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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

Attorney Docket Number			
First Named Inventor	Neal Solomon		
COMPLETE IF KNOWN			
Application Number			
Filing Date			
Art Unit			
Examiner Name			

[X] Declaration Submitted With Initial Filing OR [ ] Declaration Submitted After Initial Filing (surcharge (37 CFR 1.16(f)) required)

I hereby declare that: (1) Each inventor's residence, mailing address, and citizenship are as stated below next to their name; and (2) I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention titled:

Digital imaging system for correcting video image aberrations

(Title of the invention)

the application of which

[X] is attached hereto

OR

[ ] was filed on (MM/DD/YYYY) _____ as United States Application Number or PCT International Application Number _____ and was amended on (MM/DD/YYYY) _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

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In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 21 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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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 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:		A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any])	Neal	Family Name or Surname	Solomon
Inventor's Signature	Neal J Solomon	Date	12/2/12
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City	Oakland	State	CA
Zip	94620	Country	US

☐ Additional inventors or a legal representative are being named on the _____ supplemental sheet(s) PTO/SB/02A or 02LR attached hereto

PTO/SB/35 (07-09)
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NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)

First Named Inventor	Neal Solomon
Title	Digital imaging system for correcting optical image aberrations
Attorney Docket Number	

I hereby 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.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).

Neal Solomon — Signature

12/2/12 — Date

Neal Solomon — Typed or printed name

Registration Number, if applicable

Telephone Number

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing.**

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

This collection of information is required by 37 CFR 1.213(a). 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 6 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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Electronic Acknowledgement Receipt

EFS ID:	14361774
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	103468
Filer:	Neal Edward Solomon
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	02-DEC-2012
Filing Date:	
Time Stamp:	13:25:24
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	Specification	SPP_X_Continuation_2012.pdf	15804488 1c481fb5ac4e00b0ca8f1125537075cb4765c26e	no	65

Warnings:	
Information:	

2	Drawings-only black and white line drawings	SPP_X_drawings_continuation.pdf	1324163 b3e39b711b18acb35698e05ef0d3dc974122cb65	no	19
Warnings:					
Information:					
3	Oath or Declaration filed	SPP_X_Continuation_2012_Form_1.pdf	2213391 17c98b7de93b2e6f8cd07f15dfd534379e435db2	no	2
Warnings:					
Information:					
4	Nonpublication request from applicant.	SPP_X_Continuation_2012_form_35.pdf	921182 47eac35f0f88a71050c4d1e5be5cc5e2f20bfded	no	1
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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.

PATENT APPLICATION

DIGITAL IMAGING SYSTEM

FOR CORRECTING IMAGE ABERRATIONS

Inventor(s): Neal Solomon

Entity: Small Entity

DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS

CROSS-REFERENCES TO RELATED APPLICATIONS

The present application claims the benefit of priority under 35 U.S.C. section 119 from U.S. Patent Application Serial Nos. 12/586,221 filed on September 18, 2009 and 11/825,521 filed on July 11, 2007 and Provisional Patent Application Serial No. 60/807,065 filed on July 11, 2006, the disclosures of which are hereby incorporated by reference in their entirety for all purposes.

FIELD OF THE INVENTION

The present invention pertains to imaging systems. The invention presents electronic methods to optimize optical processing, the digital capture of light and post-capture image organization of digital data sets. The system may be used in any device that captures, records, replicates, scans, reproduces, accesses, organizes, modifies, edits or stores images digitally. The invention applies to any imaging system that includes interaction between optics, digital image sensors, post-capture integrated circuits and digital storage components. The system includes self-organizing apparatus for optical image collection, electronic organization and optimization of digital data using integrated circuits and software applications. The system applies to consumer and professional still and video photography, including cinematography, to the processing of images with digital sensors, and to copying and scanning technologies. The system also applies to complex grids of multiple video cameras and satellites for surveillance and reconnaissance.

BACKGROUND OF THE INVENTION

The history of photography in the twentieth century is a story of finding solutions for optimizing optical problems. The main challenges have involved improving lens configurations to optimize image quality for film capture. As an example of this, lens aberrations have been reliably corrected by creating aspherical lens elements in wide-angle lenses and by creating apochromatic lens elements in telephoto lenses. The use of lens element coatings has also improved optical quality. Similarly, the evolution of zoom lenses has included improvement in optical quality via the combining of complex optical element configurations; as the optical

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quality of zoom lenses improved dramatically, their simplicity and utility led them to dominate lens sales. Complex computer-aided design (CAD) software has been used to test a broad range of possible lens configurations so as to optimize the optical performance in terms of clarity and contrast of each lens type, as much as optically possible within economic constraints.

In the last twenty-five years, an additional revolution has occurred with the advent of auto-focus (AF) technology in still photographic and video cameras. Invented by Minolta in the early 1980s, AF technology was a photographic application of technology developed for the U.S. military. The AF system used an infrared light sensor to reflect light onto an object that allowed a camera's lens to focus on the object by employing a motor in the camera. Canon eventually developed improved methods of auto focus by using electronic means (viz., micro ultrasonic motors) to increase speed and accuracy. This AF technology was integrated with automatic exposure (AE) technology which developed complex algorithms in a "program" mode to combine shutter and aperture data to match each lens with particular subject matter, as well as an aperture-priority exposure mode and a shutter-priority exposure mode. Of course, the photographer could use manual focus and manual exposure at any time, but these improvements increased the creative process and the competitive advantages of camera makers and photographers that employed them. Ultimately, the combination of these developments allowed ordinary photographers to achieve high quality standards.

AE was improved by Nikon, particularly with the use of a "3D color matrix" system, which included a library of pre-programmed image types. The combination of the improved AF and AE subsystems allowed a dramatic simplification of photographic imaging because the photographer no longer labored over the time-consuming focus and the exposure variables. Automated film advance, in the form of built in motor drives, increased the working speeds of camera operation as well. Nearly all consumer and professional cameras became automated to some degree by the mid-1990s, including formats beyond the 35mm film standard.

In the last decade, a new technology of image stabilization (IS) has emerged to help correct the problem of vibrations caused camera shake that lead to image blur. This technology is implemented in lenses by the use of gyros to reorient the light plane to compensate for camera shake; when combined with the earlier automated camera technologies such as AF and AE, IS further improves the photographic experience, particularly for larger lenses.

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In addition to these advances in camera automation, technologies improved in the category of artificial flash as well. With microprocessors and sensors employed to measure minute variances, the development of photographic flash systems allowed the photographer to control the lighting in an environment to some degree. Nikon's use of distance information in its flash system advanced the state of the art in flash photography. The combination of AF and AE with automated flash mechanisms provided increased efficiency and simplicity in image capture processes.

The last several years have witnessed a revolution in digital photography. Because of its simplicity, potential quality improvement, immediate feedback and cost savings, digital photography has captured an increasing market share relative to film-based cameras. Kodak holds a number of patents involving the charge coupled device (CCD) for converting and recording light into electronic format. A competing technology for digital capture is complementary metal-oxide semiconductor (CMOS) which, though developed by Fairchild Semiconductor over forty years ago, is predominantly used in photographic cameras by Canon. Although there are trade-offs in the application of CCD and CMOS digital sensors for image capture, they both find wide acceptance in the market.

In order to correct for digital artifacts in image capture mechanisms, anti-aliasing filters are placed in front of digital sensors. Despite this improvement, digital imaging still has some challenges to overcome in competing with the image quality of film.

At the present time, the most recent advances in digital imaging for professional still photography have come from Hasselblad, which offers a Phase One camera back with a 39 MP digital sensor from Kodak. This system uses software that automatically corrects for digital capture limitations to produce a quality image. Their "digital APO correction" (DAC) technology performs an analysis of meta-data to color-correct the digital capture resulting in moiré-free images.

At the limits of current technology, a Canadian company, Dalsa, has produced a 111MP (10,560 by 10,560 pixels) CCD digital sensor that measures four inches square. This technology must be mated with large format-type lenses with large image area, and may be used for satellite surveillance applications and for other astronomical applications.

With both the larger sensor surface area of a medium format camera system and the high-quality fixed focal-length lenses of Zeiss, Schneider and Rodenstock, the quality of even the top

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optics will be a limiting barrier to advanced digital sensors' ability to perceive maximum resolution. Without new improvements in optical and digital technologies, further progression of photographic camera systems will be limited.

Photographic Problems

Though every major advance in photography has solved an important problem, there are still remaining photographic problems to be solved in order to meet the goals of optimizing optical imaging quality while increasing simplicity and efficiency and lowering cost. Despite the advent and evolution of digital imaging, a number of problems have emerged in the digital realm in addition to earlier problems involving optics. Nevertheless, an opportunity exists to solve some of these problems via digital approaches. These problems are generally categorized as optical or digital.

Optical Problems

In the case of optics, lens aberrations are characterized according to lens type, with wide-angle lens problems differentiated from telephoto lens problems. Some of the problems affecting wide-angle lenses arose from the creation of the single lens reflex (SLR) camera. Before the SLR, the rear element of a lens could be placed in a rangefinder to protrude to a point immediately in front of the film plane in order to correct for aberrations. While the advantages of the mirror mechanism include ability to see exactly what one is photographing, because the mirror of the SLR flips up during exposure, the rear element of the lens must be placed in front of the mirror's plane of movement. This mechanical fact limits lens designs in most 35mm and medium-format camera systems and particularly affects wide-angle lens configurations.

It is very difficult to control the five aberrations of Seidel – spherical aberration, distortion (barrel distortion and pin cushion distortion), comatic aberration, astigmatism and curvature of field. In wide-angle SLR lenses as they are currently designed, these aberrations are particularly prominent.

For wide-angle lenses, optical vignetting affects peripheral illumination. Though optical vignetting will affect even retrofocus wide-angle lenses in rangefinders, it is particularly prominent in SLR cameras. According to the Cosine law, light fall-off in peripheral areas of an image increases as the angle-of-view increases. While optical vignetting can be reduced by

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stopping down the lens, the aberrations in rectilinear wide-angle lenses generally exhibit more distortion the wider the lens.

In the case of wide-angle lenses, the depth of field range is much broader, with close focusing causing aberrations without stopping down the aperture. To solve this problem, close-distance focusing is improved by the creation of floating groups of lens elements. The rear lens group elements float to correct close-distance aberrations. With wide-angle lenses that have wide apertures, floating lens elements improve lens aberrations in focusing on distance points also.

Modulation transfer function (MTF) curves represent a quantitative methodology used to assess the resolution and contrast of lens performance at specific apertures. Each lens type has a specific lens element composition, formula and behavior as measured by MTF. In general, MTF measures lens sharpness to 30 lines/mm and contrast to 10 lines/mm.

Because different colors of the visible light spectrum behave uniquely, the goal of lens design is to have all colors accurately hit a film plane or digital sensor plane. The particular challenge for telephoto lenses is that the red and green light colors strike the film plane at different times than blue light colors; thus a compensation must be made in the lens configuration to adjust for chromatic aberrations. Camera lens manufacturers have used extra low dispersion glass and fluorite glass elements in telephoto lenses primarily to adjust the red color light spectra to the film plane. In addition, telephoto lenses use carefully designed lens coatings to limit light diffraction-based aberrations.

Due to their construction, super-telephoto lenses are very large and heavy. While modifying the materials used in the lens barrels could reduce size and weight problems, a technological improvement in telephoto lens design was developed by Canon with the addition of diffractive optical (DO) elements, which behave as a sort of highly-refined fresnel lens magnifier. Though the MTF analyses of wide-angle lenses show dramatic latitude in performance of even high quality SLR lenses, with particular loss in resolution and contrast toward the edges of the image, high quality telephoto lenses show control of aberrations. However, the price of these lenses is prohibitively high.

In the case of zoom lenses, as many as four distinct groups of lens elements correct various optical aberrations. These lens element groups include (a) a focusing group, (b) a magnification variation group, (c) a correction group and (d) an image formation group.

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Modulating the focal length range of a zoom lens enables the lens to perform within the scope of operation, yet the zoom lens architecture has limits. In particular, the zoom lens configuration sacrifices resolution and wide potential aperture. Generally, the degree of resolution and contrast at the smaller angle of view is traded away in favor of competence at a wider angle of view, or vice-versa. This explains why MTF analyses of zoom lenses generally show a dramatic lowering in resolution and contrast relative to excellent fixed focal length lenses.

Digital Problems

Digital photography has built on the edifice of *film* camera systems. For instance, the size of the sensor is generally limited to the size of the optical circumference of a lens system. In the case of 35mm lenses that are designed for a specific angle of view, the largest that a digital sensor in a 35mm lens system could be, is 24mm by 36mm, with a corresponding maximum image circle of 43mm. In the case of medium format lenses, the largest digital sensors would duplicate the corresponding film plane size, whether 6x4.5 cm, 6x6 cm, 6x7 cm, 6x8 cm, 6x9 cm, 6x12 cm or 6x17 cm (which results in an effective image circle as large as 7 inches).

Digital sensors that are smaller than the limits of a corresponding lens system have been introduced. For example, Nikon digital sensors are smaller than 24mm x 36mm, or advanced photo system (APS) size. Efficient stacking of pixels allows a smaller sensor to eventually match the performance of a corresponding film system, while using the smaller circumference of the same lenses. Since the outside edges of the lens typically degrade resolution and contrast, this model using the smaller digital sensor can have an advantage of using primarily the centralized "sweet spot" of the image area. However, this smaller sensor size sacrifices the peripheral effects of a wide-angle lens, so a 14mm becomes a 21mm in a 1.5x conversion-sized sensor in a 35mm lens system. On the other hand, with telephoto lenses, the angle of view is limited to the center 65% of the image. This gives the appearance of upconverting a telephoto lens by 1.5x and thus provides an impression of increased magnification; a 400mm f/2.8 lens appears as a 600mm f/2.8 lens on a camera with a cropped digital sensor. Ultra-wide-angle lenses have been introduced with smaller image areas than 35mm to compensate for smaller sensor size.

Though invented over thirty years ago by Dr. Bayer, the charge coupled device (CCD) that is used in many digital cameras generally emulates the behavior of film. Specifically, since

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most photographic film has three layers of green, red and blue, with green representing fifty percent of the emulsion and red and blue twenty-five percent each, the CCD architecture also configured pixels to capture fifty percent of the green photonic visible light spectrum and twenty-five percent each for pixels recording red and blue light. Human eyes see more green than red and blue, so both film and digital sensors seek to emulate the way that we see. Each light color is captured by a different pixel in the CCD, just as there are three emulsion layers of film. In recent years, Foveon has developed a digital sensor for image capture that further seeks to emulate film by structuring the pixels into three *layers*, again with fifty percent capturing green light and twenty-five percent each capturing red and blue light.

Unfortunately, unwanted artifacts are also captured by the digital image capture process. These include banding and moiré effects that present false patterns and colors. Moiré patterns are created because the dot pattern of a sensor will intermittently overlap with the pattern of a subject to create a third pattern; these effects are optically-generated digital distortions that represent the effect of light hitting a pixel without correction. In order to compensate for these effects, digital sensors have employed low pass filters consisting of liquid crystal structures; however, these filters tend to have the effect of softening image resolution. Additionally, RGB or CMYG color filters are placed in front of digital sensors to ensure the accurate capture of colors.

CMOS digital sensors present an alternative to CCDs. By employing alternating positive and negative transistor networks, the CMOS sensors use less power. While they do not have the low noise ratio of the CCD, they do have greater light exposure latitude, in both range of ISO and dynamic range of detail in highlight and shadow. More importantly, CMOS sensors contain the circuitry, including analog to digital converter (ADC) and digital to analog converter (DAC), for post-processing digital images on the chip itself and enabling increased micro-miniaturization of the digital imaging process. An increase in the bit rate of the CMOS chip up to 32-bit makes possible a much richer color palate and level of detail than with earlier generation CCDs.

CMOS sensors can be full-frame, matching the lens specifications for the camera systems for which they are designed. A relatively bigger sensor has a wider depth of field capability, so the background can appear as a blur to set apart the main subject. Given these capabilities, one problem that emerges is that a digital sensor's enhanced capabilities to capture details may exceed the maximum optical resolution capabilities of many lenses. Nevertheless, CMOS

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sensors still require an anti-aliasing filter to be used in front of the sensor, which marginally degrades resolution.

Over the years, cameras have gotten smaller. While in the 19th century cameras were 11x14 or 8x10, literally capturing images on large emulsion plates, cameras of today are smaller and more automated. Yet the larger the film size, the bigger the enlargement potential and the increase in relative detail in the overall image. Similarly in digital photography, the larger the sensor, the more detail available and the bigger the output print can be enlarged. Because of this correspondence of digital sensor to film, the evolution of digital photography has been restricted to respective film camera systems, with 35mm and medium format systems dominating the field because well-developed lens systems have already been organized for these camera formats. The potential exists, however, to develop 35mm camera system digital sensors that rival film-based medium format or large format camera system quality or to surpass the limits of 35mm camera systems with medium format camera system digital sensors. The relative size, cost and automation advantages of 35mm camera systems generally show that these systems not only are competitive, but that these markets are increasingly accelerated relative to larger format systems. For example, the development of large aperture lenses, super-telephotos, rapid auto-focus, refined automated exposure and image stabilization systems in 35mm systems has solved various problems that have emerged in the last century and has improved image quality and camera system efficiency.

However, in the digital imaging realm additional problems have emerged, including the need to improve color (hue and saturation) quality, exposure highlight range, contrast range and other tonal adjustments. In addition, digital image capture brings its own set of aberrations, including moiré and banding effects and noise and ISO range limits. Additional aberrations are linked to the unique design of each type of digital sensor, with trade-offs presented between types of CCDs or CMOS chips. Moreover, there are still optical problems in the digital realm, namely, a range of optical aberrations created particularly by wide-angle and zoom lenses as well as the limits of very large, costly and heavy super-telephoto lenses.

In order to transcend the optical and digital limits of present camera systems, software systems have been developed that deal with the problems in post-production. While the most notable of these post-production digital editing software programs is Adobe Photoshop, each camera manufacturer has its own proprietary program. In the main, these post-production

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software programs are limited to color correction and sharpening/softening of images. Additionally, some of these software programs are able to emulate specific artificial filter techniques to produce creative modifications of an original image. Nevertheless, manipulating unfiltered RAW image files in post-production processes is time-consuming and expensive and requires considerable skill.

One unintended effect of using digital sensors to capture images in digital photography is that dust accumulates on the sensor surface and thereby obstructs a clear optical image. The vacuum behavior of increasingly ubiquitous zoom lenses moves dust in lenses that are not internally sealed and the existence of dust is a prevalent feature of digital photography. Dust on the sensor is a non-trivial problem that requires tedious post-production correction for each image. The existence of dust on a digital sensor is an inconvenient impediment to achievement of optical imaging quality.

What is needed to correct these various optical and digital aberrations and unfiltered image files is in-camera modification capability for each specific image problem. The present invention describes a digital imaging system to optimize optical results.

Applications of the Present Invention

The present invention has several practical applications. The digital imaging system applies to consumer and professional still and video camera technologies, to cellular telephones and to personal digital assistants (PDAs). Since video technologies are evolving into digital formats, including HDTV and its successors, the present invention would be applicable to these technologies. The present invention also applies to networks of remote camera sensors for surveillance. The system also applies to native digital cinematography and telecine conversion from analogue to digital media. The system may be applied to image scanning and image copying technologies. Finally, the present system may be applied to any optical digital capture, processing and storage sub-system technologies, including groups of sensors or satellites.

Advantages of the Present Invention

There are several important advantages of the present invention. The present system dramatically improves image quality. This digital imaging system eliminates, or minimizes, post-production processes. In addition, the system presents substantial cost savings as well as

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time savings relative to existing digital imaging systems because of the automation of integrated in-camera optical and digital corrections of aberrations.

With the present system, in-camera digital filters will largely replace optical filters. With less distortion, cost and weight/size than current optical filters and with far more control and quality results, the present system demonstrates that in-camera digital filtration out-performs better than external filters. The in-camera filter system is also an improvement over post-production digital filter systems which require substantial time, cost and skill to implement.

By using the present invention, users will be able to use lens apertures that are wider open, because lens aberrations will be corrected. In turn, this increased latitude will allow more efficient (2+ stops) use of available light and will allow slower lenses to achieve quality images that have traditionally been in the domain of expensive fast lenses. The process of photography will be made generally more efficient.

The present system allows camera manufacturers to design different, predominantly smaller, lenses. Moreover, with providing a system for digital corrections, camera lenses may use less expensive optics and still obtain good results. This process will, in turn, accelerate the adoption of low-cost digital photographic systems and, in the aggregate, increase the overall size of the digital photographic market. Similarly, there will be an increase in the effectiveness of zoom lenses, which are already becoming popular. With the present system, 35mm optics may obtain the quality typically recognized by 4x5 film camera systems. The present system will thus facilitate photographic digital imaging to supplant the film era.

Its application to digital scanning and copying will allow the present system to become ubiquitous as a system to improve imaging.

Because the system presents an integration of several critical subsystems that are centered on digital imaging processes, the system has applications to video photography, satellite systems and surveillance systems. The dynamics of the operation of the subsystems of the present digital imaging system reveal the refinement, efficiency and optimization of the digital photographic paradigm.

Importantly, since the present system uses apparatus and methods that are implemented with software processes, in-camera software can be constantly upgraded and remotely downloaded, while image files can be automatically uploaded, organized and published.

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If the goal of the evolution of photographic technology is to increase the number and quality of excellent images, the present system will revolutionize photography.

Solutions to Digital Imaging Problems that the Present System Presents

The present system provides in-camera digital corrections to both optical and digital aberrations. In the case of optical aberrations, distinct lens-specific imperfections are caused by wide-angle, telephoto and zoom lens types. In the case of digital aberrations, specific digital artifacts, such as aliasing and dust, must be corrected.

The present invention also designs specific improvements to digital sensor design. These hardware architecture modifications allow digital imaging to maximize both optical resolution and image exposure range.

Post-capture in-camera filtration is only part of the solution. There is also a need to modify the digital sensor, whether CCD or CMOS, with specific filtration in some cases, including a low pass anti-aliasing filter and a polarizing filter. This post-optic pre-sensor filtration works with post-sensor in-camera filtration processes.

In the context of specific complex processes, such as in zoom lens modifications of focal length and in full-motion video processing, additional corrections are performed using the digital imaging system which continuously optimizes performance.

Finally, the present system reveals approaches to improve network coordination and wireless external storage and publication capabilities for digital imaging systems.

BRIEF SUMMARY OF THE INVENTION

The present invention is divided into several main sub-systems: (1) digital filters to correct optical and digital aberrations; (2) digital sensor improvements and nano-grids; (3) digital system improvements that link multiple digital corrections; (4) dynamic digital imaging system improvements that apply to zoom lenses and video imaging; and (5) digital image network improvements. There are several distinct improvements for each category of sub-system listed.

DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic drawing of a digital imaging system.

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Fig. 2 is a flow chart of an analog to digital signal process.

Fig. 3 is an image of the vignetting corrective filter in an optical lens.

Fig. 4 is a list of wide angle 35mm lens types.

Fig. 5 is a flow chart of the digital corrective process.

Fig. 6 is a schematic diagram of different types of optical aberrations in different configurations of the same lens.

Fig. 7 is a flow chart of the process of digital image capture, processing and storage.

Fig. 8 is a flow chart illustrating the process of selecting filtration settings.

Fig. 9 is a pair of diagrams showing the varied depth of field optimization at different apertures.

Fig. 10 is a flow chart showing exposure optimization using digital correction in camera.

Fig. 11 is a flow chart illustrating the use of in-camera special effects filtration.

Fig. 12 is a flow chart showing the selective in-camera filtration of specific objects.

Fig. 13 is a flow chart describing the exposure adjustment of an image using in-camera filtration.

Fig. 14 is a flow chart showing the process of in-camera special effects filtration.

Fig. 15 is a flow chart showing the process of in-camera digital correction for sensor dust.

Fig. 16 is a diagram showing a digital camera with an ASIC array.

Fig. 17 is a diagram illustrating a digital camera with interchangeable CCD and CMOS sensors.

Fig. 18 is a diagram of a digital camera with a nano-grid before the sensor.

Fig. 19 is a diagram of a nano-grid.

Fig. 20 is a diagram showing the feedback loop connecting the processor and the nano-grid.

Fig. 21 is a diagram illustrating the tri-pixel architecture in a digital sensor.

Fig. 22 is a flow chart showing the pre-programmed modules for in-camera functionality.

Fig. 23 is a diagram showing the pre-sensor modification process in a digital camera.

Fig. 24 is a flow chart showing the integration of optical and digital corrections with feedback.

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Fig. 25 is a flow chart showing the interactive feedback mechanism of integrated corrections.

Fig. 26 is a flow chart describing the adaptive user pattern learning process to process images.

Fig. 27 is a flow chart describing the feedback process in filtering images.

Fig. 28 is a flow chart showing software privacy function in a digital imaging system.

Fig. 29 is a flow chart showing the dynamics of zoom lens corrections in digital imaging.

Fig. 30 is a diagram illustrating object tracking in dynamic changes in video corrections.

Fig. 31 is a flow chart showing object tracking of a digital imaging system.

Fig. 32 is a flow chart showing the caching process of an object in motion in a stationary scene.

Fig. 33 is a diagram showing network coordination of fixed sensor grid tracking multiple objects.

Fig. 34 is a diagram showing the wireless communication features of the digital imaging system.

Fig. 35 is a flow chart showing an image organization system.

DETAILED DESCRIPTION OF THE INVENTION

(I) Digital Filters to Correct Optical and Digital Aberrations

(1) Lens-specific digital correction of fixed focal-length lens for specific optical aberrations in camera.

Each lens has some sort of aberrations because of the trade-offs involved in producing lenses of usable size and practical commercial cost. The challenge of building lenses for SLR camera systems lies in accounting for particular restrictions and compromises, particularly for wide-angle and zoom lenses. In the case of wide-angle fixed focal length lenses, several main kinds of aberrations occur, including spherical aberration, distortion (pin cushion distortion and barrel distortion), astigmatism, curvature of field (manifesting as the reduced corner exposure of vignetting) and comatic aberration (a distortion evident with long exposures). The extremes of each of these aberrations have to be corrected in post-production.

In the case of vignetting, a type of aberration in which the corners of an image are exposed a stop less than the image's center area, software can digitally emulate a center-neutral density filter to compensate for the light fall-off on the edges. This operation identifies the

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degree of light fall-off for each specific lens and adjusts the brighter areas in the center of the lens by appropriate exposure compensation. A consequence of this digital equivalent of the traditional optical solution to vignetting is that the image will require exposure metering of the subject at a level consistent with the outside edges of the image rather than the typical inner section. In the present system, the camera will use pre-set calculations compensating (generally one stop) for the specific gradations of the curvature of the field for each lens, with an increasing compensation correlated to an increased angle of view. Similarly, barrel distortion and pin-cushion distortion, which also manifest in image corners, are corrected using processes of employing pre-set calculations, to compensate for optical distortion, particularly in wide-angle and zoom lenses.

In addition to integrating into the camera the traditional process of image correction for exposure gradations of vignetting, the present invention offers two further embodiments. First, instead of darkening the center to match the darker corners, the in-camera digital compensation system will lighten the corners to match the exposure of the center of the image. In the second embodiment, the in-camera digital compensation system will both lighten the corners somewhat and darken the center of the image somewhat, to produce a more pleasing and realistic effect. The in-camera digital corrections of the vignetting problem dramatically improve the traditional optical solution of a center-weighted neutral density filter, which typically degrades image quality as it evenly illuminates the full image.

Since each lens has specific aberrations, depending on manufacturer and even differences in the specimens themselves, the camera software system will have preprogrammed general corrections for each specific lens type. For instance, while a 20mm f2.8 lens varies among manufacturers, the general optical aberrations will be similar. An effective software solution is one which brings the optical image quality to a level consistent with a benchmark as measured by low MTF curves for each lens in its class in terms of both resolution and contrast throughout the image. To exemplify this benchmark, retrofocus rangefinder lens performance results of wide-angle lenses, which lack a shutter mechanism to design around, can be used for comparison. To accommodate the mirror in the SLR design type, the rear nodal point in SLR lenses are shifted forward, creating distortion. In contrast, the present system suggests applying a digital solution to compensate for this problem.

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In a general sense, this process of correction is similar to correcting an ocular astigmatism with reading glasses. However, rather than using an optical solution to an ocular problem, the present system reveals a digital solution to an optical problem.

In the process, the camera identifies a specific lens and refers to a database that matches the lens type with the specific aberrations. The aberrations are consistent throughout all images for each formula of a specific prime lens type and are thus corrected by adjusting for each specific aberration category. Generally, the larger the angle of view of a lens, the greater the distortion and the greater the need for in-camera digital corrections.

In addition to the kinds of distortions created in wide-angle lenses, other types of distortion occur primarily in large aperture telephoto lenses, most notably chromatic aberrations that require apochromatic corrections. Rather than employing large, heavy and expensive extra dispersion glass, such as fluorite elements, the present system allows each lens type to be digitally corrected for these types of aberrations. The in-camera digital process works by identifying a specific lens and comparing the lens pattern to an internal database. Mathematical calculations compensate for the shift in red and green light that apochromatic corrections require for very low MTF curves registering high standards of resolution and contrast by emulating the optical benefits of extra low dispersion glass elements.

Since lenses of the same focal length but with different maximum apertures represent completely different lens designs, modifications of their aberrations will vary relative to each specific lens type. For example, a 24mm f/2.8 lens will have a different optical formula than a 24mm f1.4 lens in a 35mm camera system. Similarly, a 28mm f/2.8 will differ from both a 28mm f/2 lens and a 28mm f1.4 lens and will thus each require different adjustments for vignetting, spherical aberration, pin cushion distortion, barrel distortion and coma. In other words, each lens with a unique optical formula will have specific aberrations, the corrections for which will be accessible in a database.

Another type of optical aberration that affects lenses involves flare, which is a sort of specific reflection of light sources. While improvements in lens coatings have been used to correct for flare, high refractive glass also eliminates flare. The present system uses digital processes to emulate these flare reduction functions on lenses even at maximum apertures.

In addition to the lens-specific types of corrections that are supplied by in-camera software, a function that optimizes contrast provided by limited reflected light is required. In

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general, lens hoods reduce reflected light. However, in the absence of a lens hood, scattered light will adversely affect contrast in all lenses. Thus, a general digital solution will optimize contrast from reflected light by emulating the effects of a lens hood.

Because the pixels on a digital sensor behave as neutral intermediaries to record light, the aberrations on specific fixed focal length lenses will be prominent. It is therefore necessary to filter out various optical impurities. In all cases, the digital in-camera software program emulates specific filters to effectively correct specific optical aberrations.

By digitally adjusting for optical distortions, the present system advances the state of the art for fixed focal length lens optics, beyond any opportunities available in film cameras. The following chart illustrates a list of optical distortions that are corrected by in-camera digital solutions.

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	Fixed Focal Length Lens Type		Zoom Lens Type		
Specific Aberrations	**Wide-angle**	**Telephoto**	**Wide-angle**	**Wide-to-Tele**	**Telephoto**
Spherical	X		X	X	
Comatic	X	X	X	X	X
Astigmatism	X		X		
Distortion (Pin Cushion and Barrel Distortion	X		X		
Curvature of Field	X		X		
Chromatic		X		X	X
Flare	X	X	X	X	X
Scattered light (Unpolarized)	X	X	X	X	X
Color Accuracy	X	X	X	X	X
No Lens Coatings	X	X	X	X	X

(2) Multivariate digital correction using matrix filter system in camera

Since typically several distinct aberrations exist in a lens, it is necessary to correct each of the aberrations. For this multi-dimensional problem there is a multivariate digital in-camera software correction solution. The problem of correcting multiple aberrations presents the additional challenge of requiring acceleration to complete multiple tasks rapidly. In most cases, the hardware employed in a camera's chip set will include an application specific integrated circuit (ASIC) which processes a particular program rapidly. It is appropriate to facilitate the combination of corrections to multiple simultaneous aberrations with an ASIC or multiple ASICs.

