being dependent from claim 8.

Claims 14-16 are rejected as being dependent from claim 7.

Claims 17-19 are rejected as being dependent from claim 13.

Conclusion

6. 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.


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

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

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 2698
05/10/2019

Search Notes 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698


CPC - Searched*		
Symbol	Date	Examiner
H04N5/372; H04N5/23248; H04N5/3741; H04N5/23258; H04N9/045; H04N5/3454; H04N5/23274	2/1/2017	LTN
H04N5/372, H04N5/23248, H04N5/3741, H04N5/23258, H04N9/045	11/9/2017	LTN
H04N5/372, H04N5/23248, H04N5/3741, H04N5/23258, H04N9/045	08/18/2018	LTN
H04N5/372, H04N5/23248, H04N5/23258, H04N5/23274, H04N5/3741, H04N2209/045, H04N9/045	05/06/2019	LTN

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner


* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

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Search Notes 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698

Search Notes		
Search Notes	Date	Examiner
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	2/1/2017	LTN
Inventorship search	2/1/2017	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	11/9/2017	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	08/18/2018	LTN
IPR2018-00236 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,339,493	08/18/2018	LTN
IPR2018-00238 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,736,729	08/18/2018	LTN
IPR2018-00904 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,339,493	08/18/2018	LTN
IPR2018-00908 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	08/18/2018	LTN
IPR2018-00909 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	08/18/2018	LTN
IPR2018-00910 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,059,177	08/18/2018	LTN
IPR2019-00068 Reviewed Petition for Inter Partes Review of U.S. Patent No. 7,403,226	05/06/2019	LTN
IPR2019-00069 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,544,517	05/06/2019	LTN
IPR2019-00087 Reviewed Petition for Inter Partes Review of U.S. Patent No. 6,765,616	05/06/2019	LTN
IPR2019-00097 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	05/06/2019	LTN
IPR2019-00656 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,544,517	05/06/2019	LTN

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<i>Search Notes</i> 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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Doc code: IDS
 Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15386656
Filing Date	2016-12-21
First Named Inventor	NAKANO, T.
Art Unit	2698
Examiner Name	NGUYEN, L. T.
Attorney Docket Number	ASA-9606-08

1	ZTE Corporation and ZTE (USA), Inc. v. Hitachi Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,339,493, Inter Partes Review No. IPR2018-00236 filed November 22, 2017 Not shown on submitted copy.
2	ZTE Corporation and ZTE (USA), Inc. v. Hitachi Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,736,729, Inter Partes Review No. IPR2018-00236 filed November 22, 2017 Not shown on submitted copy.
3	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,339,493, Inter Partes Review No. IPR2018-00904 dated June 20, 2018
4	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,100,604, Inter Partes Review No. IPR2018-00908 dated June 20, 2018
5	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,100,604, Inter Partes Review No. IPR2018-00909 dated June 20, 2018
6	Olympus Corporation, Olympus Corporation of the Americas and Olympus America inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,059,177, Inter Partes Review No. IPR2018-00910 dated June 20, 2018
7	Asustek Computer Inc. and Asus Computer International v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 7,403,226, Inter Partes Review No. IPR2019-00068 dated October 16, 2018
8	Asustek Computer Inc. and Asus Computer International v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,544,517, Inter Partes Review No. IPR2019-00069 dated October 16, 2018
9	BlackBerry Corporation v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 6,765,616, Inter Partes Review No. IPR2019-00087 dated October 15, 2018
10	BlackBerry Corporation v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,100,604, Inter Partes Review No. IPR2019-00097 dated October 16, 2018
11	Huawei Technologies Co., Ltd. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 9,544,517, Inter Partes Review No. IPR2019-00656 dated February 6, 2019

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

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EXAMINER SIGNATURE

Examiner Signature	/LUONG T NGUYEN/	Date Considered	05/01/2019
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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
 A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-02-27
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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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)).
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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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S167	1	15/386656	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 13:30
S168	294	((("NAKANO") near3 ("Takahiro"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 13:31
S169	43	((("NISHIMURA") near3 ("Ryuji"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 13:33
S170	10	("20030122941" "5170249" "5343243" "5502483" "5668597" "5734427" "5786852" "5986698" "6148031" "6614477").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 13:34
S171	43	((("KINUGASA") near3 ("Toshiro"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 13:45
S172	6	("4638362" "4689686" "4858020" "4942473" "4963981" "5019912").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 13:47
S173	2	"6661451".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 14:05
S174	4	"5959670".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 14:21
S175	644	(thin\$4) same ((electronic near zoom\$3) or (optical near zoom\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 14:59
S176	47	S175 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2019/05/06 14:59

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			IBM_TDB			
S177	785	(thin\$4) same (magnification near (factor or ratio))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:01
S179	201	S177 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:02
S180	23	(vary or various or varying or chang\$3) same (magnification near (factor or ratio)) same ((electronic near zoom\$3) or (optical near zoom\$3)) same area	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:12
S181	502	(mix\$3 or combin\$3 or cull\$3 or add\$3) same (pixel\$1 or charge\$1 or signal\$1) same ((electronic near zoom\$3) or (optical near zoom\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:17
S182	101	S181 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:18
S183	54	(scan\$4 with line) same (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) and((electronic near zoom\$3) or (optical near zoom\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:40
S184	52700	(H04N5/372 or H04N5/23248 or H04N5/23258 or H04N5/23274 or H04N5/3741 or H04N2209/045 or H04N9/045).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:47
S185	19553	(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 or CMOS) same ratio	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:47
S186	690	S184 and S185	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/05/06 15:47

			JPO; DERWENT; IBM_TDB			
S187	102	S186 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:48
S188	6	("4281339" "4907089" "5144444" "5523786" "5572155" "5625414").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 15:49
S189	2591	(magnification or magnif\$4) and (pixel\$1 same interval) and zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:54
S190	298	S184 and S189	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:55
S191	93	S190 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 15:55
S192	12	("20050083430" "4691253" "5040068" "5070405" "5382974" "5396290" "5412424" "5589879" "5650819" "5751348" "5929906" "6072526").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 16:01
S193	2	("4843475" "5420632").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/06 16:04
S194	8978	(magnification or magnif\$4) and (pixel\$1 same interval)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:11
S195	425	S184 and S194	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:12
S196	118	S195 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/05/06 16:12

			JPO; DERWENT; IBM_TDB			
S197	225	S185 and S194	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:15
S198	20	S197 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:15
S199	180	(pixel\$1 same interval) same zoom\$3 same area	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:17
S200	12	S199 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:17
S201	2123	(magnification or magnif\$4) and (pixel\$1 same interval) and (charge\$1 or signal\$1) and (sensor\$1 or CCD\$1 or CMOS) and zoom\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:21
S202	289	S184 and S201	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:21
S203	93	S202 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/06 16:22

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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 15/386,656, 12/21/2016, Takahiro NAKANO, ASA-9606-08, 3687
Row 2: 24956, 7590, 07/16/2019, MATTINGLY & MALUR, PC, 1800 DIAGONAL ROAD, SUITE 210, ALEXANDRIA, VA 22314, EXAMINER NGUYEN, LUONG TRUNG
Row 3: ART UNIT 2698, PAPER NUMBER
Row 4: NOTIFICATION DATE 07/16/2019, DELIVERY MODE ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmlplaw.com

<i>Applicant-Initiated Interview Summary</i>	Application No. 15/386,656	Applicant(s) NAKANO et al.	
	Examiner LUONG T NGUYEN	Art Unit 2698	AIA (FITF) Status No

All participants (applicant, applicants representative, PTO personnel):

(1) LUONG TRUNG. NGUYEN. (3) _____.

(2) JAMIE NGUYEN (Reg. No. 64,687). (4) _____.

Date of Interview: 11 July 2019.

Type: Telephonic Video Conference
 Personal [copy given to: applicant applicant's representative]

Exhibit shown or demonstration conducted: Yes No.
If Yes, brief description: _____.

Issues Discussed 101 112 102 103 Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1,5,7-8 and 13.

Identification of prior art discussed: _____.

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Mr. Jamie Nguyen explained the claimed invention. The parties discussed the claim language and the rejection under 35 USC 112 with respect to claims 1, 5, 7-8, 13 (see attached Interview Agenda). No agreement was reach.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Attachment

/LUONG T NGUYEN/ Primary Examiner, Art Unit 2698	
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Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : MAXELL, LTD.

Confirmation No.: 3687

Serial No. : 15/386,656

Filed : December 21, 2016

For : ELECTRIC CAMERA

Group : 2663

Examiner : Luong TRUNG NGUYEN

Docket No. : ASA-9606-08

Customer No.: 24956

INTERVIEW AGENDA

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

Sir:

In advance of the telephone interview on July 11, 2019, please refer to the following proposed amendments and remarks.

Proposed Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 12 of this paper.

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Interview Agenda
Regarding the Office Action of May 15, 2019

Proposed Amendments to the Claims:

1. (Currently amended - proposed) An electric camera comprising:
an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;
a signal processing unit configured to generate the image signals by using the signals outputted by the image sensing device; and
a zoom operation unit configured to operate to continuously change a magnification factor;
wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;
wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels including:
a first state of the at least three states in which the image signals are generated using the signals based on a first area of the light receiving surface with a first magnification factor,
a second state of the at least three states in which the image signals are generated using the signals based on a second area of the light receiving surface with a second magnification factor, and

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Interview Agenda
Regarding the Office Action of May 15, 2019

a third state of the at least three states in which the image signals are generated using the signals based on a third area of the light receiving surface with a third magnification factor, and

wherein, while a state is between the first state and the second state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals to generate the image signals based on first signal charges accumulated with a first interval of vertical pixels,

wherein, while a state is between the second state and the third state when the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals to generate the image signals based on second signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

2.-3. (Canceled).

4. (Previously presented) The electric camera according to claim 1, wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

5. (Previously presented) The electric camera according to claim 1,

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Interview Agenda
Regarding the Office Action of May 15, 2019

wherein, as the zoom operation unit is operated to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals to generate image signals based on signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

6. (Previously presented) The electric camera according to claim 1, wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the signal processing unit generates the static image by using all signals accumulated in all of an effective number of the vertical pixels.

7. (Currently amended - proposed) An electric camera comprising:
an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

a processor circuitry configured to control generating the image signals by using the signals outputted by the image sensing device and to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the processor circuitry controls to continuously change the magnification factor in accordance ~~with a~~ with the zoom operation, the image

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sensing device outputs the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels including:

a first state of the at least three states in which the image signals are generated using the signals based on a first area of the light receiving surface with a first magnification factor,

a second state of the at least three states in which the image signals are generated using the signals based on a second area of the light receiving surface with a second magnification factor, and

a third state of the at least three states in which the image signals are generated using the signals based on a third area of the light receiving surface with a third magnification factor, and

wherein, while a state is between the first state and the second state when continuously changing the magnification factor in accordance with the zoom operation, the image sensing device outputs the signals to generate the image signals based on first signal charges accumulated with a first interval of vertical pixels,

wherein, while a state is between the second state and the third state when continuously changing the magnification factor in accordance with the zoom operation, the image sensing device outputs the signals to generate the image

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signals based on second signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

8. (Currently amended - proposed) .An operating method for an electric camera comprising:

receiving light with an image sensing device having a light receiving surface including an array of pixels arranged vertically and horizontally, and outputting signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

generating the image signals by using the signals outputted by the image sensing device;

continuously changing a magnification factor of a zoom operation; and
wherein, as the zoom operation continuously changes the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and

wherein:

the generating of the image signals includes, in a first state of the at least three states, generating the image signals using the signals output by the image

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sensing device based on a first area of the light receiving surface with a first magnification factor,

the generating of the image signals includes, in a second state of the at least three states, generating the image signals using the signals output by the image sensing device based on a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states, generating the image signals using the signals output by the image sensing device based on a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device the signals to generate the image signals based on first signal charges accumulated with a first interval of vertical pixels, and

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device the signals to generate the image signals based on second signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

9. (Canceled).

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10. (Previously presented) The operating method according to claim 8, wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

11. (Currently amended - proposed) The operating method according to claim 8, wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the signals with the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

12. (Previously presented) The operating method according to claim 8, wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

13. (Currently amended - proposed) An operating method for an electric camera comprising:

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receiving light with an image sensing device having a light receiving surface having an array of pixels arranged vertically and horizontally, and outputting signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

controlling with processor circuitry generating the image signals by using the signals outputted by the image sensing device and controlling to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the zoom operation is controlled with the processor circuitry to continuously change the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and

wherein:

the generating of the image signals includes, in a first state of the at least three states, generating the image signals using the signals output by the image sensing device based on a first area of the light receiving surface with a first magnification factor,

the generating of the image signals includes, in a second state of the at least three states, generating the image signals using the signals output by the image

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sensing device based on a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states, generating the image signals using the signals output by the image sensing device based on a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device the signals to generate the image signals based on first signal charges accumulated with a first interval of vertical pixels, and

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, outputting with the image sensing device the signals to generate the image signals based on second signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

14. (Previously presented) The electric camera according to claim 7, wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

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15. (Currently amended - proposed) The electric camera according to claim 7,

wherein, as the processor circuitry controls to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

16. (Previously presented) The electric camera according to claim 7, wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the processor circuitry controls to generate the static image by using all signals accumulated in all of an effective number of the vertical pixels.

17. (Previously presented) The operating method according to claim 13, wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

18. (Currently amended - proposed) The operating method according to claim 13,

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wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the signals with the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

19. (Previously presented) The operating method according to claim 13, wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

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Interview Agenda
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REMARKS

Discussion of the foregoing proposed amendments is respectfully requested during the telephone interview with respect to the outstanding rejection(s) under 35 U.S.C. §112 in the Office Action of May 15, 2019.

Respectfully submitted,

MATTINGLY & MALUR, PC

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL (Submitted Only via EFS-Web)

Application Number	15386656	Filing Date	2016-12-21	Docket Number (if applicable)	ASA-9606-08	Art Unit	
First Named Inventor	NAKANO, T.			Examiner Name	NGUYEN, L. T.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
 Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

- Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- Other _____
- Enclosed
- Amendment/Reply
- Information Disclosure Statement (IDS)
- Affidavit(s)/ Declaration(s)
- Other _____

MISCELLANEOUS

- Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
 (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- Other _____

FEES

- The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
 The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
 Deposit Account No 501417

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

<input checked="" type="checkbox"/>	Patent Practitioner Signature
	Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	John R. Mattingly/	Date (YYYY-MM-DD)	2019-08-07
Name	John R. Mattingly	Registration Number	30293

This collection of information is required by 37 CFR 1.114. 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.

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 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:	15386656
Filing Date:	21-Dec-2016
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-9606-08

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	1820	1	1900	1900
Total in USD (\$)				1900

Electronic Acknowledgement Receipt

EFS ID:	36803931
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	07-AUG-2019
Filing Date:	21-DEC-2016
Time Stamp:	12:49:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1900
RAM confirmation Number	E201987C49434995
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		9606-08-AMD05-revised.pdf	65721	yes	15
			4eb7175f81467f63205fef3f3f7b5496b3375daa		
Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Amendment Submitted/Entered with Filing of CPA/RCE			1	1	
Claims			2	13	
Applicant Arguments/Remarks Made in an Amendment			14	15	
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	9606-08-RCE-2.pdf	1350097	no	3
			ce5d37eecd7640ec3e7d8ffec3b7497d57a9e97a		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30358	no	2
			e4e5ee930dd4ad5214703c59fc04e86782e7243e		
Warnings:					
Information:					
Total Files Size (in bytes):			1446176		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : MAXELL, LTD.

Confirmation No.: 3687

Serial No. : 15/386,656

Filed : December 21, 2016

For : ELECTRIC CAMERA

Group : 2663

Examiner : Luong TRUNG NGUYEN

Docket No. : ASA-9606-08

Customer No.: 24956

AMENDMENT AFTER FINAL REJECTION

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

August 7, 2019

Sir:

In response to the Final Office Action mailed May 15, 2019, please amend the above-identified patent application as follows.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 14 of this paper.

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 camera comprising:

an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

a signal processing unit configured to generate the image signals by using the signals outputted by the image sensing device; and

a zoom operation unit configured to operate to continuously change a magnification factor;

wherein, as the zoom operation unit is operated to continuously change the magnification factor, the image sensing device outputs the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states₁ which have different intervals of the plurality of vertical pixels₁ including:

a first state having a first interval of the plurality of vertical pixels ~~of the at least three states~~ in which ~~the~~ first image signals are generated using first signals based

on first signal charges accumulated in a first area of the light receiving surface with a first magnification factor,

a second state having a second interval of the plurality of vertical pixels of the
~~at least three states in which the second image signals are generated using second~~
signals based on second signal charges accumulated in a second area of the light
receiving surface with a second magnification factor, and

a third state having a third interval of the plurality of vertical pixels of the
~~at least three states in which the third image signals are generated using third signals~~
based on third signal charges accumulated in a third area of the light receiving
surface with a third magnification factor, and

wherein, while a state is between the first state and the second state when the
zoom operation unit is operated to continuously change the magnification factor, the
electric camera is configured to change areas of the light receiving surface to be
used in accordance with changing the magnification factor between the first
magnification factor and the second magnification factor and keep the first interval
constant~~the image sensing device outputs signals to generate image signals based~~
~~on signal charges accumulated with a first interval of vertical pixels, and~~

wherein, while a state is between the second state and the third state when
the zoom operation unit is operated to continuously change the magnification factor,
the electric camera is configured to change areas of the light receiving surface to be
used in accordance with changing the magnification factor between the second
magnification factor and the third magnification factor and keep the second interval

~~constant~~the image sensing device outputs signals to generate image signals based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.

2.-3. (Canceled).

4. (Previously presented) The electric camera according to claim 1, wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

5. (Currently amended) The electric camera according to claim 1, wherein, as the zoom operation unit is operated to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

6. (Previously presented) The electric camera according to claim 1, wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the signal processing unit generates the static

image by using all signals accumulated in all of an effective number of the vertical pixels.