There is a need to optimize both resolution and contrast across the image area for accurate light reproduction. One way to do this is to stop down the lens to an optimum aperture of about f/8. However, this solution sacrifices the advantages of a fast lens design and capability, namely, limited depth of field and bokeh (smooth out-of-focus area). Though

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resolution is typically improved by stopping down a lens, digital sensors are generally still restricted in their latitude of contrast. Therefore, regarding both resolution and contrast, it is necessary to provide multiple adjustments of the native image with in-camera digital corrections.

While it is possible to produce mathematical algorithms for automatic correction of optical aberrations, it is also useful to have manually adjustable variables. Therefore, the present system includes a function whereby one may omit a specific correction in an image by using a lens with multiple aberrations in order to induce a particular creative effect. This factor may involve a lack of exposure compensation, a lack of correction for spherical aberration or an improperly or partially corrected apochromatic modification.

In one example of the use of multiple corrections, simultaneous application of multiple digital filters concurrently corrects multiple aberrations. In effect, this is like adding layers of different eye glasses to repair multiple types of astigmatisms for each specific ocular condition. The dynamics of correcting multiple simultaneous aberrations may be complex, but since the number and type of aberrations are constrained to a specific lens type, a centralized database may be accessed with specific corrections for each respective aberration. For example, lenses with multiple complex aberrations, such as in very wide-angle lenses, will require multiple corrections. These combinations of corrections become complex as focal length modes change in zoom lenses and as aperture changes.

The following is a list of filter types that provide digital methods of correcting image problems or creating specific effects. The list is not intended to be comprehensive or systematic.

Filter Type in Digital App.	**Most Common Uses**	**Other Filter Types**
UV (and Sky)	General Use	Polarizer
Color-enhancing (and warming)	17mm-200mm (in 35mm)	Close-up
Contrast	17mm-200mm (in 35mm)	Special effects filters
Black and White (Red, Orange, Yellow, Green)	17mm-200mm (in 35mm)	
Infrared	17mm-200mm (in 35mm)	
Color Graduated (Neutral Density)	17mm-200mm (in 35mm)	
Diffusion (Soft, mist/fog, star, streak)	24mm-135mm (in 35mm)	
Combinations (Neutral density and enhancing, Polarizer and UV)	17mm-200mm (in 35mm)	

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In the past, these optical filtration processes were added after the production process via editing software such as Photoshop. However, in the present system, these combinations of processes are performed in-camera by user-adjusted settings. In the case of artificial color changes to an image, digital processes emulate specific optical filters by adding a specific color or a combination of colors. On the other hand, in the case of diffusion filtration, the in-camera digital process creates an emulation of optical filters. The classic example of this diffusion approach is the soft filter, which is used for portraiture. In this case, various user-adjustable settings in the camera digitally manipulate soft filtration.

(3) Depth-of-field optimization using digital correction in camera

In addition to correcting optically-generated aberrations with in-camera digital processes, the present system allows in-camera depth-of-field (DOF) optimization by affecting the aperture of the lens that is used.

DOF in an image is dependent on the aperture setting in a lens, in which a moderate DOF range – allowing a subject to be isolated in an image – can be manipulated, that is, extended or narrowed, by the camera's digital processing capability. In the film paradigm, one obtains a specific aperture, and thus the corresponding DOF, that is preset by the photographer. However, in the digital paradigm, by contrast, one can *narrow* an image's surplus DOF range in-camera by manipulating the aperture. This process can only be done in the camera, because once the digital file is sent to post-production editing, the aperture and DOF is already set and incapable of being changed. The aperture is narrowed in camera by isolating the subject and shifting the field of view (forward from the rear range of DOF and backward from the front range of the DOF). Distance information is used to recalculate an optimal DOF. In another embodiment, the camera provides feedback from an internal computational analysis that results in a specification of less DOF and takes another image (or images) with a larger aperture to accomplish reduced DOF at a specific focus point.

The camera will effectively identify a type of subject and provide an optimal aperture for this subject. For instance, for a portrait, the camera will select a shallow DOF around the subject. In the case of a distant landscape, the camera will focus on a distance at infinity and provide a nominal aperture to correspond to shutter speed that will fit the available light as matched to a specific lens. A near landscape photographed with a wide-angle lens will, on the other hand, have a near focus and a maximum DOF; specific subjects will be highlighted with

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ample DOF. The camera will also have the capability to bracket exposures in several successive images based on DOF variations.

The DOF manipulation thus depends on a combination of data sets including the particular lens used (wide-angle lenses have greater DOF at moderate distances than telephoto lenses), the distance information and the unique combinations of aperture and shutter speed. DOF will narrow with less distance, with use of a telephoto lens and a fast aperture; contrarily, DOF will expand with a further distance, with use of a wide-angle lens and a slower aperture.

In another embodiment of this process, test images are taken and analyzed, then later images taken with new settings optimize DOF for each image type.

(4) Exposure optimization using digital correction in camera

One phenomenon that film currently records better than digital photo technology is exposure latitude. Film is capable of greater exposure latitude than either CCD or CMOS digital sensors, though each digital sensor type has strengths and weaknesses. For the crucial detail recorded in a scene, film provides far more depth of tonal range. Yet some of this problem – caused by the limits of digital sensors themselves and the way that photons are recorded by electrically charged pixels – can be digitally corrected and optimized in-camera.

The problem derives equally from the method of measuring exposure as well as the method of image capture by a digital sensor. In general, since there is less exposure latitude in digital sensors, as compared to film, the maximum scope is two or three stops in the image tonal range. Consequently, the camera must meter the image within constraints of the tonal range of the digital sensor, with the sacrifice of either shadow detail or highlight detail. In an image with broad exposure range, then, the image will generally be either too light or too dark because metering for one area sacrifices the other tonal category.

One way to solve this problem is to manipulate the lens aperture, because increased aperture within an optimal limit generally increases detail. An optimal aperture of f/8 provides more detail and clarity than at f/2 or at f/32. The in-camera processor may thus seek out more detail in the image by manipulating the aperture to the optimal range of f/5.6 to f/11, depending on the type of subject and the availability of light. With more detail in the original image, it is possible to interpolate the digital data in the image file by increasing both shadow and highlight detail and to gain an additional stop or two of tonal range.

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In another embodiment, the tonal range of an image data set is enhanced in-camera by using meta-data to sample the range of shadow and highlight detail. The data sets are interpolated to add requested shadow detail and/or highlight detail. Obviously, some subjects require more or less shadow or highlight (or both), which the camera can correspondingly adjust. These tonal range corrections are user-adjustable.

In an additional embodiment of in-camera tonal range corrections, exposure data are bracketed by manipulating the aperture and shutter speed to lower or raise the overall exposure in one-third to one-half stop increments. This bracketing method may be correspondingly limited to a specific image type. For instance, in a portrait, the extraneous background, which ought to be out of focus, is not emphasized in the exposure data, while the main subject is carefully nuanced for balancing an optimum of both highlight and shadow, or for an exclusive emphasis on either highlight or shadow.

The overall problem of limited tonal range in digital photography stems from mismatched exposure-metering mechanisms of digital sensors with substantially restricted tonal range capabilities. One interesting example of this problem occurs in scenes with two or more stops of difference, such as a landscape with sky on top and earth on bottom. A filtration process will operate on the key parts of such an image, as described above regarding the vignetting phenomenon; the overexposed top half of the scene will be gradually underexposed while the lower half of the scene will be gradually overexposed. This scene-specific adjustment of exposure greatly increases the tonal range of digital images and is made possible via analysis of the scene and comparison to a database of typical scenes categorized by the in-camera digital processor which effects correction using the methods described herein. In this example, the corrective process emulates the use of neutral-density optical filters.

(5) Special effects digital filtration of specific objects

Though there are several main categories of special effects optical filters, including color enhancing, infrared and diffusion, the use of diffusion filters appears to elicit the most dramatic effect. Diffusion filters are categorized as soft effect, mist/fog, black mist, gold diffusion, and star and streak, with various degrees of diffusion producing lesser or greater distortions. In effect, rather than removing optically-generated distortions, we are deliberately creating photographically desirable distortions. It is possible to reproduce these special effects by using

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the digital post-capture production processes in the camera. In this case, the camera digitally emulates the special effect by applying user-adjustable filter settings.

Portraits have traditionally used some sort of soft effect filtration approach which is producible in the camera using the methods described here. After the image is captured, the camera analyzes the image's meta-data and applies a correction by interpolating the data with specific filter emulation. In the past, specific camera lenses, such as the 135mm soft effects (also called "defocus control") lenses performed this function optically with an included adjustable lens element. This defocus control lens type will focus on the main subject and a lens element setting of the telephoto lens to produce a soft filter effect. In addition, because this lens type uses a nine blade aperture, the background that is out of focus has a pleasing bokeh in which the gradations of tone are evenly smooth. Nevertheless, a sophisticated digital camera is able to produce the same results with more information provided by a normal telephoto lens, using the method of emulating special effects in-camera.

Another novel special effect that is a further embodiment of the system is the ability of the in-camera digital corrective system to use complex data sets contained and analyzed in an image to create a three dimensional (3-D) representation of the image. The camera creates a 3-D image by arranging the DOF in a way that optimizes the aperture by using distance information and autofocus data to isolate a subject. By removing the foreground and background of the image as a center of subject focus, the DOF will emphasize the subject only as 3-D. The key to this effect is the application of specific exposure data as indicated above, because it is in the increased extension of the range of highlight and shadow that the subject in the image will attain a 3-D quality in contrast to its out of focus foreground and background.

An additional embodiment of the present system would extend the still photography in-camera special effects to video with full-motion ranges of filtration actions.

Finally, it is possible to *combine* different user-programmable special effects in-camera by adding the various types of diffusion methods for a specific image.

(6) Selective in-camera filtration of specific objects

The combination of sophisticated auto-focus technologies and in-camera auto-exposure systems provides the opportunity to isolate a subject by focusing on the subject and narrowing the DOF range by manipulating the aperture. In a further extension of the subject-isolating capabilities of these technologies, it is possible to digitally filter out specific objects in a scene

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in-camera while focusing on other selected objects that are in a specific range of DOF. In other words, one may apply filtration to correct aspects of a single object or only the background of a scene to the exclusion of an isolated object, rather than correcting a whole scene. Selective filtering of specific objects in an image by in-camera digital processing affords greater creative flexibility.

Because the camera uses distance information to isolate a specific object by focusing on the object within a range of DOF, it is possible to isolate a particular object for the purposes of applying a specific filtration preference, such as manipulating the color, correcting the optical aberration (say, if the object is in a corner of the image of a wide-angle lens), providing a special effect (such as a soft effect only on a specific object rather than the scene as a whole) or using some combination of these corrections. Once the camera isolates the selected object (using auto-focus mechanisms and distance information), the user selects programmable correction features to perform a corrective function only on the specific object (or only on the parts of the scene that are exclusive of the object). In a further embodiment, contrastively, once the object is isolated, only the background may be selectively manipulated with filtration, achieving pleasing effects. This in-camera corrective feature provides a powerful tool to rapidly manipulate an image without using post-production editing software tools.

These object-specific in-camera selective filtration capabilities are particularly dramatic with fast-moving action photography in which split-second timing produces the preferred complex effects. Selectively identifying a particular object for intensive combinations of filtration is a highlight of the present system.

(7) Digital correction in-camera of intermittent aberrations caused by dust on digital sensor

Dust on a digital sensor is a major concern for photographers. The use of zoom lenses compounds this condition, because as the zoom lens changes focal-length positions, air is transmitted, which results in the proliferation and diffusion of sensor dust. Unless photography is isolated to a clean room, the problem of dust on a digital sensor will remain prevalent. The present system provides a method to correct for this phenomenon.

In the case of dust on a sensor, a specific consistent pattern emerges on each image captured by the digital sensor. Consequently, information from various images is analyzed, and the pixels affected by dust are identified. Information from the consistent fixed pixel positions that are affected by the dust are then isolated. The specific positions with the dust are then

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analyzed by comparing the immediate areas surrounding the dust that are not affected by it. These unaffected areas are analyzed, and the affected areas are interpolated to provide a continuous tone. In effect, the images identify the locations with dust by using caching technology. The continuity of the location of the dust between multiple images provides information to the in-camera image processor to detect the specific pixel locations. The camera will then apply a corrective process to the isolated dust locations with adjoining exposures by interpolating these distinct locations for each specific image configuration.

In another embodiment of the present system, "hot" (too bright) or "dead" (too dark) pixels are interpolated out of the scene using the method described above. Unlike hot or dead pixels, dust is a similar but temporary version of the same problem of an artifact that requires in-camera modification. In effect, a map is built to discover, isolate and interpolate bad pixels, which are a permanent problem revealing a key limit in digital sensor technology. Separate maps are constructed for permanent pixel dysfunctions and temporary pixel aberrations (viz., dust). In both cases, the camera works from these maps to correct the aberrations on a pixel-level.

In a further embodiment of the present system, Monte Carlo analysis is applied to the problem of identifying the location of dust on specific pixels (or partial pixels) by randomly creating an initial map from information of at least two contaminated images.

In still another embodiment of the present system, the process of modifying pixel aberrations (either permanent or temporary) uses a sequence of operation which begins by correcting the major aberrations first, then repairing the minor aberrations, thereby maximizing efficiency. This is done by starting the corrective process in a specific location of the image and moving to other positions in an efficient pattern.

(8) Sequence of corrections for multiple (optical and digital) types of aberrations in camera

Since it is evident that multiple digital filtration approaches may be used for specific types of problems or aberrations or to achieve specific effects, it is clear that a combination of the techniques may be employed simultaneously on specific images. The present invention allows the various optical and digital corrections to be performed in camera in a sequence of actions. The user selects the various combinations of functions required to be performed, inspects the effects, and chooses the most effective combination of effects. Thus the invention offers a combinatorial optimization of the totality of corrective filtration approaches.

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After the images have been taken, it is possible to inspect them in the camera using the camera's image read-out. This makes it possible to create new files, or to adapt a RAW file, in real time, by manipulating the various corrections in sequence. This post-image-capture in-camera editing process allows multiple corrections to be applied to a range of optical and digital aberrations by combining various specific corrective techniques.

In some cases, the user can pre-set specific corrections. For instance, to correct for optical aberrations, a user may leave this function on permanently. In other cases, such as selective filtration of a specific object or optimization for DOF or exposure, there may be discriminating use of specific corrective functions. In the case of selective user choice, it is possible, by using the present invention, to select a priority sequence of corrections in layers. While specific select layers may be permanently activated, for example to automatically adjust specific optical aberrations, additional sets of layers may be manually selected in order to modify the specific aspects of each image, particularly to adjust or correct digital aberrations. This process can be performed with a single microprocessor, multiple microprocessors, multiple ASICs or a combination of microprocessors and ASICs.

An additional embodiment of the system provides multiple combinations of corrections and effects via multiple independent ASICs, which only perform specific functions, working in parallel. The various tasks are divided into specific-function ASICs for rapid processing. The advantage of this approach is accelerated processing speed in performing multiple simultaneous functions.

(II) Digital Sensor Improvement and Nano-grids

(9) Interchangeable digital sensor system using both CCD and CMOS to optimize best results

Because the main digital sensor types of CCD and CMOS, like film types, each have benefits and detriments, it is sometimes advantageous to provide the utility of both sensor types in a camera system. With the exception of a video camera, which employs three CCDs, the use of multiple sensors has not been adopted. Two generations ago, however, the idea of using a twin reflex camera for medium format photography was implemented. In this case, though focus was coupled between the lenses, one lens was used to see the subject, while the other lens took the picture. This method was used to obtain the benefits of a rangefinder camera with a single lens reflex camera.

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The use of two types of sensors in a camera is compelling, because the user benefits from the strengths of both. In the present invention, one sensor is selected from among at least two different types of sensors that are rotated to an active position by the user. One advantage of this approach is that if one sensor experiences a problem, there is a reserve sensor available at the push of a button.

This capability usefully exploits the strengths of each particular sensor. For instance, in situations in which high resolution is required, a CCD may be preferable, while in cases in which increased tonal range or low noise is preferable, a CMOS sensor may be preferable. With this approach, a customer does not need to choose between different types of sensors.

The process of interchanging the two chips is performed by placing the two chips on either façade of a plane that "flips" over (i.e., rotates 180 degrees) upon demand to obtain the requirements of the chosen chip type. This mechanism would fit behind an SLR's mirror and could easily be performed as long as the mirror is in the "up" position. In another embodiment, the chip exchange process can occur by sliding alternating chips into a sleeve from a single location and replacing the non-utilized chip(s) into the reserve compartment. In either event, the camera will detect the chip exchange and will automatically reprogram software functions and settings for the usable chip.

(10) Nano-grids for selected pixels on CCD or CMOS integrated circuits to optimize selective modifications of exposure, ISO and aberrations in digital photography

Digital sensors consist of arrays of pixels, arranged in rows, which behave as tiny buckets for converting photons to electrons. As the pixels fill up with light, they are able to discern slight differences in color and exposure and transfer the energy, in the form of electrons, to storage. Charge coupled devices (CCDs) have been the predominant form of digital sensor because they use a form of electronic charge which creates the behavior of a bucket brigade of transferring data, once the buckets in a row are filled up, to successive rows for digital data storage of the electronic charge sets. CMOS digital sensors may be structured with larger bucket pixels, which can increase the depth of the light captured and thus the latitude of light exposure that is stored. However, for the relatively larger buckets to provide increased photon capture capacity, it is necessary to control the width of the opening in the top and the width of the buckets so that the amount of light captured may be modulated.

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The present invention introduces a key advance in the ability of digital sensors, particularly CMOS sensors, to modulate the size of the openings of the pixels. Specifically, the present system provides for a nano-grid, or a very small matrix of filaments, which fits over the sensor. The nano-grid is carefully calibrated to match the rows of pixels on the sensor so as to limit the amount of light that each of the buckets may receive. Use of the nano-grid allows a selective closing of the large buckets in order for photons to be restricted. Selective modification of specific pixels on the neutral grid makes it possible to identify specific sets of pixels to correct for various exposure or lens aberrations.

In this embodiment of the present system, data about a specific lens are provided to the camera in order to correct specific lens aberrations, while exposure data is used to modify image capture using nano-grids for optimum image performance.

Nano-grids may be selectively switched at different pixel sites, akin to continuously programmable field programmable gate array (CP-FPGA) semiconductors, which modify architecture in order to optimize effective operation by constantly manipulating the chip's gates.

Nano-grids may be used for specific image modes, for example, nocturnal imaging, which requires more time to read a sufficient amount of light. In this case, a specific software module may provide lens and exposure data to the camera, which then determine the precise composition of nano-grid correction to provide to specific sets of pixels on the digital sensor. In effect, nano-filaments move to positions to effectively block out the full capacity of the pixel buckets and thus change the pixel effects. With use of preset nano-grid positions for particular applications, the identification of specific vectors of nano-filaments is performed, and exposure adjustments are made on specific images in hardware.

The nano-grid is overlaid over the surface of the pixel architecture. The nano-grid is used not only in specific pre-set positions, but it also provides feedback to the post-capture system for analysis and repositioning to achieve the desired effects. One effect of the nano-grid is to manually expand or narrow the range of a set of pixel buckets; this process in turn effectively modifies not only the exposure range but also sharpness at high ISO, thereby dramatically reducing noise. Consequently, it becomes possible, by modifying the pixel bucket width and height, to obtain extremely sharp images with excellent contrast and tonal range even in poor lighting, a feat heretofore impossible.

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The nano-grid performs these mechanical functions by moving the nano-filaments in an arc, like expandable windshield wipers. Though nano-grids are particularly useful in CMOS chips, they are also useful with CCDs. In fact, with the advent of nano-grids, CCD pixel size (and density in pixel-rows which will affect the overall sensor size) may be expanded and thus made substantially more versatile.

In a further embodiment of the present invention, multiple screens, or grids, would be placed over the digital sensor. The use of multiple nano-grids provides increased capacity to perform the function of closing off the pixel buckets and, in fact, to completely close off selected pixels to make the image effect completely dark. The combinations of nano-grids behave as multiple screens that move left and right to achieve the desired effect. Although there is a need to periodically calibrate the screens to effect their precise positions, this system will employ an electric charge to push the nano-filaments to the desired locations.

Nano-filaments move to block the space allowing photons to hit the pixel in order to limit the amount of light capacity available to the pixel. The complete darkening of the pixel will result in a total black color in the resulting image.

Exposure data feedback is provided to the digital sensor to effect the precise positioning of the nano-grid(s). In a further aspect of the present system, the camera's computer will anticipate the exposure data by statistically extrapolating from the pattern created by at least three data sets. A microprocessor (or ASIC) controlled nano-grid mechanism will use the feedback to anticipate specific nano-grid positions in order to optimize the exposure and corrective functions.

In one application of the nano-grid, the problem of vignetting in wide-angle lenses may be solved by activating nano-filaments in nano-grid(s) primarily in the corners to correct for the darkening from the limits of the optical aberrations, while still maintaining very low noise in a high ISO (low light) photographic situation. The use of the nano-grid would thus contribute to solving multiple problems.

Nano-grids will also be useful in accurately correcting for both color and exposure detail. In fact, with nano-grids, the capacity of digital sensors' range should be substantially increased, because the chips' pixel bucket sizes can be modulated. Therefore, not only will the lighting and color be accurate, but sharpness and optical aberrations will also be optimized, in ways not possible before.

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(11) Integrated nano-grids in digital sensor

In a further embodiment of the system, nano-grids may be integrated into the digital sensor. In this form of the nano-grid, the nano-filaments are constructed *within* the pixel buckets in order to increase their accuracy and responsiveness. The nano-filaments mechanically move in various directions to perform the main operation of modulating light into their respective pixels. This method of organizing nano-grids and nano-filaments increases the rapidity of response to feedback. In effect, each pixel has a mask, or flexible lid, contained in it, which may open and close, to allow more or less light into the pixel bucket.

The integrated nano-filaments are activated by oscillation between positive and negative charges. In the context of a CMOS sensor, the transistor networks oscillate between positive and negative charges. This architecture allows a "push-pull" design of nano-filaments in which the negative charge "pulls" and the positive charge "pushes" the activation of the nano-filaments. This charge-enabled nano-grid (CENG) advantageously allows modulating gates (i.e., filaments) integrated into the pixel to reduce spaces between pixels, thereby allowing more pixels to be packed on the same surface area. The net benefit of the use of integrated CENG filaments is that specific sets of nano-filaments will produce specific effects on-demand and allow far more tonal detail than has been possible before.

In a further embodiment of the present system, sophisticated digital sensors may contain combinations of nano-grids that appear on top of the sensor as well as nano-grids that are integrated into the digital sensor. This combination will provide maximum latitude for processing the greatest effect available.

(12) Combinations of nano-grids and digital corrections applied to digital imaging system

Whereas it is possible to exclusively implement nano-grids to control the amount of light penetrating specific pixels, and it is possible to exclusively provide digital corrections as specified above regarding correcting optical or digital aberrations, a further embodiment of the present invention combines the two processes in order to optimize imaging.

Combining these two complex processes makes it possible to modify pixel capacity to maximize exposure latitude, to expand exposure modification and to apply digital correctives for optical and digital aberrations. Hence selective exposure far beyond the limits of present film or digital photography is made possible. The restrictions of film can thus be transcended by using

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the present system, whereas use of a static and limited digital system would not be sufficient to facilitate these complex corrections.

The unique combinations of these processes also illustrate a complex system that provides feedback from both the environment and the photographer. The photographer may select preset exposure settings that will activate a range of options in both the nano-grids and the digital corrective system, while the lens aberration corrective system is automatically implemented. Once the camera detects specific conditions, such as a broad range of exposure latitude, from very bright to very dark, in the scene, it computes the precise number and location of nano-grids needed to modulate the pixels for optimum exposure with highlight and shadow detail and extreme sharpness, even in relatively low light. The dynamics of these multiple processes present trade-offs in selecting the best available set of selected modifications.

(13) Tri-well pixels

As indicated above, one of the key problems with current digital sensors involves dynamic range. There is a need to limit the scope of the space in the pixel well, into which light is captured, then converted into electrons. The challenge with current technologies is to balance details in shadow and highlight areas, particularly to acheive low noise at relatively high ISO speeds.

In addition to the concept of nano-grids, both in surface screen and integrated embodiments, as specified in (10) to (11) above, the present system introduces the notion of three side-by-side differentially-sized buckets within each pixel intended to optimize dynamic range for increased sensitivity. In the most common configuration, the three different-sized buckets are arranged with the largest bucket (in both width and height) in the center, with the second and third largest buckets on either side. The buckets are elliptical and concave in architecture to increase efficiency of fitting together in a round pixel structure. Their structures are semi-circular and elongated. The largest and tallest bucket will be tasked with maintaining the details in highlights, and the smallest will be tasked with maximizing the details in shadows, while the mid-sized bucket will be tasked with maintaining the middle range of exposure details. The pixel will have data from all three buckets available, but will select the data from one or more buckets depending on the exposure details.

The system is analogous to the high fidelity sound technology in speakers with crossovers, whose several frequencies are used by the tweeters, mid-range(s) and woofers; the

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crossover point at which the frequency changes from one component to another can be modified based on the specific mechanics of each component.

In the case of the multiple buckets in a single pixel, the buckets are connected by filaments to a central grid which captures and stores the electrons. When the photographic scene displays increased light, image data from the larger buckets are selected to be recorded by the processor, while in cases of darkness and increased need for sensitivity, the smaller buckets are selected to be recorded; the mid-sized bucket is used in normal light situations of most cases. Further, this multi-aspect architecture can use pixels in varying positions on the sensor differently, particularly to facilitate processing far more dynamic range and to produce uniform tonal range in scenes that vary more than two or three stops. This novel multi-aspect model solves a number of key problems involving exposure dynamics in digital photography.

In another embodiment of the system, there may be more than three buckets in a pixel, so as to divide out the functions further and create even finer tonal continuity. In a further embodiment of the system, several pixels in a super-pixel allow red, green and blue colors to be segregated by each sub-pixel. This approach will be useful particularly in CCD semiconductors because of limits of this architecture, which require coupling circuitry between pixels to pass a charge between rows of pixels. In this case, outputs will vary between the micro-pixels to facilitate the differential processing required.

While cases of two side-by-side pixels might solve these exposure latitude problems, they represent an inadequate solution, much as a speaker with only two components limits the dynamic range output dramatically in contrast with a speaker with five components. This is similar to comparing a diode and a transistor.

(III) Digital System Improvements that Link Multiple Digital Corrections

(14) Auto pre-programmed modules for specific functions in digital imaging system

To process the functions specified in this integrated digital imaging system, it is necessary for automated pre-programmed modules to detect the specific lens type and the specific digital sensor(s) used to assess the appropriate corrections or alterations. The purpose of the pre-programmed modules is to access a preset library of (a) typical corrections of lenses, (b) typical scene types with appropriate exposure modes, (c) specific effects that may be selected and (d) specific sensor functions. It is important to match a particular lens to a particular sensor

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type so that adjustments are calibrated to this pairing. The processing software is stored in either a microprocessor or an ASIC in order to process the images after they are captured by the sensor but before they are transferred to storage on a memory device.

In another embodiment, the system processes image corrections after the digital data is stored and constantly accesses the original stored data file in the production of a corrected file. This process allows for immediate data processing and storage which affords more time to accomplish specific corrective functions. There are thus cases when real-time correctives are neither necessary nor possible. Such increased processing capability may also facilitate a more complete corrective task.

In an additional embodiment, because similar correctives and effects may be provided to images that share the specific combination of lens and sensor, in order to accelerate the process of optimizing the images, batches of similar images may be processed together. This batch processing method may include the creation of duplicate images for each image captured, including a RAW image that contains no changes to the native image capture and a simultaneous auto-corrected image. The optimized image may be simultaneously compressed, to maximize storage capabilities, while the RAW image may be left uncompressed so as to maintain original detail.

(15) Apparatus and process for affecting pre-sensor optical and digital corrections in digital imaging system

Given the nature of light transmission, not all optical corrections are optimized by modification after the image is captured by the sensor. Though a range of important corrections and effects may be made after image capture, such as correction for optical or digital aberrations, there are several types of corrections that are required to be made before the light reaches the sensor. One example of this pre-sensor digital correction involves the use of a low-pass or anti-aliasing filter that resides in front of the digital sensor to minimize moiré and aliasing digital problems (although the use of this filter adversely affects image sharpness).

In the case of optical corrections, one class of filter that requires use before the digital sensor is the polarizing filter, because once light is captured on the digital sensor, the polarizing effect will not be available. Another type of correction that involves use of a filter or lens before the digital sensor is the close-up filter. This latter solution allows a lens's closest focusing plane to be closer to the front of a lens and has the effect of diminishing the rear plane of the depth of

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field. The close-up filter may be optimized for use with floating rear-element group lenses which allow increasingly close focusing. In one embodiment of the system, specific pre-sensor optical filters may be used to provide polarization and close up corrections. The use of in-camera optical (circular) polarization would help standardize this valuable process and eliminate the need to maintain several external polarizer filters for each lens mount.

Since the present system entails an embodiment which uses nano-grids to perform specific exposure modifications before the light hits the digital sensor, it is possible to use these nano-grids for the applications of polarization and close-up filter. These filtration capabilities occur between the lens and the digital sensor.

In order to optimize the use of pre-sensor filtration, an image is initially tested and analyzed before the optimized corrections are activated and the pre-sensor changes are made. This process is analogous to the use of automated flash photography in which a feedback mechanism is provided; a scene is evaluated, and the initial flash data analyzed and modified to correspond to the correct exposure before a final flash is produced.

Because the camera system processes post-capture data, in order to optimize images for optical and digital problems, as well as continuously makes changes to pre-sensor filtration, multiple ASICs work in parallel to make the conversion of the image after capture. The use of parallel ASICs to perform specific correction processes solves the problem of capturing images and making post-capture corrections while simultaneously adapting the pre-sensor filtration system.

As an alternative embodiment of the system, a microprocessor (and software) may perform specific pre-sensor adjustments while the ASIC(s) performs specific corrective functions. In another embodiment, the ASIC(s) may perform the specific pre-sensor adjustments while a microprocessor (and software) will perform the specific corrective functions.

(16) Integrated digital imaging system for optical and digital corrections with feedback dynamics

Because the present system consists of, and uses, complex sub-systems, including an auto-focus mechanism, an auto-exposure mechanism, a shutter mechanism, an automatic flash mechanism, a digital sensor mechanism, a digital processing mechanism and a digital storage mechanism, it is possible to realize interaction dynamics that contain feedback. The interactive process of operating these sub-systems involves a learning progression. The image is analyzed,

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solutions are tested and an optimal solution is selected and implemented, all in real time. By choosing a specific logic vector in a decision tree involving an initial variable, the process begins again with another key variable in real-time until the final image is captured and optimized.

In order to accomplish these complex processes, specific variables, such as aperture data, shutter speed data, lens data, digital sensor data and subject type are registered and analyzed by the camera. As environmental data changes, the camera mechanisms adapt to the environmental and the photographer's situation.