7. (Currently amended) An electric camera comprising:

an image sensing device with a light receiving surface having an array of pixels arranged vertically and horizontally, and configured to output signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

a processor circuitry configured to control generating the image signals by using the signals outputted by the image sensing device and to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the processor circuitry controls to continuously change the magnification factor in accordance ~~with a~~ with the zoom operation, the image sensing device outputs the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states₁ which have different intervals of the plurality of vertical pixels₁ including:

a first state having a first interval of the plurality of vertical pixels ~~of the at least three states~~ in which ~~the~~ first image signals are generated using first signals based on first signal charges accumulated in a first area of the light receiving surface with a first magnification factor,

a second state having a second interval of the plurality of vertical pixels of the
~~at least three states~~ in which ~~the~~ second image signals are generated using second
signals based on second signal charges accumulated in a second area of the light
receiving surface with a second magnification factor, and

a third state having a third interval of the plurality of vertical pixels of the ~~at~~
~~least three states~~ in which ~~the~~ third image signals are generated using third signals
based on third signal charges accumulated in a third area of the light receiving
surface with a third magnification factor, ~~and~~

wherein, while a state is between the first state and the second state when
continuously changing the magnification factor in accordance with the zoom
operation, the electric camera is configured to change areas of the light receiving
surface to be used in accordance with changing the magnification factor between the
first magnification factor and the second magnification factor and keep the first
interval constant ~~the image sensing device outputs signals to generate image signals~~
~~based on signal charges accumulated with a first interval of vertical pixels,~~

wherein, while a state is between the second state and the third state when
continuously changing the magnification factor in accordance with the zoom
operation, the electric camera is configured to change areas of the light receiving
surface to be used in accordance with changing the magnification factor between the
second magnification factor and the third magnification factor and keep the second
interval constant ~~the image sensing device outputs signals to generate image signals~~

~~based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.~~

8. (Currently amended) An operating method for an electric camera comprising:

receiving light with an image sensing device having a light receiving surface including an array of pixels arranged vertically and horizontally, and outputting signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

generating the image signals by using the signals outputted by the image sensing device;

continuously changing a magnification factor of a zoom operation; and

wherein, as the zoom operation continuously changes the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and

wherein:

the generating of the image signals includes, in a first state of the at least three states having a first interval of the plurality of vertical pixels, generating the first

image signals using first signals output by the image sensing device based on a first area of the light receiving surface with a first magnification factor,

the generating of the image signals includes, in a second state of the at least three states having a second interval of the plurality of vertical pixels, generating the second image signals using second signals output by the image sensing device based on a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states having a third interval of the plurality of vertical pixels, generating the third image signals using third signals output by the image sensing device based on a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation continuously changes the magnification factor, changing areas of the light receiving surface to be used in accordance with changing the magnification factor between the first magnification factor and the second magnification factor and keeping the first interval constant~~outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a first interval of vertical pixels~~, and

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, changing areas of the light receiving surface to be used in accordance with changing the magnification factor between the second magnification factor and the third magnification factor and

~~keeping the second interval constant outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.~~

9. (Canceled).

10. (Previously presented) The operating method according to claim 8, wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

11. (Currently amended) The operating method according to claim 8, wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the signals with the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

12. (Previously presented) The operating method according to claim 8, wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes

generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

13. (Currently amended) An operating method for an electric camera comprising:

receiving light with an image sensing device having a light receiving surface having an array of pixels arranged vertically and horizontally, and outputting signals to generate image signals based on signal charges accumulated in the pixels with an interval of a plurality of vertical pixels;

controlling with processor circuitry generating the image signals by using the signals outputted by the image sensing device and controlling to continuously change a magnification factor in accordance with a zoom operation;

wherein, as the zoom operation is controlled with the processor circuitry to continuously change the magnification factor, the outputting of the signals of the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise;

wherein the electric camera has at least three states which have different intervals of the plurality of vertical pixels, and

wherein:

the generating of the image signals includes, in a first state of the at least three states having a first interval of the plurality of vertical pixels, generating ~~the first~~

image signals using first signals output by the image sensing device based on first signal charges accumulated in a first area of the light receiving surface with a first magnification factor,

the generating of the image signals includes, in a second state of the at least three states having a second interval of the plurality of vertical pixels, generating the second image signals using second signals output by the image sensing device based on second signal charges accumulated in a second area of the light receiving surface with a second magnification factor, and

the generating of the image signals includes, in a third state of the at least three states having a third interval of the plurality of vertical pixels, generating the third image signals using third signals output by the image sensing device based on third signal charges accumulated in a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation continuously changes the magnification factor, changing areas of the light receiving surface to be used in accordance with changing the magnification factor between the first magnification factor and the second magnification factor and keeping the first interval constant~~outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a first interval of vertical pixels, and~~

wherein, while a state is between the second state and the third state when the zoom operation continuously changes the magnification factor, changing areas of

the light receiving surface to be used in accordance with changing the magnification factor between the second magnification factor and the third magnification factor and keeping the second interval constant~~outputting with the image sensing device signals to generate image signals based on signal charges accumulated with a second interval of vertical pixels which is different from the first interval.~~

14. (Previously presented) The electric camera according to claim 7, wherein the image sensing device outputs the signals which are mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

15. (Currently amended) The electric camera according to claim 7, wherein, as the processor circuitry controls to continuously change the magnification factor during recording of a moving video in a moving video mode, the image sensing device outputs the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

16. (Previously presented) The electric camera according to claim 7, wherein the electric camera has a static image mode for taking a static image and, when in the static image mode, the processor circuitry controls to generate the

static image by using all signals accumulated in all of an effective number of the vertical pixels.

17. (Previously presented) The operating method according to claim 13, wherein the outputting of the signals with the image sensing device includes outputting mixed or culled signals accumulated in the pixels with the interval of the plurality of vertical pixels.

18. (Currently amended) The operating method according to claim 13, wherein, as the zoom operation continuously changes the magnification factor during recording of a moving video in a moving video mode, the outputting of the signals with the image sensing device includes outputting the signals to generate the image signals based on the signal charges accumulated while changing the interval of the plurality of vertical pixels stepwise.

19. (Previously presented) The operating method according to claim 13, wherein the electric camera has a static image mode for taking a static image and, wherein, in the static image mode, the generating of the image signals includes generating the static image by using all signals accumulated in all of an effective number of the vertical pixels.

Serial No. 15/386,656
Amendment filed August 7, 2019
Responsive to Office Action mailed May 15, 2019

REMARKS

Claims 1, 4-8 and 10-19 are pending in this application. Claim 2, 3 and 9 were previously canceled without prejudice and without disclaimer. Claims 1, 5, 7-8, 11, 13, 15 and 18 have been amended. No new matter has been added.

Information Disclosure Statement

Applicant appreciates the Examiner's consideration of the references submitted in the Information Disclosure Statement filed February 27, 2019.

Interview Summary

Applicant appreciates the Examiner granting a telephone interview on July 11, 2019 at 10:00 AM. During the interview, proposed amendments were discussed regarding the rejections under 35 U.S.C. §112(b). No agreement was reached during the interview.

Rejections Under 35 U.S.C. §112

The Examiner has rejected claims 1, 4-8 and 10-19 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.

Serial No. 15/386,656
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It is submitted that claims 1, 5, 7-8, 11, 13, 15 and 18 have been amended for clarification and to provide proper antecedent basis in regards to the rejections under 35 U.S.C. §112(b).

Request for Continued Examination

A Request for Continued Examination is being filed with this paper to ensure entry and consideration of the foregoing amendments.

Conclusion

In view of the foregoing amendments and remarks, Applicant requests reconsideration of the rejection and allowance of the claims.

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417 (referencing Attorney Docket No. ASA-9606-08).

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/386,656	Filing Date 12/21/2016	<input type="checkbox"/> To be Mailed
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ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED - PART I

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TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		x \$80 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		x \$420 =	
<input type="checkbox"/> 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).			
<input type="checkbox"/> 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	

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		(Column 1)		(Column 2)	(Column 3)	RATE (\$)	ADDITIONAL FEE (\$)
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	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x \$460 =	0
<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))							
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TOTAL ADD'L FEE							0
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
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<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))							
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
TOTAL ADD'L FEE							
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	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6335760	B1	2002-01-01	SATO	
	2	6018363	A	2000-01-25	HORII	
	3	7903162	B2	2011-03-08	JUEN	
	4	4740828	A	1988-04-26	KINOSHITA	
	5	6563535	B1	2003-05-13	ANDERSON	
	6	6529236	B1	2003-03-04	WATANABE	
	7	6661451	B1	2003-12-09	KIJIMA et al.	
	8	5502483	A	1996-03-26	TAKASE et al.	

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9	4612575	A	1986-09-16	ISHMAN et al.
10	5444482	A	1995-08-22	MISAWA et al.

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1		0 802 688	EP	A1	1997-10-22	HITACHI, LTD.		

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1		Apple Inc.'s Invalidity Contentions which were filed in the following litigation: MAXELL, LTD. v. APPLE INC., Civil Action No. 5:19-cv-00036-RWS (E.D. TX), filed August 14, 2019	
2		The Sony Digital Video Recorder (DCR-TRV900) User Manual ("DCR-TRV900 Manual"), published by Sony Corporation in 1998	

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Attorney Docket Number	ASA-9606-08

3	Sony Consumer Electronics Guide: DCR-TRV900 - More Specifications, webpage published by Sony Corporation, April 24, 1999, URL: https://web.archive.org/web/19990424085854/http://www.sel.sony.com/SEL/consumer/ss5/office/camcorder/digitalvideoproducts/dcr-trv900_specs.shtml
4	Sony Consumer Electronics Guide: DCR-TRV900 - More Specifications, webpage published by Sony Corporation, January 28, 1999, URL: https://web.archive.org/web/19990128112515/http://www.sel.sony.com:80/SEL/consumer/ss5/office/camcorder/digitalvideoproducts/dcr-trv900.shtml
5	Getting Started With the QuickTake 200 Camera, "QuickTake 200 User's Manual", published by Apple Inc. in 1997
6	Using the QuickTake 200 AC Adapter, published by Apple Inc. in 1997
7	Published advertisement from The Indianapolis News (Indianapolis, Indiana) dated September 4, 1998
8	Published advertisement from The Indianapolis News (Indianapolis, Indiana) dated September 12, 1998
9	J. Ozer, "Digital Video Cameras," PC Magazine, Vol. 18, No. 7, April 6, 1999
10	Published advertisement from Popular Photography magazine dated October 1999
11	Published advertisement from The Daily Sentinel (Grand Junction, Colorado) newspaper dated Sunday, June 13, 1999
12	Digital Camcorder JVC GR-DVL9600 GR-DVL9500 User's Manual, "JVCVRDVL9500 Manual", published by the Victor Company of Japan, Ltd. in 1999
13	Excerpts from the JVC America Website, URL: https://web.archive.org/web/19990117003015/http://jvc-america.com:80/digital_camcorders/digital_camcorders.html

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Examiner Name	NGUYEN, L. T.
Attorney Docket Number	ASA-9606-08

14	Published review from the Iowa City Press (Iowa City, Iowa) newspaper dated January 12, 1999
15	Published advertisement from The Courier-News (Bridgewater, New Jersey) newspaper dated February 17, 1999
16	Hitachi, "MPEGCAM MP-EG1A Instruction Manual", 1997, E1-E98, JAPAN
17	"First Looks: The Digital Chameleon at 72", MP-EG1 PC Mag, PC Magazine, July 1997
18	SONY MVC-FD88/FD83 Manual

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Art Unit	2698		
Examiner Name	NGUYEN, L. T.		
Attorney Docket Number	ASA-9606-08		

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-09-03
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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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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1	Foreign Reference	EP0802688.pdf	1283490 <small>756cb7c14bb3f95e03f170870dfde00babcs eb20</small>	no	25

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Information:					
2	Non Patent Literature	NPL1- E5037-08EU_InvalidityContentions.pdf	867009 18e36f438b6d491c6367dd9934777175cd37d116	no	135
Warnings:					
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3	Non Patent Literature	NPL2- DigitalVideoRecorder-1998-A.pdf	16183592 e8cdc809187bafaad2e54fa9bcd38edd5e720591	no	40
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4	Non Patent Literature	NPL2- DigitalVideoRecorder-1998-B.pdf	15704547 abd1443c6c4fc69ca138e208308c69839d6bfd0d	no	41
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7	Non Patent Literature	NPL3- SonyConsumerElectronicsGuide-1999.pdf	280050 b51553c9b2857817f50fc867467dd18217b4c0d3	no	4
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9	Non Patent Literature	NPL5- QuickTake200UsersManual.pdf	1149829	no	98
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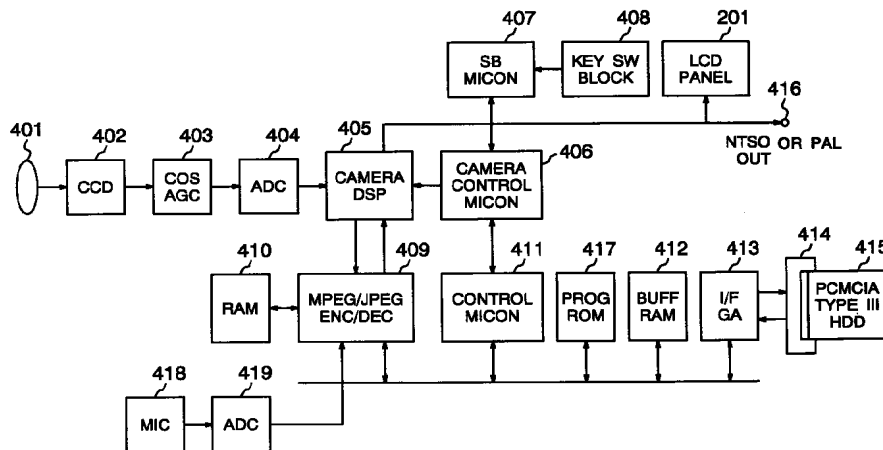
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(54) Apparatus for recording and reproducing digital image and speech

(57) A digital image and speech recording and reproducing apparatus is arranged to quickly and simply retrieve, classify, and erase a great deal of data for improving the operativity in small-sized equipment. The apparatus includes a recording and reproducing unit (401, 402, 403, 404, 405, 409, 412, 415) for a moving image signal, a recording and reproducing unit (401, 402, 403, 404, 405, 409, 412, 415) for a still image signal, a recording and reproducing unit (418, 419, 409, 415) for a digital speech signal operated in synchronous to the image, a display (201) for displaying the image for said moving image signal or said still image signal, a

recording condition recording unit for recording recording conditions containing data information about recorded data for distinguishing said moving image from said still image and recording time information for recording an image or a speech. The recording conditions consisting of at least the data information and the recording time information about the recorded data are graphically and literarily displayed on the display, so that the recorded data item may be selected on the display screen.

FIG. 4



EP 0 802 688 A2

Description**BACKGROUND OF THE INVENTION**

The present invention relates to operativity of a portable digital camcorder.

The prior art relevant to the portable digital camcorder has been published as an electronic photograph system, that is, the so-called electronic still camera that is arranged to record a still image signal as a video signal in a memory composed of a semiconductor (termed as a semiconductor memory or simply a memory) as disclosed in JP-A-2-292974. With recent prevail of personal computers, recording mediums such as semiconductor memories and harddisks are progressively made lower in cost, smaller in size, and greater in capacity. At a time, the advance of signal compressing technology such as JPEG or MPEG allows even the small-sized equipment to record greater number of still images and moving ones. Taking a harddisk drive as an example, the resulting harddisk drive is kept as small as a card and has as great a capacity as about 300 Mbytes.

This type of harddisk drive enables to record about 3000 still images through the use of the JPEG compression and about 20-minutes moving picture through the use of the MPEG compression. It is thus necessary to improve the operativity of the portable equipment for retrieving, grouping, and deleting a great deal of recording data. The technique disclosed in JP-A-2-292974, however, does not provide means for retrieving a great deal of recording data quickly and easily. In actual, therefore, the technique does not have any means except the method of retrieving the great deal of recorded data as checking all images reproduced on screen from the recorded data.

In case that 3000 JPEG still images are recorded on a feasible media such as the aforementioned hard-disk drive and then are retrieved as expanding those images on the screen one by one, about one second for expanding one JPEG still image is required. It means that the expansion of 3000 images needs about one hour. This method lacks in practicability. In order to retrieve a great deal of data, therefore, it is necessary to enhance the operating speed of the system.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an apparatus which is arranged to overcome the foregoing shortcoming and enhance the operativity even if the apparatus is small-sized.

In carrying out the object, for improving the operativity of a small-sized apparatus, the present invention is achieved by an apparatus which comprises recording means for recording both imaging time information and imaging mode information for distinguishing moving images from still images at a time when taking the still image or moving image, display means for displaying as a list the informations as well as expanded images on a

liquid crystal display screen built in the main body of the apparatus itself, and keying means for retrieving, classifying, and erasing the recorded data.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram showing a state transition of a program used in an apparatus according to the present invention;

Fig. 2 is a view showing an outer appearance of a portable digital camcorder in which the program of Fig. 1 is executed;

Fig. 3 is an expanded view showing an operating switch portion provided in the portable digital camcorder in which the program of Fig. 1 is executed;

Fig. 4 is a circuit diagram showing an arrangement of a portable digital camcorder in which the program of Fig. 1 is executed;

Fig. 5 is a view showing a display screen provided in the portable digital camcorder in which the program of Fig. 1 is executed;

Fig. 6 is a view showing a display screen on which the recorded data is classified;

Fig. 7 is a view showing a display screen on which the recorded data is selected;

Fig. 8 is a view showing a display screen with expanded images in which the recorded data is selected;

Fig. 9 is a view showing a display screen on which the function details of the recorded data are selected;

Fig. 10 is a flowchart showing a method for selecting the function details;

Fig. 11 is a view showing a display screen on which the classifications of the recorded data are changed;

Fig. 12 is a view showing a display screen on which the displaying sequence of the recorded data is changed;

Fig. 13 is a view showing a display screen on which each date of the recorded data is changed;

Fig. 14 is a view showing a display screen on which each erasing attribute of the recorded data is changed;

Fig. 15 is a view showing a display screen on which a remaining state of the recording medium is displayed;

Fig. 16 is a flowchart showing a method for reading recorded data from a harddisk driver and reproducing it;

Fig. 17 is a view showing an imaged screen appearing if a still image recording mode is selected when recording an image;

Fig. 18 is a view showing an imaged screen appearing if a moving image recording mode is selected when recording an image; and

Fig. 19 is a view showing marks for modes;

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Later, the description will be oriented to the embodiments of the present invention with reference to Figs. 1 to 19.

Fig. 1 shows a flow of a software program according to an embodiment of the present invention.

The software program shown in Fig. 1 flows through the process of selecting a classification containing data to be played back or handled (101) and reaches the process of playing back the data (103) or flows to a function selecting items (105) in which a temporary discard (106), a complete abandon (107), a state display (112) of a storage unit, setting of protection from erasion (111), change of a display list (109), or change of a record date and hour (110) is selected. Moreover, when selecting a classification (101), the flow goes to the function selecting items (105) in which a temporary discard (106), a complete abandon (107), a state display of a storage unit (112), or automatic playback is selected. In the playback (103), a move to next data (115), a move to previous data (116), a fast playback (117), a rewind playback (118), or a temporary stop (121) is selected. In the temporary stop (121), a forward frame advance (119) or reverse frame advance (120) is selected.

Fig. 2 shows an example of an outer appearance of a portable digital comcorder 200 in which the software program shown in Fig. 1 is executed. This comcorder 200 provides a capability of recording and reproducing an NTSC or PAL TV system signal.

Fig. 3 is an expanded view showing an operating switch portion of the portable digital camcorder shown in Fig. 2. In the portable digital camcorder 200 shown in Fig. 2, with the operating switches, a digital moving signal obtained from the camera system is compressed to one MPEG (Moving Picture Expert Group) format and then is recorded on a harddisk storage medium sized to a memory card. In the playback, with the operating switches, the MPEG1 format signal recorded in a memory card is expanded and then displayed on a display unit 201 built in the camcorder itself. The display unit may be connected to the outside of the comcorder 201. The portable digital camcorder 200 shown in Fig. 2 may recorded the MPEG moving image data as well as the JPEG data for the still images and the MPEG speech format for the speech data.

Fig. 4 schematically shows a circuit arrangement of the portable digital comcorder 200. At first, the description will be oriented to the procedure of recording the moving image through the portable digital comcorder 200. When a user presses a recording switch 301, an image of an object obtained through a lens 401 is converted into the corresponding electric signal through the effect of a CCD sensor 402. The signal read out of a sensor is electrically processed through a CDS (Correlated Double Sampling) circuit for suppressing the low-frequency noises of the signal and a circuit 403 integrated with a AGC circuit for controlling an automatic

gain of the signal for stabilizing the signal level. Then, the processed signal is converted into a digital signal through an ADC 404 and then is applied to a camera signal processing circuit 405.

A camera signal processing circuit (camera DSP) 405 is configured of a function of converting a digital pixel signal from the sensor into a luminance signal Y and color difference signals U and V, a function of adding a synchronous signal, a function of controlling relation between an iris and a shutter speed, a function of adjusting a white balance, and a function of digitally zooming in or out the signal. Though not illustrated in detail in Fig. 4, the camera DSP 405 is operated to feed a horizontal and a vertical driving signal pulses to the CCD sensor 402 and read the signal from the CCD sensor 402 as adjusting the timing between the synchronous signal and the pulses. Moreover, a camera control microcomputer 406 is operated to feed operating parameters for the DSP 405 to the camera DSP 405 in order to control the overall camera system.

On the other hand, the digital luminance signal Y and the digital color difference signals U and V obtained by the camera DSP 405 are sent to an MPEG1 encoder 409 through a digital bus line. The MPEG1 is a standard compression format for the digital signal for a moving image. The encoder 409 operates to compress the data according to the MPEG1 format and then convert it into the digital data. A numeral 410 denotes a working memory used in encoding the data according to the MPEG1 format. The data converted into the MPEG1 format is sent to a microcomputer 411 for controlling a transmission rate of the digital output data. The MPEG1 encoder 409, the working memory 410 and the microcomputer 411 compose the overall system for compressing the moving image.

The microcomputer 411 for controlling the transmission rate stores a constant amount of MPEG1-formatted data in a buffer memory 412. The formatted data is passed through an interface circuit 413 and a card connector 414 and reaches a harddisk drive 415. The card connector 414 is configured on the PCMCIA standards and thus contains 68 pins. The harddisk drive 415 is sized to a memory card and subject to the PC card standards defined by the PCMCIA (Personal Computer Memory Card International Association).

The foregoing description has concerned with the method for recording the moving image. In case the still image recording mode is selected by the user, the MPEG encoder 409 is switched to a JPEG compressing circuit. Then, a still image data is generated at the encoder 409 and then transferred to the microcomputer 411 for doing the same operation as described above. The MPEG compression data process and the JPEG compression data process have the same common points, so that the use of both the data formats may effectively save the circuit scale. This is a well-known method for saving the circuitry.

Further, the speech signal is converted into an analog electric signal through a microphone 418. The ana-

log electric signal is sent to a speech ADC 419 for converting the analog electric signal into the corresponding digital data. The digital speech data is applied into the data bus through the effect of the MPEG encoder 409. Then, the microcomputer 411 performs the MPEG-format-based compression through the program run therein so that the digital speech data is added to the moving image data or the still image data in precise time sequences.

According to this embodiment, the portable digital comcorder 200 is arranged to record the MPEG1-formatted data, the JPEG-formatted data, and the MPEG1-formatted speed data.

In recording the data, the microcomputer 411 also enables to record a data, a time, and a symbol for representing any one of the MPEG1-formatted data, the JPEG-formatted data, and the MPEG1-formatted data on a time when the recording switch 301 is pressed. At a time, the microcomputer 411 enables to record a symbol for representing a classification for retrieving the recorded data and a symbol for representing whether or not the operation of erasing the recorded data is prohibited. In recording the data, the classification symbol is recorded as "not classified" and the deletion symbol is recorded as "erasable".

In the general disk operating system, the symbol for indicating the imaging mode is discriminated using a code for a data type. The symbol for representing the classification and the symbol for representing if the data is erased are recorded in the corresponding files.

On the other hand, when recording the data, a digital signal applied to the camera DSP 405 as a monitoring signal is converted into an analog TV signal through the effect of an NTSC or PAL encoder built in the circuit 405 and then is fed at an output terminal 416 and the built-in display unit 201. The foregoing description has concerned with the MPEG1-formatted moving image data with the speech. In actual, the JPEG-formatted data or the MPEG1-formatted speech data may be solely processed in the similar manner to the above operation.

When the system stays at the playback mode, the signal flows in an opposite manner to the flow at the recording mode. Fig. 16 is a flowchart showing the reproduction of the signal. Text data indicating information of data is read from the harddisk drive 415 (step 1601). Next, the user retrieves data from a list of data displayed on the built-in display unit 201 and specifies the data to be played back with the operating switch 408 (step 1604). The list of the recorded data displayed on the display unit 201 is a feature of the invention. With the specification, a file system is started (step 1605) so that the data is read out of the harddisk drive 415 and then sent to the microcomputer 411 (step 1606).

Then, the data type is discriminated (steps 1607 and 1608). If the recorded data is the moving image, the MPEG-formatted moving image data and the MPEG-formatted speech data are both decoded (step 1609). If the recorded data is the still image, the JPEG-formatted

still image data is decoded (step 1610). If the recorded data is the still image with the speech, the JPEG-formatted still image data and the MPEG-formatted speech data are both decoded (step 1611). Then, the decoded image and the decoded speech if any are displayed on the screen (step 1612).

An indication signal issued by the operating switch 408 is read by a sub-microcomputer 407 and then is sent to the microcomputer 411 through a camera-controlling microcomputer 406. The software program according to this embodiment is read out of a ROM 417 (Read-only Memory) for storing a program and then is executed. In this embodiment, the program is stored in the ROM 417. In place of the ROM 417, another storage unit such as a flash RAM or a harddisk drive may be used for the purpose.

Next, the data is transferred to the buffer memory 412 through the PCMCIA connector 414 and the interface circuit 413. The timing of the data stored in the buffer memory 412 is controlled by the microcomputer 411. Then, the data whose timing is adjusted is sent to the MPEG1 decoder 409. The decoder 409 switches the MPEG1 coding to the MPEG1 decoding or vice versa.

The data decoded by the MPEG1 decoder 409 is sent to the camera DSP circuit 405 through the digital path line. The decoded data is converted into an analog video signal through the effect of an NTSC or PAL encoder and a DAC built in the circuit 405 and then is led at an output terminal 416 and from the built-in display unit 201 to the outside of the apparatus. The foregoing description has concerned with the MPEG1-formatted moving picture data with the speech. The JPEG-formatted still image data or the MPEG1-formatted speech data may be solely processed in the same manner as described above.

The portable comcorder of this embodiment is arranged to use a harddisk unit of 260 MB for the harddisk drive 415. In case that only the JPEG-formatted still image data is recorded, about 3000 still images may be recorded. In actual, the portable comcorder of this invention enables to retrieve 3000 items of data quickly and easily using the classifying function.

Fig. 4 shows a circuit arrangement about the moving image. The corresponding circuit arrangement to that of Fig. 4 is required for the still images and the speech. That is, the portable comcorder of this embodiment is arranged to have a general-purpose means for imaging a moving object / a still object, a microphone, means for digitally converting a moving image / a still image, means for digitally converting speech, and means for digitally recording a moving image, a still image, and a speech signal.

Fig. 5 shows the screen of the built-in display unit 201 used in the embodiment of the invention, in which the diagonal length is 1.8 inch (45.7 mm), the horizontal length is 36.6 mm, and the vertical length is 27 mm. The illustrated screen arrangement uses a liquid crystal consisting of 352 pixels and 240 pixels. In order to reduce

the power consumption and the size of the portable digital camcorder 200, the 1.8-inch liquid crystal is used for the built-in display unit 201. This built-in display unit 201 shows an imaging screen formed by a monitoring signal when recording the signal, a retrieval screen formed by the program when retrieving the data, and a playback screen formed by the decoded data when playing back the data.

In recording the data, the moving image recording mode (MPEG compression recording mode) or the still image recording mode (JPEG compression recording mode) may be switched each time the mode selecting button is pressed. As the user can select the recording mode with this button, as shown in Figs. 17 and 18, the mark for each mode located in the upper left portion of the imaging screen is switched each time the mode is switched.

Fig. 17 shows the imaging screen appearing when the still image recording mode is selected when recording data. In Fig. 17, a numeral 1701 denotes a mark representing a still image mode. Fig. 18 shows the imaging screen appearing when the moving image recording mode is selected when recording data. In Fig. 18, a numeral 1801 denotes a mark representing the moving image mode. The mark for each mode appears on the screen so that the user can visually recognize the current imaging mode as he or she is pushing the mode selecting button. This mark allows the user to handle the camcorder without having to keep his eyes out of the imaging screen. It means that the digital camcorder offers convenient operativity to the user.

The mark for each mode is displayed on the retrieving screen through the effect of the program sent from a data containing unit. The retrieving screen will be discussed in detail together with the display of the mode mark. Fig. 19 shows the concrete mark for each mode. In actual, however, the marks are not limited to the illustrative ones. Any mark may be used if it can distinguish the modes from each other.

In Fig. 5, the display screen 500 consists of 20 x 9 characters at maximum, each character consisting of 16 and 24 pixels. The character size consisting of 16 x 24 pixels keeps the maximum recognizable size compatible with efficient digitizing of the character data. The blanks of a left side 501, a right side 502, an upper side 503, and a lower side 504 of the screen are secured because the display unit or the built-in display unit 201 connected to an output terminal 416 disables to display the overall area of the main screen.

A numeral 505 denotes an operating state display area where the operating state of the program of this embodiment is displayed. A numeral 506 denotes an area where the information of the recorded data and the functions to be operated for specifying the data details of the data by pressing a function switch 304 are displayed as individual items in partitioned sub-screens. A numeral 507 denotes an area where an operating procedure suggests the operating method to the user.

Fig. 6 shows a display screen 600 appearing when

a program starting switch 303 is pressed by the user for starting the program of this embodiment. The display screen 600 corresponds to a classifying selection 101 of Fig. 1 for indicating the state transition of the operation. As mentioned earlier, the data recorded by the user is unconditionally recorded "unclassified" when recording the data. The figure (number of files) displayed on the "unclassified" row stands for the number of MPEG1-formatted moving image data items with the speech 602, the number of JPEG-formatted still image data pieces 603, and the number of MPEG1-formatted speech 604.

Likewise, the figure displayed on each row of a mark 605 for indicating the first classification, a mark 606 for indicating the second classification, and a mark 607 for indicating the third classification indicate the numbers of data items arbitrarily classified by the user, respectively. A mark 608 for indicating all data items at a batch indicates the total number of the data items on the "unclassified" row 601, the "first classified" row 605, the "second classified" row 606, and the "third classified" row 607.

A mark 609 for indicating the "temporary discard" means a classification for temporarily discarding the data items so that the user cannot erroneously erase the data items. With the mark 609, the user can temporarily move the "unclassified", "first classified", "second classified", and "third classified" data items to the "temporary discard" row. The figure represented on the row of the mark 609 does not contain a figure represented on the row of the mark 608 for indicating all data items at a batch.

In Fig. 6, the row of the mark 601 for indicating the unclassification is reversed to the rows of the other marks. It indicates that the mark 601 for indicating the unclassification is the selected item. In place of the reversing, another kind of way may be used such as change of a color. The software program is executed by the user so that the recorded data items whose classifying destinations are not changed are contained in the row of the mark 601 for indicating the unclassification.

When the upper arrow switch 305a of Fig. 3 is pressed by the user, the selected item is shifted upward by one row, while the lower arrow switch 305c is pressed, the selected item is shifted downward by one row.

In case that the selected item is an item on the first row of the display area 506, that is, on the mark 601 for indicating the unclassification, when the user presses the upper arrow switch 305a, the selected item is shifted to the item on the sixth row of the display area 506, that is, on the mark 609 for indicating the temporary discard. In case that the selected item is an item on the sixth row of the display area 506, that is, on the mark 609 for indicating the temporary discard, when the user presses the lower arrow switch 305c, the selected item is shifted to the item on the first row of the display area 506, that is, on the mark 601 for indicating the unclassification.

When the user presses the right arrow switch 305b, the display screen is shifted into the screen on which

the content of the classification of the selected row is represented.

Moreover, the guide indication 610 for the operating procedure is displayed so as to remind the user of the operation.

As an example, Fig. 7 shows a display screen 700 on which the mark 605 for indicating the first classification is selected so that the data items on the row of the mark 605 appear as ones to be selected if the right arrow switch 305b is pressed by the user. This function corresponds to the data selection 102 shown in Fig. 1.

The display screen 700 is a screen on which a data item is to be retrieved from a data list and played back. The data list is a feature of the present invention. On the screen 700, the data items recorded by the portable digital comcorder 200 may be listed using a mark 703 for representing a sort of data content of a recording start time 702, a moving image, a still image, and a speech, a classifying mark 704, and a mark 705 for protecting data from being erased by the erroneous operation.

The data items displayed on the screen 700 are ranged from the top to the down in the sequence of the recording year/month/day 701 and the recording start time 702. Hence, the latest recorded data is listed on the topmost row, so that the user can effectively retrieve the data. The number of the pages of the displayed lists is checked, so that the lists are displayed as pages as indicated by a numeral 707. In the page display 707, a denominator indicates all the list pages, while a numerator indicates the current one of the list pages.

The imaging status of the user such as the recording date and time and the data type are automatically recorded as the aforementioned information, so that the user can manually record these pieces of information. Since the user may optionally change the classifying destination according to his or her purpose, the user's retrieval work for the destination data is made simpler and more efficient.

These pieces of information are all composed of a list represented in characters. This does not need a time consumed in expanding the compressed image data recorded on the media. Further, if the user selects a data item using the operating button, the screen can be rewound quickly, so that the quick retrieval is made possible.

This list retrieving operation may offer comfortable operativity without having to impose stress on the user who wants to quickly select the recorded image.

The selecting classification 706 indicates a classification selected by a display screen 600. This embodiment has concerned with the user's selection of the first classification 605 on the display screen 600.

The display list of the data items on the display screens 700 and 800 is arranged in the sequence of recording the data on the harddisk drive 415, that is, in the sequence that the latest data item comes to the topmost row. Since the user may change the sequence of recording the data items on the harddisk driver 415, he or she may change the display sequence. The data

immediately after imaging is recorded on the topmost row (701 of Figs. 7 and 8) of the display area 506 on the unclassified data selecting screen. If the user makes sure of the just imaged data, he or she only reproduces the data and makes sure of the topmost row of the display area 506 on the unclassified data selecting screen.

Like the display screen 600, when the user presses the upper arrow switch 305a, the selected data item is shifted upward by one row. When the user presses the lower arrow switch 305c, the selected data item is shifted downward by one row. In this embodiment, the six rows of the data items are displayed on one screen. In case the user selects the sixth data item, if the lower arrow switch 305c is pressed, the seventh data item is displayed on the first row of the display area 506. It means that the seventh data item is the selected item. The eighth, the ninth and the following data items are displayed on the second, the third, and the following rows, respectively.

On the other hand, for example, in case the seventh data item is selected, if the upper arrow switch 305a is pressed, the seventh data item is displayed on the first row of the display area 506. The second, the third, the fourth, the fifth, and the sixth data items are respectively displayed on the rows after the first one, so the selected data item is changed to the sixth data item.

That is, the n-th data item is displayed on a remainder-th row on the display area 506, in which the remainder is obtained by dividing n by 6.

In case the head data item or the tail one is selected, if the upper arrow switch 305a or the lower arrow switch 305c is pressed, like the display screen 600, the data items containing the head and the tail items are displayed as a list so that the head or the tail data item is selected. Though Fig. 6 shows the one-page screen on which the number of folders is fixed, Figs. 7 and 8 show the screen on which the pages are increased or decreased in number according to the number of data items.

If the user selects the upper arrow switch 305a and the lower arrow switch 305c shown in Fig. 3 and depresses the right arrow switch 305, the selected data is fed out of the output terminal 416 and is played back on the built-in display unit 201.

While the data is being played back, the upper arrow switch 305a, the lower arrow with 305c, and the left arrow switch 30, as shown in Fig. 3, are served as fast feed, rewind, and stop, respectively. While the data is being played back, if the left arrow switch 305d served as a stop switch is pressed by the user, the playback is stopped, and the display screen 700 is displayed again. The state transition during the data playback is denoted by a numeral 103 of Fig. 1.

Next, the description will be oriented to the display content on which reduced images are added to the recording date and time so that the content of the data may be easily recognized. In the state of the display screen 700, if the user presses the reduced image display switch 302, a reduced image 801 of the first frame

of the data listed on the subject row is displayed on the display screen 800 shown in Fig. 8. This makes it possible to surprisingly enhance the retrieval of the data. The state transition in the reduced image display function is denoted by a numeral 104 of Fig. 1.