In order to accelerate these processes, the camera learns to anticipate the user's behaviors, the user's preferences and the subject's behaviors. By providing user-adjusted setting modifications for optical and digital corrections, the camera establishes a reference point for processing rapid image changes. In particular, the camera's software will analyze trends in the user's pattern of behaviors and preferences as well as pattern changes in the subject's behaviors. Anticipation processes are programmed into the autofocus and automated flash systems because of the extremely rapid reaction-time requirements of these specific mechanisms.

In one embodiment of the system, a method of processing a chain of rapid image captures is to employ computer-caching techniques in which a first image is processed in a normal way while later images are processed in an accelerated way. This is possible because the first image provides data to the system to analyze; these data then allow the system to anticipate further similar images and to use similar auto-focus and auto-exposure data. The optical and digital corrections are performed in a batch fashion by applying similar changes to near-identical image problems in order to dramatically accelerate the processing speed of a chain of images. This caching and anticipation approach is very useful in fast-paced action photography.

Another embodiment of the process of rapidly capturing a chain of images in sequence employs multi-threading techniques. Dividing the functions between specific subsystem ASICs allows multiple corrections to be performed in a parallel cascade for efficient task completion. One advantage of breaking down functions to specific processors is the acquired ability to start on one function and, while the system is in the process of completing a task, to begin other tasks. This process eliminates the lag between the specific subsystems.

(17) Adaptive user pattern learning with user-programmable functions in digital imaging system

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In order to optimize its functions, the camera needs to learn about the user's preferences. When the user uses the camera, the camera evaluates the use patterns. Since the camera is programmed with a database of common user patterns, it can identify common uses and anticipate common uses of similar users by employing a "collaborative filtering" mechanism (i.e., if you like this camera setting, you should like this other setting because similar users who have liked the first setting have also liked the second setting). By anticipating common uses of each camera user, the camera optimizes its functions for each use and for each user. In effect, the camera's learning of user preferences is a sort of guided process of experimentation. Evolving algorithms learn about the user from actual use patterns.

One positive effect of this learning process of the camera about the user's patterns of behavior is that the filtration process becomes adaptive. The camera builds an initial map of the user's preferences from the user's actual selections. From the starting point of common types of personal selections, the camera uses standard templates of main types of uses that are fulfilled for each user's applications. For instance, if a photographer typically takes portraits with a traditional portrait lens, the camera will be aware of this and will activate filtration processes that are optimal for this type of portraiture photography, such as instilling limited depth of field on a subject and out-of-focus foreground and background. Contrarily, if landscape images are selected, depth of field will be increased substantially and the lens focused on either infinity or a medium point depending on the specific type of subject matter. The camera builds a model for each user based on the accumulation of experience.

In order for the camera to learn about the preferences of a specific user, the camera must adjust to each particular user, much as each individual identity must log onto a computer network privately.

Since the dynamics of the combined subsystems are complex, and adaptive, it is necessary that automated adjustments be interactive. Once detection of the lens type, the sensor type, the exposure settings, the user and the subject is made, optical and digital distortions are identified and specific combinations of corrections are applied both before and after the digital sensor in order to optimize the image. All of this is accomplished in less time than the blink of an eye.

(18) Software privacy function in digital imaging system

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Because digital camera systems are able to use software and wireless mechanisms for their operation, it is possible to activate aspects of the camera remotely. Conversely, it is possible to disable operations of the camera remotely.

The present invention embodies a capability to externally disable the camera remotely in specific locations that require privacy, such as secret government areas (courthouses), private homes or businesses that are image-free zones. In these cases, a signal from an external source is provided to disable the shutter from firing. This black-out capability will allow external control of access to specific sites. As a condition of access, only a camera with this feature may be admitted to public buildings, so that even if the camera is permitted to operate, permission is only conditional. For instance, the owner of the building may allow the camera to function only in a specific set of rooms but not in others. Cameras without this feature may not be allowed in private spaces where control must be externally restricted.

This blocking feature will require the addition of specific blocking software, which may be automatically downloaded as one enters specific buildings. Similarly, in order to be granted permission to access the camera, or specific functions of the camera, the downloading of a "key" may be required.

Moreover, a further embodiment of the system may make it necessary to download software keys to get access to filtration capabilities in the camera in order to obtain optimum images. For example, the user may be required to pay a fee to download software in real time that will permit her to access a particular function in the camera to obtain a critical image. A spectrum of quality and complexity in filtration capabilities may be made obtainable for a range of fees on-demand. Therefore, the external downloading of software for the camera need not be limited to a black out function.

(IV) Dynamic Digital Imaging System Improvements that Apply to Zoom Lenses and Video Imaging

(19) Dynamics of zoom lens corrections in digital imaging system

Whereas the optical aberrations of prime (fixed focal length) lenses were discussed above, the modulation of optical aberrations of zoom lenses is another problem to consider. As a wholly different species of lens, zoom lenses have become extremely complex optical mechanisms consisting of multiple groups of lens elements. The general problem with zoom

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lenses is the trade-off that must be made: To minimize the distortions of the widest possible focal length, distortions become maximized at the longest possible focal length, and vice-versa. Consequently, zoom lens architecture is inherently compromised on image quality. Over the years, lens designers have developed lens formulas that have dramatically improved image quality and that compete with typical prime lenses. As an example of this evolution in quality, the class of 70-200 f/2.8 35mm zoom lenses, now in their sixth generation, has supplied substantial improvements over earlier telephoto zooms. However, in general, zoom lenses have more aberrations than primes and thus require increased optical corrections. The need to solve the problem of zoom lens aberration correction is accentuated by their increased use in photography because of their simplicity and versatility.

The dynamics of the zooming process present specific difficulties for the purposes of correcting optical aberrations in digital imaging systems. With fixed-focal length lenses, the camera can detect the lens and provide an immediate consistent modification for a varying range of apertures. In the case of zooms, however, where the focal-length is not fixed, the adjustments must correlate to the changes in the focal length. In effect, this condition presents a continuous resampling process. When combined with changing scenes, the zooming process requires far faster responses to changing inputs by the camera system. This process resembles the tracking of a kaleidoscope's changing image structures as the wheel on the device is constantly turned.

In order to solve the problem of distortion at the wide-angle part of select zoom lenses, manufacturers have been using aspherical elements which are complex shapes that require special production techniques. On the other hand, in order to solve the problem of chromatic aberration in select telephoto lenses, manufacturers have used extra low dispersion glass elements, particularly at the front of the zoom lens. Since there are generally three main classes of zoom lenses – wide-angle to wide-angle, wide-angle to telephoto and telephoto to telephoto – aspherical elements have been used in wide-angle zoom lenses, while extra low dispersion glass has been used in the telephoto zoom lenses and both kinds of lens elements have been included in the wide-angle to telephoto zoom lenses.

The changing focal lengths of zoom lenses add a variable to the complex set of variables of the interacting sub-systems in the digital imaging system. The digital camera system must therefore track the movement of the changes in the focal lengths in zoom lenses and continuously make modifications to the varied optical aberrations in these types of lenses.

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Unlike in fixed focal length lenses, the aberrations change at different focal lengths in zoom lenses, and the camera must track these changes.

The present system is designed to make the corrections to these changing aberrations in zoom lenses by noting the changed focal length at specific times of each lens. For a fixed focal length lens, the camera refers to a database of information to provide information to correct specific types of aberrations; for a zoom lens, the camera's database contains multiplex information for each focal length in each respective zoom lens type. This is as if each zoom lens contains a combination of multiple lenses of specific focal lengths. When the zoom is moved to a new focal position, the camera reads the lens as a specific focal length and makes corrections to aberrations based on this specific setting. Although the camera reads the zoom lens at a specific moment in time and adjusts the necessary modifications to correct for aberrations at that specific focal length at that time, overall the zoom lens requires the camera to rapidly make these adjustments.

Since zoom lenses employ dynamic processes of change, it is possible to track a moving subject in real-time by changing focal length from a stationary vantage. These changed focal length positions are tracked by the auto-focus system, but also by the auto-exposure system in the camera. The present system thus allows for zoom tracking in order to anticipate the direction of zoom lens changes, much as the focus on the moving subject involves focus tracking mechanisms. These systems use fuzzy logic and evolutionary algorithms to anticipate the movement of the subject and thus of the focal length change of zoom lens. In this way it is possible to accelerate the lens aberration correction process using zoom lenses.

Because the zoom lenses typically increase aberrations precisely because of the lens design compromises, these types of lenses are ideally suited to the present digital imaging system. The present system allows the zoom lens to be used at high quality without needing to stop down the aperture, thereby resulting in superior photographic opportunities.

(20) Dynamic changes in video corrections of digital imaging system

While the zoom lens presents the need to provide a dynamic solution to the process of making corrections to optical aberrations, video photography provides another case of a process that requires dynamic solutions. The same principles that apply to still photography apply to video; auto-focus variability, aperture and depth-of-field variability aspects, shutter speed variability aspects, differences in lens focal length and artificial lighting variability suggest that

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video be viewed as merely a very rapid (30 to 60 frames per second) application of still photography. Nonetheless, video presents new classes of dynamic problems, most notably regarding the matter of tracking changing subjects in real time.

The process of shifting subject positions, even if the camera is stationary, presents a change of multiple variables that require the automated subsystems (auto-focus, auto-exposure, auto-flash, etc.) to be integrated. Feedback is presented by subjects in the external environment with changing focus and exposure variables. In these cases, even with a modulating shutter speed, the three main variables of change are a zoom lens to continuously change the focal length, auto-focus to track a subject and aperture modifications to continuously change depth-of-field.

The unique dynamics of these complex sub-systems presents particular challenges for a digital imaging system to produce rapid results with the use of advanced ASICs and microprocessors. By incorporating techniques that track objects with advanced auto-focus mechanisms, anticipate zoom lens changes and predict optimal exposures as well as make automatic corrections to both optical and digital aberrations in real time, the present system continuously optimizes the video imaging process.

(21) "Stationary-scene object-motion" caching process, with application to video, in digital imaging system

Because video imaging processes employ full motion activity, particularly of subjects in the environment, tracking a subject in a video system is problematic. Once a subject is identified and selected, the subject is automatically tracked with auto-focus and auto-exposure mechanisms by a zoom lens apparatus. There is a particular need to identify and track a subject within a broad stationary scene.

The present system accomplishes this task by using anticipatory object-trajectory tracking. The parts of the stationary scene that are not being tracked are cached. In other words, precisely because the background of the scene is stationary, this part of the scene is not tracked for focus or exposure. On the other hand, the object in motion is identified and tracked by subtracting the extraneous data of the stationary scene. Multiple objects are tracked by comparing data about these combinations of objects and their relations and determining the appropriate exposure and focus settings.

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While Monte Carlo processes use random settings to self-organize an initial map, which are useful as a baseline for the purpose of anticipating tracking data sets, the present system subtracts the known information about the specific object(s) being tracked from the stationary background in the environment. In other words, the background data is "blanked out" in a caching process while the main subject(s) are tracked. By so using these techniques, the camera system can efficiently calculate the modifications needed to optimize the video scene.

In a further embodiment of the system, a chip-set is enabled in video display devices (i.e., video monitors) to implement select corrections for optical and digital distortions. The user may modify settings for automating the process of achieving optimum video images.

(V) Digital Image Networking

(22) Network coordination of fixed sensor grid to track multiple objects in digital video imaging system

While the previous discussion has focused on employing a single camera to capture images, the present system is also useful for networking sensors in a sensor grid in order to track multiple objects. Specifically, the present system may be used in surveillance and reconnaissance situations to track objects over time. Using a grid of image sensors with overlapping range parameters makes it possible to organize a complex network of sensors for surveillance activities.

After selecting specific objects to track, the system follows the objects as they move from location to location, appropriately modulating the focus, the lens focal length, the ISO and the exposure settings. As the subject moves from one section of a grid to another, the sensors are coordinated to "hand off" the object to other sensors on the grid, much like a cellular phone network hands off calls between cells.

In another embodiment of the present system, the cameras in the network may be mobile instead of stationary in a fixed sensor grid. In this case, self-organizing aspects of the mobile sensor grid track mobile objects in real time. One application of this complex system, which draws on earlier work in collective robotics, is in cinematography, which requires multiple transportable perspectives of mobile subjects. The complex dynamics of a mobile sensor network provides complex feedback in this manifestation of the present system.

(23) Automatic wireless off-porting of back-up images to external data bank

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Because the present system uses digital files, it is possible to move these files to an external site for storage. The present system has capabilities to off-port images to an external data bank automatically. This feature is valuable in order to preserve on-board storage capability.

Whether implemented in a local area network (LAN) or a wide area network (WAN), by using a built-in wireless router, the present digital imaging system may be set to send data files directly and automatically to hard-drive storage either in a device in the same room or uploaded to the Internet for storage around the world. This capability is critical for managing massive files of large sensor data sets and preserving valuable in-camera storage space. When automatically sending data files to a nearby computer, the computer may act as a data-port relay to automatically resend the images to an Internet site for storage. The system will maintain the option of keeping some images in the camera and sending duplicate copies of digital files of images to another site for storage as a backup. This automatic back-up process provides insurance for the photographer.

In another embodiment of the system, just as image files are off-loaded to external storage, software files are periodically downloaded to the camera in order to update the camera settings and the database system. For example, as the camera manufacturer provides new lenses for the camera, it becomes necessary to load new updated settings to accommodate corrections for the new lenses. Similarly, as the camera requires new software updates with improved algorithms to further optimize the corrective functions of both the optical and digital mechanisms, the camera will automatically accept these. This feature is particularly important to both manufacturer and user because the ability to update software capability periodically will protect a user from needing to upgrade major hardware such as with a lens replacement.

(24) Image organization system

The present digital imaging system does not merely allow for the storage of image data files on external storage. Because of the problems of protecting storage and the need to make multiple back-ups in the digital sphere, it is also necessary to store digital image files in multiple database locations. The images are organized in a main database by various criteria, such as time, location, subject-type, etc., and then rerouted to various locations around the world for safe storage. While specific sets of images may be stored together, the need to identify the locations is less important than the need to have control of the main database list which identifies the

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locations.

In order to maintain security, the digital imaging files may periodically be rotated randomly between locations. Only the main database list, which is constantly updated, maintains information on their location. In fact, specific digital bits of a single image may be maintained at different locations in order to maintain further security. Thus, on many computers around the world bits of each image may be stored, and continuously rotated, with constantly updated registries maintaining their complex hybrid whereabouts. These rotation storage functions are performed by a randomizer logic engine.

In a further embodiment of the present system, once the digital files are off-loaded from the camera system to external storage, specific images may be automatically identified and further specific corrections automatically provided.

In yet another embodiment of the system, the images that are off-loaded from the camera to the external storage system are organized according to various criteria, such as accuracy of focus or exposure or quality of image type, in order to be automatically prioritized. The camera, with the assistance of an initial setting of user priorities, will automatically order new images with a higher or lower priority relative to other images and camera settings. Thus, at the end of a day, the images may be displayed in an order preferred by the user. Lesser images will be automatically routed to a lower position as they do not meet specific criteria, and better images will be routed to a relatively higher position in the organization of files. This feature of automatically assisting in the organization of the digital image files is a very useful one which will save photographers time.

(25) Wireless digital image system automatically generating prints from image capture

The present digital imaging system not only automatically off-loads digital image files to remote locations for storage; the system also will allow one to photograph an image (or sequence of images) in one location (i.e., Paris) and instantly print it in another location (i.e., Los Angeles) for publication in real time. In addition, an image may be captured by the camera and instantly uploaded to a pre-programmed Web site for publication by using wireless technologies. In addition, it is possible to automatically print the digital image file anywhere in the world virtually the moment the image is taken. This system makes this instantaneity particularly possible precisely because the image corrections are automated in-camera. Since there is no

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need in most cases to further edit the image files, they are thus generally ready for immediate release.

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Description of the Drawings

Fig. 1 is a schematic drawing of a digital imaging system.

Fig. 2 is a flow chart of an analog to digital signal process.

Fig. 3 is an image of the vignetting corrective filter in an optical lens.

Fig. 4 is a list of wide angle 35mm lens types.

Fig. 5 is a flow chart of the digital corrective process.

Fig. 6 is a schematic diagram of different types of optical aberrations in different configurations of the same lens.

Fig. 7 is a flow chart of the process of digital image capture, processing and storage.

Fig. 8 is a flow chart illustrating the process of selecting filtration settings.

Fig. 9 is a pair of diagrams showing the varied depth of field optimization at different apertures.

Fig. 10 is a flow chart showing exposure optimization using digital correction in camera.

Fig. 11 is a flow chart illustrating the use of in-camera special effects filtration.

Fig. 12 is a flow chart showing the selective in-camera filtration of specific objects.

Fig. 13 is a flow chart describing the exposure adjustment of an image using in-camera filtration.

Fig. 14 is a flow chart showing the process of in-camera special effects filtration.

Fig. 15 is a flow chart showing the process of in-camera digital correction for sensor dust.

Fig. 16 is a diagram showing a digital camera with an ASIC array.

Fig. 17 is a diagram illustrating a digital camera with interchangeable CCD and CMOS sensors.

Fig. 18 is a diagram of a digital camera with a nano-grid before the sensor.

Fig. 19 is a diagram of a nano-grid.

Fig. 20 is a diagram showing the feedback loop connecting the processor and the nano-grid.

Fig. 21 is a diagram illustrating the tri-pixel architecture in a digital sensor.

Fig. 22 is a flow chart showing the pre-programmed modules for in-camera functionality.

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Fig. 23 is a diagram showing the pre-sensor modification process in a digital camera.

Fig. 24 is a flow chart showing the integration of optical and digital corrections with feedback.

Fig. 25 is a flow chart showing the interactive feedback mechanism of integrated corrections.

Fig. 26 is a flow chart describing the adaptive user pattern learning process to process images.

Fig. 27 is a flow chart describing the feedback process in filtering images.

Fig. 28 is a flow chart showing software privacy function in a digital imaging system.

Fig. 29 is a flow chart showing the dynamics of zoom lens corrections in digital imaging.

Fig. 30 is a diagram illustrating object tracking in dynamic changes in video corrections.

Fig. 31 is a flow chart showing objecting tracking of a digital imaging system.

Fig. 32 is a flow chart showing the caching process of an object in motion in a stationary scene.

Fig. 33 is a diagram showing network coordination of fixed sensor grid tracking multiple objects.

Fig. 34 is a diagram showing the wireless communication features of the digital imaging system.

Fig. 35 is a flow chart showing an image organization system.

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Detailed Description of the Drawings

Fig. 1 illustrates the overall structure of the system. Object data (100) in the domain of objects being photographed by the camera constantly change. In some cases, the lighting changes, while in other cases, the positions of the objects change. At 120 the flash will artificially light the objects. Flashes may be either on the camera or remote from the camera. A camera sensor (130) will detect external data changes. An optical lens (110) feeds analogue imaging data to the digital sensor(s) (175 and 180). In some cases, a mirror (170) will swivel in order to directly input imaging data to the digital sensor after the shutter (150) is fired. In some cases, a filter (160) stands between the lens and the digital sensor(s). A digital signal processor (DSP) (195) is connected to at least one sensor (A or B). A database (190) is connected to at least one sensor (A or B) as well. The digital sensors are connected to an ASIC (195) and/or a microprocessor (193) in order to process the image and control the camera. The digital image data is passed from the digital sensor to either the ASIC or microprocessor and then stored in memory (197). The presence or absence of specific elements of this mechanism is not required for the correct functioning of this system. Consequently, a number of the drawings contained herein will focus only on specific sub-assemblies of the overall digital imaging system mechanism.

The present invention is intended to operate with a spectrum of camera types. These camera categories include digital still cameras without a mirror mechanism or without an optical interface. The present system applies to cameras with single lens reflex mechanisms. In addition, the present system applies to video cameras, both with or without mirror mechanisms, including camcorders. Finally, many of the functions disclosed in the present system are integrated into specific imaging sensors. The system applies to image sensors that are integrated with complex system functions, including those described herein, with "system on a chip" (SoC) capabilities in a single microelectronic integrated circuit. The invention also applies to networks of sensors, networks of cameras or integrated networks of both sensors and cameras.

Fig. 2 describes digital image signal processing. After an analog signal (200) is captured, it is converted to a digital signal by an analog-to-digital converter (210). The signal is then forwarded to the digital signal processor (220) and filtered (230). The digital signal is then stored in memory (240).

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In fig. 3, the correction to the optical vignetting problem is shown. In vignetting, the lens (300) makes the edges of the image significantly darker as the light falls off, a phenomenon particularly prominent on wide angle lenses. As represented here, the concentric circles of filtration correction are darker in the middle (310) of the image in order to counteract the vignetting effect. The overall image aperture is reduced from one half to two stops in order to compensate for the maximum light fall off depending on the amount of vignetting effect from each lens type.

Fig. 4 shows a list of several different wide angle lenses in a database. In the 35mm domain, the 14mm (400), 20mm (410), 24mm (420), 28mm (430) and 35mm (440) lenses, each with f/2.8 apertures are listed in the database. Each lens type presents a distinct formulation involving different sets of optical data that require different aberration corrections.

The digital corrective process is described in fig. 5. After a specific lens type is identified (500) and a database is referenced (510), the lens type is matched with the specific optical aberrations (520). The digital filter then applies a correction to specific optical aberrations (530). As an example, the vignetting effect is corrected by gradually darkening the center of the image in concentric rings (540).

Fig. 6 shows the database configuration of several different types of 24mm f/2.8 lenses (600 to 630) with different optical configurations. Each lens type has a different set of manifestations of optical aberrations including vignetting (640), spherical aberration (650), pin cushion distortion (660), barrel distortion (670) and comatic aberration (680). For each lens, there will be a unique combination of optical aberrations compared to each lens type from different optical configurations. The database is accessed to provide the multi-objective optimization solution for correcting several different optical aberrations for each specific lens formula.

In fig. 7, after a camera captures an image (700) and uses a digital sensor to create a digital file (710), the digital file is forwarded to the digital signal processor semiconductor (720). The DSP applies the filtration (730) to correct the optical aberrations from the lenses. The revised digital file is then sent to storage (740).

Digital filtration is performed by employing the DSP hardware as well as specific software in order to attain specific aberration corrections. In an optical filter, which typically sits at the front of a lens and performs a single function of modifying the optical characteristics of the

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lens, the electronic filter will process the image after it is converted from an analogue representation to a digital signal. Common digital filters include a low pass filter or anti-aliasing filter. In most cases digital imaging filtration is a discrete time application and is processed in a time-signal sequence.

One example of a digital filtration process is a fast Fourier transform (FFT). The digital signal is modified by applying an algorithm to extract the frequency spectrum. The original function is then reconstructed by an inverse transformation of the original signal. The signal can be manipulated to perform various conversions. This process is used to sharpen or soften an image. For instance, by differentiating the frequency spectrum, the high frequency can be emphasized by limiting the low frequency, as in a high pass filter. Digital filtration is typically performed by the DSP after the image is captured and before the image file is stored. However, in the present system, there is some filtration before the digital sensor that captures the image as well as some filtration processing after the sensor sends the file to the DSP.

In order to accelerate the filtration process, the digital file will be broken into parts, with each part processed simultaneously. Filtering a one-dimensional image will treat data from each column of a digital sensor separately. When the data is treated like a two dimensional image, the data file may be treated with different techniques. For instance, different quadrants of the image may be analyzed and filtered separately. In addition, the highlights and the shadows in the varied frequency range may be analyzed and filtered separately as well. Similarly, a two dimensional image file may be analyzed by starting in a corner and working in each contiguous quadrant in a circular (clockwise or counterclockwise) order. Further, the filtration process may begin in the corners and work inwards or begin in the center of the image and work outwards. For instance, in wide angle lens filtration to correct optical aberrations, the outer edges will be the most prominent distortions that will require the most corrections; therefore, the filtration process will work by starting on the corners first.

The present invention also addresses the multi-functional corrections in an image by applying multiple simultaneous techniques. This is done either by performing a sequential filtration process or a simultaneous filtration process. In either case, the image is re-filtered to make more than one pass in order to correct different types of aberrations.

Different types of aberrations require different types of filtration. In the case of pin cushion distortion and barrel distortion, which are inverse appearing aberrations, the filtration

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process will adjust the edges of affected digital files captured with wide-angle lenses. The optimized images will be accessed by the database and compared to the actual image files. The filtration will be applied to each image file to closely correct the distortions bit by bit. In effect, the corrected digital images will be reverse engineered to discover the unique distortions as they establish a pattern by comparing the input digital images and the database of optimized images. The digital image correction will be applied once the aberration is assessed.

Each lens provides data to the camera microprocessor and DSP about its unique characteristics. The lens is pre-programmed with aberration data pertaining to that lens type and even to each particular lens (ascertained through a testing process). The lens then provides this specific data to the camera for processing of optical aberrations. In one additional embodiment, the lens will also contain software to correct its aberrations that will also be sent to the camera processors in order to be applied to specific digital file filtration. As information and techniques are made available, new software to ascertain and correct each lens's unique optical aberrations will be forwarded to the camera and stored in the lens, thereby providing an upgrade path to continuously improve the optical qualities of lenses by employing a sort of after-manufacture digital correction.

Fig. 8 shows the process of selecting filtration settings. After the user selects the specific filtration settings (800), the user marks the specific filtration setting and accepts the setting (810). The user may continue to select multiple settings. When the user has selected all preferences (820) and accepts the settings the user returns to the main menu.

In Fig. 9 varied depth of field optimization at different apertures is described. In the first drawing, the object (930) has a depth of field (940) that has a broad range of clarity around the object. The camera (900) evaluates the distance data (920) and the object to establish an optimal depth of field range between f/8 and f/11. In the second drawing, the object (980) has a narrower depth of field range (990) based on distance data (970) and object data from the camera (950) to determine an optimal depth of field range between f/2.8 and f/5.6. The camera's automatic alteration of the aperture to narrow the depth of field is based on a range of factors, including the focus on the object, the object's motion, the distance to the camera, shutter speed constraints and the light on the object. Modulating aperture automatically in the camera provides a blurring of the background and the foreground so that the object can stand out without distraction.

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Exposure optimization using digital correction is shown in fig. 10. After the camera assesses an object's distance from the camera (1000) and identifies the optimal aperture of the image to maximize the dynamic range (1010), the aperture is either increased (1020) or decreased (1030) and the correction applied (1040).

In-camera special effects filtration is illustrated in fig. 11. Once the image exposure is assessed by using the camera exposure meter (1100), the camera corrects the image by either underexposing the image by one third stops to one stop if the image is overexposed (1110) or overexposing the image by one third stops to one stop if the image is underexposed (1120). The camera finally takes a picture and stores the image (1130).

Fig. 12 shows the selective in-camera filtration of specific objects. After the camera identifies specific objects (1200), the camera assesses distance to the objects (1210). This is done by sending out an infrared light signal, bouncing it off the object, and measuring the distance data from the camera to the object. The camera isolates the objects on a one-dimensional Euclidian plane (1220) and then selects the optimum aperture to isolate objects and to blur the background and foreground (1230). The camera tracks the motion of objects (1240) and activates a digital sensor (1250) thereby capturing the image. The image data is sent to a post-sensor processor (1260) where the camera applies specific filtration only to the designated objects (1265) and stores the file in memory (1270). Alternatively, the camera will apply specific filtration only to the background (not to the objects) (1275) and then stores the file in memory (1280). The effect of only applying filtration to an object or to its background is to isolate the subject. The type and degree of special effects, which are selected by user-adjustable in-camera software, will be determined by the user's palate of filtration choices.

Image exposure adjustment using in-camera filtration is described in fig. 13. Once the camera assesses a two stop difference in parts of the image (1300), the camera's microprocessor accesses the database of similar scenes (1310) and then selects the optimal metering for the image and the user activates the digital sensor (1320), capturing an image. The camera provides the filtration to part of the image by adjusting the exposure in the processor (1330) and then stores the image (1340). In scenes such as sky on top, a neutral density filter is often required to remove the two stop difference between the bright top of the image and the darker bottom of the image. By reducing the brightness at the top, the exposure is evened out. By using the present system, this process is accomplished in the camera.

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In-camera special effects filtration is described in fig. 14. After a user selects a special effects filtration technique (1400), the camera assesses image meta-data (1410), analyzes image data (1420) and the user captures the image (1430). The camera's post-capture processor applies special effects filtration technique to part of the image (1440) and the camera stores the image in memory (1450).

Digital correction for sensor dust is described in fig. 15. The pattern of dust on the pixels of a digital sensor (1500) is assessed. The specific pixels that are obscured by the dust are identified (1510) and a map is built of a digital sensor pixel frame by comparing information from at least two image samples to identify obscured pixels (1520) and the camera takes an image (1530). Information from pixels that are adjacent to dust-affected pixels are used to interpolate data on affected pixels (1540) and image data is processed and stored in memory (1550).

Fig. 16 shows an ASIC array in a digital imaging system. Once the digital sensor (1620) captures an image, the digital file is sent to multiple application specific integrated circuits (1630, 1640, 1650 and 1660) for processing of several digital signals simultaneously. In one embodiment of the invention, each ASIC corrects a single optical aberration. In another embodiment, the ASICs will divide the digital file and perform specific functions on parts of the image file and reunite the file before storing the completed image in memory (1670).

In fig. 17, the camera is illustrated with multiple interchangeable digital sensors. The CCD (1720) is shown in the forward position capturing the digital image in this drawing. However, the CMOS (1730) digital imaging sensor may swivel around (1740) to replace the position of the CCD in order to be used to capture the image. The image is then processed (1750) and stored in memory (1760). The advantages of interchanging the digital sensors are to have the opportunity to benefit from the strengths of each sensor type without sacrificing the weaknesses of either. In some cases, the scene will be optimized for the exposure range of a CMOS digital sensor, while at other times, the scene will be optimized for the detail of the CCD.

In fig. 18, the nano-grid (1820) appears in front of the digital sensor (1830). The lens will send analog image data to the sensor through the nano-grid. Once the digital data from the sensor is processed (1840) it is sent to memory (1850). Fig. 19 shows a nano-grid (1900). Nanofilaments are shown at 1920. The modulation effects of the nanofilaments are shown at 1910. Nanofilaments will change their position in order to allow more or less light through the

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system. Nano-grids fit before, or in some cases, adjacent to and on top of the digital sensor. Nano-grids behave as adjustable screens and may be used to polarize light between the lens and the digital sensor. Nano-grids are activated by electrical charge pulses sent to nanofilaments.

In fig. 20, the feedback loop connecting the processor and the nano-grid is shown. Analog optical data passes through the nano-grid (2020) to the digital sensor (2030) to the processor (DSP) (2040). A feedback loop (2050) is created by analyzing the data at the processor and modulating the performance of the nano-grid. For example, the image may be very bright initially, but the DSP will require that the image needs to be darker in order to be properly exposed. In this case, it will activate the nano-grid to modulate its grid structure in order to darken the image so as to let less light through the filaments by adjusting the filament structure. Once properly exposed, the camera will capture a digital image and send the file to memory (2060) for storage.

In fig. 21, a tri-pixel architecture is described. The large (deeper) oval bucket in the center (2110) will capture highlight exposure, the medium sized oval bucket at the right (2120) will capture a normal exposure range and the small (shallower) oval bucket at the left (2130) will capture the shadow exposure range. These three separate wells are contained within each pixel. In most cases, a pixel well is like a bucket, capturing light data and passing the data sets to the digital processor. By splitting the exposure range into three distinct wells within each pixel, the data is more accurately captured and organized in order to accommodate the broader range of exposure data. This system will be able to increase the range of digital imaging up to four stops, from the typical two stops. By maximizing the range of exposure data, the image collection will display more tonal range that is more associated with films' broader exposure range.