For example, in case that the viewable area of the 1.8-inch built-in LCD display unit 201 consists of 379 dots in horizontal and 220 dots in vertical, the reduced image 801 is adjusted to consist of 64 dots in horizontal and 48 dots in vertical. (if the LCD panel consists of 352 and 240 dots, the reduced image 801 consists of $240/48 = 5$ dots in vertical and $352/5 = 70.4$ in horizontal. From a vertical viewpoint, the reduced image is one-fifth and from a horizontal viewpoint, the reduced image is one-fifth with a slight margin.) In this reduction, three reduced images, the recording starting year month day 701, the recording starting time 702, the mark 703 representing the content type of the data indicating the moving image, the still image, and the speech, the classification mark 704, and the mark 705 for protecting the data from being erroneously erased can be all displayed on one screen. This screen arrangement makes it possible to secure more visible reduced images on the display. Like the display screen 700, on this display screen 800, the data may be played back by pressing the operating button 305 and the like.

In this state, if the reduced image display switch 302 is pressed again, the display screen is returned to the display screen 600 for displaying the data classification. The reduced image is depicted in the RAM 410 shown in the circuit block of Fig. 4 through the effect of the control microcomputer 411 and the MPEG encoder 409.

In turn, the description will be oriented to a function selecting display screen 900 for easily changing the display state from the data selecting display screen 700. The function selecting display screen 900 includes the reduced number of operation switches and function items displayed thereon so that the ease of use in operation may be improved as viewing the screen. The operating switches 304, 305a, 305b, 305c, and 305d shown in Fig. 3 implement the operating system for selectively operating the function. The state transition on the display screen 900 is denoted by a numeral 105 of Fig. 1.

On the reduced image display screen 800, the function selecting display screen 900 is displayed by the same procedure. On the display screen 600, the display screen having the necessary functions such as "empty a garbage", "move to a garbage", "display a state", and "auto play" shown in Fig. 1 is displayed by the same procedure. In this case, the function items on the display screen 900 are not required to be identical with the function items on the data classifying display screen 600.

The flow of operation on the display screen 900 is shown in Fig. 10. The display screen 900 is displayed when the user pressed the function switch 304 on the display screen 700 (step 1001). The selective movement of each item is indicated by the upper arrow switch 305a and the switch lower arrow switch 305c. If the user

pressed the upper arrow switch 305a, the selected data item is moved upward by one row. If the lower arrow switch 305c is pressed, the selected data item is moved downward by one row (step 1002). If the user presses the right arrow switch 305b (step 1003), the function of the selected data item is executed (step 1004). If the left arrow function switch 305d is pressed, the display screen 900 is returned to the data selecting display screen 700 (step 1005).

As mentioned earlier, in this embodiment, the erasure of the data is realized by moving the data to the temporary discard location and then erase the data contained in the temporary discard location. The state transition of this function is denoted by a numeral 106 of Fig. 1.

The procedure of erasing the data will be described below.

If the data is erased, the data is moved to the temporary discard location. In this case, the procedure for selectively executing "move the data to a garbage" will be described with reference to Fig. 9.

At first, on the display screen 700, the user selects the data item to be temporarily discarded with the upper arrow switch 305a and the lower arrow operating switch 305c and then depresses the function switch 304. Then, the display screen 700 is changed to the display screen 900. The user selects the "move data to a garbage" 901 with the upper arrow operation switch 305a and the lower arrow function switch 305c and then depresses the right arrow switch 305b. Then, the selected data item is moved to the garbage that is the temporary discard location. If the user presses the switch 306, the similarly selected data is moved to the garbage.

When the user selects the "empty a garbage" 902 on the display screen 900, all the data items left in the garbage are erased. The state transition of this function is denoted by a numeral 107 of Fig. 1.

In the operating system, the user is required to do two operations for erasing the data. The two operations protect the data from the user's erroneous erasure.

As mentioned earlier, when recording the data, the classifying symbol to be allocated to each data item is an unclassified one. When playing back the data, the classification may be changed by the user's operation. This classifying function is used for classifying the data item. Hence, since the user classifies the data item for each destination, the ease of use of the retrieval may be surprisingly enhanced. The state transition of this function is denoted by a numeral 108 of Fig. 1.

Later, the description will be oriented to the procedure for changing the data classification. On the display screen 700, the user selects the data item whose classification is to be changed with the upper arrow switch 305a or the lower arrow operation switch 305c and then presses the function switch 304. Then, the display screen is changed to the display screen 900. The user selects the "change a group" 905 that is a function of changing the classification with the upper arrow operation switch 305a and the lower arrow operation switch

305c and then presses the right arrow switch 305b. Then, a display screen 1100 is displayed on which the classification of the selected data shown in Fig. 11 is changed.

If the right arrow switch 305b is pressed on the display screen 1100, the classification is cyclically changed from "unclassification" to 1 to 2 to 3 to "unclassification". In this embodiment, the update of the symbol for the classification according to the display screen is executed by the control microcomputer 411 at a time when the user presses the left arrow switch 305d and the display screen 600 appears. This is intended for enhancing the processing speed and retrying the user's operation.

As described earlier, unless the user does the following operation, the list indicated on the display screen 700 is arranged in the recording sequence of the recorded data. When playing back the data, the sequence may be changed so as to implement a simple editing function. The state transition of this function is denoted by a numeral 109 of Fig. 1.

The procedure of changing the data displaying sequence will be described below. At first, on the display screen 700, the user selects the data item whose displaying sequence is to be changed with the upper arrow switch 305a and the lower arrow switch 305c. Then, if the function switch 304 is pressed, the display screen 900 is displayed.

The user selects the "change a data display sequence" 906 that is a function of changing the display sequence with the lower arrow switch 305c and depresses the right arrow switch 305b. Then, the display screen 1200 shown in Fig. 12 is displayed, so that the display sequence of the selected data item may be changed. Next, the user specifies the location where the selected data is to be inserted with the upper arrow switch 305a and the lower arrow switch 305c. Then, if the right arrow switch 305b is pressed, the selected data item is inserted to the specified location. In this case, the sequence of the data item located after the specified location is shifted lower by one.

The portable digital camcorder 200 of this embodiment incorporates an internal clock for displaying on the display screen 700 the date and the time when the data is recorded. However, if failure such as rundown of a battery takes place while imaging an object, the recorded data and time may not be correctly displayed on the display screen 700. In this embodiment, the user may operate to optionally change the date and time when the data is recorded. The state transition of this function is denoted by a numeral 110 of Fig. 1.

Later, the description will be oriented to the procedure for changing the date and time. The user selects the data whose recording date and time are to be changed using the upper arrow switch 305a and the lower arrow switch 305c. Then, if the function switch 304 is pressed, the display screen 900 is displayed. The user selects the "change a recording date and time" 907 that is a function of changing the displaying sequence

with the upper arrow switch 305a and the lower arrow switch 305c. Next, if the right arrow switch 305b is pressed, the display screen 1300 shown in Fig. 13 is displayed where the recording date and time of the selected data are to be changed.

In this state, when the user pressed the upper arrow switch 305a, the year figure 1301 is increased by 1, while the lower arrow switch 305c is pressed, the year figure 1301 is decreased by 1. When the right arrow switch 305b is pressed, the year figure 1301 is determined as a numeric value represented at the time point. Next, the user may specify the increment or decrement of the numeric value of a month figure 1302.

Likewise, if the upper arrow switch 305a is pressed, the month figure 1302 is increased by 1, while if the lower arrow switch 305c is pressed, the month figure 1302 is decreased by 1. If the right arrow switch 305b is pressed, the month figure 1302 is determined as a numerical value displayed at the time point. Next, the user may specify the increment or decrement of a numerical value of a day figure 1303.

Further, when the left arrow switch 305d is pressed, the year figure 1301 may be retried. The similar operation may be executed to set the day figure 1303, an a.m or p.m. indication 1304, a time figure 1305, and a minute figure 1306. After adjusting a value of the minute figure 1306, if the right arrow switch 305b is pressed, the change of the recording date and time is terminated and the date and time of the data is changed to a new numeric value.

In the case of specifying an numeric value that does not exist in the calendar such as February 30, the numeric value is changed to the nearest date (that is, March 1) to the value.

In this embodiment, though the user can freely erase the data, the user may provide the data with an attribute of prohibiting the erasion for preventing the data from being erased. The state transition of this function is denoted by a numeral 111 of Fig. 1.

Later, the description will be oriented to the procedure for adding the attribute of protecting the data from the erasion to the data. At first, on the display screen 700, the user selects the data whose erasing attribute is to be changed with the upper arrow switch 305a or the lower arrow switch 305c. Then, the function switch 304 is pressed, so that the display screen 700 is changed to the display screen 900. The user selects the "change a lock" 904 that is a function of changing the erasing attribute with the upper arrow switch 305a or the lower arrow switch 305c. Then, if the right arrow switch 305b is pressed, the display screen 1400 is displayed where the erasing attribute of the selected data shown in Fig. 14 is changed.

When the user pressed the right arrow switch 305b, the erasing attribute is cyclically changed from "disabled" to "enabled" to "disabled". The protecting mark 705 is displayed or not displayed according to the erasing attribute.

In this embodiment, the user can know the remain-

ing volume of the harddisk drive 415. The state transition of this function is denoted by a numeral 112 of Fig. 1.

Hereafter, the description will be oriented to the procedure for checking the remaining volume of the harddisk drive 415. On the display screen 700, if the user presses the function switch 304, the display screen 700 is changed to the display screen 900. The user selects the "display a state" 903 that is a function of changing the displaying sequence with the upper arrow switch 305a or the lower arrow switch 305c. Then, if the right arrow switch 305b is pressed, the display screen 1500 is displayed where the remaining volume of the harddisk drive 415 shown in Fig. 15 is shown.

On the display screen 1500, a remaining time 1501 left if only the MPEG1-formatted moving image data with the speech is recorded on the harddisk drive 415, a remaining pages left if only the JPEG-formatted still image data is recorded, a remaining time 1503 left if only the MPEG1-formatted speech data is recorded, and a remaining volume 1504 represented in bytes are all displayed as a list. Since the remaining volume of the harddisk drive is listed with respect to each recordable data type, the user can more easily grasp the remaining volume of the harddisk drive 415.

In this embodiment, when playing back the data, the user needs to use only the switches 305a, 305d, 305c and 305d for playing back the data. It is epoch-making that the minimum number of operating switches are just required for playing back the data.

Another epoch-making point is the increase of the functions without increasing the operating buttons by using the functional selecting screen 900.

In this embodiment, as shown in Fig. 6, the classified number of data items is four including "unclassified". The classified number of data may take any value. On the data selecting display screen 700, the data items may be displayed as a list independently of the types of the moving image, the still image, and the speech. This embodiment may apply to the function of automatically classifying the data according to the data type with the user's specification.

Moreover, the control microcomputer 411 is operated to automatically select the data according to the imaging modes such as the moving image and the still image. For example, the user can select only the imaging mode for the still image, pick up only the image type of the still image, and reproduce it.

The foregoing description has been concerned with the specific embodiments of the invention. The present invention may apply to the following arrangement.

For example, the present invention may be achieved by an image recording apparatus which includes converting means for converting a video signal into a digital signal, a codec unit for selectively performing a MPEG system or a JPEG system compression about the digital signal, for generating the compressed data, a recording unit for recording the compressed data, and a selective indicating means for a compression mode, for selectively indicating the MPEG system compression or the JPEG system compression.

Further, the image recording apparatus may be applicably arranged to switch the compressing system of the codec unit according to the indication given by the selective indicating means.

Further, the image recording apparatus may be applicably arranged to add a code for indicating the compression system to the compressed data according to the indication given by the selective indicating means.

Further, the image recording apparatus may be applicably arranged so that the codec unit may be a circuit for performing the MPEG system and the JPEG system processing at one process.

Moreover, the image recording apparatus may be applicably arranged so that the video signal is obtained from an imaging element and the recording unit is a harddisk drive.

The present invention may be also achieved by the image reproducing apparatus which includes a recording unit for receiving compressed data generated according to the MPEG system or the JPEG system and recording the compressed data, specifying means for specifying a data item to be reproduced of the compressed data recorded in the recording unit, readout means for retrieving and reading out the compressed data specified by the specifying means from the recording unit, a codec unit for selectively performing the MPEG system or the JPEG system expansion about the compressed data and generating the digital signal, and converting means for converting the digital signal generated by the codec unit into a video signal.

Moreover, the image reproducing apparatus may be applicably arranged so that the expanding system of the codec unit may be switched according to the compressed data read out of the readout means.

Further, the image reproducing apparatus may be applicably arranged so that the compressed data of the recording unit pre-contains the code indicating the compressing system and the expanding system of the codec unit may be switched according to the code for indicating the compressing system added to the compressed data read out of the readout means.

Further, the image reproducing apparatus may be applicably arranged so that the codec unit may be a circuit for performing the MPEG system and the JPEG system expansion at one process, the video signal is output to the built-in display unit, and the recording unit may be a harddisk drive.

The present invention may be achieved by the image recording and reproducing apparatus for converting a video signal into a digital signal, recording the digital signal, converting the digital signal into the video signal, and reproducing the video signal, which includes a codec unit for selectively performing the MPEG system or the JPEG system compression about the digital signal for generating the compressed data in recording the data and selectively performing the MPEG system or the JPEG system expansion about the compressed

data for generating the digital signal in reproducing the data, a recording unit for recording the compressed data, selective indicating means for the compressing mode for selectively indicating the MPEG system compression or the JPEG system compression, specifying means for specifying the data to be reproduced of the compressed data recorded in the recording unit, and readout means for retrieving and reading the compressed data specified by the specifying means from the recording unit.

Moreover, the image recording and reproducing apparatus may be applicably arranged so that the codec unit may switch the compressing system according to the indication given by the selective indicating means in recording the data or the expanding system according to the compressed data read out of the readout means in reproducing the data.

Further, the image recording and reproducing apparatus may be applicably arranged so that in recording the data, the recording unit adds the code for indicating the compressing system to the compressed data according to the indication given by the selective indicating means and records the compressed data and in reproducing the data, the codec unit switches the expanding system according to the code for indicating the compressing system added to the compressed data read out of the readout means.

Moreover, the image recording and reproducing apparatus may be applicably arranged so that the codec unit may be a circuit for performing the MPEG system and the JPEG system processing at one process, the video signal to be recorded is obtained from an imaging element, the video signal to be reproduced is output to the built-in display unit, and the recording unit is a hard-disk drive.

As described above, as keeping the capacity of the recording medium larger and advancing the compressing technology, the data items to be recorded on one recording medium are increased in number. This embodiment, however, makes it possible to do the recording and the reproducing operations with quite few keys. Hence, this embodiment offers the below-indicated effects, so that it may improve the operativity even if it is applied to the small-sized apparatus with a limited space prepared for the operation buttons or switches.

This embodiment may display the recording date and time information and the marks for modes such as the moving image, the still image, and the still image with the speech as a list. Hence, the user can efficiently and quickly retrieve the data as grasping the content of the data. In recording the data, the marks are switchably displayed on the imaging screen each time the mode is switched so that the user can grasp the current imaging mode. Hence, the user can focus his or her attention onto the imaging screen at any mode when recording the data.

The display list is composed of a date and a time. The apparatus of this embodiment may automatically create the overall list and at once output the reduced

images, so that the user can more easily grasp the content of the data.

The imaged data may be classified to the predetermined locations. Hence, the imaged data may be classified on the mode information and the date and time information according to the imaging status and the object. This classification makes it easier for the user to retrieve the data.

Further, the displaying sequence of the list and the generating sequence of the data are allowed to be replaced depending on the mode information and the date and time information. Hence, the optimal reproducing effect can be obtained without having to depend on the recording sequence.

Then, the classification of "temporary discard" is provided for preventing the erasure of the data resulting from the user's erroneous operation and reusing the unnecessary data if it is made necessary after being deleted.

As described above, if the operation on the relatively simple graphic screen is executed to record a great deal of data, the function of this embodiment enables to offer quicker retrieval than the conventional function of reproducing the data as expanding all image screens.

Claims

1. A digital image and speech recording and reproducing apparatus comprising:

means (401, 402, 403, 404, 405, 409, 412, 415) for recording and reproducing a digital video signal of a moving image;

means (418, 419, 409, 415) for recording and reproducing a digital speech signal in synchronous to said moving image;

means (401, 402, 403, 404, 405, 409, 412, 415) for recording and reproducing a digital still image;

display means (201) for displaying said moving image signal and said still image signal;

means (411) for recording recording conditions containing data information about said recorded data for distinguishing said moving image signal from said still image signal and recording time information for indicating when said image or speech is recorded; and

wherein the recording condition composed of at least said data information and said recording time information is graphically or literarily displayed on a screen of said display means and said displayed recorded data is selected on said screen.

2. A digital image and speech recording and reproducing apparatus comprising:

means (401, 402, 403, 404, 405, 409, 412,

- 415) for recording and reproducing a digital moving image signal;
 means (418, 419, 409, 415) for recording and reproducing a digital speech signal in synchronous to said moving image signal;
 means (401, 402, 403, 404, 405, 409, 412, 415) for recording and reproducing a digital still image signal;
 means (418, 419, 409, 415) for recording and reproducing a digital speech signal in synchronous to said still image signal;
 display means (201) for displaying said moving image signal and said still image signal;
 means (411) for recording recording conditions containing data information about said recorded data for distinguishing said moving image signal from said still image signal and recording time information for indicating when said image or speech is recorded;
 wherein the recording condition composed of at least said data information and said recording time information is graphically or literally displayed on a screen of said display means and said displayed recorded data is selected on said screen.
3. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein the recording condition of said recorded data displayed on said display screen contains information about the reduced image of said recorded data.
4. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, comprising:
 means (401, 402) for imaging a moving image;
 means (401, 402) for imaging a still image; a microphone (418) for recording speech data;
 means (404) for converting said imaged moving image signal into a digital moving image signal;
 means (404) for converting said still image signal into a digital still image signal;
 means (419) for converting said recorded speech signal into a digital speech signal; and
 means (415) for recording said digitized moving image signal, said digitized still image, and said digitized speech signal.
5. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein said display means for displaying said recording condition is composed of a liquid crystal display panel having a horizontal side of 36.6 mm, a vertical side of 27 mm, and a diagonal of 45.7 mm.
6. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein on the display screen of said recording condition, a recording start date (1302, 1303) and a recording start time (1304, 1305, 1306) are displayed as said recording time information.
7. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein on the display screen of said display means, a number of recorded data items are displayed for two or more classifications for retrieval, a storage area for data is secured for each classification, and said recorded data item is saved in said storage area.
8. A digital image and speech recording and reproducing apparatus as claimed in claim 7, wherein on the display screen for said retrieving classification, one of said classifications is selectively operated so that the display screen may be changed into the display screen for indicating the recording condition displayed graphically or literally.
9. A digital image and speech recording and reproducing apparatus as claimed in claim 7, wherein when reproducing the recorded data, if the classification is not specified, the recorded data contained in the predetermined classification of the topmost row on the display screen is displayed.
10. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein the recording condition of said recorded data displayed on said display screen contains information about the function of preventing erasion to be optionally specified by a user.
11. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein a button for changing the display screen for displaying the number of said recorded data items in each retrieval classification into the display screen for displaying the recording condition composed of said data information and said recording time information, a button for selecting each recording data item from a list of the recording data on the display screen for displaying said recording condition, a button for indicating a function of playing back, stopping, fast-feeding, and rewinding the image, and a button for returning said display screen for indicating the functions into the display screen for indicating said recording condition are composed as the same button (304).
12. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein on the display screen for graphically or literally displaying the recording condition of said

recorded data, the data items recorded later are displayed on higher locations of the display screen.