Fig. 22 shows the pre-programmed module for in-camera functionality. After the camera detects the lens type and the sensor type (2200), the camera focuses on an object (2210) and the processor accesses the library of scene and filter types (2220). The user pre-selects specific in-camera modifications (2230) and activates the camera to capture an image (2240). The processor makes filtration adjustments after the sensor takes the image (2250) and the image file is stored (2260) in memory.

Much like the nano-grid that is present before the digital image sensor, the pre-sensor modification to an image is shown in fig. 23. An optical filter (2320) such as a polarizer filter is shown in a position between the lens and the digital sensor (2340). The image is captured and

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the optical filter is activated by the processor (2350), which determines whether to activate the filter after analyzing a particular scene. Other filtration (2330), such as the use of the nano-grid, is also interchangeable with the optical filter in a position before the digital sensor. In another embodiment of the present invention, the filter assembly is sequential, with both, or multiple, filters being activated in order so as to obtain the maximum filtration effect. The DSP will compute the optimal combination of filtration resources based on the available resources in the camera. In another embodiment, the optical filter assembly will fit out of the line of sight between the lens and the digital sensor and will be activated by the DSP on-demand to swing into the optical image path much like a mirror mechanism.

Fig. 24 shows the integration of optical and digital corrections with feedback. Once the camera meters a scene (2400), the camera auto-focuses and obtains distance data to the object (2410), analyzes the lens data, the aperture data and the shutter speed data and accesses the library of images (2420). The camera assesses the optical aberrations (2430), activates the digital filters to correct aberrations (2440) and takes the picture (2450). The camera analyzes the image and optimizes the image using the processor (2460). This is performed by comparing the image data to the library of images and assessing the needed filtration required to optimize the image. The image is then stored in memory (2470).

The interactive feedback mechanism of integrated correction is described in fig. 25. After an analysis of the initial image (2500), the identification of optical aberrations (2510) is made. The camera's database is accessed to retrieve the corrections (2520) and the interactive feedback mechanism is activated (2530). Corrections to filters are applied before the sensor captures the next image (2540). In addition, correction to the image signal via the DSP is made after the sensor data is captured (2550) and the image is stored in memory (2560).

The adaptive user pattern learning process is shown as images are processed in fig. 26. A batch of images (2600, 2610, 2620 and 2630) is shown. The first image is processed (2640) and data from image 1 is analyzed and metadata is mapped (2650). Image 2 is then analyzed and its metadata is compared to the image 1 metadata (2660). Similar metadata in images 1 and 2 programmed in the processor (2670) and image 2 is rapidly processed by using similar metadata from image 1 (2680). Images 3 and 4 are analyzed and their metadata are compared to image 1 and rapidly processed (2690).

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In fig. 27, the feedback process of filtering images is shown. After the camera analyzes the user behaviors, user preferences and subject behaviors (2700), the camera's processor analyzes trends in the pattern of user behavior and preferences and creates a map (2710). The camera's processor anticipates the user behavior and subject behavior (2720) by applying evolutionary computation and fuzzy logic algorithms. The camera's processor then applies a collaborative filtering process to a new image (2730) and the user takes and optimizes the image (2740).

Fig. 28 shows a software privacy function in a digital imaging system. The camera automatically downloads software as it enters a building or specified area (2800). The camera's features are deactivated in specific locations by the software (2810) while allowing the camera to perform specific camera functions by accessing software keys (2820). The camera then performs specific functions (2830) that are available in the restricted area while other specific functions are disabled (2850).

In fig. 29, the dynamics of zoom lens corrections are described. After a lens detects a zoom lens type (2900), the camera detects a particular focal length setting of the zoom lens (2910) and accesses a data library in the database to modify aberrations to optimize the zoom lens at a specific focal setting (2920). The camera applies a correction to a lens setting (2930) and continuously tracks the lens changes in the lens focal length (2940). The camera then applies the changed corrections to the changed focal lengths in the zoom lens (2950) and analyzes patterns of the user and subject behaviors (2960). Using fuzzy logic and evolutionary computation, the camera anticipates behaviors and rapidly optimizes image corrections by applying digital filtration (2970).

Fig. 30 shows object tracking in the dynamic changes of video corrections. An object moves from position 1 (3010) to position 6 (3060) in sequence. The camera (3000) is stationary, yet it records the object's motion as it is moving within the field of vision.

In fig. 31, object tracking is described. Once the camera tracks an object with auto-focus mechanisms and supplies distance information (3100), it tracks the user's zoom lens use patterns, anticipates the focal length changes (3110) and, using evolutionary computation and fuzzy logic algorithms, predicts optimal exposures (3120) and captures images in real time, continuously tracking the object (3130).

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Fig. 32 shows the caching process of a moving object in a stationary scene. After the main objects are tracked by the camera (3200), the background of a stationary scene is cached in the camera (3210). The camera subtracts the data about objects from the background of the scene (3220). The background scene is then "blanked out" and cached in memory (3230) and the main objects are optimized by applying digital filters.

Fig. 33 describes the network coordination of a fixed sensor grid tracking multiple objects. The object in motion is represented in positions A through D (3370, 3380, 3390 and 3395). The fixed sensors are at positions 1-6 (3300, 3310, 3320, 3330, 3340 and 3350). The image data is fed remotely into the central imager (3360). The sensors track the object by taking image data at each fixed sensor position in the network. As the object moves through the field of the network, each sensor records the object.

In fig. 34, wireless communication features of the digital imaging system are described. The camera (3400) sends digital image data files wirelessly to a computer (3410). Files are also uploaded from the camera to the Internet in accessible locations (3450), while software files are downloaded from the Internet to the camera, both automatically and through manual intervention. Files are automatically downloaded if the user sets the camera to receive automated software updates. One advantage of loading files automatically to the Internet is that the images are then automatically published (3460) at a remote location, or locations, for viewing.

Fig. 35 describes an image organization system. After images are captured by the camera (3500), the image files are organized according to metadata in an external computer database (3510). The image files are then sorted by category and sent to the database of a distributed network (3520) for off-site storage.

Reference to the remaining portions of the specification, including the drawings and claims, will realize other features and advantages of the present invention. Further features and advantages of the present invention, as well as the structure and operation of various embodiments of the present invention, are described in detail below with respect to accompanying drawings.

It is understood that the examples and embodiments described herein are for illustrative purposes only and that various modifications or changes in light thereof will be suggested to

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persons skilled in the art and are to be included within the spirit and purview of this application and scope of the appended claims. All publications, patents, and patent applications cited herein are hereby incorporated by reference for all purposes in their entirety.

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WHAT IS CLAIMED IS:

1. A digital imaging system for correcting optical image aberrations comprising:

a digital video camera mechanism, an optical lens mechanism, at least one digital sensor, an integrated circuit, a digital signal processor, system software, a database management system and a memory storage sub-system;

wherein the optical lens mechanism is a fixed focal length lens;

wherein an integrated circuit uses system software to identify at least one optical aberration by accessing the database;

wherein the integrated circuit uses the database to identify at least one algorithm to use to correct the at least one optical and/or digital aberration in at least one frame of the digital video;

wherein when the video image file is captured by the at least one digital sensor the digital file is forwarded to the digital signal processor;

wherein the video image file with the at least one optical or digital aberration is corrected by applying digital filtration by using at least one algorithm in the digital signal processor; and

wherein the modified digital file consisting of the digital data optimized from the at least one optical or digital aberration that are corrected from the original video image is stored in memory.

2. The system of claim 1:

wherein the optical aberrations include at least one of spherical, comatic, lens distortion, astigmatism, curvature of field, pin cushion, barrel distortion, chromatic aberrations, scattered light, red eye, dust and/or flare types of optical aberrations.

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3. The system of claim 1:

wherein the optical aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the corners of the image or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the corners of the image; and

wherein the image exposure is optimized to correct the vignetting.

4. The system of claim 1:

wherein the digital signal processor applies at least one fast Fourier transform (FFT) algorithm to correct the at least one optical aberration.

5. The system of claim 1:

wherein each lens type is registered in the camera database;

wherein the multiple optical aberrations of each lens is listed in the database;

wherein the filtration solutions to the lens optical aberrations are listed in the database;

wherein the filtration of each lens optical aberration is applied by the digital signal processor; and

wherein after the digital signal processor applies the filtration to correct the optical aberrations the corrected digital file is forwarded to storage in memory.

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6. A digital imaging system for correcting image aberrations comprising:

a digital video camera mechanism, an optical lens mechanism, at least one digital sensor, an integrated circuit, a digital signal processor, system software, a database management system and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;

wherein the video image data file is forwarded from the at least one digital sensor to storage in memory;

wherein at least one optical and/or digital aberration in at least two frames of the digital video image file are identified by comparing image files in the database management system by using the system software and the integrated circuit;

wherein the at least one filtration algorithms required to correct the at least one optical and/or digital aberration of at least two frames of the digital video file are sent from the integrated circuit to the digital signal processor;

wherein the at least one optical and/or digital aberration from the optical lens mechanism of at least two frames of the digital video file are corrected by using the digital signal processor to apply at least one digital filtration algorithm; and

wherein the modified digital video file consisting of the digital data optimized from the at least one aberration that are corrected from the original video images is stored in memory.

7. The system of claim 6:

wherein the optical aberrations include spherical, comatic, lens distortion, astigmatism, chromatic aberrations, curvature of field, pin cushion, barrel distortion, scattered light, red eye, dust and/or flare types of optical aberrations.

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8. The system of claim 6:

wherein the digital aberrations include moiré and/or aliasing.

9. The system of claim 6:

wherein the digital signal processor applies a fast Fourier transform (FFT) algorithm to correct optical and/or digital aberrations of at least two frames in the digital video file.

10. The system of claim 6:

wherein the digital signal processor applies color filtration to at least two frames of the digital video image file.

11. The system of claim 6:

wherein the digital video image file is filtered to correct at least one optical and/or digital aberrations after initial capture and before the image file is initially sent to storage.

12. The system of claim 6:

wherein the integrated circuit may be a microprocessor, an application specific integrated circuit or a system on a chip.

13. The system of claim 6:

wherein the optical aberration is vignetting;

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wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the corners of the at least two image frames or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the corners of the image of at least two image frames; and

wherein the image exposure for at least two frames in the digital video file is optimized to correct the vignetting.

14. A digital imaging system for correcting image aberrations comprising:

a digital video camera mechanism, an optical lens mechanism, at least one digital sensor, an integrated circuit, a digital signal processor, system software, a database management system and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens;

wherein the zoom lens changes focal length positions;

wherein when the digital image file is captured by the at least one digital sensor the file is forwarded to the digital signal processor and to memory;

wherein the integrated circuit uses system software to access the database to identify at least one optical and/or digital aberrations in at least one frame of the video file at any focal length of a zoom lens configuration;

wherein the integrated circuit accesses the database to obtain at least one filtration correction algorithm to the optical and/or digital aberrations of at least one frame in the video file and forwards the at least one filtration algorithms to the digital signal processor;

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wherein the digital video image file is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the digital video file and corrects the at least one optical and/or digital aberrations in at least one video frame for the at least one focal length in the zoom lens configuration; and

wherein the modified digital video image file consisting of the digital data optimized from the at least one optical and/or digital aberrations in at least one frame of the video file of at least one focal length of the zoom lens that are corrected from the original video image is stored in memory.

15. The system of claim 14:

wherein the optical aberrations include vignetting, spherical, comatic, lens distortion, chromatic aberrations, curvature of field, pin cushion, barrel distortion, scattered light, red eye, dust and/or flare types of optical aberrations.

16. The system of claim 14:

wherein the digital signal processor applies a fast Fourier transform (FFT) algorithm to correct optical and/or digital aberrations in the digital video file.

17. The system of claim 14:

wherein each focal length of a zoom lens in at least one video image frame is analyzed for a different set of optical aberrations.

18. The system of claim 14:

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wherein the digital signal processor applies color filtration to at least one frame of the digital video image file.

18. The system of claim 14:

wherein the optical aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the corners of at least one image frame or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the corners of the image of at least one image frame; and

wherein the image exposure for at least one frame in the digital video file is optimized to correct the vignetting.

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DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS

ABSTRACT OF THE DISCLOSURE

A system is disclosed for the automated correction of optical and digital aberrations in a digital imaging system. The system includes (a) digital filters, (b) hardware modifications and (c) digital system corrections. The system solves numerous problems in still and video photography that are presented in the digital imaging environment.

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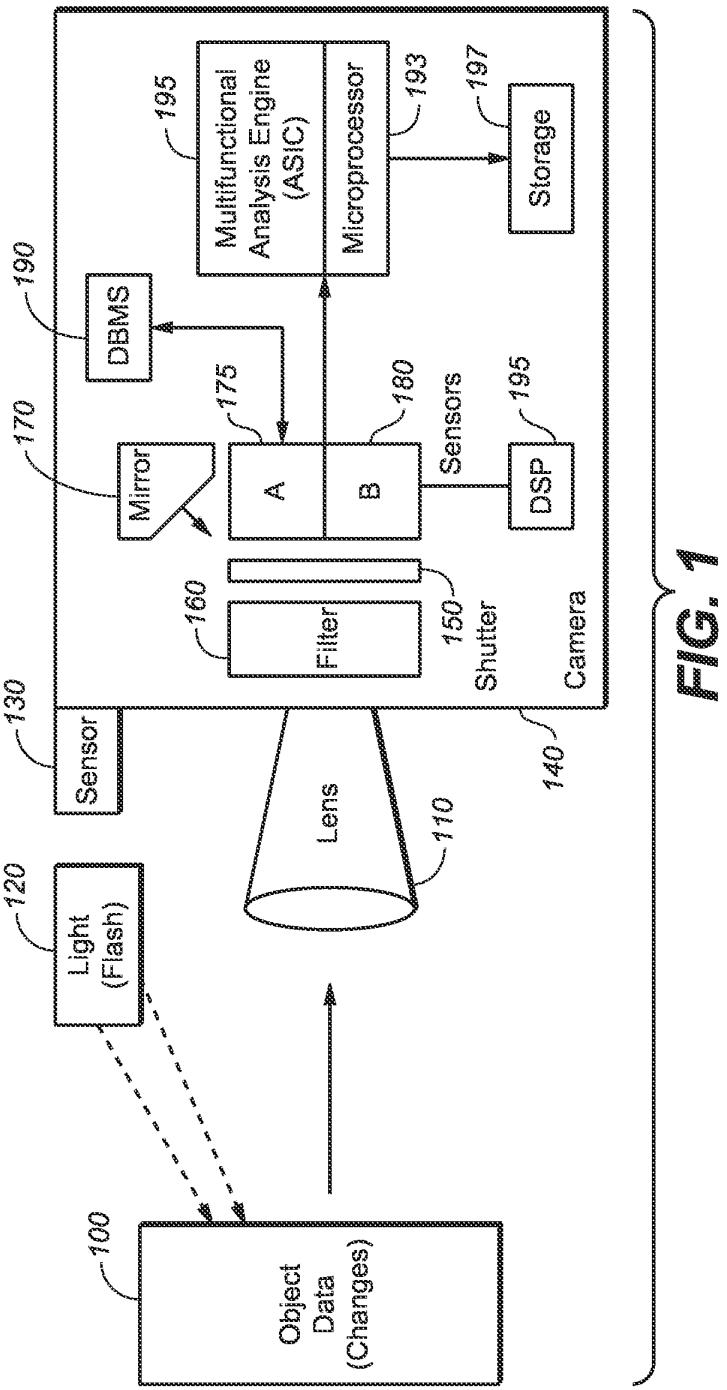

100
Object Data (Changes)
120
Light (Flash)
130
Sensor
110
Lens
140
Camera
150
Shutter
160
Filter
170
Mirror
175
A
180
B
Sensors
190
DBMS
195
Multifunctional Analysis Engine (ASIC)
193
Microprocessor
197
Storage
195
DSP

FIG. 1

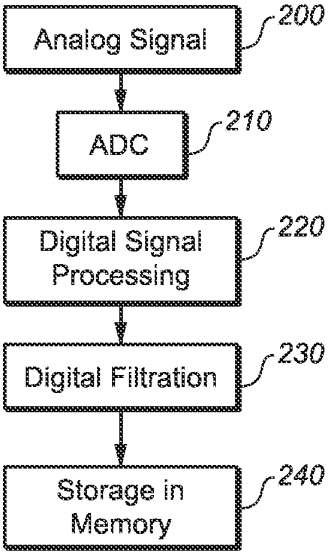


FIG. 2

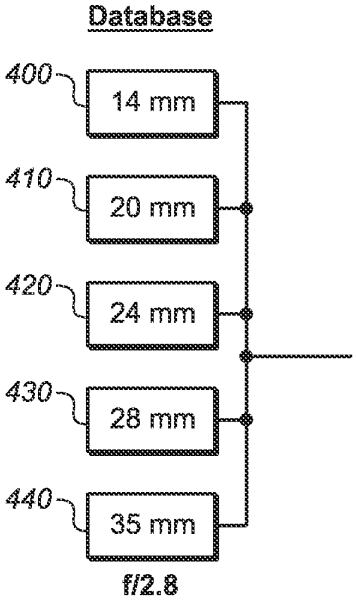


FIG. 4

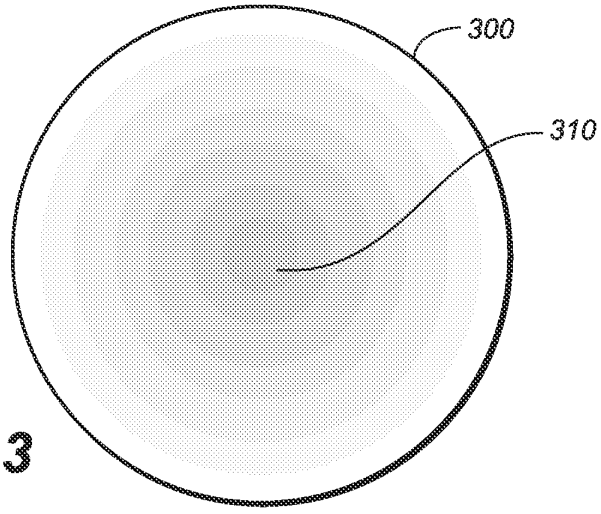


FIG. 3

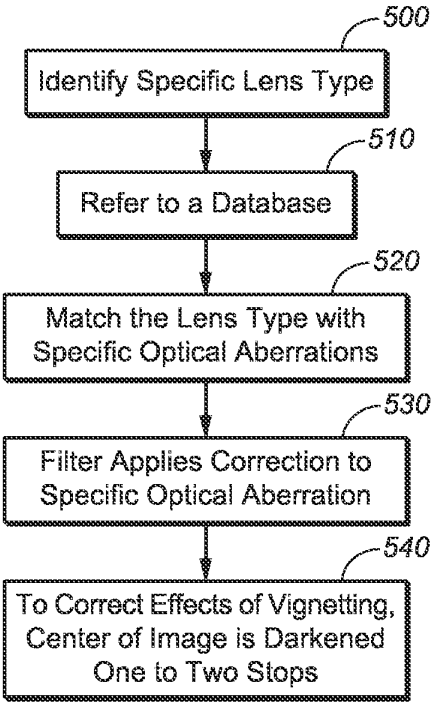


FIG. 5

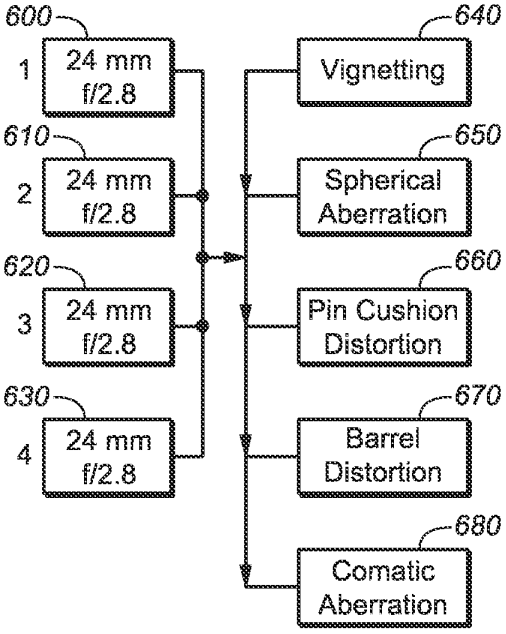


FIG. 6

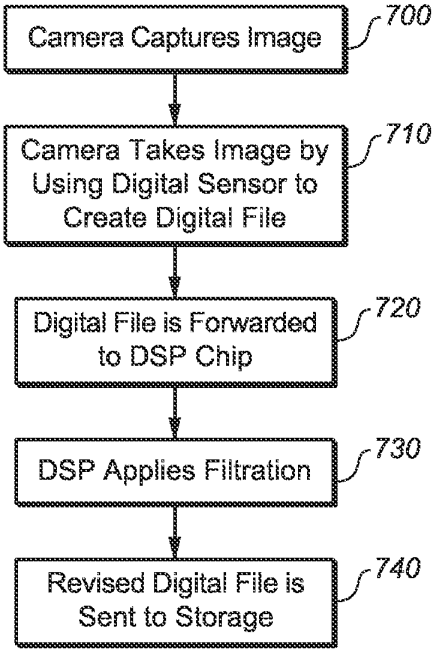


FIG. 7

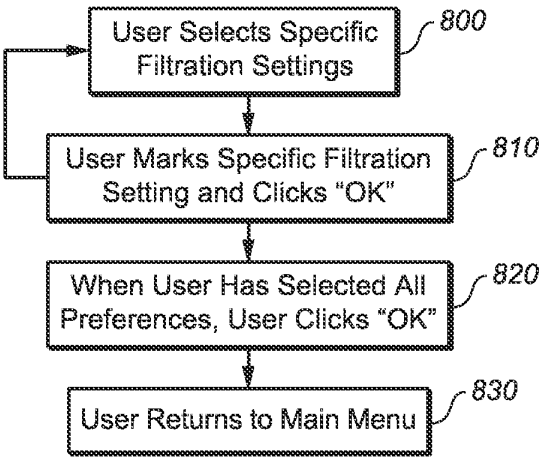

User Selects Specific Filtration Settings
800
User Marks Specific Filtration Setting and Clicks "OK"
810
When User Has Selected All Preferences, User Clicks "OK"
820
User Returns to Main Menu
830

FIG. 8

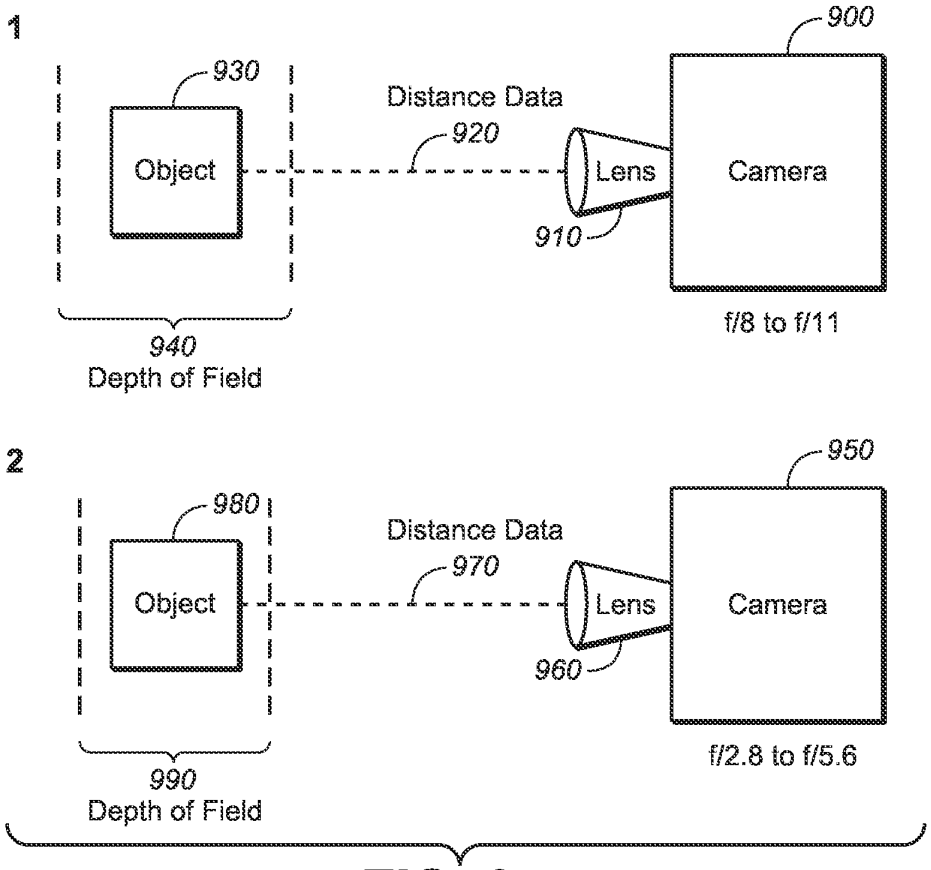

1
900
930
Distance Data
920
Object
Lens
Camera
910
f/8 to f/11
940
Depth of Field
2
950
980
Distance Data
970
Object
Lens
Camera
960
f/2.8 to f/5.6
990
Depth of Field

FIG. 9

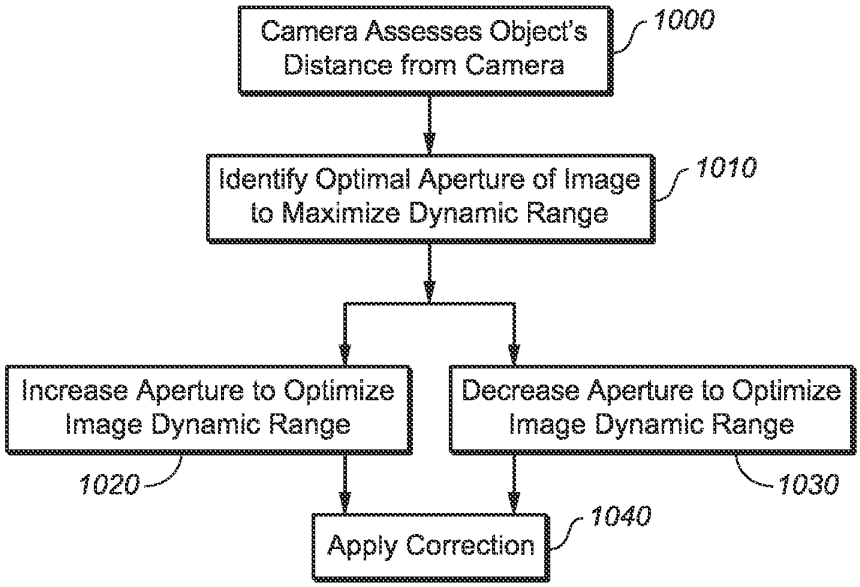

Camera Assesses Object's Distance from Camera
1000
Identify Optimal Aperture of Image to Maximize Dynamic Range
1010
Increase Aperture to Optimize Image Dynamic Range
1020
Decrease Aperture to Optimize Image Dynamic Range
1030
Apply Correction
1040

FIG. 10

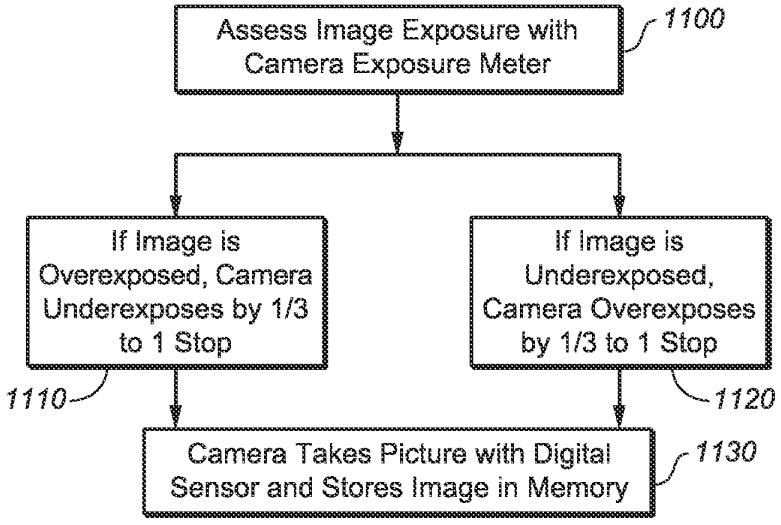

Assess Image Exposure with Camera Exposure Meter
1100
If Image is Overexposed, Camera Underexposes by 1/3 to 1 Stop
1110
If Image is Underexposed, Camera Overexposes by 1/3 to 1 Stop
1120
Camera Takes Picture with Digital Sensor and Stores Image in Memory
1130

FIG. 11

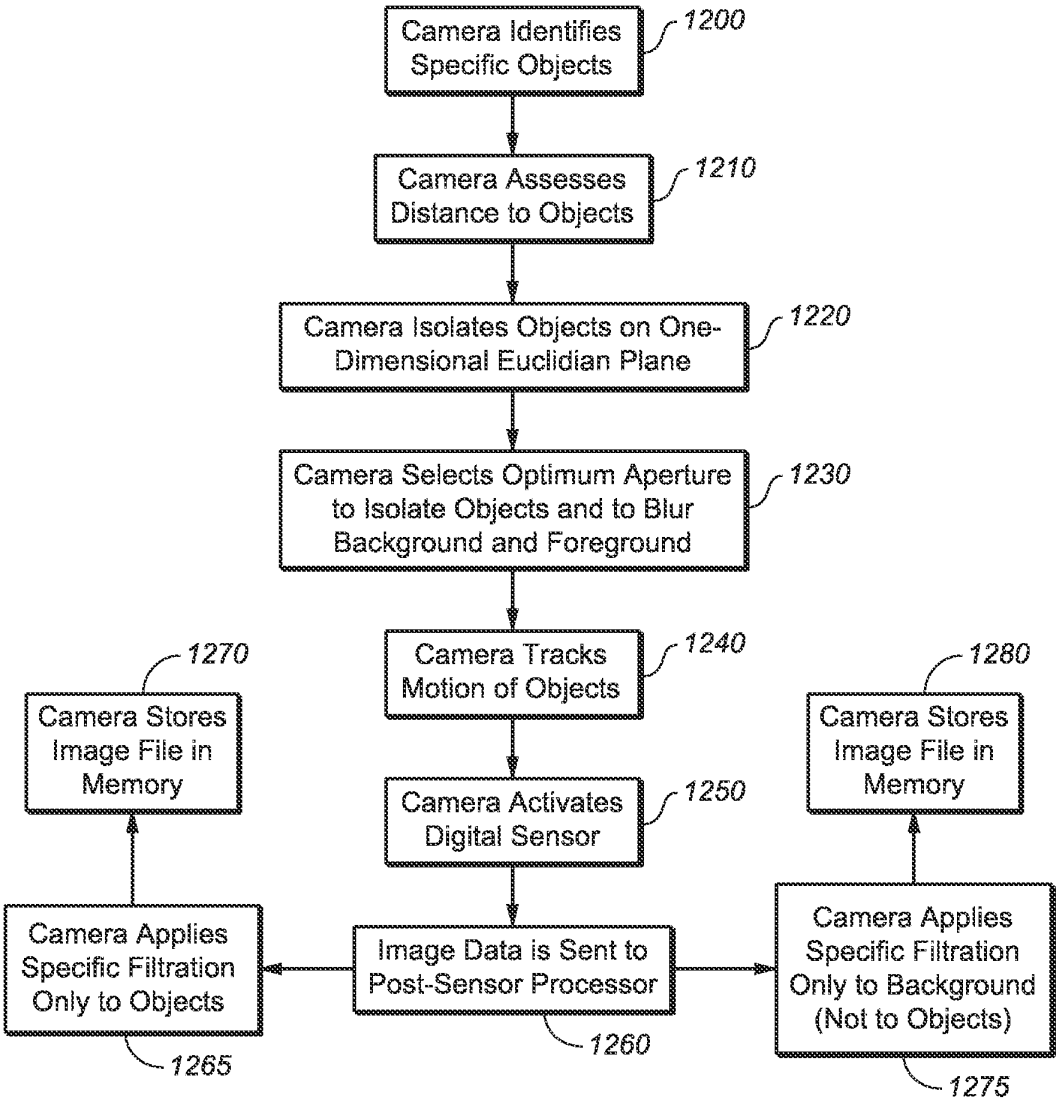

Camera Identifies Specific Objects
1200
Camera Assesses Distance to Objects
1210
Camera Isolates Objects on One-Dimensional Euclidian Plane
1220
Camera Selects Optimum Aperture to Isolate Objects and to Blur Background and Foreground
1230
Camera Tracks Motion of Objects
1240
Camera Activates Digital Sensor
1250
Image Data is Sent to Post-Sensor Processor
1260
Camera Applies Specific Filtration Only to Objects
1265
Camera Stores Image File in Memory
1270
Camera Applies Specific Filtration Only to Background (Not to Objects)
1275
Camera Stores Image File in Memory
1280