13. A digital image and speech recording and reproducing apparatus as claimed in claim 3, wherein a reduced image of said recorded data is formed by thinning out the pixels obtained in actual recording in the horizontal and the vertical directions by one-fifth and is displayed on the same row as the graphic and the literary notation.
14. A digital image and speech recording and reproducing apparatus as claimed in claim 7, wherein one of said storage areas is a temporary discard area where said recorded data is reproducible, and the overall data in said discard area may be erased by the user's specification.
15. A digital image and speech recording and reproducing apparatus as claimed in claim 12, wherein the display sequence of the recording condition for said recorded data may be changed by the user's specification, so that a specific recording condition may be moved from one to another row on said display screen.
16. A digital image and speech recording and reproducing apparatus as claimed in claim 1 or 2, wherein on said display screen for graphically and literarily displaying the recording condition of said recorded data, a function of moving said recorded data to a temporary discard area, a function of erasing all data from said temporary discard area, a function of changing a retrieving classification of said recorded data, a function of changing the displaying sequence of the recorded condition of said recorded data, a function of changing an erasing attribute of said recorded data, a function of displaying a remaining volume of the stored volume of said recorded data are all displayed, and any one of said displayed functions may be specified.
17. A image recording apparatus for converting a video signal into a digital signal and recording an image to be displayed on a screen, comprising:
- a compressing unit (409) for selectively compressing said digital signal of a moving image or a still image, for generating compressed data;
 - a recording unit (415) for recording said compressed data;
 - a recording mode selection indicating unit (408) for selectively indicating if the image to be compressed is said moving image or still image; and
- wherein on said screen, the type of said moving image or still image is displayed in association with the selection of said recording

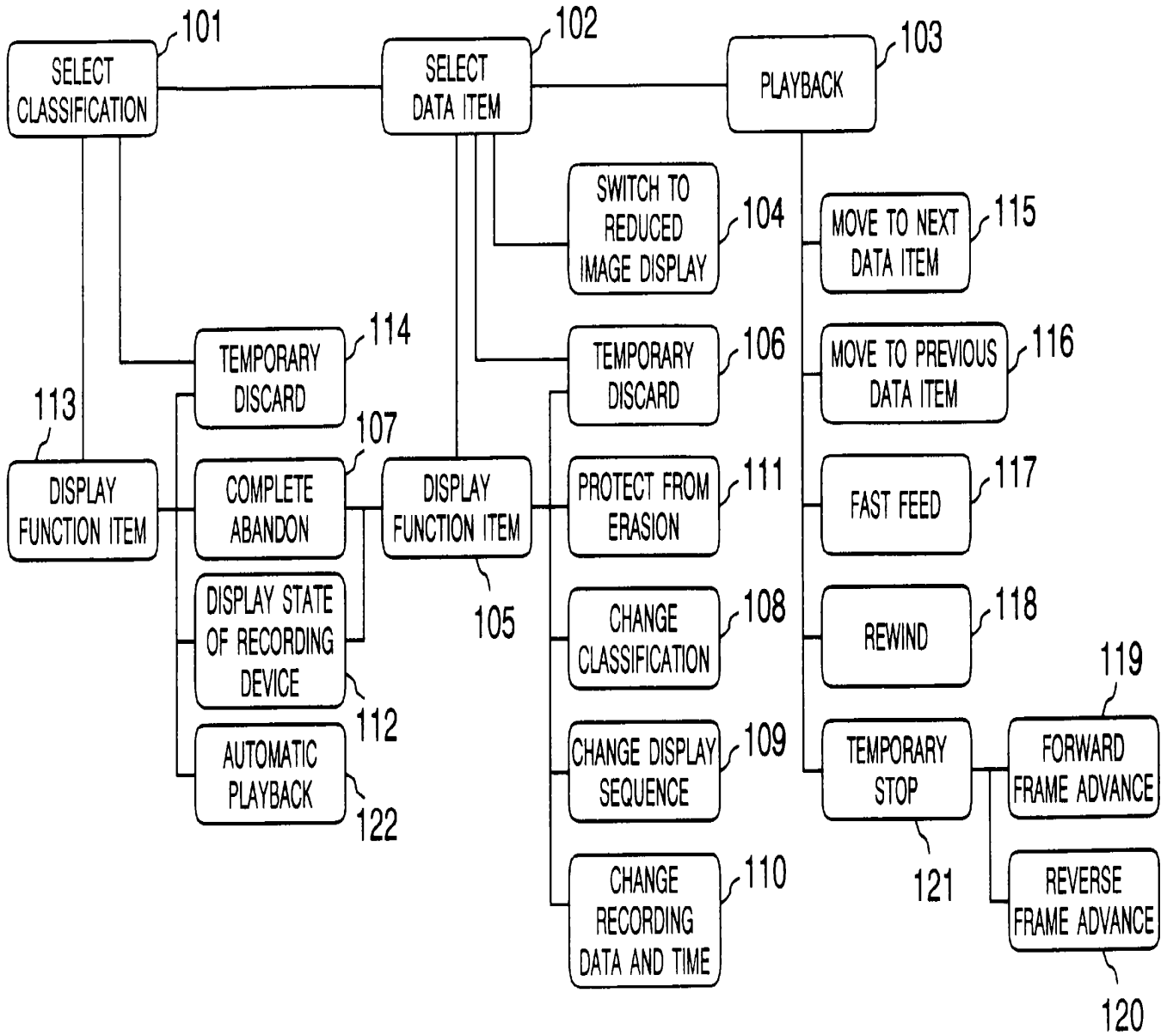
mode selection indicating unit (411), and said compressing unit (409) operates to selectively compress said moving image or still image in accordance with the indication given on the types of said moving image and said still image appearing said screen by said recording mode selection indicating unit.

18. A digital image reproducing apparatus comprising:

- a storage unit (412) for storing compressed data generated by compressing a moving image or a still image;
- an expanding unit (409) for generating a digital signal by selectively expanding said compressed moving image or still image;
- said digital signal generated in said expanding unit being converted into the corresponding video signal so that an image for said video signal may appear on a display screen;
- means (408) for specifying a data item to be reproduced of said compressed data stored in said storage unit;
- means (411) for retrieving and reading out said compressed data item specified by said specifying means from said storage unit; and

wherein the data information indicating the types of said moving image and still image is displayed on said screen in association with said compressed data stored in said storage unit, and said expanding unit operates to selectively expand the compressed data of said moving image or still image if the compressed data is specified according to the data information for indicating the types of said moving image and still image.

FIG. 1



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FIG. 2

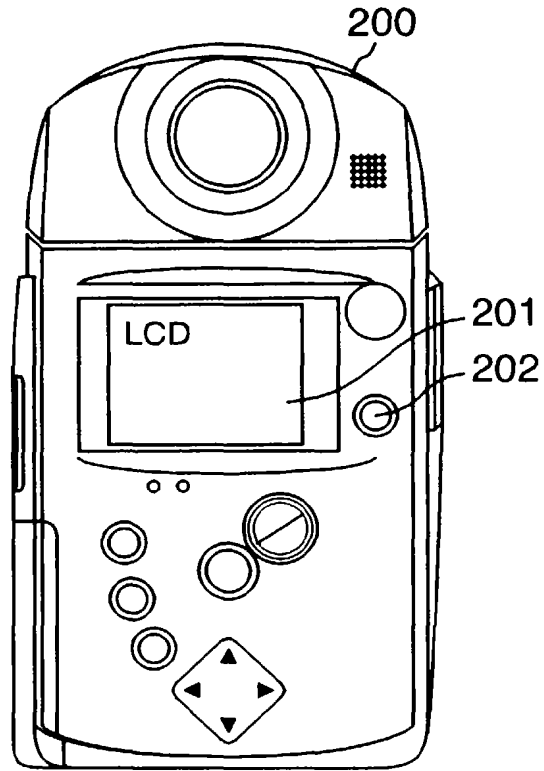


FIG. 3

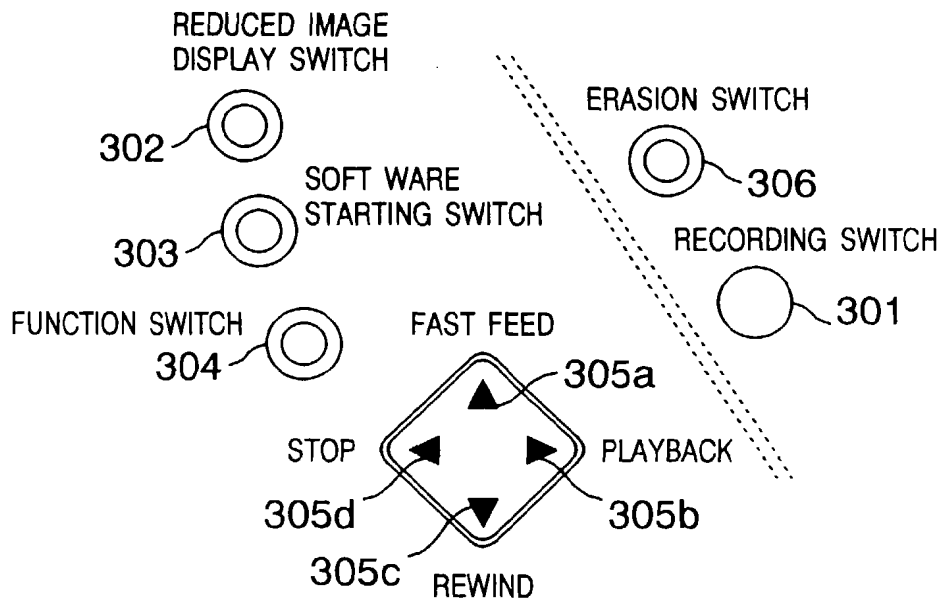
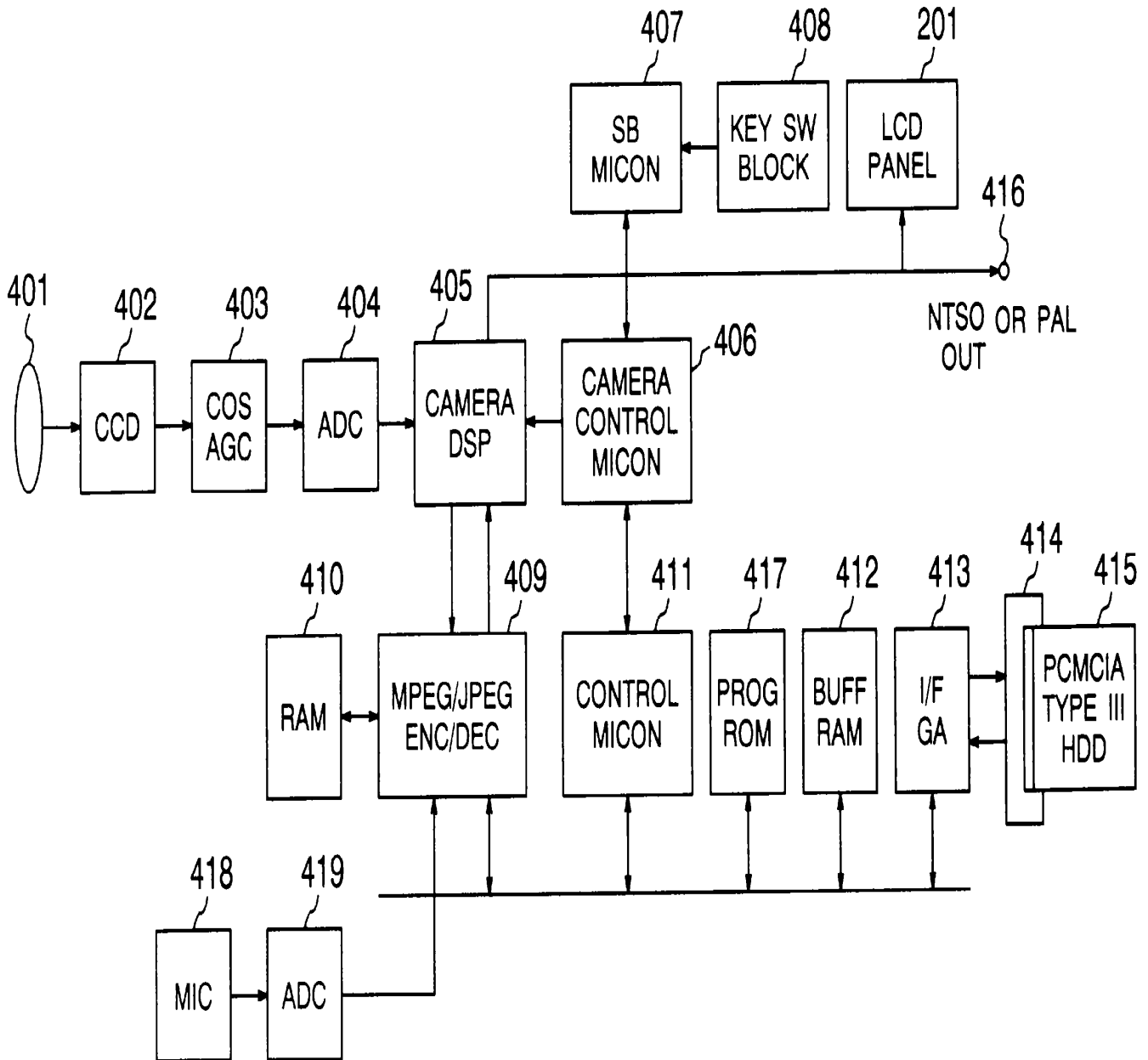


FIG. 4



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FIG. 5

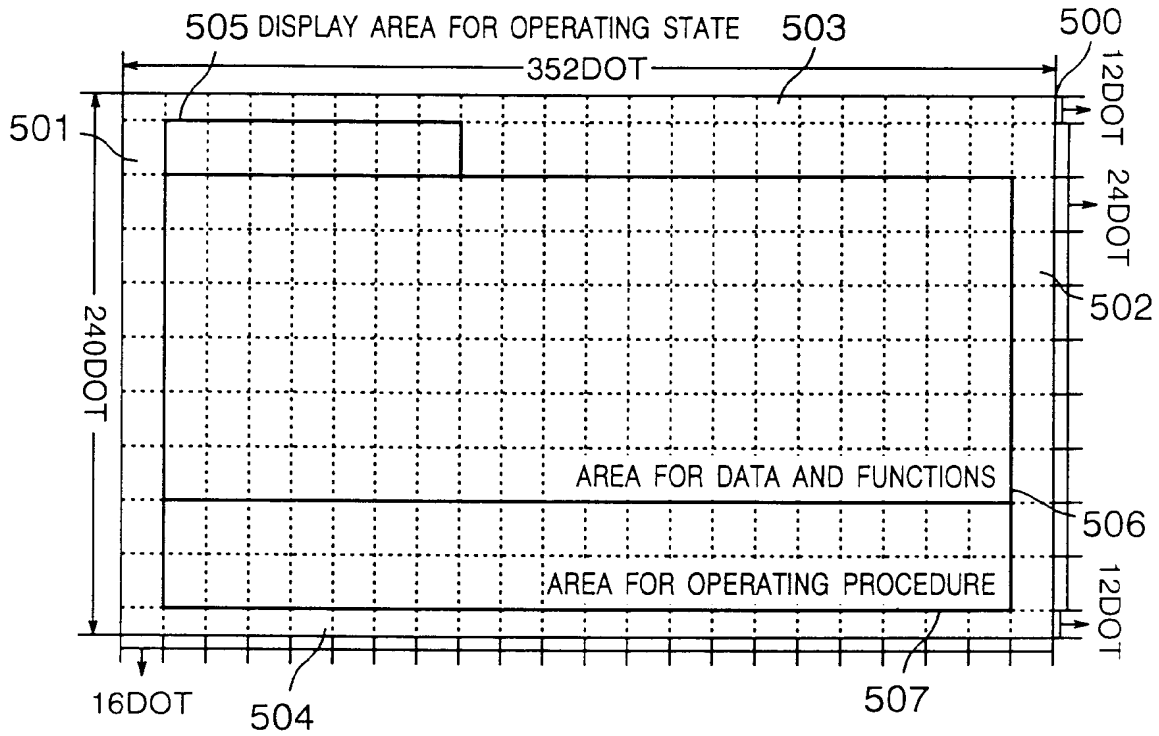


FIG. 6

Diagram illustrating a folder selection interface (600) with a table of counts. The interface includes a header (601) with the text "FOLDER SELECTION" and three icons (602, 603, 604). The table below shows the counts for each folder selection option (605-609) across three columns (31, 151, 14). The bottom section (610) shows the selected folder (1) and the "DETERMINE" button.

Folder Selection	31	151	14
1	3	10	4
2	—	—	—
3	4	12	—
ALL	38	173	18
Trash	3	6	2

SELECTED BY ▼ ▲ ► DETERMINE

FIG. 7

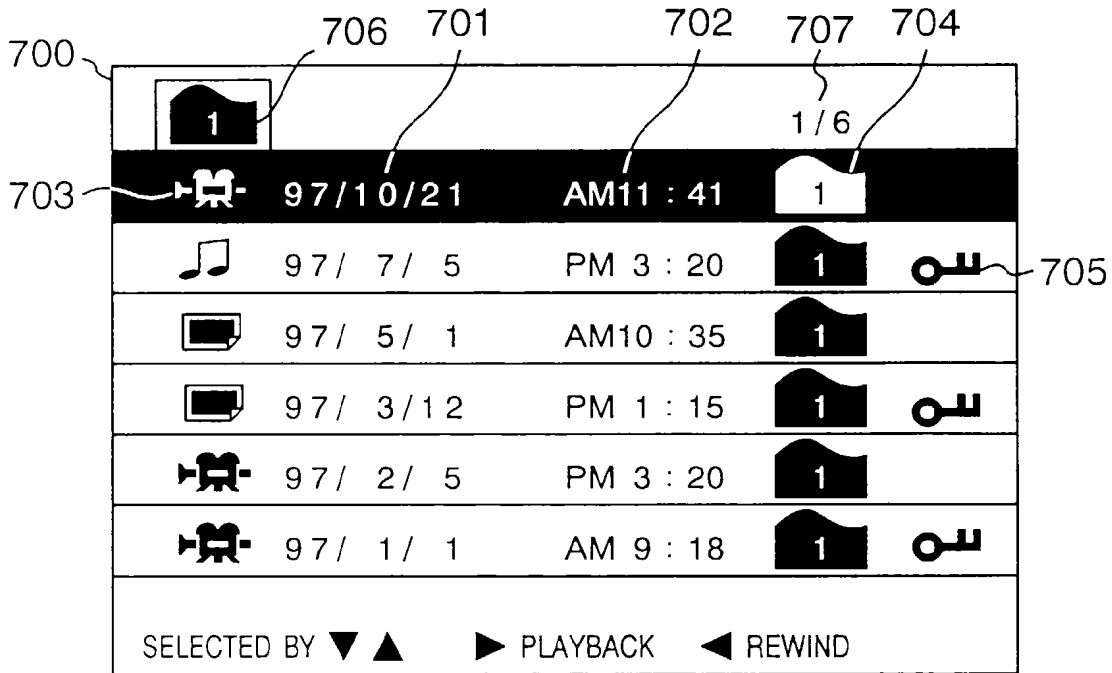


FIG. 8

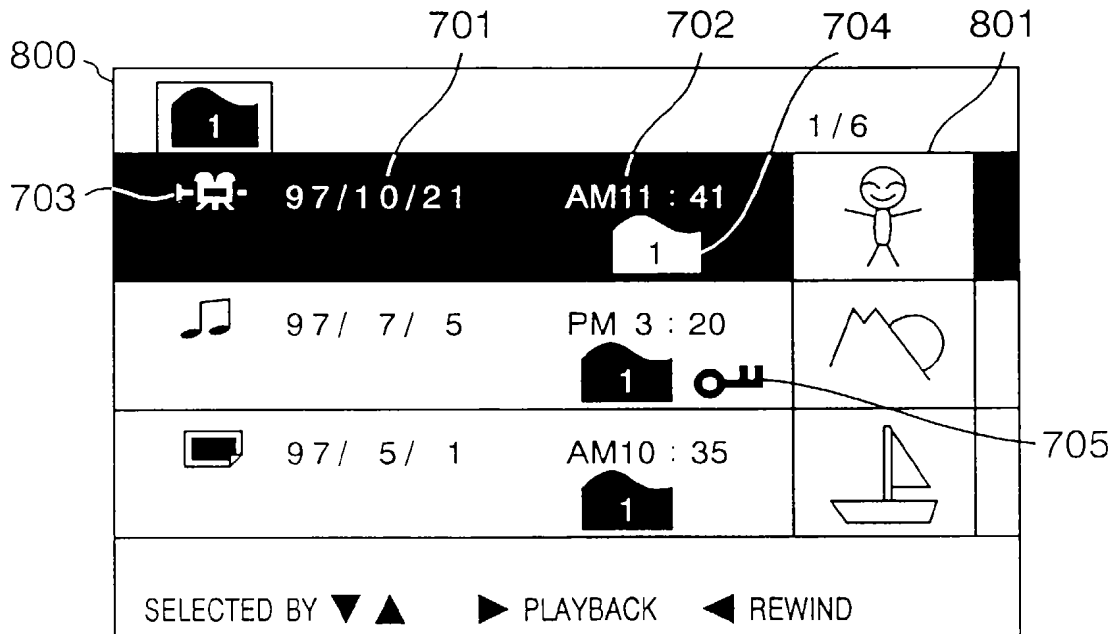


FIG. 9

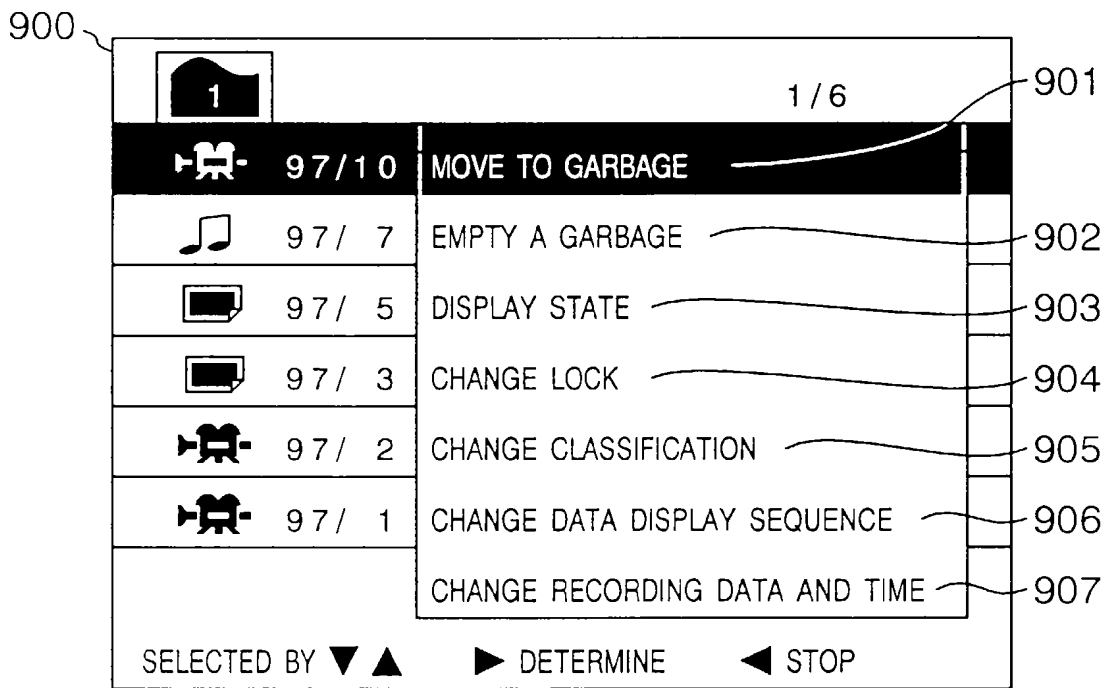


FIG. 10

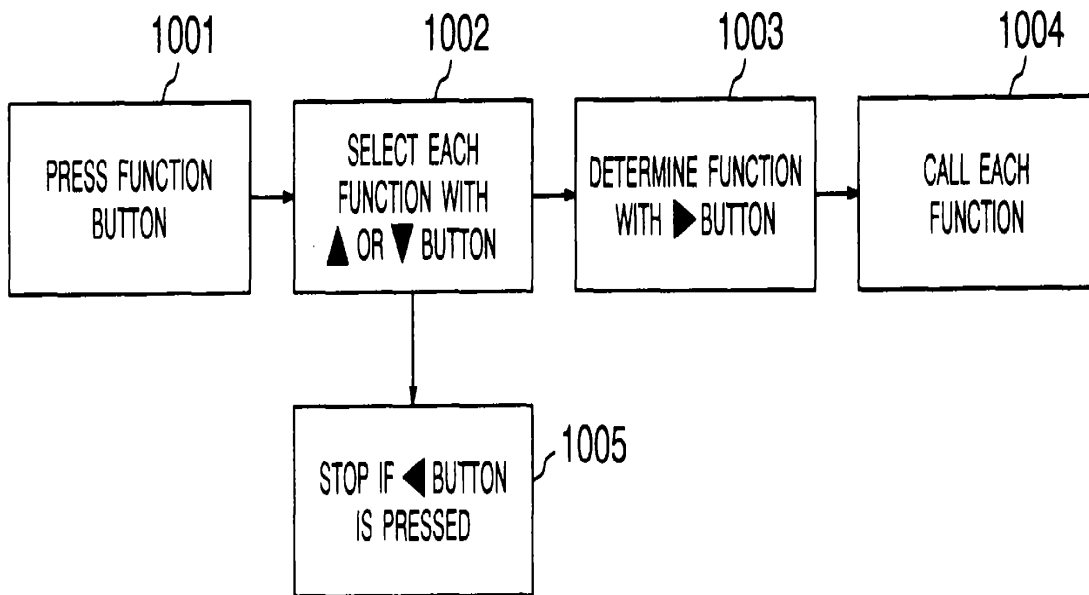


FIG. 11

1100

			1 / 6
	97/10/21	AM 11 : 41	
	97/ 7/ 5	PM 3 : 20	
	97/ 5/ 1	AM 10 : 35	
	97/ 3/12	PM 1 : 15	
	97/ 2/ 5	PM 3 : 20	
	97/ 1/ 1	AM 9 : 18	
SELECTED BY ▼ ▲ ► CHANGE ◀ RETURN			

FIG. 12

1200

			1 / 6
	97/10/21	AM 11 : 41	
	97/ 7/ 5	PM 3 : 20	
	97/ 5/ 1	AM 10 : 35	
	97/ 3/12	PM 1 : 15	
	97/ 2/ 5	PM 3 : 20	
	97/ 1/ 1	AM 9 : 18	
SELECTED BY ▼ ▲ ► DETERMINE DESTINATION ◀ RETURN			

FIG. 13

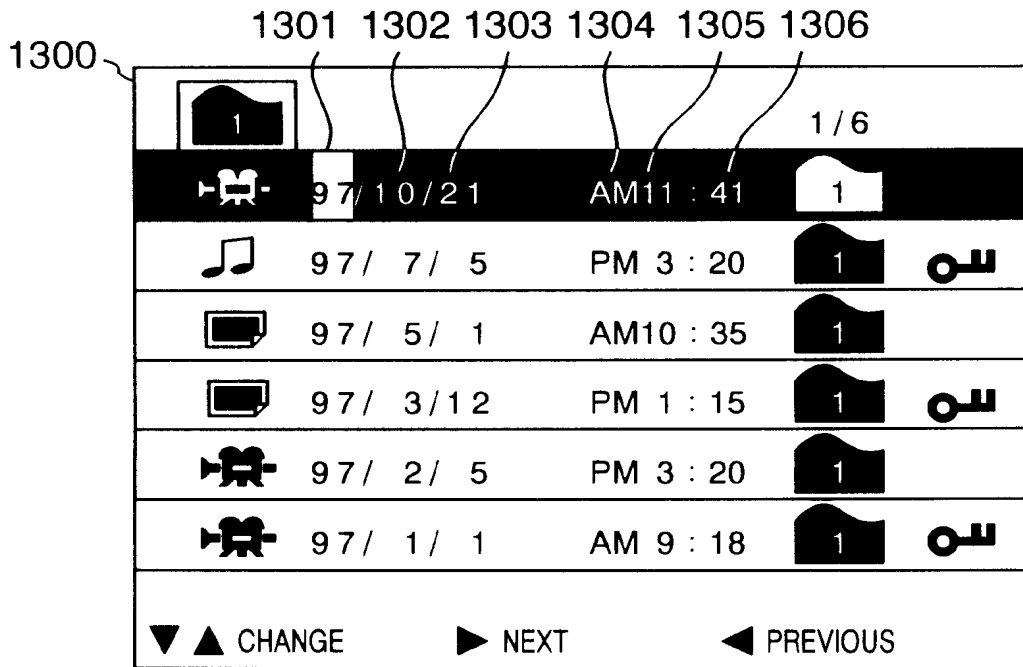


FIG. 14

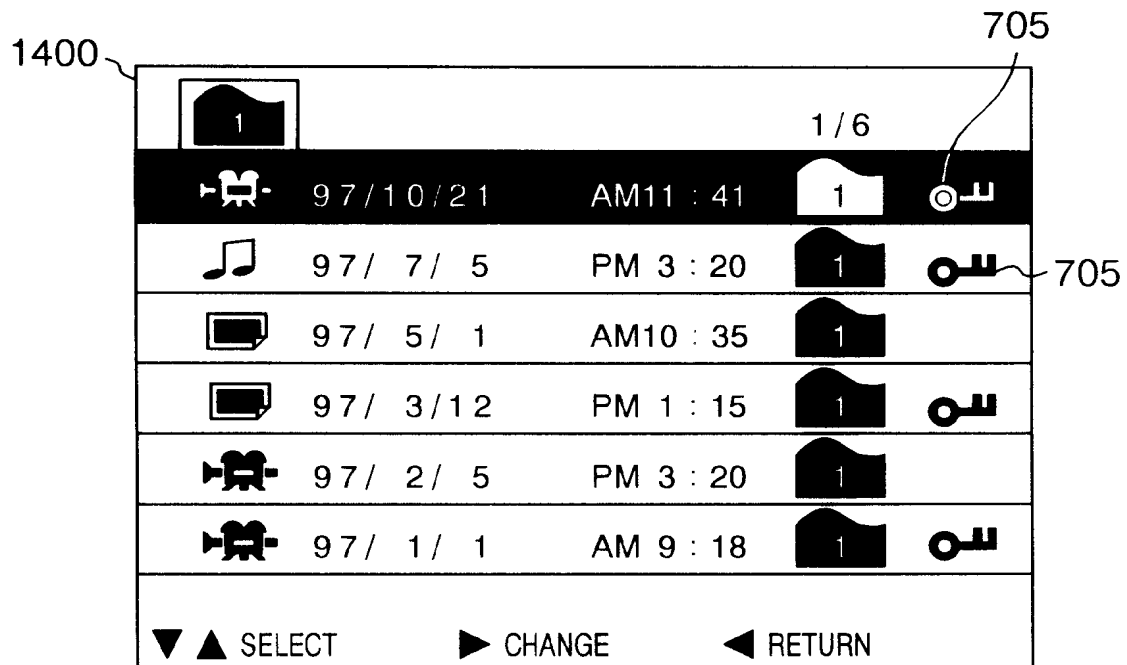


FIG. 15

1500





STATE			
REMAINING VOLUME OF CARD			
	0 : 07	MINUTE	1501
	1 0 0 0	PAGE	1502
	0 : 45	MINUTE	1503
	2 1 0 M	BYTES	1504
◀ RETURN			