FIG. 12

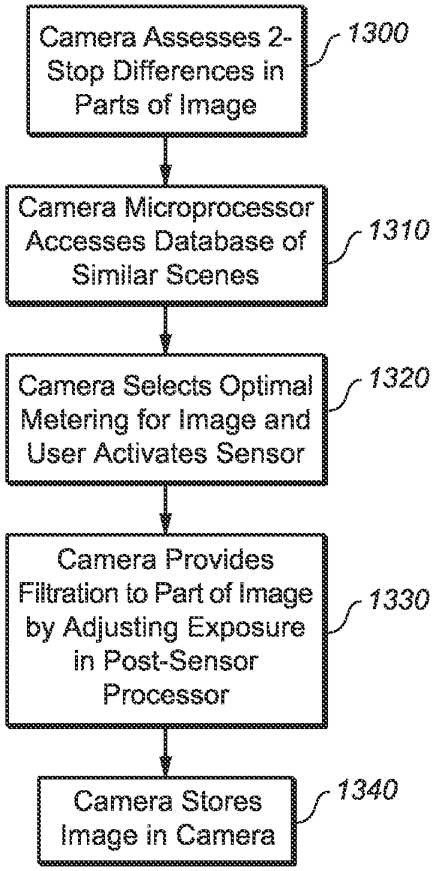

Camera Assesses 2-Stop Differences in Parts of Image
1300
Camera Microprocessor Accesses Database of Similar Scenes
1310
Camera Selects Optimal Metering for Image and User Activates Sensor
1320
Camera Provides Filtration to Part of Image by Adjusting Exposure in Post-Sensor Processor
1330
Camera Stores Image in Camera
1340

FIG. 13

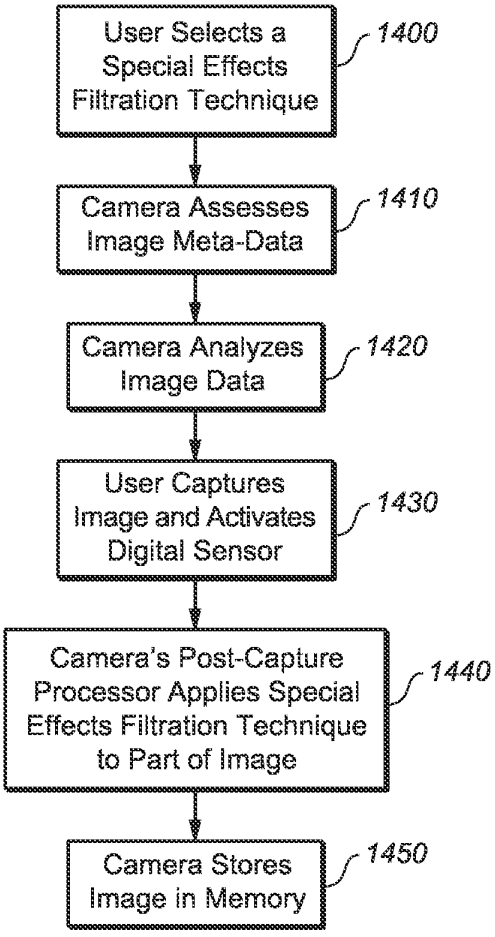

User Selects a Special Effects Filtration Technique
1400
Camera Assesses Image Meta-Data
1410
Camera Analyzes Image Data
1420
User Captures Image and Activates Digital Sensor
1430
Camera's Post-Capture Processor Applies Special Effects Filtration Technique to Part of Image
1440
Camera Stores Image in Memory
1450

FIG. 14

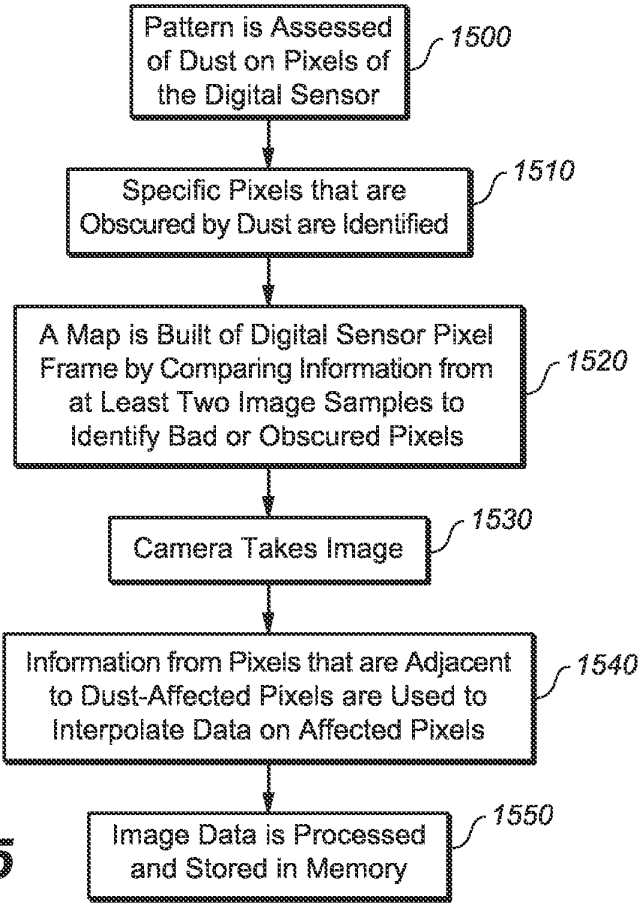

Pattern is Assessed of Dust on Pixels of the Digital Sensor
1500
Specific Pixels that are Obscured by Dust are Identified
1510
A Map is Built of Digital Sensor Pixel Frame by Comparing Information from at Least Two Image Samples to Identify Bad or Obscured Pixels
1520
Camera Takes Image
1530
Information from Pixels that are Adjacent to Dust-Affected Pixels are Used to Interpolate Data on Affected Pixels
1540
Image Data is Processed and Stored in Memory
1550

FIG. 15

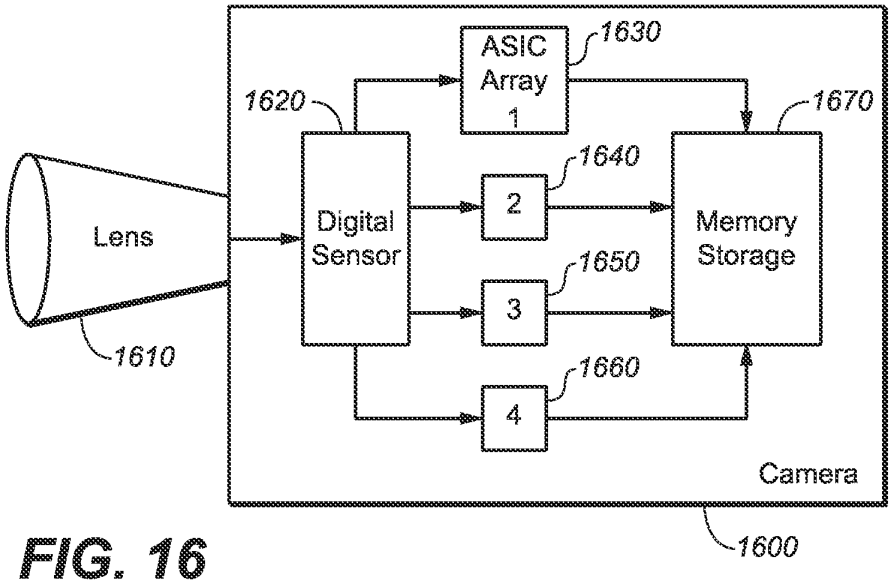

ASIC Array 1
1630
1620
1670
1640
Lens
Digital Sensor
2
Memory Storage
1650
3
1660
4
1610
Camera
1600

FIG. 16

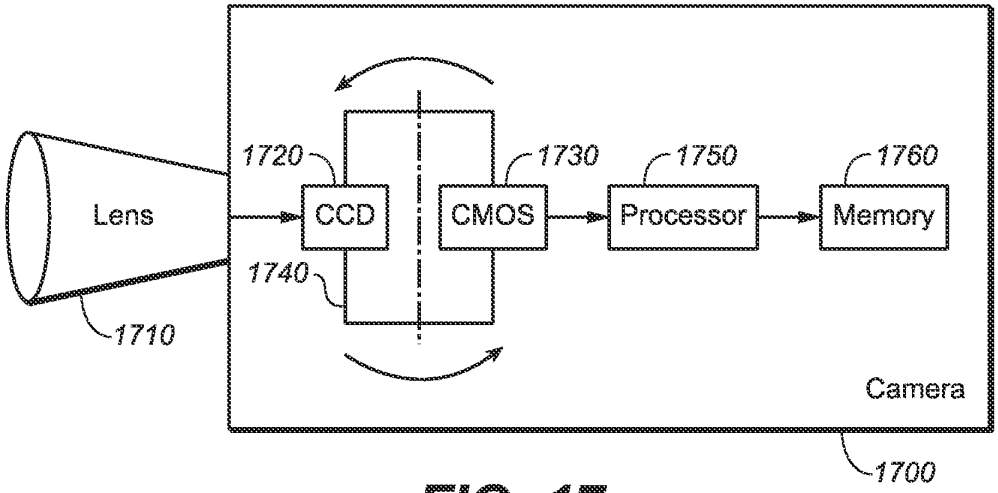

1720
1730
1750
1760
Lens
CCD
CMOS
Processor
Memory
1740
1710
Camera
1700

FIG. 17

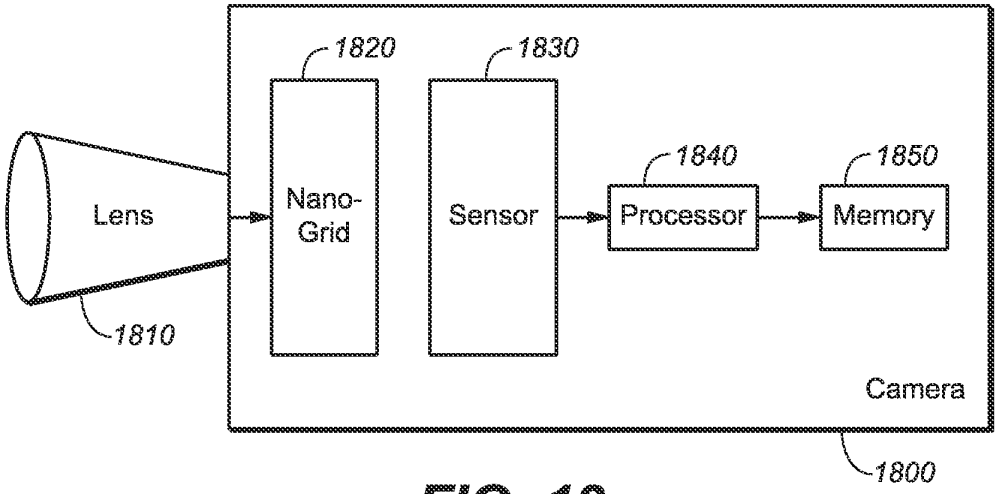

1820
1830
1840
1850
Lens
Nano-
Grid
Sensor
Processor
Memory
1810
Camera
1800

FIG. 18

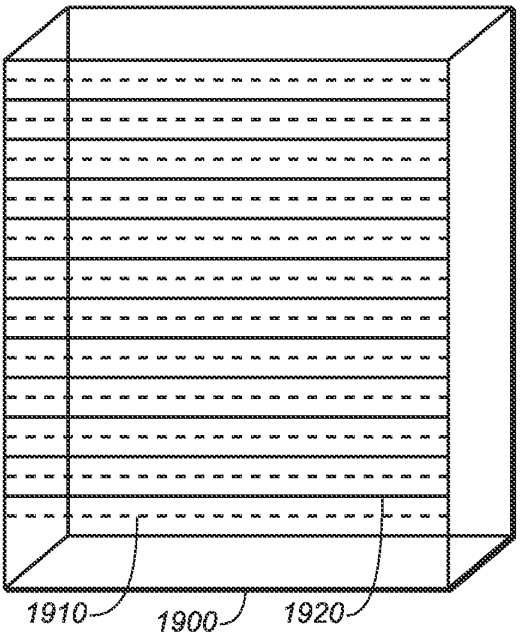

1910
1900
1920

FIG. 19

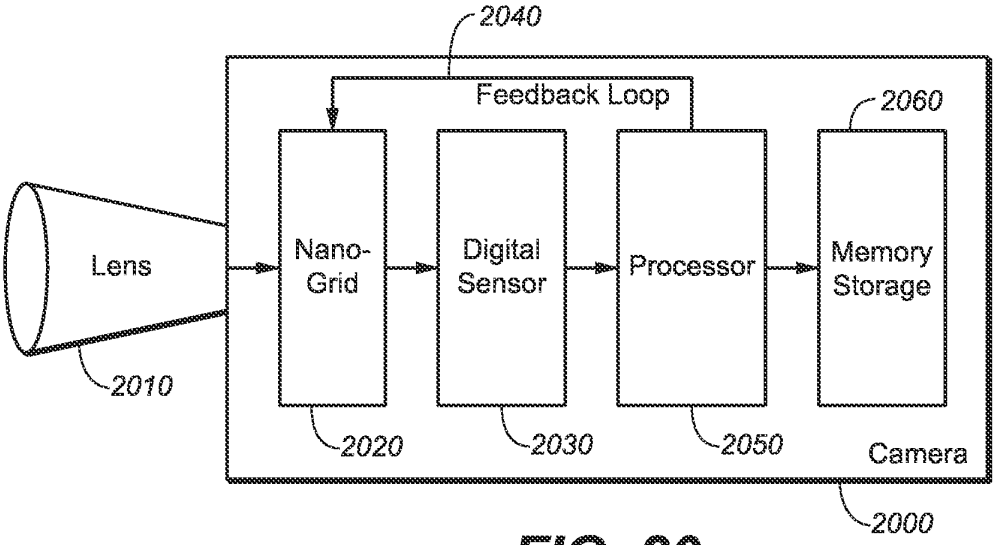

2040
Feedback Loop
2060
Lens
Nano-Grid
Digital Sensor
Processor
Memory Storage
2010
2020
2030
2050
Camera
2000

FIG. 20

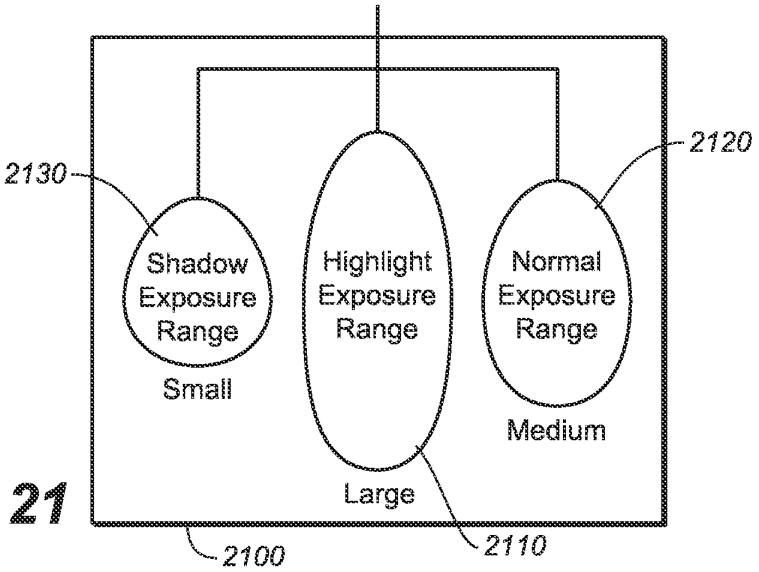

2130
2120
Shadow Exposure Range
Small
Highlight Exposure Range
Large
Normal Exposure Range
Medium
2100
2110

FIG. 21

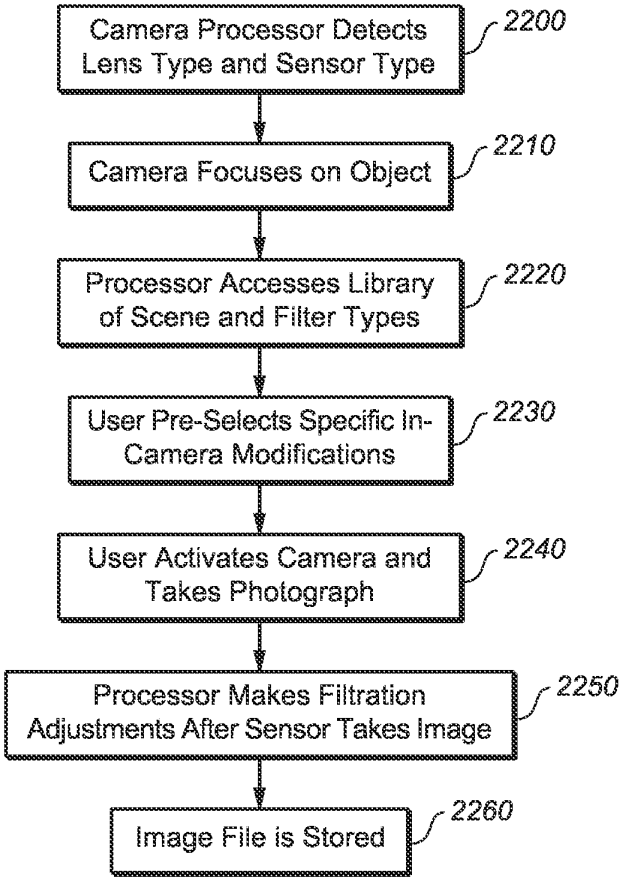

Camera Processor Detects Lens Type and Sensor Type
2200
Camera Focuses on Object
2210
Processor Accesses Library of Scene and Filter Types
2220
User Pre-Selects Specific In-Camera Modifications
2230
User Activates Camera and Takes Photograph
2240
Processor Makes Filtration Adjustments After Sensor Takes Image
2250
Image File is Stored
2260

FIG. 22

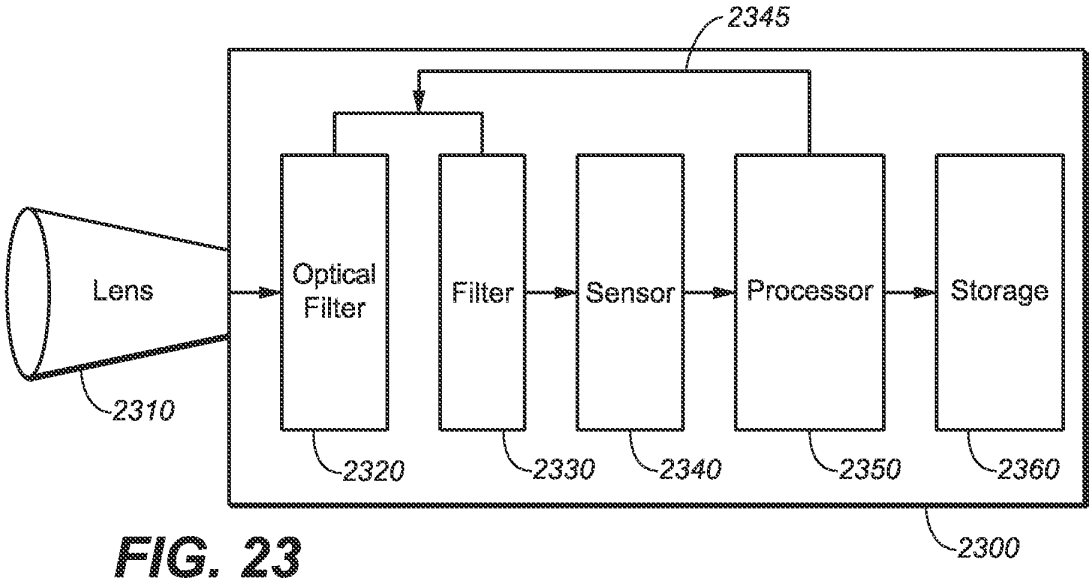

2345
Lens
Optical Filter
Filter
Sensor
Processor
Storage
2310
2320
2330
2340
2350
2360
2300

FIG. 23

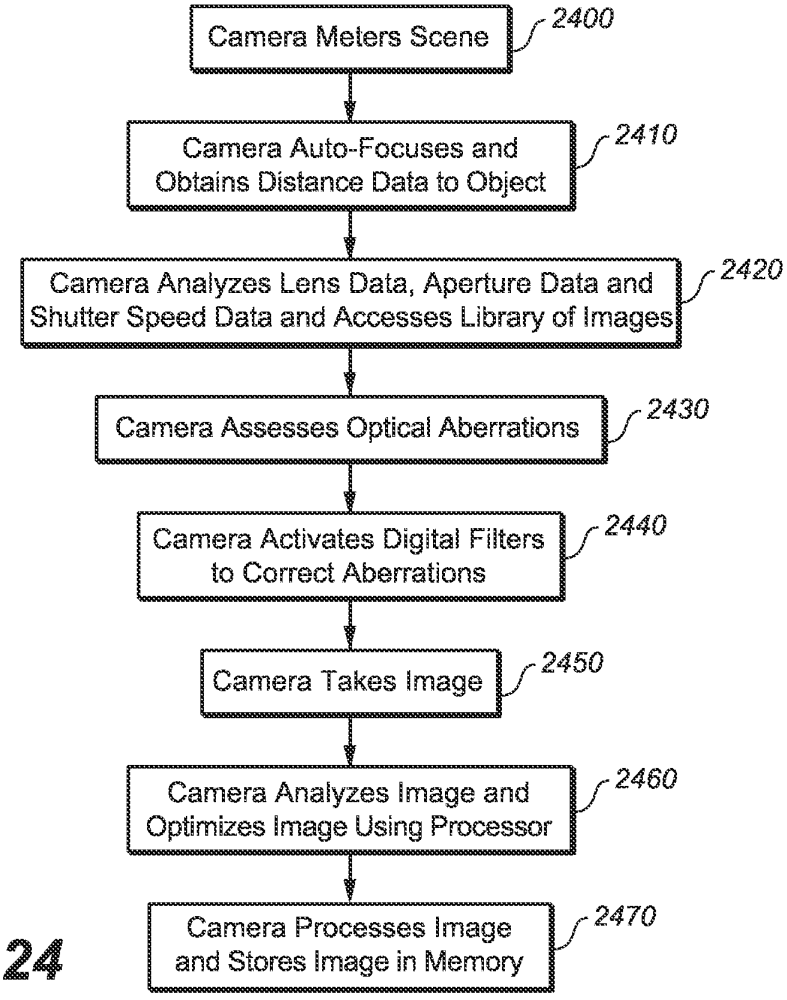

Camera Meters Scene
2400
Camera Auto-Focuses and Obtains Distance Data to Object
2410
Camera Analyzes Lens Data, Aperture Data and Shutter Speed Data and Accesses Library of Images
2420
Camera Assesses Optical Aberrations
2430
Camera Activates Digital Filters to Correct Aberrations
2440
Camera Takes Image
2450
Camera Analyzes Image and Optimizes Image Using Processor
2460
Camera Processes Image and Stores Image in Memory
2470

FIG. 24

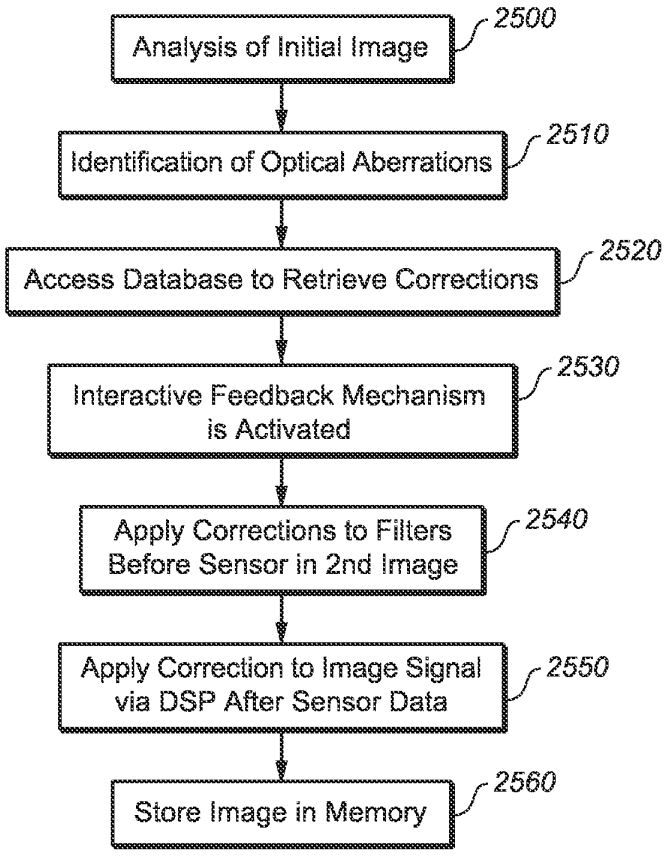

Analysis of Initial Image
2500
Identification of Optical Aberrations
2510
Access Database to Retrieve Corrections
2520
Interactive Feedback Mechanism is Activated
2530
Apply Corrections to Filters Before Sensor in 2nd Image
2540
Apply Correction to Image Signal via DSP After Sensor Data
2550
Store Image in Memory
2560

FIG. 25

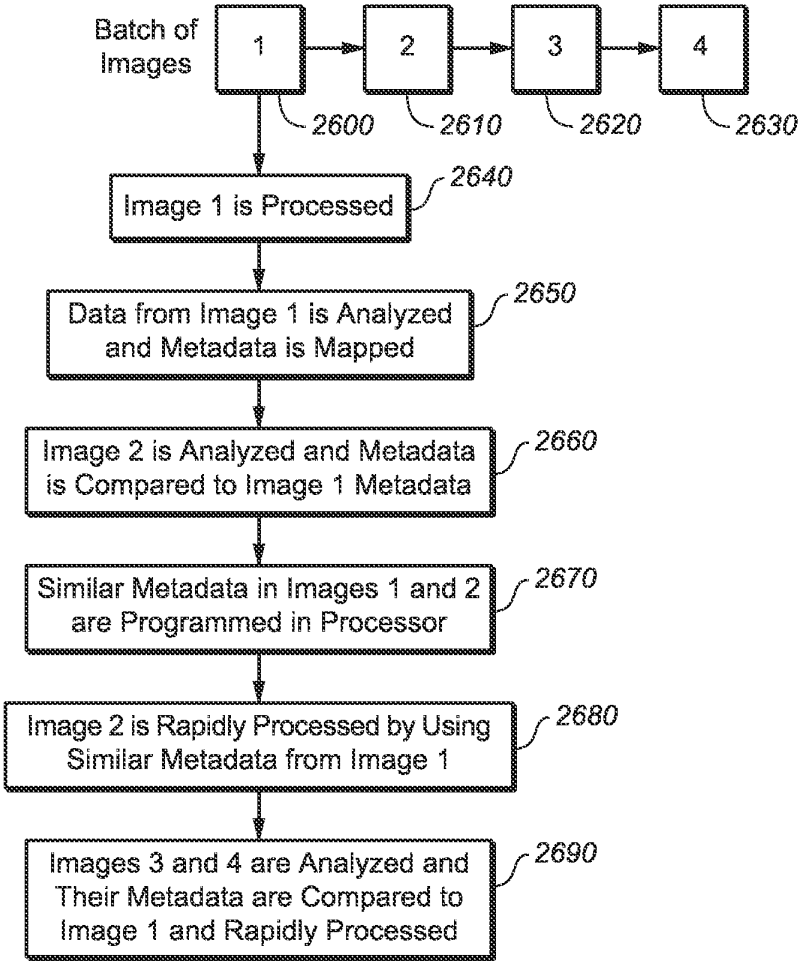

Batch of Images
1
2
3
4
2600
2610
2620
2630
Image 1 is Processed
2640
Data from Image 1 is Analyzed and Metadata is Mapped
2650
Image 2 is Analyzed and Metadata is Compared to Image 1 Metadata
2660
Similar Metadata in Images 1 and 2 are Programmed in Processor
2670
Image 2 is Rapidly Processed by Using Similar Metadata from Image 1
2680
Images 3 and 4 are Analyzed and Their Metadata are Compared to Image 1 and Rapidly Processed
2690

FIG. 26

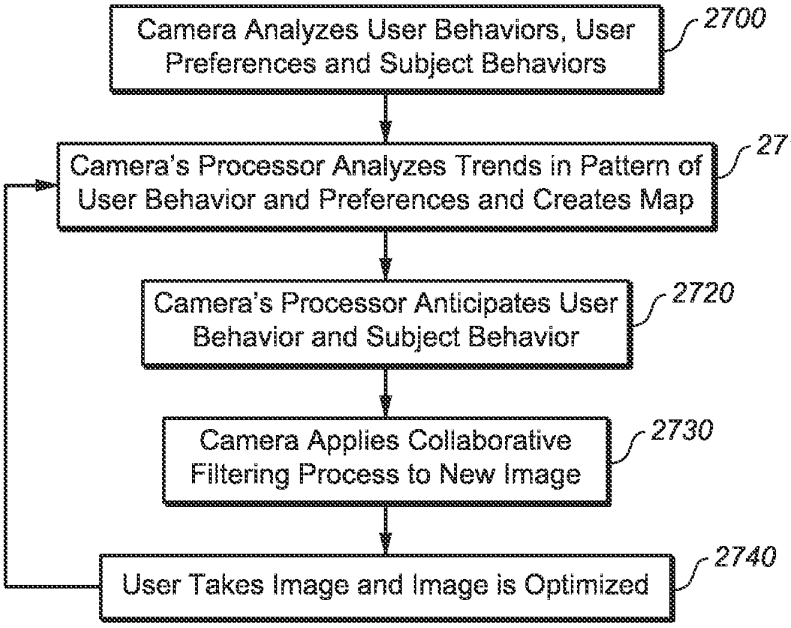

Camera Analyzes User Behaviors, User Preferences and Subject Behaviors
2700
Camera's Processor Analyzes Trends in Pattern of User Behavior and Preferences and Creates Map
2710
Camera's Processor Anticipates User Behavior and Subject Behavior
2720
Camera Applies Collaborative Filtering Process to New Image
2730
User Takes Image and Image is Optimized
2740

FIG. 27

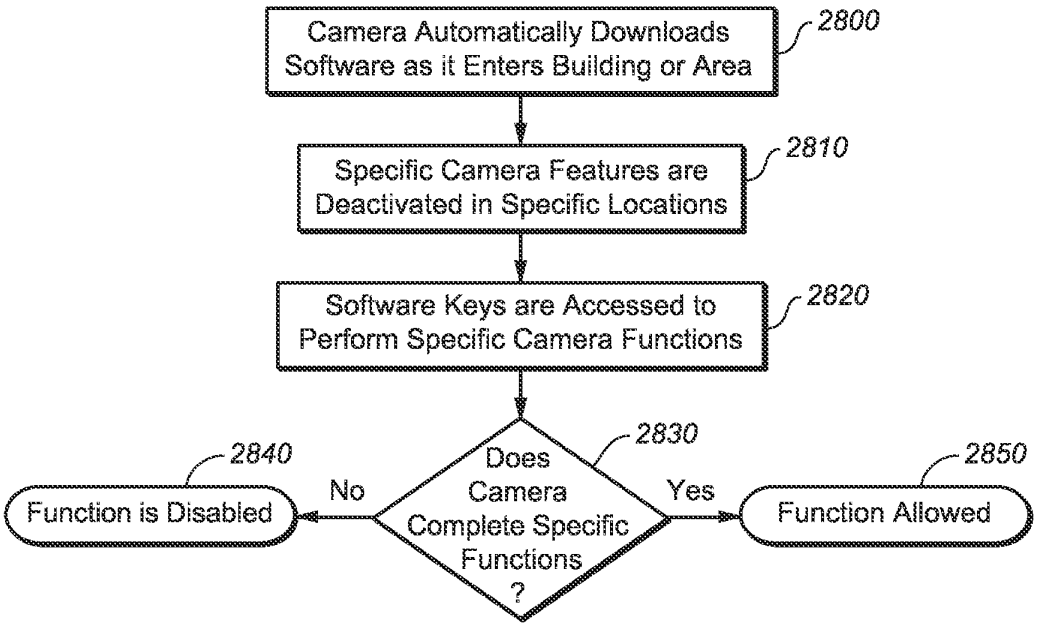

Camera Automatically Downloads Software as it Enters Building or Area
2800
Specific Camera Features are Deactivated in Specific Locations
2810
Software Keys are Accessed to Perform Specific Camera Functions
2820
Does Camera Complete Specific Functions ?
2830
No
Yes
Function is Disabled
2840
Function Allowed
2850

FIG. 28

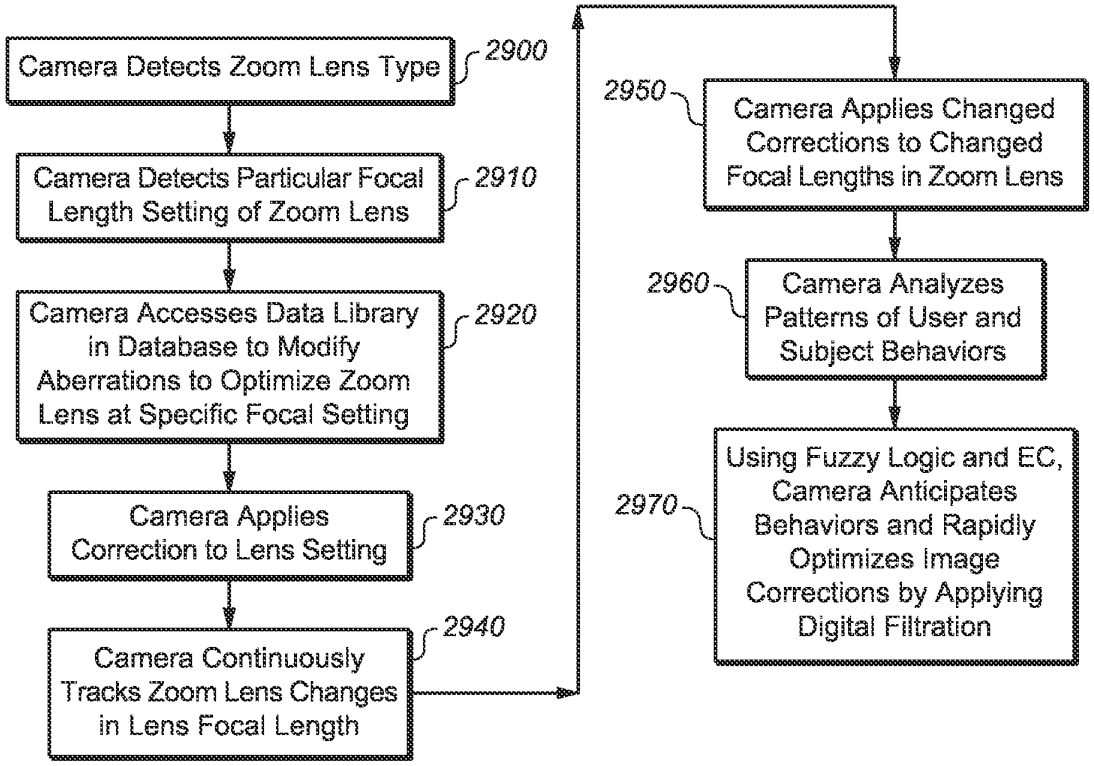

Camera Detects Zoom Lens Type
2900
Camera Detects Particular Focal Length Setting of Zoom Lens
2910
Camera Accesses Data Library in Database to Modify Aberrations to Optimize Zoom Lens at Specific Focal Setting
2920
Camera Applies Correction to Lens Setting
2930
Camera Continuously Tracks Zoom Lens Changes in Lens Focal Length
2940
2950
Camera Applies Changed Corrections to Changed Focal Lengths in Zoom Lens
2960
Camera Analyzes Patterns of User and Subject Behaviors
2970
Using Fuzzy Logic and EC, Camera Anticipates Behaviors and Rapidly Optimizes Image Corrections by Applying Digital Filtration

FIG. 29

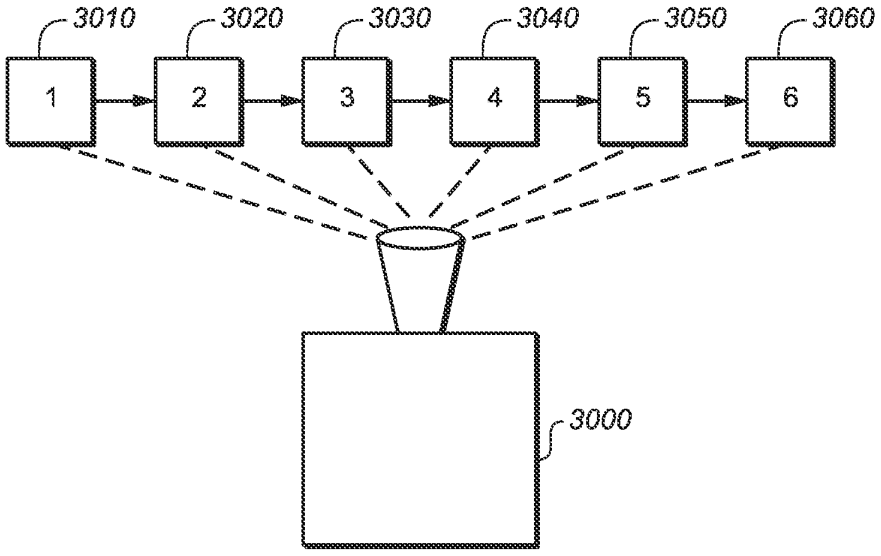

3010
3020
3030
3040
3050
3060
1
2
3
4
5
6
3000

FIG. 30

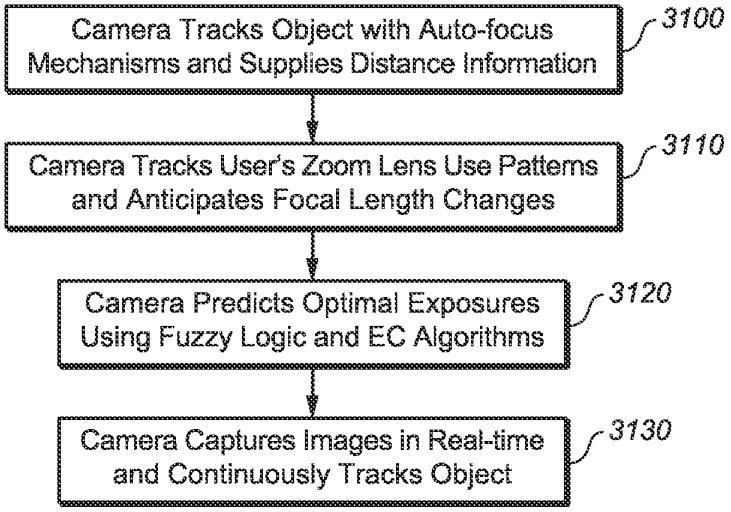

Camera Tracks Object with Auto-focus Mechanisms and Supplies Distance Information
3100
Camera Tracks User's Zoom Lens Use Patterns and Anticipates Focal Length Changes
3110
Camera Predicts Optimal Exposures Using Fuzzy Logic and EC Algorithms
3120
Camera Captures Images in Real-time and Continuously Tracks Object
3130

FIG. 31

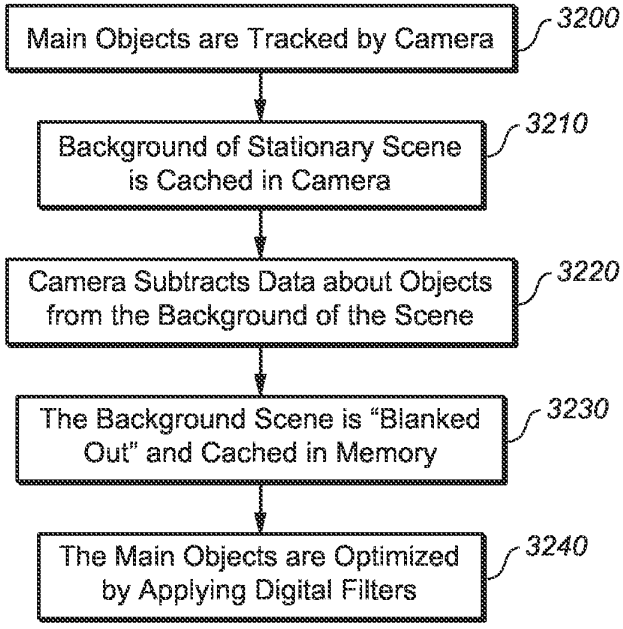

Main Objects are Tracked by Camera
3200
Background of Stationary Scene is Cached in Camera
3210
Camera Subtracts Data about Objects from the Background of the Scene
3220
The Background Scene is "Blanked Out" and Cached in Memory
3230
The Main Objects are Optimized by Applying Digital Filters
3240

FIG. 32

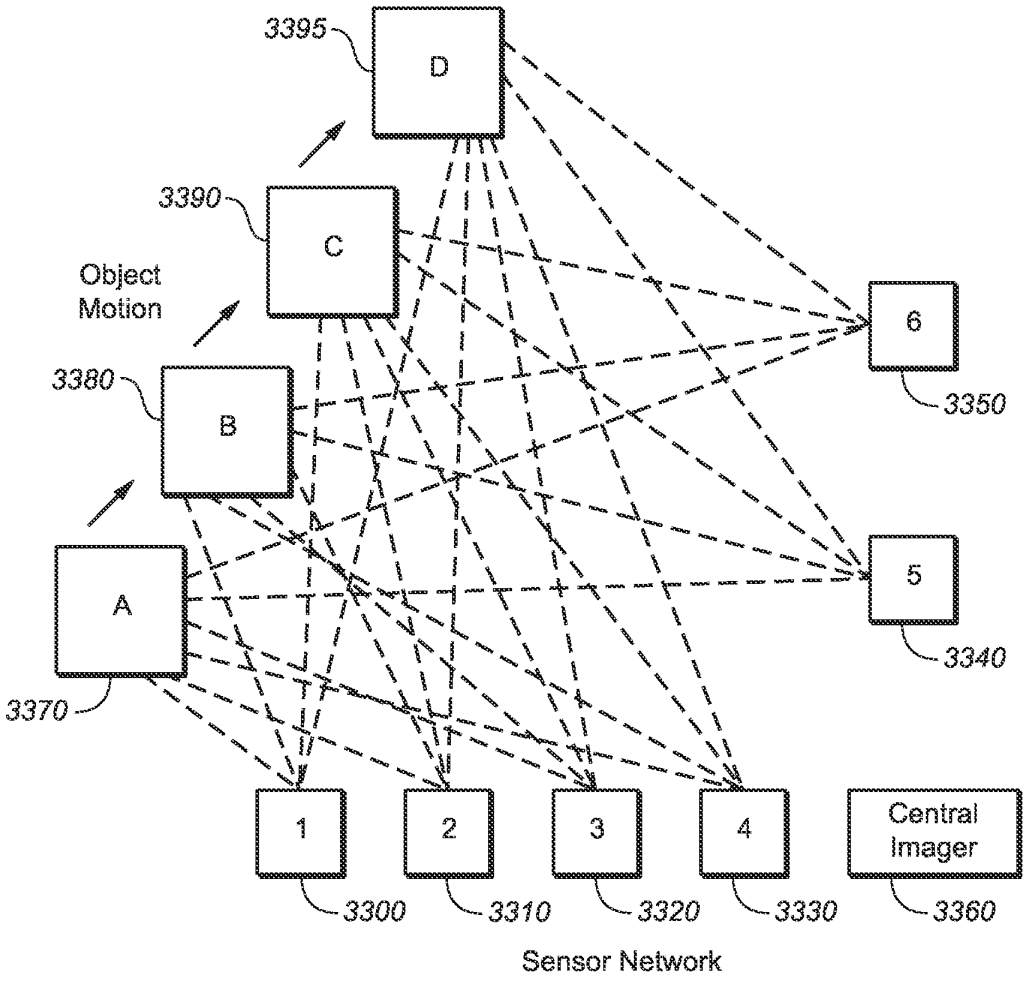

3395
D
3390
C
Object
Motion
3380
B
A
3370
6
3350
5
3340
1
2
3
4
Central
Imager
3300
3310
3320
3330
3360
Sensor Network

FIG. 33

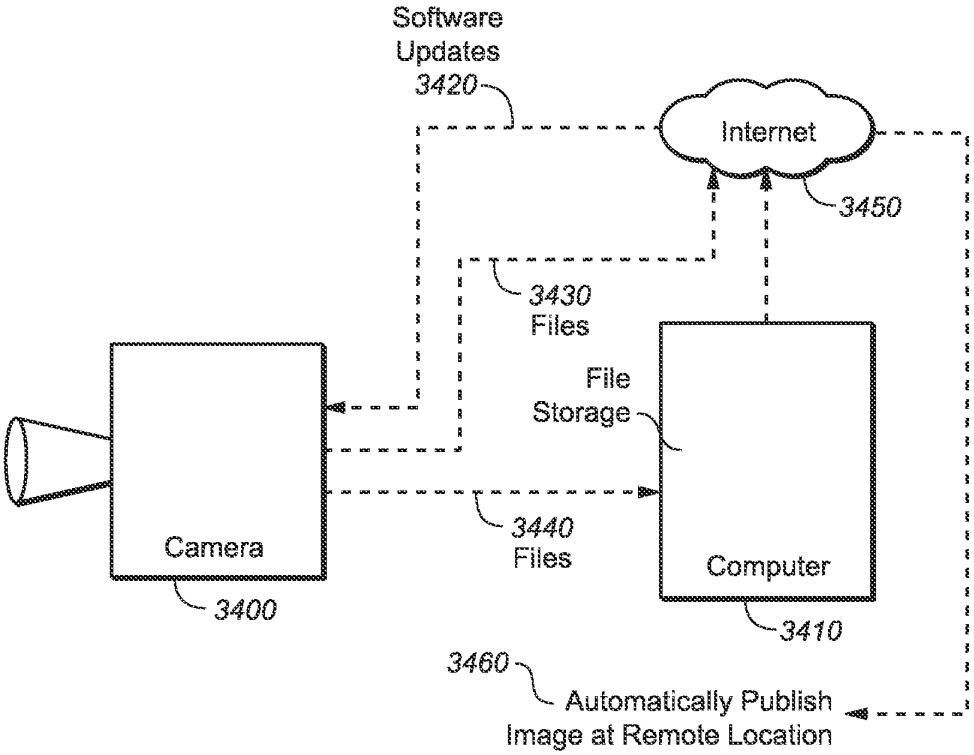

Software
Updates
3420
Internet
3450
3430
Files
File
Storage
3440
Files
Camera
3400
Computer
3410
3460
Automatically Publish
Image at Remote Location

FIG. 34

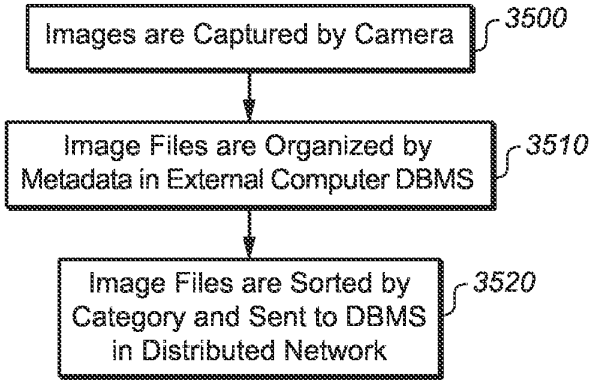

Images are Captured by Camera
3500
Image Files are Organized by
Metadata in External Computer DBMS
3510
Image Files are Sorted by
Category and Sent to DBMS
in Distributed Network
3520

FIG. 35

DocCode - SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 13691805 Document Date: 12/02/2012

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://es/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: February 8, 2006

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	

CONFIRMATION NO. 6244

103468
Neal Solomon
P.O. Box 21297
Oakland, CA 94620

FORMALITIES LETTER

OC000000058365730

Date Mailed: 01/03/2013

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  *Applicant must submit $***390** *to complete the basic filing fee for a small entity.*

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- A surcharge (for late submission of the basic filing fee, search fee, examination fee or inventor's oath or declaration) as set forth in 37 CFR 1.16(f) of $ **130** for a small entity in compliance with 37 CFR 1.27, must be submitted.

SUMMARY OF FEES DUE:

Total fee(s) required within **TWO MONTHS** from the date of this Notice is $ **1390** for a small entity
- $ **390** Statutory basic filing fee.
- $ **130** Surcharge.
- The application search fee has not been paid. Applicant must submit $ **620** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit $ **250** to complete the examination fee for a small entity in compliance with 37 CFR 1.27.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

A new inventor's oath or declaration that identifies this application (e.g., by Application Number and filing date) is required. The inventor's oath or declaration does not comply with 37 CFR 1.63 in that it:

- does not state that the above-identified application was made or authorized to be made by the person executing the oath or declaration.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

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

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/tnegash/

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

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/691,805

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	98		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	310		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	125		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	18 minus 20 =	*	x 31 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 125 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	533		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/691,805	12/02/2012	2661	0.00		18	3

CONFIRMATION NO. 6244

103468
Neal Solomon
P.O. Box 21297
Oakland, CA 94620

FILING RECEIPT

OC000000058365729

Date Mailed: 01/03/2013

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

Inventor(s)

Neal Solomon, Oakland, CA;

Applicant(s)

Neal Solomon, Oakland, CA;

Power of Attorney: None

Domestic Applications for which benefit is claimed - None.
A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 12/27/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/691,805**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
**** SMALL ENTITY ****

Title

Digital imaging system for correcting video image aberrations

Preliminary Class

348

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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

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

NOT GRANTED

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

SelectUSA

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	

CONFIRMATION NO. 6244

103468
Neal Solomon
P.O. Box 21297
Oakland, CA 94620

ABANDONMENT/TERMINATION LETTER



Date Mailed: 09/06/2013

NOTICE OF ABANDONMENT UNDER 37 CFR 1.53 (f) OR (g)

The above-identified application is abandoned for failure to timely or properly reply to the Notice to File Missing Parts (Notice) mailed on 01/03/2013.

- No reply was received.

If a complete reply to the notice was previously filed by applicant within the time period set forth in the notice, applicant may request for reconsideration of the holding of abandonment within 2 months from the mailing of this notice of abandonment by filing a petition to withdraw the holding of abandonment under 37 CFR 1.181(a). No petition fee is required. The petition must be accompanied by a true copy of the originally filed reply and the item(s) identified in one of the following:

1. A properly itemized date-stamped postcard receipt (see MPEP § 503);

2. If the originally filed reply included a certificate of mailing or transmission in compliance with 37 CFR 1.8(a), a copy of the certificate of mailing or transmission and a statement in compliance with 37 CFR 1.8(b) (see MPEP § 512); or

3. If the reply was filed via "Express Mail," a submission satisfying the requirements of 37 CFR 1.10(e) including, for example, a copy of the "Express Mail" mailing label showing the "date-in" (see MPEP § 513).

Any petition to withdraw the holding of abandonment should be directed to OPAP.

If applicant did not previously file a complete reply within the time period set forth in the notice, applicant may file a petition to revive the application under 37 CFR 1.137.

Under 37 CFR 1.137(a), a petition requesting the application be revived on the grounds of **UNAVOIDABLE DELAY** must be filed promptly after the applicant becomes aware of the abandonment and such petition must be accompanied by: (1) an adequate showing of the cause of unavoidable delay; (2) the required reply to the above-identified Notice; (3) the petition fee set forth in 37 CFR 1.17(l); and (4) a terminal disclaimer if required by 37 CFR 1.137(d). See MPEP § 711.03(c) and Form PTO/SB/61.

Under 37 CFR 1.137(b), a petition requesting the application be revived on the grounds of **UNINTENTIONAL DELAY** must be filed promptly after applicant becomes aware of the abandonment and such petition must be accompanied by: (1) a statement that the entire delay was unintentional; (2) the required reply to the above-identified Notice; (3) the petition fee set forth in 37 CFR 1.17(m); and (4) a terminal disclaimer if required by 37 CFR 1.137(d). See MPEP § 711.03(c) and Form PTO/SB/64.

Any questions concerning petitions to revive should be directed to the "Office of Petitions" at (571) 272-3282.

A copy of this notice MUST be returned with the reply.

/ylueng/

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

OPAP
FEB 11 2019
PATENT & TRADEMARK OFFICE

Doc Code: PET.OP
Document Description: Petition for Review by the Office of Petitions

PTO/SB/64 (07-09)
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 displays a valid OMB control number.

PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(b)	Docket Number (Optional)

First named inventor: Neal Solomon

Application No.: 13/691,805 Art Unit: 2622

Filed: December 12, 2012 Examiner: Usman Khan

Title: Digital Imaging System for Correcting Video Image Aberrations

Attention: Office of Petitions
Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
FAX (571) 273-8300

NOTE: If information or assistance is needed in completing this form, please contact Petitions Information at (571) 272-3282.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the office notice or action plus any extensions of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION

NOTE: A grantable petition requires the following items:
(1) Petition fee;
(2) Reply and/or issue fee;
(3) Terminal disclaimer with disclaimer fee - required for all utility and plant applications filed before June 8, 1995; and for all design applications; and
(4) Statement that the entire delay was unintentional

1. Petition Fee

☒ Small entity-fee $ 1,000 (37 CFR 1.17(m)). Application claims small entity status. See 37 CFR 1.27.

☐ Other than small entity-fee $ _____ (37 CFR 1.17(m))

2. Reply and/or fee

A. The reply and/or fee to the above-noted Office action in the form of _____ (identify type of reply):

☐ has been filed previously on _____.

☒ is enclosed herewith.

B. The issue fee and publication fee (if applicable) of $_____.

☐ has been paid previously on _____.

☐ is enclosed herewith.

This collection of information is required by 37 CFR 1.137(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 1.0 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: Mail Stop Petition, 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.

3. Terminal disclaimer with disclaimer fee

☒ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

☐ A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of $_____ for a small entity or $_____ for other than a small entity) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. STATEMENT: The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(b) was unintentional. [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137(b) was unintentional (MPEP 711.03(c), subsections (III)(C) and (D)).]

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Neal Solomon — Signature

2/7/19 — Date

Neal Solomon — Type or Printed name

Registration Number, If applicable

PO Box 21297, Oakland, CA 94620 — Address

Telephone Number

Address

Enclosures:

☐ Fee Payment

☐ Reply

☐ Terminal Disclaimer Form

☐ Additional sheets containing statements establishing unintentional delay

☐ Other: _____

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

☒ Deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

☐ Transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (571) 273-8300.

2/7/19 — Date

Neal Solomon — Signature

Neal Solomon — Typed or printed name of person signing certificate

OPAP AKIMA-15
FEB 11 2019
PATENT & TRADEMARK OFFICE

February 7, 2019

Office of Petitions

Patent and Trademark Office

P.O. Box 1450

Alexandria, VA 22313-1450

Re: Petition to Revive Abandoned U.S. Patent Application 13/691,805

Dear Office of Petitions:

On December 12, 2012, I filed patent application 13/691,805 entitled "Digital Imaging System for Correcting Video Image Aberrations" with the U.S. PTO [confirmation number 6244]. However, this application was abandoned for lack of payment of application fees.

I am requesting revival of this abandoned patent application. Enclosed is completed Form 64 (Petition for Revival of an Application for Patent Abandoned Unintentionally under 37 CFR 1.137(b)), indicating the abandonment was unintentional. The reason for the non-payment was economic constraints.

Also enclosed is a petition to expedite the request to revive the abandoned patent application.

I am paying the $785 for the patent application fee (for electronic filing), $1,000 for the Office of Petitions fee and $200 for the petition to expedite. I am enclosing a check for $1985. Please refer to the accompanying petition to expedite.

I appreciate your assistance is processing this request.

If you have any questions, you may reach me at the address and number below.

Yours very truly,

Neal Solomon

Neal Solomon

P.O. Box 21297

Oakland, CA 94620

(415) 334-5600

OPAP AKIMA-15
FEB 11 2019
PATENT & TRADEMARK OFFICE

Petition to Expedite

February 7, 2019

Office of Petitions

Patent and Trademark Office

P.O. Box 1450

Alexandria, VA 22313-1450

Re: U.S. Patent Application 13/691,805

Dear Office of Petitions:

Please expedite the petition for revival of U.S. patent application 13/691,805 [confirmation number 6244]. I am the inventor and owner of '805.

I am enclosing a letter requesting revival of the patent application and appropriate fees. In addition, I am enclosing a completed Form 64 (Petition for Revival of an Application for Patent Abandoned Unintentionally under 37 CFR 1.137(b)).

I am paying a fee of $200 for the petition to expedite.

Please expedite the processing of the request as soon as possible. Note that I am a small entity.

Feel free to call if you have any questions. I appreciate your assistance in processing this request.

Respectfully submitted,

Neal Z. Solomon

Neal Solomon

(415) 334-5600

United States Patent and Trademark Office

- Sales Receipt -

02/12/2019 HVUONG1 00000015 13691805

01 FC:2453	1000.00	OP
02 FC:2462	200.00	OP
03 FC:2011	150.00	OP
04 FC:2311	380.00	OP
05 FC:2051	80.00	OP
06 FC:2622	175.00	OP

Document Code: IMIS

Notice of Fee Due

Application Number: 13691805 Date: 02-12-19

Fees are due for the application or document dated 02/11/19. The payment was not collectable for the reason indicated below.

Note: If the fee due is for any of the filing fees, the surcharge for late payment of the filing fees is now due as well.

- ☑ Insufficient payment by check or money order.
- ☑ No authorization to charge a deposit account.
- ☐ Invalid deposit account number.
- ☐ User name not listed in deposit account _____ at _____(time).
- ☐ Insufficient funds in deposit account _____ at _____ (time).
- ☐ Insufficient payment by credit card.
- ☐ Declined credit card _____(time).

Fee code(s) to be applied:	2111	$ 330
		$
		$
		$
		$
Amount in holding fee code:	1506	$
	1622/2622	$ 175
	1206/2206	$
	1999	$
		$ 155

RAM Operator: Huong

Rev. 04/10/2013

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 03/27/2019

CVORACHA SALE #00000002 Mailroom Dt: 02/11/2019 13691805
01 FC : 4011 75.00 OP

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 03/27/2019

CVORACHA ADJ #00000001 Mailroom Dt: 02/11/2019
Seq No: 15 Sales Acctg Dt: 02/12/2019 13691805
03 FC : 2011 -150.00 OP



FW
DAC

February 26, 2019

Office of Petitions
U.S. PTO
P.O. Box 1450
Alexandria, VA 22313-1450

Re: Application 13/691,805

Dear Petitions:

I recently paid $1985 to revive application 13/691,805. However, according to a recent calculation of fees due, the amount I paid was deficient by $155.

Enclosed please find a check for $155 in order to process my request to revive – and expedite – the patent application.

If you have questions, please contact me at the number below.

Sincerely,

Neal Solomon

(415) 334-5600

United States Patent and Trademark Office

- Sales Receipt -

Adjustment date: 03/01/2019 CCHAU1

02/12/2019 HVUONG1 00000015 13691805

06 FC:2622 -175.00 OP

United States Patent and Trademark Office

- Sales Receipt -

03/01/2019 CCHAU1 00000021 13691805

01 FC:2111 330.00 OP

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon		6244

103468 7590 03/22/2019

Neal Solomon
P.O. Box 21297
Oakland, CA 94620

EXAMINER	
ART UNIT	PAPER NUMBER
2661	
MAIL DATE	DELIVERY MODE
03/22/2019	PAPER

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of	:	
Solomon, Neal	:	
Application No. 13/691,805	:	DECISION ON PETITION
Filed: December 02, 2012	:	
For: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	:	

This is a decision on the petition under 37 CFR 1.182, filed February 11, 2019, to expedite consideration of the petition under the unintentional provisions of 37 CFR 1.137(b), filed February 11, 2019 and supplemented on February 28, 2019, which is being treated as a petition under the unintentional provisions of 37 CFR 1.137(a), to revive the above-identified application. The requisite $200 petition fee to expedite consideration has been received.

The petition under 37 CFR 1.182 is **GRANTED**.

The petition under 37 CFR 1.137(a) is **GRANTED**.

The application became abandoned for failure to reply in a timely manner to the Notice to File Missing Parts of Nonprovisional Application (Notice), mailed January 03, 2013. The Notice set a period for reply of two (2) months from the mail date of the Notice. No extensions of time under the provisions of 37 CFR 1.136(a) were obtained. Accordingly, the application became abandoned by operation of law on March 04, 2013. A courtesy Notice of Abandonment was mailed on September 06, 2013.

The petition satisfies the requirements of 37 CFR 1.137(a) in that petitioner has supplied (1) the reply in the form of the basic filing fee of $150, the search fee of $330, the examination fee of $380, the surcharge fee $80, (2) the petition fee of $1,000 and (3) a proper statement of unintentional delay.

37 CFR 1.137(b)(4) requires a statement that the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition pursuant to 37 CFR 1.137(a) was unintentional. Since the statement appearing in the petition varies from the language required by 37 CFR 1.137(b)(4), the statement is being construed as the required statement. Petitioner must notify the Office if this is **not** a correct reading of the statement appearing in the petition.