FIG. 16

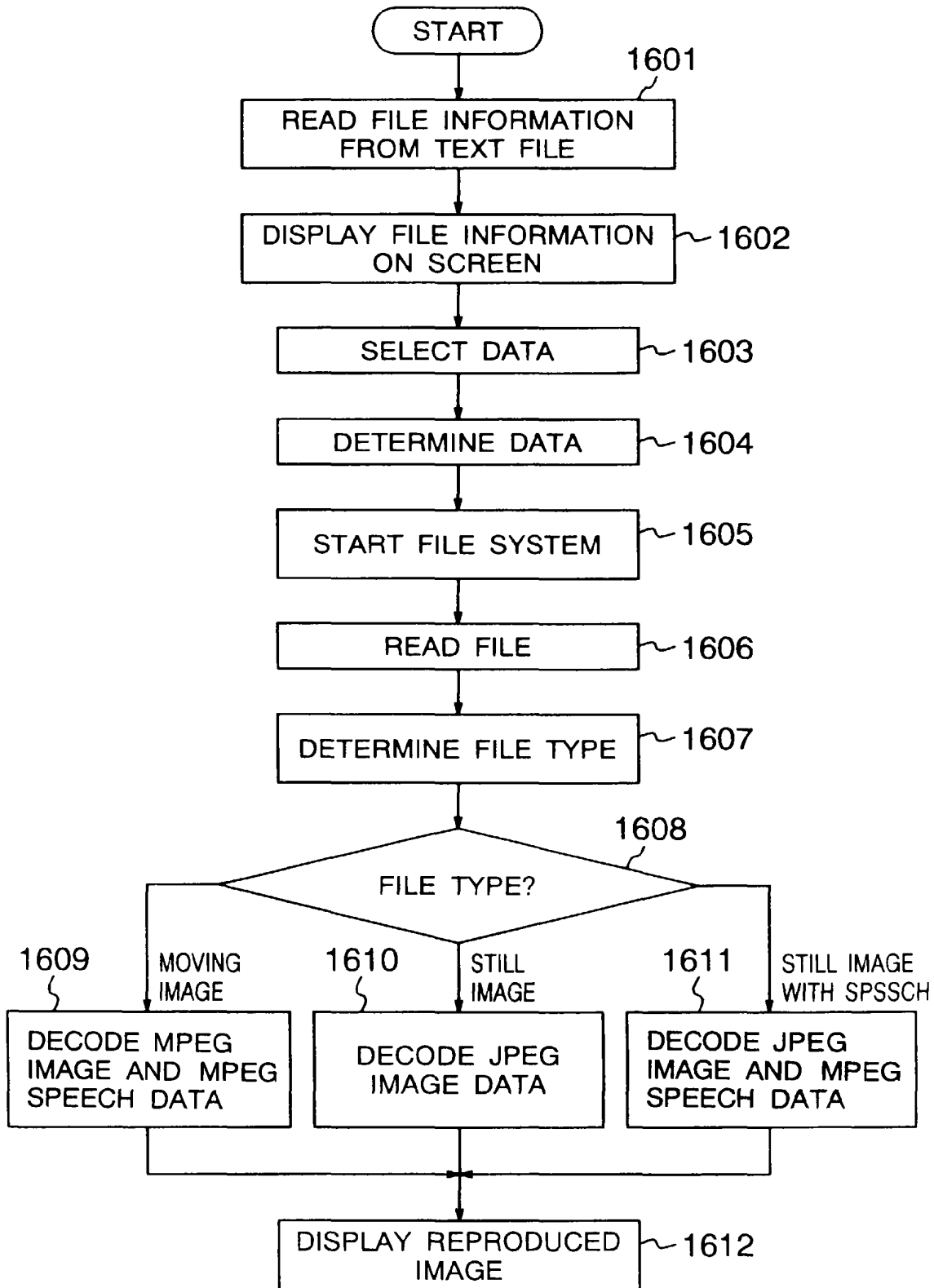


FIG. 17

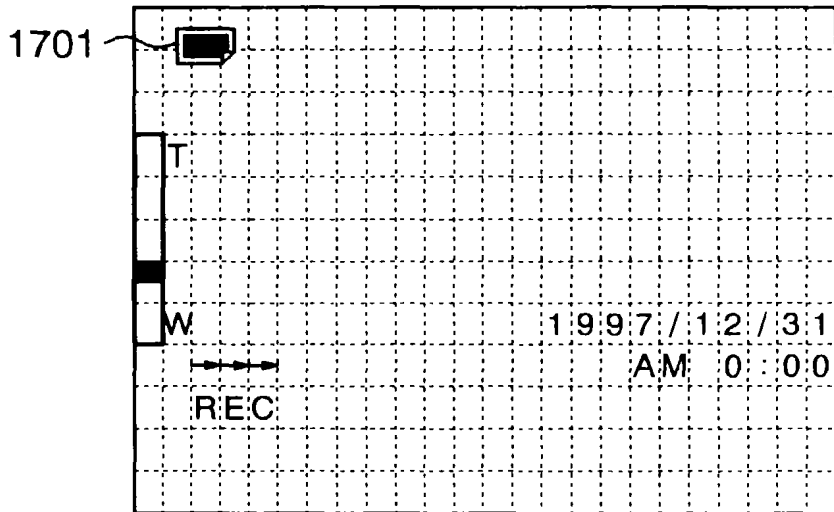


FIG. 18

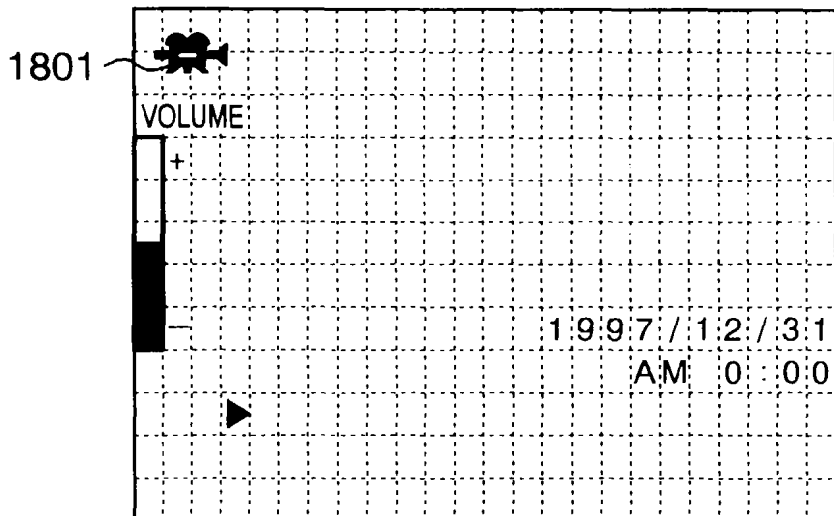






FIG. 19

RECORDING MODE	MODE SYMBOL
MOVING IMAGE	
STILL IMAGE	
SERIAL STILL IMAGE	
STILL IMAGE WITH SPEECH	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 15/386,656 Confirmation No. : 3687
Applicant : Maxell, Ltd. TC/GAU : 2698
Filed : December 21, 2016 Examiner : NGUYEN, L.T.
Title : ELECTRIC CAMERA
Customer No.: 24956

NOTICE OF RELATED PATENTS INVOLVED IN LITIGATION

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

September 3, 2019

Sir:

Applicant notifies the Office that one related patent, U.S. Patent No. 8,339,493 which matured from application 10/660,710, and from which the above-identified application claims priority under 35 U.S.C. 120, is involved in the following litigation:

Maxell, Ltd. v. Apple Inc., Civil Action No. 5:19-cv-00036-RWS (E.D. TX), filed March 15, 2019.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly, Reg. No. 30,293
(703) 684-1120

Electronic Acknowledgement Receipt

EFS ID:	37016145
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Scotti
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	03-SEP-2019
Filing Date:	21-DEC-2016
Time Stamp:	14:12:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NPL15-ADfromNJ.pdf	289529 <small>c9f30a7f96701a20f00a1549875b6f2ac7f99c4b</small>	no	1

Warnings:

IPR2020-00597

Information:					
2	Non Patent Literature	NPL16-MPEGAMMP-EG1AInstructionManual.pdf	17899261 6131ac2f0b6dc4baa107aadfb594a265f4be8e2b	no	101
Warnings:					
Information:					
3	Non Patent Literature	NPL17-TheDigitalChameleon-July1997PCMagazine.pdf	2833405 c642dd073e321ace96e4b740a836944a305fc3c2	no	1
Warnings:					
Information:					
4	Non Patent Literature	NPL18-SONY MVC-FD88-FD83MANUAL-000197-000328.pdf	1564100 8416ae059af3ac5f22a0da82c99527cf1682f975	no	132
Warnings:					
Information:					
Total Files Size (in bytes):				22586295	

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 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

24956 7590 09/18/2019
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

Table with 2 columns: EXAMINER (NGUYEN, LUONG TRUNG), ART UNIT (2698), PAPER NUMBER

DATE MAILED: 09/18/2019

Table with 5 columns: APPLICATION NO. (15/386,656), FILING DATE (12/21/2016), FIRST NAMED INVENTOR (Takahiro NAKANO), ATTORNEY DOCKET NO. (ASA-9606-08), CONFIRMATION NO. (3687)

TITLE OF INVENTION: ELECTRIC CAMERA

Table with 7 columns: APPLN. TYPE (nonprovisional), ENTITY STATUS (UNDISCOUNTED), ISSUE FEE DUE (\$1000), PUBLICATION FEE DUE (\$0.00), PREV. PAID ISSUE FEE (\$0.00), TOTAL FEE(S) DUE (\$1000), DATE DUE (12/18/2019)

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: **(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)

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.

24956 7590 09/18/2019
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

	(Typed or printed name)
	(Signature)
	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/386.656	12/21/2016	Takahiro NAKANO	ASA-9606-08	3687

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	\$1000	\$0.00	\$0.00	\$1000	12/18/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, LUONG TRUNG	2698	348-311000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a 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 or agents OR, alternatively, _____ 1</p> <p>(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</p> <p>_____ 3</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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: Issue Fee Publication Fee (if required) Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

Electronic Payment via EFS-Web Enclosed check Non-electronic payment by credit card (Attach form PTO-2038)

The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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. _____



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

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 15/386,656, 12/21/2016, Takahiro NAKANO, ASA-9606-08, 3687
Row 2: 24956, 7590, 09/18/2019, (Empty), (Empty)
Row 3: MATTINGLY & MALUR, PC, (Empty), (Empty), (Empty), (Empty)
Row 4: 1800 DIAGONAL ROAD, (Empty), (Empty), (Empty), (Empty)
Row 5: SUITE 210, (Empty), (Empty), (Empty), (Empty)
Row 6: ALEXANDRIA, VA 22314, (Empty), (Empty), (Empty), (Empty)

Table with 1 column: EXAMINER
Row 1: NGUYEN, LUONG TRUNG

Table with 2 columns: ART UNIT, PAPER NUMBER
Row 1: 2698, (Empty)

DATE MAILED: 09/18/2019

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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 30 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 the Patent and Trademark Act of 1980.

Notice of Allowability	Application No. 15/386,656	Applicant(s) NAKANO et al.	
	Examiner LUONG T NGUYEN	Art Unit 2698	AIA (FITF) 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 RCE and Amendment filed on 08/07/2019.
 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 1,4-8 and 10-19 . 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. 14/661,227 .
 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)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Examiner's Amendment/Comment |
| 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>09/03/2019</u> . | 6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material _____. | 7. <input type="checkbox"/> Other _____. |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date. _____. | |

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2698

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/07/2019 has been entered.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 09/03/2019 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Allowable Subject Matter

4. Claims 1, 4-8, 10-19 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art of the record fails to show or fairly suggest an electric camera comprising:

a third state having a third interval of the plurality of vertical pixels in which third image signals are generated using third signals based on third signal charges accumulated in a third area of the light receiving surface with a third magnification factor,

wherein, while a state is between the first state and the second state when the zoom operation unit is operated to continuously change the magnification factor, the electric camera is configured to change areas of the light receiving surface to be used in accordance with changing the magnification factor between the first magnification factor and the second magnification factor and keep the first interval constant, and

wherein, while a state is between the second state and the third state when the zoom operation unit is operated to continuously change the magnification factor, the electric camera is configured to change areas of the light receiving surface to be used in accordance with changing the magnification factor between the second magnification factor and the third magnification factor and keep the second interval constant, in combination with other claim elements.

Claims 4-6 are allowed as being dependent from claim 1.

Claim 7 is allowed for the same reasons given in claim 1.

Claims 14-16 are allowed as being dependent from claim 7.

Claim 8 is a method claim of apparatus claim 1, therefore, claim 8 is allowed for the same reasons given in claim 1.

Claims 10-12 are allowed as being dependent from claim 8.

Claim 13 is a method claim of apparatus claim 7, therefore, claim 13 is allowed for the same reasons given in claim 7.

Claims 17-19 are allowed as being dependent from claim 13.

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."

Conclusion


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

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

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 2698
09/10/2019

Search Notes 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698


CPC - Searched*		
Symbol	Date	Examiner
H04N5/372; H04N5/23248; H04N5/3741; H04N5/23258; H04N9/045; H04N5/3454; H04N5/23274	2/1/2017	LTN
H04N5/372, H04N5/23248, H04N5/3741, H04N5/23258, H04N9/045	11/9/2017	LTN
H04N5/372, H04N5/23248, H04N5/3741, H04N5/23258, H04N9/045	08/18/2018	LTN
H04N5/372, H04N5/23248, H04N5/23258, H04N5/23274, H04N5/3741, H04N2209/045, H04N9/045	05/06/2019	LTN
H04N5/372, H04N5/23248, H04N5/23258, H04N5/23274, H04N5/3741, H04N2209/045, H04N9/045	09/10/2019	LTN

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner


* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/L.T.N/ Primary Examiner, Art Unit 2698	
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Search Notes 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698


Search Notes		
Search Notes	Date	Examiner
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	2/1/2017	LTN
Inventorship search	2/1/2017	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	11/9/2017	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	08/18/2018	LTN
IPR2018-00236 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,339,493	08/18/2018	LTN
IPR2018-00238 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,736,729	08/18/2018	LTN
IPR2018-00904 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,339,493	08/18/2018	LTN
IPR2018-00908 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	08/18/2018	LTN
IPR2018-00909 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	08/18/2018	LTN
IPR2018-00910 Reviewed Petition for Inter Partes Review of U.S. Patent No. 8,059,177	08/18/2018	LTN
IPR2019-00068 Reviewed Petition for Inter Partes Review of U.S. Patent No. 7,403,226	05/06/2019	LTN
IPR2019-00069 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,544,517	05/06/2019	LTN
IPR2019-00087 Reviewed Petition for Inter Partes Review of U.S. Patent No. 6,765,616	05/06/2019	LTN
IPR2019-00097 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,100,604	05/06/2019	LTN
IPR2019-00656 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,544,517	05/06/2019	LTN
EAST (USPAT; USPGPUB; JPO; EPO; DERWENT; IBM_TDB; USOCR; FPRS), see search history	09/10/2019	LTN
Inventorship search	09/10/2019	LTN

/L.T.N/ Primary Examiner, Art Unit 2698	
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<i>Search Notes</i> 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	USPAT; USPGPUB; text search, see interference search history	09/10/2019	LTN


/L.T.N/ Primary Examiner, Art Unit 2698	
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Issue Classification 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698

CPC						
Symbol					Type	Version
H04N	/	5	/	372	F	2013-01-01
H04N	/	5	/	23248	I	2013-01-01
H04N	/	5	/	23258	I	2013-01-01
H04N	/	5	/	23274	I	2013-01-01
H04N	/	9	/	045	I	2013-01-01
H04N	/	5	/	3741	I	2013-01-01
H04N	/	2209	/	045	A	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/	/			

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	16	
/LUONG T NGUYEN/ Primary Examiner, Art Unit 2698	10 September 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7


Issue Classification 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H04N5/372	/	5	/ 372
H04N5/232	/	5	/ 232
H04N9/04	/	9	/ 04
NON-CLAIMED			
/	/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	16	
/LUONG T NGUYEN/ Primary Examiner, Art Unit 2698	10 September 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7

Issue Classification 	Application/Control No. 15/386,656	Applicant(s)/Patent Under Reexamination NAKANO et al.
	Examiner LUONG T NGUYEN	Art Unit 2698

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	7	10	16	19										
	2	8	11												
	3	9	12												
2	4	10	13												
3	5	11	14												
4	6	12	15												
5	7	13	16												
6	8	14	17												
	9	15	18												

NONE	Total Claims Allowed:	
(Assistant Examiner)	(Date)	16
/LUONG T NGUYEN/ Primary Examiner, Art Unit 2698	10 September 2019	O.G. Print Claim(s)
(Primary Examiner)	(Date)	1
		O.G. Print Figure
		7

Bibliographic Data

Application No: 15/386,656

Foreign Priority claimed: Yes No

35 USC 119 (a-d) conditions met: Yes No Met After Allowance

Verified and Acknowledged: /LUONG T NGUYEN/

Examiner's Signature

Initials

Title: ELECTRIC CAMERA

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/21/2016	348	2698	ASA-9606-08
RULE			

APPLICANTS

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INVENTORS

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Ryuji NISHIMURA Tokyo, JAPAN

Toshiro KINUGASA Tokyo, JAPAN

CONTINUING DATA

This application is a CON of 14661227 03/18/2015 PAT 9544517

14661227 is a CON of 14264243 04/29/2014 PAT 9100604

14264243 is a CON of 13681495 11/20/2012 PAT 8736729

13681495 is a CON of 12845266 07/28/2010 PAT 8339493

12845266 is a CON of 10660710 09/12/2003 PAT 8059177

10660710 is a DIV of 09520836 03/08/2000 PAT 6765616

FOREIGN APPLICATIONS

JAPAN 2000-006064 01/11/2000

IF REQUIRED, FOREIGN LICENSE GRANTED**

02/13/2017

STATE OR COUNTRY

JAPAN

ADDRESS

MATTINGLY & MALUR, PC

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SUITE 210

ALEXANDRIA, VA 22314

UNITED STATES
FILING FEE RECEIVED
\$1,600

Doc code: IDS
 Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
 Approved for use through 11/30/2020. OMB 0651-0031
 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6335760	B1	2002-01-01	SATO	
	2	6018363	A	2000-01-25	HORII	
	3	7903162	B2	2011-03-08	JUEN	
	4	4740828	A	1988-04-26	KINOSHITA	
	5	6563535	B1	2003-05-13	ANDERSON	
	6	6529236	B1	2003-03-04	WATANABE	
	7	6661451	B1	2003-12-09	KIJIMA et al.	
	8	5502483	A	1996-03-26	TAKASE et al.	

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Examiner Name	NGUYEN, L. T.
Attorney Docket Number	ASA-9606-08

9	4612575	A	1986-09-16	ISHMAN et al.
10	5444482	A	1995-08-22	MISAWA et al.

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
1						

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ^{2j}	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
1		0 802 688	EP	A1	1997-10-22	HITACHI, LTD.		

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
1		Apple Inc.'s Invalidity Contentions which were filed in the following litigation: MAXELL, LTD. v. APPLE INC., Civil Action No. 5:19-cv-00036-RWS (E.D. TX), filed August 14, 2019	
2		The Sony Digital Video Recorder (DCR-TRV900) User Manual ("DCR-TRV900 Manual"), published by Sony Corporation in 1998	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
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	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

3	Sony Consumer Electronics Guide: DCR-TRV900 - More Specifications, webpage published by Sony Corporation, April 24, 1999, URL: https://web.archive.org/web/19990424085854/http://www.sel.sony.com/SEL/consumer/ss5/office/camcorder/digitalvideoproducts/dcr-trv900_specs.shtml
4	Sony Consumer Electronics Guide: DCR-TRV900 - More Specifications, webpage published by Sony Corporation, January 28, 1999, URL: https://web.archive.org/web/19990128112515/http://www.sel.sony.com:80/SEL/consumer/ss5/office/camcorder/digitalvideoproducts/dcr-trv900.shtml
5	Getting Started With the QuickTake 200 Camera, "QuickTake 200 User's Manual", published by Apple Inc. in 1997
6	Using the QuickTake 200 AC Adapter, published by Apple Inc. in 1997 No copy submitted.
7	Published advertisement from The Indianapolis News (Indianapolis, Indiana) dated September 4, 1998
8	Published advertisement from The Indianapolis News (Indianapolis, Indiana) dated September 12, 1998
9	J. Ozer, "Digital Video Cameras," PC Magazine, Vol. 18, No. 7, April 6, 1999
10	Published advertisement from Popular Photography magazine dated October 1999
11	Published advertisement from The Daily Sentinel (Grand Junction, Colorado) newspaper dated Sunday, June 13, 1999
12	Digital Camcorder JVC GR-DVL9600 GR-DVL9500 User's Manual, "JVCVRDVL9500 Manual", published by the Victor Company of Japan, Ltd. in 1999
13	Excerpts from the JVC America Website, URL: https://web.archive.org/web/19990117003015/http://jvc-america.com:80/digital_camcorders/digital_camcorders.html No date shown on submitted copy.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15386656
Filing Date	2016-12-21
First Named Inventor	NAKANO, T.
Art Unit	2698
Examiner Name	NGUYEN, L. T.
Attorney Docket Number	ASA-9606-08

14	Published review from the Iowa City Press (Iowa City, Iowa) newspaper dated January 12, 1999
15	Published advertisement from The Courier-News (Bridgewater, New Jersey) newspaper dated February 17, 1999
16	Hitachi, "MPEGCAM MP-EG1A Instruction Manual", 1997, E1-E98, JAPAN
17	"First Looks: The Digital Chameleon at 72", MP-EG1 PC Mag, PC Magazine, July 1997
18	SONY MVC-FD88/FD83 Manual , 1999.