This application has been abandoned for an extended period of time. The U.S. Patent and Trademark Office is relying on petitioner's duty of candor and good faith and accepting the statement that "the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition pursuant to 37 CFR 1.137 was unintentional." *See* Changes to Representation of Others Before the United States Patent and Trademark Office, 73 Fed. Reg. 47650 (August 14, 2008), 1334 Off. Gaz. Pat. Office 338 (September 9, 2008) (applicant obligated under 37 CFR 11.18 to inquire into the underlying facts and circumstances when providing the statement required by 37 CFR 1.137 to the U.S. Patent and Trademark Office).

This application is being referred to the Office of Patent Application Processing (OPAP) for further pre-examination processing in the normal course of business on the reply received February 11, 2019 and February 28, 2019.

Telephone inquiries concerning this decision should be directed to Jonya Smalls, Paralegal Specialist at (571) 272-1619.

/JONYA SMALLS/
Jonya Smalls
Paralegal Specialist, OPET

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 03/27/2019

CVORACHA RF #00192489 Mailroom Dt: 03/27/2019 13691805

CHECK Refund Total: $75.00

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/691,805	12/02/2012	2661	865		18	3

CONFIRMATION NO. 6244

UPDATED FILING RECEIPT

103468
Neal Solomon
P.O. Box 21297
Oakland, CA 94620

OC000000106973049

Date Mailed: 03/29/2019

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)

Neal Solomon, Oakland, CA;

Applicant(s)

Neal Solomon, Oakland, CA;

Power of Attorney: None

Domestic Applications for which benefit is claimed - None.
A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

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

If Required, Foreign Filing License Granted: 12/27/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/691,805**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
**** SMALL ENTITY ****
Title

Digital imaging system for correcting video image aberrations

Preliminary Class

348

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

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

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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

SelectUSA

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

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	

CONFIRMATION NO. 6244

103468
Neal Solomon
P.O. Box 21297
Oakland, CA 94620

INFORMAL NOTICE

OC000000106975050

Date Mailed: 03/29/2019

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

A new inventor's oath or declaration that identifies this application (e.g., by Application Number and filing date) is required. The inventor's oath or declaration does not comply with 37 CFR 1.63 in that it:

- does not state that the above-identified application was made or authorized to be made by the person executing the oath or declaration.

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**.

/sareebuddin/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/691,805

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	18 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805		Neal Solomon	

CONFIRMATION NO. 6244

103468
Neal Solomon
P.O. Box 21297
Oakland, CA 94620

WITHDRAWAL NOTICE

OC000000106885876

Date Mailed: 03/29/2019

Letter Regarding a New Notice and/or the Status of the Application

If a new notice or Filing Receipt is enclosed, applicant may disregard the previous notice mailed on 09/06/2013. The time period for reply runs from the mail date of the new notice. Within the time period for reply, applicant is required to file a reply in compliance with the requirements set forth in the new notice to avoid abandonment of the application.

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web. https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If the reply is not filed electronically via EFS-Web, the reply must be accompanied by a copy of the new notice.

If the Office previously granted a petition to withdraw the holding of abandonment or a petition to revive under 37 CFR 1.137, the status of the application has been returned to pending status.

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**.

/sareebuddin/

Amended PTO/AIA/82B(07-13)
Approved for use through 03/31/2021. OMB 0651-0035
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 displays a valid OMB control number.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ 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: 21186

OR

☐ 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.)

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

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

☒ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ 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)

SIGNATURE of Applicant for Patent

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).

Signature	/Neal J Solomon/	Date (Optional)	
Name	Neal Solomon		
Title			

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.

☒ *Total of 1 forms are submitted.

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	N/A
Examiner:	Unknown	Group Art Unit:	2661
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Power of Attorney to Prosecute Applications before the USPTO (PTO/AIA/82B) (1 pg.)

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

Electronic Acknowledgement Receipt

EFS ID:	35861224
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	103468
Filer:	Timothy J. Christman/Mandy Brown
Filer Authorized By:	Timothy J. Christman
Attorney Docket Number:	
Receipt Date:	29-APR-2019
Filing Date:	02-DEC-2012
Time Stamp:	15:40:48
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		5311_001US3_RPOA_signed.pdf	182753 e440a36af30be973952ff5a131f5d78d56d7d446	yes	2

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Power of Attorney	2	2
	Miscellaneous Incoming Letter	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	182753	

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
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	5311.001US3

CONFIRMATION NO. 6244

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

POA ACCEPTANCE LETTER

OC000000107829002

Date Mailed: 05/02/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/29/2019.

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**.

/mabebe/

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

21186 7590 05/15/2019
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EXAMINER	
CAMARGO, MARLY S.B.	

ART UNIT	PAPER NUMBER
2699	

NOTIFICATION DATE	DELIVERY MODE
05/15/2019	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):

SLW@blackhillsip.com
uspto@slwip.com

Office Action Summary	Application No. 13/691,805	Applicant(s) Solomon, Neal	
	Examiner MARLY S CAMARGO	Art Unit 2699	AIA (FITF) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☑ Responsive to communication(s) filed on application revival filed on 02/11/2019, granted on 03/22/2019..

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

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

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

Disposition of Claims*

5) ☑ Claim(s) 1-18 is/are pending in the application.

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

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-18 is/are rejected.

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

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

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

Application Papers

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

11)☑ The drawing(s) filed on 12/2/2012 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

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

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

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

Note: The present application was abandoned by Applicant on 09/06/2013 and Applicant file a petition for revival on 02/11/2019. The petition was granted by the office on 03/22/2019; therefore, the current application is being examined under the pre- AIA provisions.

Change in Art Unit Designation for Your Application

1. The Art Unit designation of your application in the USPTO has changed from 2664 to 2699. The examiner assigned to this application remains the same. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2699.

DETAILED ACTION

2. This is the initial Office Action based on the revival of application filed 02/11/2019 and granted on 03/22/2019, which was previously abandoned on 09/06/2013. This application is a Continuation of application 12/586221, which is a continuation of 11/825521. The Examiner acknowledges the following:

3. The drawings filed on 12/02/2012 are accepted by the Examiner.

4. Currently claims 1 - 18 are pending and are being considered for examination.

Claim Objections

5. Claim set includes two claims numbered 18. Correction to the claim disclosure is required.

Double Patenting

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

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

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

5. Instant Application and parent application 12/586221(US 8,451,339 B2) allowed on May 28, 2013.

Claims 1 - 18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 – 18 of parent Application No. 12/586221(US 8,451,339 B2) allowed on May 28,2013, which is now allowed in view of Havens (US 2007/0080280 A1) and in further view of Alon (US 2007/0236574 A1).

Note: Please, see Table I for the comparison between the claims of the parent patent US 8,451,339 B2 (1st column) and the present application as the apparatus claims (2nd column). That is not a complete list of all the current claims, but it indicates the most relevant limitations of claims that were already patented in the parent US 8,451,339 B2.

Regarding Claim 1:

As seen in Table I, parent case claim 1 has the same limitations as the current application and underlined portions represent the limitations that are common to both. The only difference is that the child claims “an integrated circuit” instead “a microprocessor”; however, a microprocessor is generally part of the integrated circuit of a digital camera as claimed. On the other hand, claim 6 of the parent already claims the integrated circuit as well. As for the “video”, a digital imaging system as disclosed in the parent is capable of doing that. As for “at least at least one frame” limitation, in the parent the images or image frames or video image frames are interpreted as the same limitation in both the parent and the child. Therefore, there is nothing new or different in relation to what was already disclosed in the parent.

Therefore, claim 1 is rejected under nonstatutory obviousness-type double patenting in view of the references cited, and it is anticipated and fully encompassed by claim 1 of the parent issued patent US 8,451,339 B2.

Regarding claims 2 – 5:

Even though the text of the aforementioned claims was not included in Table I; their disclosure is pretty much the same which was already disclosed in parent patent and they are rejected under non-statutory double patent as fully encompassed by claims 2 – 5 of parent patent US 8,451,339 B2.

Regarding Claim 6:

As seen in Table I, parent case claim 6 has the same limitations as the current application and underlined portions represent the limitations that are common to both. The only difference is that the child claims "an integrated circuit" instead "a microprocessor"; however, a microprocessor is generally part of the integrated circuit of a digital camera as claimed. As for the "video", a digital imaging system as disclosed in the parent is capable of doing that. As for "at least at least one frame" limitation, in the parent the images or image frames or video image frames are interpreted as the same limitation in both the parent and the child. Therefore, there is nothing new or different in relation to what was already disclosed in the parent.

Therefore, claim 6 is rejected under nonstatutory obviousness-type double patenting in view of the references cited, and it is anticipated and fully encompassed by claim 6 of the parent issued patent US 8,451,339 B2.

Regarding claims 7 – 13:

Even though the text of the aforementioned claims was not included in Table I; their disclosure is pretty much the same which was already disclosed in parent patent and they are rejected under non-statutory double patent as fully encompassed by claims 7 – 13 of parent patent US 8,451,339 B2.

Regarding Claim 14:

As seen in Table I, parent case claim 14 has the same limitations as the current application and underlined portions represent the limitations that are common to both. The only difference is that the child claims "an integrated circuit" instead "a microprocessor"; however, a microprocessor is generally part of the integrated circuit of a digital camera as claimed. On the other hand, claim 6 of the parent already claims the integrated circuit as well. As for the "video", a digital imaging system as disclosed in the parent is capable of doing that. As for "at least at least one frame" limitation, in the parent the images or image frames or video image frames are interpreted as the same limitation in both the parent and the child. Therefore, there is nothing new or different in relation to what was already disclosed in the parent.

Therefore, claim 14 is rejected under nonstatutory obviousness-type double patenting in view of the references cited, and it is anticipated and fully encompassed by claim 14 of the parent issued patent US 8,451,339 B2.

Regarding claims 15 – 18:

Even though the text of the aforementioned claims was not included in Table I; their disclosure is pretty much the same which was already disclosed in parent patent and they are rejected under non-statutory double patent as fully encompassed by claims 15 – 18 of parent patent US 8,451,339 B2.

Note: the extra claim 18 (the first one) is rejected under the non-statutory double patent based on its dependence on claim 14.

In conclusion, claims 1 – 18 of the current application are rejected under non-statutory obviousness-type double patent as related to grandparent claims 1 – 18 of the parent issued patent US 8,451,339 B2.

TABLE I: Comparison between the parent claims and the child or present application claims.

Parent 12/586221 – now US 8,451,339 B2	Child 13/691805
1. A digital imaging system for correcting optical image aberrations comprising: **a digital camera mechanism**, **an optical lens mechanism**, **a digital sensor**, a microprocessor, **a digital signal processor**, **system software**, **a database management system and a memory storage sub-system;** **wherein the optical lens mechanism is a fixed focal length lens;** **wherein** a microprocessor **uses system software to identify at least one optical aberration by accessing the database;** **wherein the** microprocessor **uses the database to identify at least one algorithm to use to correct the at least one optical aberration**;	**1. A digital imaging system for correcting optical image aberrations comprising:** **a digital** video **camera mechanism**, **an optical lens mechanism**, at least one **digital sensor**, an integrated circuit, **a digital signal processor**, **system software**, **a database management system and a memory storage sub-system;** **wherein the optical lens mechanism is a fixed focal length lens;** **wherein** an integrated circuit **uses system software to identify at least one optical aberration by accessing the database;** **wherein the** integrated circuit **uses the database to identify at least one algorithm to use to correct the at least one optical** and/or digital

wherein when the image file is captured by the digital sensor the digital file is forwarded to the digital signal processor; **wherein the image file with the at least one optical aberration is corrected by applying digital filtration by using at least one algorithm in the digital signal processor; and** **wherein the modified digital file consisting of the digital data optimized from the at least one optical aberration that are corrected from the original optical image is stored in memory.**	**aberration** in at least one frame of the digital video; **wherein when the video image file is captured by the** at least one **digital sensor the digital file is forwarded to the digital signal processor**; **wherein the** video **image file with the at least one optical** or digital **aberration is corrected by applying digital filtration by using at least one algorithm in the digital signal processor; and** **wherein the modified digital file consisting of the digital data optimized from the at least one optical** or digital **aberration that are corrected from the original video image is stored in memory**. Note: i) the microprocessor in the parent is part of an integrated circuit of the digital imaging system; ii) at least one frame limitation: in the parent the images or image frames or video image frames are interpreted as the same limitation in both the parent and the child; iii) note that claim 6 of parent also include the integrated circuit.
6. A digital imaging system for correcting image aberrations comprising: **a digital camera mechanism, an optical lens mechanism, a digital sensor, an integrated circuit, a digital signal processor, system software, a database management system and a memory storage sub-system;** **wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;** **wherein the image data file is forwarded from the digital sensor to storage in memory;** **wherein at least one optical and/or digital aberration in the image file are identified by comparing image files in the database management system by using the system software and the integrated circuit;** **wherein the at least one filtration algorithms required to correct the at least one optical and/or digital aberration are sent from the integrated circuit to the digital signal processor;**	**6. A digital imaging system for correcting image aberrations comprising:** **a digital video camera mechanism, an optical lens mechanism**, at least **one digital sensor, an integrated circuit, a digital signal processor, system software, a database management system and a memory storage sub-system;** **wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;** **wherein the video image data file is forwarded from the** at least one **digital sensor to storage in memory;** **wherein at least one optical and/or digital aberration in** at least two frames of **the digital video image file are identified by comparing image files in the database management system by using the system software and the integrated circuit;** **wherein the at least one filtration algorithms required to correct the at least one optical and/or digital aberration** of at least two frames of the digital video file **are sent from the integrated circuit to the digital signal processor;**

wherein the at least one optical and/or digital aberration from the optical lens mechanism are corrected by using the digital signal processor to apply digital filtration algorithm; and **wherein the modified digital file consisting of the digital data optimized from the at least one aberration that are corrected from the original optical image is stored in memory.**	**wherein the at least one optical and/or digital aberration from the optical lens mechanism** of at least two frames of the digital video file **are corrected by using the digital signal processor to apply at least one digital filtration algorithm; and** **wherein the modified digital video file consisting of the digital data optimized from the at least one aberration that are corrected from the original video images is stored in memory.**
14. A digital imaging system for correcting image aberrations comprising: **a digital camera mechanism, an optical lens mechanism, a digital sensor**, a microprocessor, **a digital signal processor, system software, a database management system and a memory storage sub-system;** **wherein the optical lens mechanism is a zoom lens;** **wherein the zoom lens changes focal length positions;** **wherein when the image file is captured by the digital sensor the file is forwarded to the digital signal processor and to memory;** **wherein** the microprocessor **uses system software to access the database to identify at least one optical aberration in the image file at any focal length of a zoom lens configuration;** **wherein** the microprocessor **accesses the database to obtain at least one filtration correction algorithm to the optical aberrations and forwards the at least one filtration algorithms to the digital signal processor;** **wherein the image file is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the image and corrects the at least one optical**	**14. A digital imaging system for correcting image aberrations comprising:** **a digital video camera mechanism, an optical lens mechanism**, at least one **digital sensor**, an integrated circuit, **a digital signal processor, system software, a database management system and a memory storage sub-system;** **wherein the optical lens mechanism is a zoom lens;** **wherein the zoom lens changes focal length positions;** **wherein when the** digital **image file is captured by the** at least one **digital sensor the file is forwarded to the digital signal processor and to memory;** **wherein** the integrated circuit **uses system software to access the database to identify at least one optical** and/or digital **aberrations in** at least one frame of the video **file at any focal length of a zoom lens configuration;** **wherein** the integrated circuit **accesses the database to obtain at least one filtration correction algorithm to the optical** and/or digital **aberrations** of at least one frame in the video file **and forwards the at least one filtration algorithms to the digital signal processor;**

aberration at the specific focal length in the zoom lens configuration; and **wherein the modified image file consisting of the digital data optimized from the at least one optical aberration of a specific focal length of the zoom lens that are corrected from the original optical image is stored in memory.**	**wherein** the digital video **image file is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize** the digital video **file and corrects the at least one optical** and/or digital **aberrations** in at least one video frame for the **at least one focal length in the zoom lens configuration; and** **wherein the modified** digital video **image file consisting of the digital data optimized from the at least one optical** and/or digital **aberrations** in at least one frame of the video file of at least one **focal length of the zoom lens that are corrected from the original video image is stored in memory.** Note: : i) the microprocessor in the parent is part of an integrated circuit of the digital imaging system; ii) at least one frame limitation: in the parent the images or image frames or video image frames are interpreted as the same limitation in both the parent and the child; iii) note that claim 6 of parent also include the integrated circuit.

Conclusion

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

1. N. Solomon, US 8,451,339 B2 – it belongs to the same inventor and it claims the same invention limitations as the current invention. There is a double patent issue with the current application.

2. W. Havens, US 2007/0080280 A1 – it teaches an imager for use in a data collection device, said imager comprising a fluid lens system for focusing light received by said data collection device from a target image, said fluid lens system comprising: an optically clear front window, a fluid lens having a front surface and a rear surface, a first volume bounded by said front window and said front surface of said fluid lens, said first volume having a

first fluid disposed therein; an optically clear rear window; a second volume bounded by the front surface of said fluid lens and said rear window, said second volume having a second fluid disposed therein; and a sealed system comprising a pump, a first channel connecting said first volume to said pump, and a second channel connecting said second volume to said pump, wherein said pump comprises a seal that separates said first fluid and said second fluid, and wherein operation of said pump to effect a first change in the quantity of fluid in either of said first volume or said second volume results in a corresponding second change in the quantity of fluid in the other of said first volume or said second volume, wherein the front surface of said fluid lens defines a meniscus, and wherein the fluid lens system is operative so that curvature of the meniscus is changed responsively to change in the quantity of fluid in either of said first volume or said second volume.

3. A. Alon et al., US 2007/0236574 A1 – it teaches a method for producing a camera, which includes objective optics for forming an image on an electronic image sensor and a digital filter for filtering an output of the image sensor, the method comprising: defining a maximum permissible value of a noise gain; determining one or more aberrations due to the objective optics; calculating coefficients of the digital filter so as to compensate for the one or more aberrations while preventing the noise gain of the digital filter from exceeding the maximum permissible value; and filtering the output of the image sensor using the computed coefficients so as to generate an enhanced output image.

4. H. Hamano et al., US 9,998,652 B2 – it teaches a focusing adjustment apparatus includes a focusing unit, a first acquisition unit, a second acquisition unit, and a control unit. The focusing unit outputs a first signal for a focusing operation. The first acquisition

unit acquires first information, which is related to characteristics of a signal used for outputting the first signal, and second information, which is related to characteristics of a captured image and is predetermined. The second acquisition unit acquires third information on aberrations of an imaging optical system. The control unit calculates a correction value based on the first information, the second information, and the third information. By using the correction value, the control unit changes the first signal, output from the focusing unit, to a second signal used in the focusing operation.

5. N. Koishi, US 10,237,485 B2 – it teaches an image processing apparatus includes a vibration-proof optical system driving amount acquiring section, a distortion aberration correcting section, and a deviation amount converting section. The vibration-proof optical system driving amount acquiring section acquires a driving amount of the vibration-proof optical system. The distortion aberration correcting section corrects a distortion aberration on based on a deviation amount to a captured image. The deviation amount converting section calculates the deviation amount corresponding to the driving amount on the basis of a correlation between a shape of the distortion aberration corresponding to the driving amount of the vibration-proof optical system and a shape of the distortion aberration corresponding to the deviation amount.

Contact

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARLY CAMARGO whose telephone number is (571)270-3729. The examiner can normally be reached on 6:00AM - 10PM, M-F, EST.

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

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

/MARLY S CAMARGO/
Examiner, Art Unit 2699

Notice of References Cited	Application/Control No. 13/691,805	Applicant(s)/Patent Under Reexamination Solomon, Neal	
	Examiner MARLY S CAMARGO	Art Unit 2699	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-8,451,339-B2	05-2013	Solomon; N.	H04N5/228	348/222.1
*	B	US-2007/0080280-A1	04-2007	Havens; W.	G01J1/20	250/201.1
*	C	US-2007/0236574-A1	10-2007	Alon; A.	H04N5/225	348/207.99
*	D	US-9,998,652-B2	06-2018	Hamano; H.	H04N5/357	348/349
*	E	US-10,237,485-B2	03-2019	Koishi; N.	H04N5/23287	348/208.5
	F					
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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.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2699

CPC - Searched*		
Symbol	**Date**	**Examiner**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	05/10/2019	

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/10/2019	
382	254,255,264,263,266,275	05/10/2019	
359	16,637,666,665,207.2,354,676	05/10/2019	

* 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**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC. and the results teaxt limited - see attached search history printout.	05/10/2019	
EAST as BRS	05/10/2019	
inventor	05/10/2019	
assignee	05/10/2019	
Google and Google Patents	05/01-10/2019	

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
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Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

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	MARLY S CAMARGO	2699

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

CLAIMS

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

CLAIM		DATE								
Final	Original	05/11/2019								
	1	✓								
	2	✓								
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	4	✓								
	5	✓								
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	15	✓								
	16	✓								
	17	✓								
	18	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	33470	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
L2	15928	382/254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
L3	5250	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:33
L4	119424	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:20
L5	17	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
L6	9	1 and 5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
L7	0	2 and 5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
L8	0	3 and 5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
L9	5	4 and 5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2019/05/10 18:22

			DERWENT; IBM_TDB			
L10	0	canon.as. and (aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:22
L12	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
L13	0	fuji.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
L14	0	microsoft.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
L15	0	panasoninc.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
L16	0	nikon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
L17	0	omnivision.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:26
L19	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
L20	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
L21	0	pelican.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
L22	0	fotonation.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
L23	0	(carl with zeiss).as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
S1	0	13/691805	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:06
S2	2	12/586221	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:06
S3	4	11/825521	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:08
S4	139	(neal with solomon).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:09

S5	17	(neal with solomon).in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:10
S6	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:11
S7	6	("20070080280" | "20070236574").PN. OR ("8451339").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:19
S8	0	(11/278268).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:25
S9	1	(11/546531).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:26
S10	116	("1269422" | "20030098952" | "20040008853" | "20040218283" | "20040227063" | "20040228003" | "20050002113" | "20050014306" | "20050100270" | "20050212952" | "20050218231" | "20060072915" | "20060076540" | "20060086596" | "20070063048" | "20070080280" | "20070116858" | "20080144185" | "20080144186" | "20080245872" | "20090072037" | "2062468" | "2300251" | "3161718" | "3305294" | "3583790" | "3761157" | "3778170" | "4134393" | "4191594" | "4210121" | "4249516" | "4261655" | "4286839" | "4289379" | "4312709" | "4407567" | "4487659" | "4514048" | "4783153" | "4783155" | "4784479" | "4802746" | "5091801" | "5150234" | "5305356" | "5389222" | "5396144" | "5684637" | "5892625" | "5917657" | "5973852" | "6081388" | "6109852" | "6188526" | "6212015" | "6368954" | "6369954" | "6376971" | "6399954" | "6437925" | "6449081" | "6475639" | "6529620" | "6538823" | "6542309" | "6545815" | "6545816" | "6586859" | "6628040" | "6702483" | "6715876" | "6734903" | "6747806" | "6762210" | "6806621" | "6806988" | "6809462" | "6812624" | "6882086" | "6891317" | "6934090" | "6936809" | "7169822" | "7224106" | "7301708" | "7416125" | "RE39874").PN. OR ("8027095").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:27
S11	28	("20020176148" | "20040228003" | "5071229" | "5150234").PN. OR ("6934090").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:32
S12	480	(marly with camargo).xa,xp.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:36
S13	18	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:36
S14	5	("20060228097" | "8395677" | "9077842" | "9392176" | "9998652").PN. OR ("10237485").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:38
S15	9	("20080309771" | "20090256952" | "20100013947" | "20100194966" | "20120274837" | "20140036134" | "20140340567" | "6363220").PN. OR ("9998652").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:39
S16	12	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:42
S17	10	(aberration$1 with digital with database) and vignet$5	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:43
S18	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:44
S19	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with	US-PGPUB;	OR	ON	2019/05/10

		circuit) and (lens with mechanism)	USPAT; USOCR			12:46
S20	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:46
S21	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49
S22	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49

EAST Search History (Interference)

< This search history is empty>

5/ 10/ 2019 6:31:26 PM
C:\ Users\ mcamargo\ Documents\ EAST\ Workspaces\ 13691805.wsp

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

21186 7590 07/17/2019
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	

ART UNIT	PAPER NUMBER
2699	

NOTIFICATION DATE	DELIVERY MODE
07/17/2019	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):

SLW@blackhillsip.com
uspto@slwip.com

Applicant-Initiated Interview Summary	**Application No.** 13/691,805	**Applicant(s)** Solomon, Neal	
	Examiner MARLY S CAMARGO	**Art Unit** 2699	**AIA (FITF) Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) MARLY S.B.. CAMARGO. (3) _____.

(2) Mr. Tim Bianchi (REG# 39610). (4) _____.

Date of Interview: 12 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: n/a.

Identification of prior art discussed: n/a.

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. Bianchi called the Examiner to discuss some general problems related to the application: 1) filing a Terminal Disclaimer overcome the Double Patent rejection; 2) to file a petition to modify the ADS (Application Data Sheet) since Applicant made a mistake when filing it up; 3) file an amendment to claims to improve the claim language. Based on our conversation, Mr. Bianchi is filing the TD, the petition to correct the ADS and claim amendment with improved claim language..

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

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

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.

Electronic Acknowledgement Receipt

EFS ID:	36809420
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Jose M. Nunez/Farah O'Sullivan
Filer Authorized By:	Jose M. Nunez
Attorney Docket Number:	5311.001US3
Receipt Date:	07-AUG-2019
Filing Date:	02-DEC-2012
Time Stamp:	14:33:15
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		InterviewAgenda13691805.pdf	724792 eb1bbe75392b99c414f41e85f8146d19584853b6	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Letter Requesting Interview with Examiner	1	1
	Miscellaneous Incoming Letter	2	3
Warnings:			
Information:			
	Total Files Size (in bytes):	724792	

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.

Doc Code: M865 or FAIREQINTV

Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 13/691,805 First Named Applicant: Neal Solomon
Examiner: M. Camargo Art Unit: 2699 Status of Application: Pending

Tentative Participants:
(1) T. Bianchi (2) _____
(3) _____ (4) _____

Proposed Date of Interview: open **Proposed Time:** open (◎AM◎PM)

Type of Interview Requested:
(1) ☑ Telephonic (2) ☐ Personal (3) ☐ Video Conference

Exhibit To Be Shown or Demonstrated: ☑ YES ☐ NO
If yes, provide brief description: Proposed amended claim 1.

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) text of claim 1	1		☐	☐	☐
(2)			☐	☐	☐
(3)			☐	☐	☐
(4)			☐	☐	☐

☐ Continuation Sheet Attached ☑ Proposed Amendment or Arguments Attached
Brief Description of Arguments to be Presented: Discuss amended claim.

An interview was conducted on the above-identified application on _____

NOTE: This form should be completed and filed by applicant in advance of the interview (see MPEP § 713.01). If this form is signed by a registered practitioner not of record, the Office will accept this as an indication that he or she is authorized to conduct an interview on behalf of the principal (37 CFR 1.32(a)(3)) pursuant to 37 CFR 1.34. This is not a power of attorney to any above named practitioner. See the Instruction Sheet for this form, which is incorporated by reference. By signing this form, applicant or practitioner is certifying that he or she has read the Instruction Sheet. After the interview is conducted, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible. This application will not be delayed from issue because of applicant's failure to submit a written record of this interview.

/Timothy E. Bianchi/
Applicant/Applicant's Representative Signature

Examiner/SPE Signature

Timothy E. Bianchi
Typed/Printed Name of Applicant or Representative

39,610
Registration Number, if applicable

office 612 373-6912 / mobile 612 743-5431
Applicant's/Applicant's Representative's Telephone Number

This collection of information is required by 37 CFR 1.133. 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 24 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.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

1. [Proposed Amendment] A digital imaging system for correcting optical image aberrations in a digital video, comprising:

a digital video camera ~~mechanism~~including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit including, a digital signal processor ~~, system software,~~configured to access a database management system including a plurality of optical image aberration corrections and a memory storage sub-system;

wherein the optical lens mechanism is a fixed focal length lens;

wherein ~~an~~ the integrated circuit uses ~~system~~ the in-camera software to identify at least one optical aberration and ~~by accessing the database;~~

~~wherein the integrated circuit uses the database to identify at least one algorithm to use~~ to correct the at least one optical ~~and/or digital~~image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database;

wherein when the video ~~image file~~ is captured by the at least one digital sensor ~~the digital file~~ and is forwarded to the digital signal processor;

wherein the video ~~image file~~ with the at least one optical or digital aberration is corrected by applying digital filtration ~~by~~ using ~~at least one algorithm in~~ the digital signal processor; and

wherein the ~~modified~~ corrected ~~digital file~~ video consisting of the digital data optimized from the at least one optical or digital aberration that are corrected from the original video image is stored in the memory storage sub-system.

1. [Clean Copy With Proposed Amendments] A digital imaging system for correcting optical image aberrations in a digital video, comprising:

a digital video camera including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit including a digital signal processor configured to access a database management system including a plurality of optical image aberration corrections and a memory storage sub-system;

wherein the optical lens mechanism is a fixed focal length lens;

wherein the integrated circuit uses the in-camera software to identify at least one optical aberration and to correct the at least one optical image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database;

wherein when the video is captured by the at least one digital sensor and is forwarded to the digital signal processor;

wherein the video with the at least one optical or digital aberration is corrected by applying digital filtration using the digital signal processor; and

wherein the corrected video consisting of the digital data optimized from the at least one optical or digital aberration that are corrected from the original video image is stored in the memory storage sub-system.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2699	
Filed:	December 2, 2012	Docket No.: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS		

PETITION UNDER 37 CFR 1.78(c) AND 1.78(e) TO ACCEPT AN UNINTENTIONALLY DELAYED PRIORITY CLAIM

Director, Office of Petitions
Attention: Christina Tartera Donnell
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patentee respectfully requests that the priority claim for the above-identified patent be corrected to clarify that it is a continuation of U.S. Patent Application Ser. No. 12/586,221 filed on September 18, 2009, now issued as U.S. Patent 8,451,339, which is a continuation of U.S. Patent Application Ser. No. 11/825,521 filed on Jul. 11, 2007 now issued as U.S. Patent 7,612,805, which claims the benefit of Provisional Patent Application Ser. No. 60/807,065 filed on July 11, 2006.

Patentee has submitted herewith a Supplemental Application Data Sheet to reflect the correction of the priority claim.

Therefore, Patentee respectfully requests that the priority claim under 35 U.S.C. §120 be corrected for the above-referenced patent to clearly show that it (U.S. Application Serial No. 13/691,805) is a continuation of U.S. Patent Application Ser. No. 12/586,221 filed on September 18, 2009, now issued as U.S. Patent 8,451,339, which is a continuation of U.S. Patent Application Ser. No. 11/825,521 filed on Jul. 11, 2007 now issued as U.S. Patent 7,612,805. Patentee further requests that priority under 35 U.S.C. § 119(e) be corrected to clearly show that the above-referenced patent (U.S. Application Serial No. 13/691,805) further claims the benefit of priority of U.S. Provisional Patent Application Ser. No. 60/807,065 filed on July 11, 2006.

Accordingly, it is respectfully requested that this Petition be granted to accept Patentee's delayed claims of priority. Patentee certifies that the entire delay between the date the claims of priority were first made and the date of correction was unintentional.