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/LUONG T NGUYEN/	Date Considered	09/10/2019
--------------------	------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15386656
	Filing Date		2016-12-21
	First Named Inventor	NAKANO, T.	
	Art Unit		2698
	Examiner Name	NGUYEN, L. T.	
	Attorney Docket Number		ASA-9606-08

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-09-03
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH U.S.C.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S204	1	15/386656	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 11:23
S205	298	((("NAKANO") near3 ("Takahiro"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 11:31
S206	46	((("NISHIMURA") near3 ("Ryuji"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 11:33
S207	43	((("KINUGASA") near3 ("Toshiro"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 11:34
S208	228	(pixel\$1 same interval) same zoom\$3 same (area or portion)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 12:46
S209	26	S208 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 12:46
S210	660	(thin\$4) same ((electronic near zoom\$3) or (optical near zoom\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 13:15
S211	47	S210 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 13:16
S212	50897	(H04N5/372 or H04N5/23248 or H04N5/23258 or H04N5/3741 or H04N5/23274 or H04N9/045 or H04N2209/045).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2019/09/10 13:35

IPR2020-00597

Apple EX1024 Page 480

			IBM_TDB			
S213	15022	(scan\$4 with line) and (NTSC or standard) and (television or TV) and (mix\$3 or combin\$3 or cull\$3 or add\$3) and (pixel\$1 or charge\$1 or signal\$1) and (sensor\$1 or CCD\$1 or CMOS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 13:35
S214	620	S212 and S213	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 13:35
S215	342	S214 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 13:35
S216	1536	(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 or CMOS) same zoom\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:00
S217	151	S212 and S216	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:00
S218	19	S217 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:00
S219	897	zoom\$3 and (magnification near factor) same (chang\$3 or varying)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:02
S220	56	S212 and S219	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:02
S221	353	((magnification near factor) or zoom\$3) same (vertical near pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/09/10 14:04

			JPO; DERWENT; IBM_TDB			
S222	66	S221 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:04
S223	3383	(magnification near factor) same (area or region)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:11
S224	32	S212 and S223	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:11
S225	40	(magnification near factor) same (vertical near pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:13
S226	22	("4054915" "5170249" "5187569" "5287192" "5402173" "5438365" "5638132" "5734424" "5828406" "5847758" "6195125" "6519000" "6661451" "6765616" "6781634" "6798448" "6906746" "6970191" "7154539" "7352391" "7403226" "8059177").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 14:14
S227	10	("4558368" "4670777" "4712135" "4763204" "4775885" "4805037" "4831453" "4833527" "4839734" "4878121").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 14:16
S228	271	zoom\$3 same (chang\$3 or varying) same pixel\$1 same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:21
S229	25	S228 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:21
S230	8	("3011164" "3499760" "4257044" "4366475" "4532605" "Re31200").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 14:27

S231	234	S219 and S223	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:28
S232	81	S231 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:28
S233	30	S219 and S221	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:30
S234	79	(vertical near pixel\$1) same (magnification near (factor or ratio))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:32
S235	15	(vertical near pixel\$1) same magnification same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:34
S236	6	("20070296837" "20080043096" "20150207999" "5936628" "7679657" "8044994").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 14:34
S237	3	(magnification or zoom\$4) same (area or region) same (vertical near pixel\$1) same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:37
S238	22	("4054915" "5170249" "5187569" "5287192" "5402173" "5438365" "5638132" "5734424" "5828406" "5847758" "6195125" "6519000" "6661451" "6765616" "6781634" "6798448" "6906746" "6970191" "7154539" "7352391" "7403226" "8059177").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/09/10 14:37
S239	3790	(magnification or zoom\$4) same (area or region) same interval	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:38
S240	55	S212 and S239	US-PGPUB;	OR	ON	2019/09/10

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			14:39
S241	129	S239 and S213	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:39
S242	17	S241 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:40
S243	68	S239 and S216	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:41
S244	3	S208 and S210	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:42
S245	36	S216 and S221	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:43
S246	80625	magnification same (chang\$3 or varying)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:45
S248	87	magnification same (chang\$3 or varying) same (vertical near pixel\$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:46
S249	1093	S246 and S239	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2019/09/10 14:50

			IBM_TDB			
S251	0	S249 and S216	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:50
S252	14	S249 and S213	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:51
S253	173	(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 or CMOS) same zoom\$ same vertical	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:52
S254	40	S253 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:53
S255	367	((magnification near factor) same (area or region)) and zoom\$3 and (vertical)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:57
S256	112	S255 and (@ad<="20000111" or @rlad<="20000111")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/09/10 14:57

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S257	4	(magnification same (chang\$3 or varying) same (vertical near pixel\$1)).clm.	US- PGPUB; USPAT	OR	ON	2019/09/10 14:59
S258	13	(magnification same (chang\$3 or varying) same interval same pixel\$1).clm.	US- PGPUB; USPAT	OR	ON	2019/09/10 15:00
S259	4	((magnification near factor) and (pixel\$1 same interval) and zoom\$3).clm.	US- PGPUB; USPAT	OR	ON	2019/09/10 15:04
S260	1	(zoom\$3 and ((magnification near factor) same (chang\$3 or varying)) and (interval with (vertical near pixel\$1))).clm.	US- PGPUB; USPAT	OR	ON	2019/09/10 15:05

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S261	1	(zoom\$3 and ((magnification near factor) same (chang\$3 or varying)) and ((vertical near pixel\$1))).clm.	US- PGPUB; USPAT	OR	ON	2019/09/10 15:07
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9/ 10/ 2019 3:09:07 PM

C:\ Users\ Inguyen2\ Documents\ EAST\ Workspaces\ 15386656.wsp

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15386656
Filing Date	2016-12-21
First Named Inventor	NAKANO, T.
Art Unit	2698
Examiner Name	NGUYEN, L. T.
Attorney Docket Number	ASA-9606-08

1	Using the QuickTake 200 AC Adapter, published by Apple Inc. in 1997
2	Excerpts from the JVC America Website, 1999, URL: https://web.archive.org/web/19990117003015/http://jvc-america.com:80/digital_camcorders/digital_camcorders.html

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EXAMINER SIGNATURE

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 a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15386656		
Filing Date	2016-12-21		
First Named Inventor	NAKANO, T.		
Art Unit	2698		
Examiner Name	NGUYEN, L. T.		
Attorney Docket Number	ASA-9606-08		

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-09-18
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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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.

Electronic Acknowledgement Receipt

EFS ID:	37016128
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Scotti
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	03-SEP-2019
Filing Date:	21-DEC-2016
Time Stamp:	14:10:47
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	Foreign Reference	EP0802688.pdf	1283490 <small>756cb7c14bb3f95e03f170870dfde00babcs eb20</small>	no	25

Warnings:

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Information:					
2	Non Patent Literature	NPL1- E5037-08EU_InvalidityContentions.pdf	867009 18e36f438b6d491c6367dd9934777175cd37d116	no	135
Warnings:					
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3	Non Patent Literature	NPL2- DigitalVideoRecorder-1998-A.pdf	16183592 e8cdc809187bafaad2e54fa9bcd38edd5e720591	no	40
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4	Non Patent Literature	NPL2- DigitalVideoRecorder-1998-B.pdf	15704547 abd1443c6c4fc69ca138e208308c69839d6bfd0d	no	41
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5	Non Patent Literature	NPL2- DigitalVideoRecorder-1998-C.pdf	12003303 31d3406f8d92359633b44b538719a5bae4feb095	no	30
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6	Non Patent Literature	NPL2- DigitalVideoRecorder-1998-D.pdf	14226016 de0c04597789fda2c09c1bc3bef33ae0a94377b9	no	37
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7	Non Patent Literature	NPL3- SonyConsumerElectronicsGuide-1999.pdf	280050 b51553c9b2857817f50fc867467dd18217b4c0d3	no	4
Warnings:					
Information:					

IPR2020-00597

8	Non Patent Literature	NPL4- SonyConsumerElectronicsGuide-1999.pdf	204803	no	2
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Information:					
9	Non Patent Literature	NPL5- QuickTake200UsersManual.pdf	1149829	no	98
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Warnings:					
Information:					
10	Non Patent Literature	NPL6-AppleQuickTake.pdf	89174	no	1
			4ff5cd27eb45e15c66b79f6ac349fc97f98d5201		
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Information:					
11	Non Patent Literature	NPL7-ADfromIN.pdf	407117	no	1
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Information:					
12	Non Patent Literature	NPL8-AdfromIN.pdf	238370	no	1
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13	Non Patent Literature	NPL9-DigitalVideoCameras.pdf	9989167	no	9
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14	Non Patent Literature	NPL10-PopularPhotographyAd.pdf	1190584	no	2
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16	Non Patent Literature	NPL12-JVVRDVL9500Manual.pdf	2669207	no	80
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Information:					
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Warnings:					
Information:					
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Information:					
20	Information Disclosure Statement (IDS) Form (SB08)	9606-08-SB08A-Litigation-2.pdf	1035932	no	6
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Warnings:					
Information:					
Total Files Size (in bytes):			78568973		

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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s) : Takahiro NAKANO et al. Confirmation No.: 3687
Serial No. : 15/386,656
Filed : December 21, 2016
For : ELECTRIC CAMERA
Group : 2698
Examiner : NGUYEN, L. T.
Docket No. : ASA-9606-08
Customer No.: 24956

**REQUEST FOR RECONSIDERATION OF
INFORMATION DISCLOSURE STATEMENT**

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

September 18, 2019

Sir:

Applicant respectfully requests reconsideration of the Information Disclosure Statement filed September 3, 2019 in the above application. The Examiner has crossed through references submitted with the Information Disclosure Statement, as an indication that these references have not been fully considered. The crossed through documents have been re-listed on a PTO/SB/08a form submitted herewith to assist the Examiner in providing his initials for the documents to be reconsidered for the following reasons.

A “Copy of Acknowledgement Receipt” document forms an Appendix to this Request in order to efficiently refer to the electronic filing acknowledgement of the document submitted on September 3, 2019 by document number and page number, referring to the “Copy of Acknowledgement Receipt” document.

IDS form PTO/SB/08a submitted on September 3, 2019 (6 pages)

The following references have been crossed through, and the reason Applicant asserts that the references should be initialed as an indication of consideration of the references is set forth as follows.

(i) Using the QuickTake 200 AC Adapter, published by Apple Inc. in 1997

A copy of the document was submitted on September 3, 2019. See document number 10 on page 3 of the “Copy of Acknowledgement Receipt”.

(ii) Excerpts from the JVC America Website, URL:

https://web.archive.org/web/19990117003015/http://jvcamerica.com:80/digital_camcorde rs/digital_camcorders.html

Applicant notes that an archive date code is embedded in the archived URL printed at the bottom of the pages of the article, beginning on page 2 of the document. The date code is in the list of numbers in the middle of the URL and translates as “yyyymmddhhmmss”. (See Internet Archive Help Center, Using the Wayback Machine). Therefore, the archive date code for the document indicates January 17, 1999.

To assist the Examiner in reconsideration of the document (i), above, another copy is submitted with this Request for Reconsideration.

Conclusion

In view of the foregoing, Applicant respectfully asserts that the documents re-listed on the PTO/SB/08a form submitted herewith were previously submitted on September 3, 2019, and therefore the documents should be considered in accordance with this Request for Reconsideration. Accordingly, Applicant requests that the Examiner initial the documents on the PTO/SB/08a form submitted herewith as an indication that the Examiner has fully considered these references.

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417 (referencing Attorney Docket No. ASA-9606-08).

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120

Electronic Acknowledgement Receipt

EFS ID:	37198148
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Scotti
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	18-SEP-2019
Filing Date:	21-DEC-2016
Time Stamp:	12:24:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	9606-08-SB08A-Litigation-Resubmission.pdf	1034380 <small>f2ef8a0958354e3cc9df16634741d6fe014d0fd0</small>	no	4

Warnings:

IPR2020-00597

Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Non Patent Literature	NPL6-AppleQuickTake.pdf	89174 4ff5cd27eb45e15c66b79f6ac349fc97f98d5201	no	1
Warnings:					
Information:					
3	Non Patent Literature	NPL13-JVCSite.pdf	287402 676516b2bb12d358faee6a3e1a53383df8fc1d	no	8
Warnings:					
Information:					
4	Transmittal Letter	9606-08-ElecAckReceipt-3.pdf	99171 d3b6c20377e4f2b3f191fdebda2146bc20321ea3	no	5
Warnings:					
The PDF file has been signed with a digital signature and the legal effect of the document will be based on the contents of the file not the digital signature.					
Information:					
5	Transmittal Letter	9606-08-Request-Reconsideration-IDS.pdf	23413 8ea28bb0399dff3077aaba3c9175e1a960d aa838	no	3
Warnings:					
Information:					
Total Files Size (in bytes):				1533540	

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.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450

By fax, send to: (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)

24956 7590 09/18/2019
MATTINGLY & MALUR, PC
 1800 DIAGONAL ROAD
 SUITE 210
 ALEXANDRIA, VA 22314

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/386.656	12/21/2016	Takahiro NAKANO	ASA-9606-08	3687

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	\$1000	\$0.00	\$0.00	\$1000	12/18/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, LUONG TRUNG	2698	348-311000

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 03-09 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 Mattingly & Malur, PC
 (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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Maxell, Ltd.
 (B) RESIDENCE: (CITY and STATE OR COUNTRY) Kyoto, 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. Fees submitted: Issue Fee Publication Fee (if required) Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

- Electronic Payment via EFS-Web Enclosed check Non-electronic payment by credit card (Attach form PTO-2038)
- The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-1417

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 /John R. Mattingly/ Date December 18, 2019
 Typed or printed name John R. Mattingly Registration No. 30,293

Electronic Patent Application Fee Transmittal

Application Number:	15386656
Filing Date:	21-Dec-2016
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Filer:	John Roberts Mattingly/Jasmyn Martinez
Attorney Docket Number:	ASA-9606-08

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt

EFS ID:	38064907
Application Number:	15386656
International Application Number:	
Confirmation Number:	3687
Title of Invention:	ELECTRIC CAMERA
First Named Inventor/Applicant Name:	Takahiro NAKANO
Customer Number:	24956
Filer:	John Roberts Mattingly/Jasmyn Martinez
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9606-08
Receipt Date:	18-DEC-2019
Filing Date:	21-DEC-2016
Time Stamp:	13:09:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1000
RAM confirmation Number	E2019BHD11159282
Deposit Account	501417
Authorized User	Jasmyn Martinez

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00597

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	9606-08-Issue_Fee_Transmittal.pdf	102140 499880c0c7f5c54e2cd5fd638bf7408c1d076d11	no	1

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30233 bbf8985a32f4a66e1e463b85111cd05fe2e8241	no	2
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Warnings:

Information:

Total Files Size (in bytes): 132373

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

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 15/386,656, 12/21/2016, Takahiro NAKANO, ASA-9606-08, 3687
Row 2: 24956, 7590, 12/20/2019, MATTINGLY & MALUR, PC, 1800 DIAGONAL ROAD, SUITE 210, ALEXANDRIA, VA 22314, EXAMINER NGUYEN, LUONG TRUNG
Row 3: ART UNIT 2698, PAPER NUMBER
Row 4: NOTIFICATION DATE 12/20/2019, DELIVERY MODE ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmlplaw.com



UNITED STATES DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR/ PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
15/386,656	12/21/2016	NAKANO et al.	ASA-9606-08

MATTINGLY & MALUR, PC 1800 DIAGONAL ROAD SUITE 210 ALEXANDRIA, VA 22314	EXAMINER	
	LUONG T NGUYEN	
	ART UNIT	PAPER
	2698	20191217

DATE MAILED: _____

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

Commissioner for Patents

The Information Disclosure Statement (IDS) filed on 09/18/2019 has been considered.

However, the Non-patent Literature document No.1 "Using the Quick Take 200AC Adapter" has been lined through since there is no copy submitted. The copy submitted has a different title "Update to QuickTake 200 User's Manual." Also, the citation refers to an AC Adapter, but the content of the submitted copy refers to attaching the NTSC video plug which is not the same thing.

The date 1999 in the cited Non-patent Literature document No.2 has been lined through since there is no date 1999 shown on the submitted copy.

Attachment: Initialed Information Disclosure Statement PTO/SB/08a filed on 09/18/2019.

/LUONG T NGUYEN/
Primary Examiner, Art Unit 2698

Doc code: IDS
 Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
 Approved for use through 11/30/2020. 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS							Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.					T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		15386656
Filing Date		2016-12-21
First Named Inventor	NAKANO, T.	
Art Unit	2698	
Examiner Name	NGUYEN, L. T.	
Attorney Docket Number	ASA-9606-08	

/L.T.N/ 1	No copy submitted. Using the QuickTake 200 AC Adapter, published by Apple Inc. in 1997
/L.T.N/ 2	Date not shown on submitted copy. Excerpts from the JVC America Website, 1999, URL: https://web.archive.org/web/19990117003015/http://jvc-america.com:80/digital_camcorders/digital_camcorders.html

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/LUONG T NGUYEN/	Date Considered	12/17/2019
--------------------	------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15386656
	Filing Date	2016-12-21
	First Named Inventor	NAKANO, T.
	Art Unit	2698
	Examiner Name	NGUYEN, L. T.
	Attorney Docket Number	ASA-9606-08

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-09-18
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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.**

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.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2016-12-21
First Named Inventor	T. NAKANO	
Art Unit		
Examiner Name	NGUYEN, L.	
Attorney Docket Number	ASA-9606-08	

9	7154539	B1	2006-12-26	NISHIMURA et al.
10	5828406		1998-10-27	PARULSKI et al.
11	4054915		1977-10-18	SUGIHARA
12	5170249		1992-12-08	OHTSUBO et al.
13	5187569		1993-02-16	TANI
14	6195125	B1	2001-02-27	UDAGAWA et al.
15	6906746	B2	2005-06-14	HIJISHIRI et al.
16	6519000	B1	2003-02-11	UDAGAWA
17	5847758		1998-12-08	WIZUKA
18	6970191	B1	2005-11-29	SASE et al.
19	6734424		05-2004 1008-03-04	Lennon et al. SASAKI

Change(s) applied
to document,
/G.R.P./
11/21/2019



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/386,656	02/04/2020	10554917	ASA-9606-08	3687

24956 7590 01/15/2020
 MATTINGLY & MALUR, PC
 1800 DIAGONAL ROAD
 SUITE 210
 ALEXANDRIA, VA 22314

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.

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