The Commissioner is authorized to charge Deposit Account No. 19-0743 in the amount of $1000.00, which is the fee set forth under 37 C.F.R. § 1.17(m). Patentee submits

herewith a Certificate of Correction and a Petition to Expedite Consideration Under 37 C.F.R. § 1.182 with authorizations to pay the requisite fees for each, respectively. The Commissioner is further authorized to charge any fees deemed necessary for the consideration and grant of this Petition and its supporting documents to Deposit Account 19-0743.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (612) 305-2704 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 8/20/2019

By /Ryan J. Connell/
Ryan J. Connell
Reg. No. 74,611

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2699	
Filed:	December 2, 2012	Docket No.: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS		

PETITION TO EXPEDITE CONSIDERATION UNDER 37 C.F.R. § 1.182

Director, Office of Petitions
Attention: Christina Tartera Donnell
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patentee respectfully requests accelerated consideration of Patentee's Petition under 37 CFR §1.78(c) and 1.78(e) and all accompanying documents that outline accurate claims of priority. The delayed claims of priority were unintentional and Patentee submits this Petition requesting expedited review.

The Commissioner is hereby authorized to charge Deposit Account 19-0743 in the amount of $200.00, which is the required fee due under 37 C.F.R. § 1.17(f). Please charge any additional fees deemed necessary for the consideration of this Petition to Deposit Account 19-0743.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (612) 305-2704 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 8/20/2019

By /Ryan J. Connell/
Ryan J. Connell
Reg. No. 74,611

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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:				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix

Residence Information (Select One) ☐ US Residency ☐ Non US Residency ☐ Active US Military Service

City		State/Province		Country of Residence	

Mailing Address of Inventor:			
Address 1			
Address 2			
City		State/Province	
Postal Code		Country	

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	
Email Address	

Application Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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 Publication

Publication Information:

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

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

Representative Information:

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). Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Patented		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
This application	continuation of	12/586,221	2009-09-18
Prior Application Status	Patented		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
This application	continuation of	11/825,521	2007-07-06
Prior Application Status	Expired		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11/825,521	Claims benefit of provisional	60/807,065	2006-07-11

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(d). 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(h)(1) and (2). Under the POX 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).

Application Number	Country	Parent Filing Date (YYYY-MM-DD)	Access Code (if applicable)

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

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

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

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

☐ Deceased	☐ Legally incapacitated

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here: ☐

Organization Name:

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

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.

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		Postal Code	
Phone Number		Fax Number	
Email Address			

Signature:

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	/Ryan J. Connell/			Date (YYYY-MM-DD)	2019-08-20
First Name	Ryan	Last Name	Connell	Registration Number	74,611

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 22313-14**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2699	
Filed:	December 2, 2012	Docket No.: 5311.001US3	
Customer No.: 21186		Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS		

PATENTEE CERTIFICATION OF PETITION UNDER 37 CFR 1.78(c) AND 1.78(e) TO ACCEPT AN UNINTENTIONALLY DELAYED PRIORITY CLAIM

Director, Office of Petitions
Attention: Christina Tartera Donnell
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patentee has respectfully submitted a Petition under 37 CFR 1.78(c) and 37 CFR 1.78(e) to accept an unintentionally delayed priority claim. Patentee certifies that the entire delay between the date the claims of priority were first made and the date of correction was unintentional.

Respectfully submitted,

Date 8/14/19 By Neal J Solomon

Neal Solomon

Electronic Patent Application Fee Transmittal

Application Number:	13691805
Filing Date:	02-Dec-2012
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Filer:	Timothy E. Bianchi/Amanda Brace
Attorney Docket Number:	5311.001US3

Filed as Small 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:				
PETITION FEE - 37 CFR 1.17(F)(GROUP I)	2462	1	200	200
PET. DELAY SUB OR RESTORE PRIORITY-CLAIM	2454	1	1000	1000
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	1200

Electronic Acknowledgement Receipt	
EFS ID:	36920617
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Timothy E. Bianchi/Amanda Brace
Filer Authorized By:	Timothy E. Bianchi
Attorney Docket Number:	5311.001US3
Receipt Date:	20-AUG-2019
Filing Date:	02-DEC-2012
Time Stamp:	10:21:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1200
RAM confirmation Number	E20198JA22131635
Deposit Account	190743
Authorized User	Amanda Brace
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)	

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		5311001US3_PetitionforFiling.pdf	293885 d40e97c877ccb5a4a7b73933024d98cf3d82b13b	yes	13

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	1
Miscellaneous Incoming Letter	2	4
Miscellaneous Incoming Letter	5	6
Application Data Sheet	7	12
Miscellaneous Incoming Letter	13	13

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32183 2fab3e62b3162824ff030334c722fccbf1fb38c5	no	2

Warnings:

Information:

Total Files Size (in bytes):	326068

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: Neal Solomon

Title: DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS

Docket No:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Group Art Unit:	2699
Examiner:	Marly Camargo	Patent No.:	
Customer No.:	21186	Confirmation No.:	6244

Certificate of Corrections Branch
ATTN: Christina Tartera Donnell
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the attached:

X Updated Application Data Sheet (6 pgs).
X Petition to Expedite Consideration Under 37 C.F.R. § 1.182 (2 pgs).
X Petition under 37 CFR 1.78(c) and 1.78(e) to Accept an Unintentionally Delayed Claim of Priority (3 pgs).
X Patentee Certification Of Petition Under 37 Cfr 1.78(C) And 1.78(E) To Accept An Unintentionally Delayed Priority Claim (1 pg).
X **Authorization to Charge Deposit Account 19-0743 in the amount of $200.00 to cover the Petition to Expedite Consideration fee.**
X **Authorization to Charge Deposit Account 19-0743 in the amount of $1000.00 to cover the Petition to Accept an Unintentionally Delayed Claim of Priority fee.**

If necessary please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No: 21186

By: /Ryan J. Connell/
Ryan J. Connell
Reg. No. 74,611

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

21186 7590 08/21/2019
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	

ART UNIT	PAPER NUMBER
2699	

NOTIFICATION DATE	DELIVERY MODE
08/21/2019	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):

SLW@blackhillsip.com
uspto@slwip.com

Applicant-Initiated Interview Summary	**Application No.** 13/691,805	**Applicant(s)** Solomon, Neal	
	Examiner MARLY S CAMARGO	**Art Unit** 2699	**AIA (FITF) Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) MARLY S.B.. CAMARGO. (3) _____.

(2) Mr. Timothy Bianchi (REG# 39,610). (4) _____.

Date of Interview: 16 August 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.

Identification of prior art discussed: n/a.

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. Bianchi called the Examiner about a proposed amendment to be done to claim 1 as to make it more readable. He also pointed out that they need to amend the limitation "wherein when the video is captured by the at least ..." to remove the word "when" from it ,since they do not have it. They will add new claims to the application and to correct the previous ones. They will correct the priority claim which is wrong and will also file a Terminal Disclaimer in regards the previous Double Patent rejections. Agreement was achieved..

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

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

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.

Applicant Initiated Interview Request Form

Application No.: 13/691,805 First Named Applicant: Neal Solomon
Examiner: M. Camargo Art Unit: 2699 Status of Application: Pending

Tentative Participants:
(1) T. Bianchi (2) _____
(3) _____ (4) _____

Proposed Date of Interview: open **Proposed Time:** open (◎AM◎PM)

Type of Interview Requested:
(1) ☑ Telephonic (2) ☐ Personal (3) ☐ Video Conference

Exhibit To Be Shown or Demonstrated: ☑ YES ☐ NO
If yes, provide brief description: Proposed amended claim 1.

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) text of claim 1	1		☒	☒	☐
(2)			☐	☐	☐
(3)			☐	☐	☐
(4)			☐	☐	☐

☐ Continuation Sheet Attached ☑ Proposed Amendment or Arguments Attached
Brief Description of Arguments to be Presented: Discuss amended claim.

An interview was conducted on the above-identified application on _____

NOTE: This form should be completed and filed by applicant in advance of the interview (see MPEP § 713.01). If this form is signed by a registered practitioner not of record, the Office will accept this as an indication that he or she is authorized to conduct an interview on behalf of the principal (37 CFR 1.32(a)(3)) pursuant to 37 CFR 1.34. This is not a power of attorney to any above named practitioner. See the Instruction Sheet for this form, which is incorporated by reference. By signing this form, applicant or practitioner is certifying that he or she has read the Instruction Sheet. After the interview is conducted, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible. This application will not be delayed from issue because of applicant's failure to submit a written record of this interview.

/Timothy E. Bianchi/
Applicant/Applicant's Representative Signature

Timothy E. Bianchi
Typed/Printed Name of Applicant or Representative

39,610
Registration Number, if applicable

/MARLY S CAMARGO/ 08/16/2019
Examiner/SPE Signature

office 612 373-6912 / mobile 612 743-5431
Applicant's/Applicant's Representative's Telephone Number

This collection of information is required by 37 CFR 1.133. 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 24 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.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

1. [Proposed Amendment] A digital imaging system for correcting optical image aberrations in a digital video, comprising:

a digital video camera ~~mechanism~~including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit including: a digital signal processor ~~, system software,~~configured to access a database management system including a plurality of optical image aberration corrections and a memory storage sub-system;

wherein the optical lens mechanism is a fixed focal length lens;

wherein ~~an~~ the integrated circuit uses ~~system~~ the in-camera software to identify at least one optical aberration and ~~by accessing the database;~~

~~wherein the integrated circuit uses the database to identify at least one algorithm to use~~ to correct the at least one optical ~~and/or digital~~image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database;

wherein when the video ~~image file~~ is captured by the at least one digital sensor ~~the digital file~~ and is forwarded to the digital signal processor;

wherein the video ~~image file~~ with the at least one optical or digital aberration is corrected by applying digital filtration ~~by~~ using ~~at least one algorithm in~~ the digital signal processor; and

wherein the ~~modified~~ corrected ~~digital file~~ video consisting of the digital data optimized from the at least one optical or digital aberration that are corrected from the original video image is stored in the memory storage sub-system.

/MARLY S CAMARGO/

08/16/2019

1. [Clean Copy With Proposed Amendments] A digital imaging system for correcting optical image aberrations in a digital video, comprising:

a digital video camera including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit including a digital signal processor configured to access a database management system including a plurality of optical image aberration corrections and a memory storage sub-system;

wherein the optical lens mechanism is a fixed focal length lens;

wherein the integrated circuit uses the in-camera software to identify at least one optical aberration and to correct the at least one optical image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database;

wherein when the video is captured by the at least one digital sensor and is forwarded to the digital signal processor;

wherein the video with the at least one optical or digital aberration is corrected by applying digital filtration using the digital signal processor; and

wherein the corrected video consisting of the digital data optimized from the at least one optical or digital aberration that are corrected from the original video image is stored in the memory storage sub-system.

/MARLY S CAMARGO/

08/16/2019

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

MAILED
OCT 16 2019
OFFICE OF PETITIONS

Inventor: Neal Solomon
Application No. 13/691,805
Filing Date: December 2, 2012
Attorney Docket No. 5311.001US3

Decision on Petition under
37 C.F.R. §§ 1.78(c) and 1.78(e)

This is a decision on the petition under 37 C.F.R. §§ 1.78(c) and 1.78 (e) filed August 20, 2019, to accept unintentionally delayed claims under 35 U.S.C. §§ 119(e) and 120 for the benefit of priority to the prior-filed provisional and nonprovisional applications set forth in the concurrently filed application data sheet. This is also a decision on the petition under 37 C.F.R. § 1.182 filed August 20, 2019, requesting expedited consideration of the petition under 37 C.F.R. § 1.78.

The petition under 37 C.F.R. § 1.182 is **granted**.

The petition under 37 C.F.R. §§ 1.78(c) and 1.78(e) is **dismissed**.

A renewed petition under 37 C.F.R. §§ 1.78(c) and 1.78(e) correcting the deficiency identified in the instant decision may be filed. The instant petition includes the required petition fee. Therefore, the renewed petition does not need to include a petition fee. The issuance of the instant decision does **not** toll or reset any time periods for reply set forth in any notice, Office action, or other communication issued by the Office setting a period for reply.

The following benefit claims are relevant to this decision:

(1) This application is a continuation of Application No. 12/586,221;
(2) This application is a continuation of Application No. 11/825,521; and
(3) Application No. 11/825,521 claims the benefit of Application No. 60/807,065.

The petition requests acceptance of benefit claims (1)-(3) set forth above.

A petition under 37 C.F.R. §§ 1.78(c) and 1.78(e) must be accompanied by:

(1) The reference required by 35 U.S.C. § 119(e) and 37 C.F.R. § 1.78(a)(3) to the prior filed provisional application(s) and required by 35 U.S.C. § 120 and 37 C.F.R. § 1.78(d)(2) to the nonprovisional application(s);
(2) The petition fee set forth in 37 C.F.R. § 1.17(m); and

(3) A statement that the entire delay between the date the claims were due under 37 C.F.R. §§ 1.78(a)(4) and 1.78(d)(3) and the date the claims were filed was unintentional.[1]

The petition includes the required petition fee and an adequate statement of delay.[2]

The petition does not include an acceptable reference. Benefit claim (2) is improper because copendency does not exist between Application No. 11/825,521 and this application. Specifically, Application No. 11/825,521 issued as a patent on November 3, 2009, and this application was filed on December 2, 2012.

In view of the prior discussion, the petition under 37 C.F.R. §§ 1.78(c) and 1.78(e) is dismissed.

Application may wish to consider filing a renewed petition and a new corrected application data sheet listing the following benefit claims with the information for each benefit claim underlined:

(1) This application is a continuation of Application No. 12/586,221;
(2) Application No. 12/586,221 is a continuation of Application No. 11/825,521; and
(3) Application No. 11/825,521 claims the benefit of Application No. 60/807,065.

Information concerning the use of EFS-Web to automatically generate and attach a PDF version of a Corrected Web-based ADS can be found at:
http://www.uspto.gov/sites/default/files/documents/Corrected-WebADS-QSG.pdf.

Further correspondence with respect to this matter may be submitted as follows:

By Internet: A request for reconsideration may be filed electronically using EFS Web.[3] Document Code "PET.OP" should be used if the request is filed electronically.

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

By facsimile: (571) 273-8300
Attn: Office of Petitions

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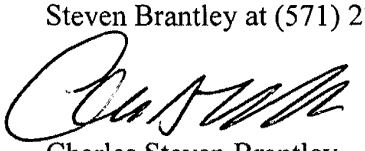
[1] With respect to the statement of delay, the Office "may require additional information where there is a question whether the delay was unintentional." 37 C.F.R. § 1.78(e)(3).

[2] 37 C.F.R. § 1.78(c) requires the submission of a statement that the entire delay between the date the claim was due under 37 C.F.R. § 1.78(a)(4) and the date the claim was filed was unintentional. 37 C.F.R. § 1.78(e) requires the submission of a statement that the entire delay between the date the claim was due under 37 C.F.R. § 1.78(d)(3) and the date the claim was filed was unintentional. The statement of delay in the petition is being construed as the statements required under 37 C.F.R. §§ 1.78(c) and 1.78(e). If this is not a correct reading of the statement appearing in the petition, petitioner should promptly notify the Office.

[3] General Information concerning EFS Web can be found at http://www.uspto.gov/patents/process/file/efs/index.jsp.

By hand: U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Telephone inquiries regarding this communication should be directed to Attorney Advisor Steven Brantley at (571) 272-3203.



Charles Steven Brantley
Attorney Advisor
Office of Petitions

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2699	
Filed:	December 2, 2012	Docket No.: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS		

UPDATED PETITION UNDER 37 CFR 1.78(c) AND 1.78(e) TO ACCEPT AN UNINTENTIONALLY DELAYED PRIORITY CLAIM

Director, Office of Petitions
Attention: Charles Steven Brantley
Attorney Advisor
Office of Petitions
P.O. Box 1450
Alexandria, VA 22313-1450

Patentee respectfully requests that the priority claim for the above-identified patent be corrected to clarify that it is a continuation of U.S. Patent Application Ser. No. 12/586,221 filed on September 18, 2009, now issued as U.S. Patent 8,451,339, which is a continuation of U.S. Patent Application Ser. No. 11/825,521 filed on Jul. 11, 2007 now issued as U.S. Patent 7,612,805, which claims the benefit of Provisional Patent Application Ser. No. 60/807,065 filed on July 11, 2006.

Patentee has submitted herewith an Updated Supplemental Application Data Sheet to reflect the correction of the priority claim.

Therefore, Patentee respectfully requests that the priority claim under 35 U.S.C. §120 be corrected for the above-referenced patent to clearly show that it (U.S. Application Serial No. 13/691,805) is a continuation of U.S. Patent Application Ser. No. 12/586,221 filed on September 18, 2009, now issued as U.S. Patent 8,451,339, which is a continuation of U.S. Patent Application Ser. No. 11/825,521 filed on Jul. 11, 2007 now issued as U.S. Patent 7,612,805. Patentee further requests that priority under 35 U.S.C. § 119(e) be corrected to clearly show that the above-referenced patent (U.S. Application Serial No. 13/691,805) further claims the benefit of priority of U.S. Provisional Patent Application Ser. No. 60/807,065 filed on July 11, 2006.

Accordingly, it is respectfully requested that this Petition be granted to accept Patentee's delayed claims of priority. Patentee certifies that the entire delay between the date the claims of priority were first made and the date of correction was unintentional.

The Commissioner is authorized to charge Deposit Account No. 19-0743 in the amount of $1000.00, which is the fee set forth under 37 C.F.R. § 1.17(m). Patentee submits herewith a Certificate of Correction and a Petition to Expedite Consideration Under 37 C.F.R. § 1.182 with authorizations to pay the requisite fees for each, respectively. The Commissioner is further authorized to charge any fees deemed necessary for the consideration and grant of this Petition and its supporting documents to Deposit Account 19-0743.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (612) 373-6912 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date October 17, 2019

By /Ryan J. Connell/
Ryan J. Connell
Reg. No. 74,611

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	N/A
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Updated Petition Under 37 CFR 1.78(c) AND 1.78(e) To Accept An Unintentionally Delayed Priority Claim (3 pgs.)
X Updated Application Data Sheet (6 pgs)

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Ryan J. Connell/
Ryan J. Connell
Reg. No. 74,611

Electronic Acknowledgement Receipt

EFS ID:	37481765
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Joseph P. Mehrle/Amanda Brace
Filer Authorized By:	Joseph P. Mehrle
Attorney Docket Number:	5311.001US3
Receipt Date:	17-OCT-2019
Filing Date:	02-DEC-2012
Time Stamp:	10:47:59
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		5311001US3_PetitionforFiling.pdf	230832 23223edaa6488387785238c30efe9ac4a192434a	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Application Data Sheet	5	10
	Miscellaneous Incoming Letter	2	4
	Transmittal Letter	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	230832	

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.

<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.
<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.
<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.

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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:

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix

Residence Information (Select One) ☐ US Residency ☐ Non US Residency ☐ Active US Military Service

City		State/Province		Country of Residence	

Mailing Address of Inventor:

Address 1			
Address 2			
City		State/Province	
Postal Code		Country	

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	
Email Address	

Application Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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 Publication

Publication Information:

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

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

Representative Information:

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). Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
This application	is a continuation of	12/586,221	2009-09-18
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
~~This application~~ 12/586,221	is a continuation of	11/825,521	2007-07-06
Prior Application Status	Expired		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
11/825,521	Claims benefit of provisional	60/807,065	2006-07-11

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(d). 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(h)(1) and (2). Under the POX 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).

Application Number	Country	Parent Filing Date (YYYY-MM-DD)	Access Code (if applicable)

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

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

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

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

☐ Deceased	☐ Legally incapacitated

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here: ☐

Organization Name:

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

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.

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		Postal Code	
Phone Number		Fax Number	
Email Address			

Signature:

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	/Ryan J. Connell/			Date (YYYY-MM-DD)	2019-10-17
First Name	Ryan	Last Name	Connell	Registration Number	74,611

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 22313-14**

REMARKS

This responds to the Non-Final Office Action dated May 15, 2019. As requested all future communications will be directed to Art Unit 2699. This response includes a petition to extend the due date of the response for 3 months and authorization to charge the SLW deposit account 19-0743 for any fees necessary to keep the application pending.

Claims 1-11, 13-16, and 18-19 are presently amended. New claims 20-30 are added. As a result, claims 1-30 are now pending in this application.

New Claims

Claims 20-30 are dependent claims that relate to correction of certain aberrations which are stated in original claim 2 and generally disclosed in the application. Accordingly, Applicant respectfully requests that the Examiner consider and allow the newly added claims.

Interview Summary

The undersigned would like to thank Examiner MARLY S.B. CAMARGO for the courtesy of a telephone interview on August 16, 2019.

Amendments to claim 1 were discussed. Applicant's representative provided a marked up claim 1 as a proposal for amendment to make it more readable. Applicant agreed to file a terminal disclaimer. Applicant's representative also informed the Examiner that a priority claim was being corrected.

Claim Objections

Claim set includes two claims numbered 18. Correction to the claim disclosure was required. The second instance of claim 18 was amended to relabel it as claim 19.

Claim Amendments

The claims were amended for consistency. Claim 1 was further amended to correct antecedent basis and to include a zoom lens option. If there are any questions about the claim amendments the Examiner is invited to contact Applicant's representative at the number below.

Double Patenting Rejection

Claims 1 - 18 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 - 18 of parent Application No. 12/586,221, now US 8,451,339 B2.

Applicant does not admit that the claims are obvious in view of U.S. Patent No. 8,451,339. However, a Terminal Disclaimer and the requisite fees in compliance with 37 C.F.R. § 1.321 is enclosed herewith to obviate these rejections.

CONCLUSION

It is respectfully submitted that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone the undersigned at 612-373-6912 to facilitate prosecution of this application.

If necessary, please charge any additional fees or deficiencies, or credit any overpayments to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402-0938
612-373-6912

Date: November 15, 2019

By /Timothy E. Bianchi/

Timothy E. Bianchi
Reg. No. 39,610

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/691,805	Filing Date 12/02/2012	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $31 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $125 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/15/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 20	= 9		x $50 =	450
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	450

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ 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.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/SHANDA E ROSS/
*** 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.**

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

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/691,805	Filing Date 12/02/2012	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $31 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $125 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/15/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 30	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ 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.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/JULIET MCMILLAN/
*** 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.**

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

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 13/691,805	Applicant(s) Solomon, Neal
	Art Unit OED2	AIA (FITF) Status No

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

The amendment document filed on 15 November 2019 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: Claim 24 is missing .
- ☐ 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, or a drawing submission (only) 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.

Legal Instruments Examiner (LIE), if applicable /JULIET MCMILLAN/ Telephone No: (571)272-1598

Notice of Non-Compliant Amendment (37 CFR 1.121)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Application No.: 13/691,805
Filed: December 2, 2012
Confirmation No.: 6244
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Examiner: MARLY S.B. CAMARGO
Group Art Unit: 2699
Docket No.: 5311.001US3

AMENDMENT & RESPONSE UNDER 37 C.F.R. § 1.111

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

Applicant has received the Non-Final Office Action dated May 15, 2019. Please enter the following.

This response is accompanied by a Petition, as well as the appropriate fee, to obtain a three-month extension of the period for responding to the Office Action, thereby moving the deadline for response from August 15, 2019 to November 15, 2019.

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A digital imaging system for correcting optical image aberrations in a digital video, comprising:

a digital video camera ~~mechanism~~ including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit including, a digital signal processor~~, system software,~~ configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;

wherein ~~an~~ the integrated circuit uses ~~system~~ the in-camera software to identify at least one optical image aberration and ~~by accessing the database;~~

~~wherein the integrated circuit uses the database to identify at least one algorithm to use~~ to correct the at least one optical ~~and/or digital~~ image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database;

wherein ~~when~~ the video ~~image file~~ is captured by the at least one digital sensor ~~the digital file~~ and is forwarded to the digital signal processor;

wherein the video image file with the at least one optical ~~or digital~~ image aberration is corrected by applying digital filtration ~~by~~ using ~~at least one algorithm in~~ the digital signal processor; and

wherein the ~~modified~~ corrected ~~digital file~~ video consisting of the digital data optimized from the at least one optical ~~or digital~~ image aberration that are corrected from the original video image is stored in the memory storage sub-system.

2. (Currently Amended) The system of claim 1:

wherein the optical image aberrations include at least one of spherical, comatic, lens distortion, astigmatism, curvature of field, pin cushion, barrel distortion, chromatic aberrations, scattered light, ~~red-eye, dust~~ and/or flare types of optical image aberrations.

3. (Currently Amended) The system of claim 1:

wherein the optical image aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the comers of the image or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the comers of the image; and

wherein the image exposure is optimized to correct the vignetting.

4. (Currently Amended) The system of claim 1:

wherein the digital signal processor applies at least one fast Fourier transform (FFT) algorithm to correct the at least one optical image aberration.

5. (Currently Amended) The system of claim 1:

wherein each lens type is registered in the camera database;

wherein the multiple optical aberrations of each lens is listed in the database;

wherein the filtration solutions to the lens optical aberrations are listed in the database;

wherein the filtration of each lens optical aberration is applied by the digital signal processor; and

wherein after the digital signal processor applies the filtration to correct the optical image aberrations the corrected digital file is forwarded to storage in memory.

6. (Currently Amended) A digital imaging system for correcting image aberrations comprising:

a digital video camera ~~mechanism,~~ including in-camera software, an optical lens mechanism, at least one digital sensor for capturing digital video, an integrated circuit~~,~~ including a digital signal processor~~, system software,~~ configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;

wherein the video ~~image data file~~ is forwarded ~~from the at least one digital sensor~~ to storage in memory;

wherein at least one optical ~~and/or digital~~ aberration in at least two frames of the digital video ~~image file~~ are identified ~~by comparing image files in the database management system by~~ using the ~~system~~ in-camera software and the integrated circuit;

~~wherein the at least one filtration algorithms required to correct the at least one optical and/or digital aberration of at least two frames of the digital video file are sent from the integrated circuit to the digital signal processor;~~

wherein the at least one optical ~~and/or digital~~ aberration from the optical lens mechanism of at least two frames of the digital video ~~file~~ are corrected by using the digital signal processor to apply at least one digital filtration algorithm; and

wherein the ~~modified~~ corrected digital video file ~~consisting of the digital data optimized from the at least one aberration that are corrected from the original video images~~ is stored in memory.

7. (Currently Amended) The system of claim 6:

wherein the optical image aberrations include spherical, comatic, lens distortion, astigmatism, chromatic aberrations, curvature of field, pin cushion, barrel distortion, scattered light, ~~red-eye, dust~~ and/or flare types of optical aberrations.

8. (Currently Amended) The system of claim 6:

~~wherein the digital aberrations include moire and/or aliasing~~ wherein the digital signal processor applies at least one fast Fourier transform (FFT) algorithm to correct the at least one optical image aberration.

9. (Currently Amended) The system of claim 6:

wherein the digital signal processor applies a fast Fourier transform (FFT) algorithm to correct ~~optical and/or~~ digital aberrations of at least two frames in the digital video ~~file~~.

10. (Currently Amended) The system of claim 6:

wherein the digital signal processor applies color filtration to at least two frames of the digital video image ~~file~~.

11. (Currently Amended) The system of claim 6:

wherein the digital video ~~image file~~ is filtered to correct at least one optical and/or digital aberrations after initial capture and before the digital video ~~image file~~ is initially sent to storage.

12. (Original) The system of claim 6:

wherein the integrated circuit may be a microprocessor, an application specific integrated circuit or a system on a chip.

13. (Currently Amended) The system of claim 6:

wherein the optical image aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the comers of the at least two image frames or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the comers of the image of at least two image frames; and

wherein the image exposure for at least two frames in the digital video file is optimized to correct the vignetting.

14. (Currently Amended) A digital imaging system for correcting image aberrations comprising:

a digital video camera ~~mechanism,~~ including in-camera software, an optical lens mechanism, at least one digital sensor for capturing digital video, an integrated circuit~~,~~ including a digital signal processor~~, system software,~~ configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens;

wherein the zoom lens changes focal length positions;

wherein when the digital video ~~image file~~ is ~~captured by the at least one digital sensor the file is~~ forwarded to the digital signal processor and to memory;

wherein the integrated circuit uses system software to access the database to identify at least one optical ~~and/or digital aberrations~~ aberration in at least one frame of the video ~~file~~ at any focal length of a zoom lens configuration;

wherein the integrated circuit accesses the database to obtain at least one filtration correction algorithm to the optical ~~and/or digital aberrations~~ image aberration of at least one frame in the video file and forwards the at least one filtration algorithms to the digital signal processor;

wherein the digital video ~~image file~~ is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the digital video ~~file~~ and corrects the at least one optical ~~and/or digital aberrations~~ image aberration in at least one video frame for the at least one focal length in the zoom lens configuration; and

wherein the ~~modified~~ corrected digital video ~~image file consisting of the digital data optimized from the at least one optical and/or digital aberrations in at least one frame of the video file of at least one focal length of the zoom lens that are corrected from the original video image~~ is stored in memory.

15. (Currently Amended) The system of claim 14:

wherein the optical aberrations include vignetting, spherical, comatic, lens distortion, chromatic aberrations, curvature of field, pin cushion, barrel distortion, scattered light, ~~red-eye, dust~~ and/or flare types of optical aberrations.

16. (Currently Amended) The system of claim 14:

wherein the digital signal processor applies a fast Fourier transform (FFT) algorithm to correct optical and/or digital aberrations in the digital video ~~file~~.

17. (Original) The system of claim 14:

wherein each focal length of a zoom lens in at least one video image frame is analyzed for a different set of optical aberrations.

18. (Currently Amended) The system of claim 14:

wherein the digital signal processor applies color filtration to at least one frame of the digital video image ~~file~~.

[[18.]]19. (Currently Amended) The system of claim 14:

wherein the optical image aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the corners of at least one image frame or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the comers of the image of at least one image frame; and

wherein the image exposure for at least one frame in the digital video file is optimized to correct the vignetting.

20. (New) The system of claim 1, wherein the system is configured to correct red-eye.

21. (New) The system of claim 1, wherein the system is configured to correct for dust.

22. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for spherical aberrations.

23. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for chromatic aberrations.

25. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for comatic aberrations.

26. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for astigmatism aberrations.

27. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for lens distortion aberrations.

28. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for pin cushion aberrations.

29. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for curvature of field aberrations.

30. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for barrel distortion aberrations.

REMARKS

This responds to the Non-Final Office Action dated May 15, 2019. As requested all future communications will be directed to Art Unit 2699. This response includes a petition to extend the due date of the response for 3 months and authorization to charge the SLW deposit account 19-0743 for any fees necessary to keep the application pending.

Claims 1-11, 13-16, and 18-19 are presently amended. New claims 20-30 are added. As a result, claims 1-30 are now pending in this application.

New Claims

Claims 20-30 are dependent claims that relate to correction of certain aberrations which are stated in original claim 2 and generally disclosed in the application. Accordingly, Applicant respectfully requests that the Examiner consider and allow the newly added claims.

Interview Summary

The undersigned would like to thank Examiner MARLY S.B. CAMARGO for the courtesy of a telephone interview on August 16, 2019.

Amendments to claim 1 were discussed. Applicant's representative provided a marked up claim 1 as a proposal for amendment to make it more readable. Applicant agreed to file a terminal disclaimer. Applicant's representative also informed the Examiner that a priority claim was being corrected.

Claim Objections

Claim set includes two claims numbered 18. Correction to the claim disclosure was required. The second instance of claim 18 was amended to relabel it as claim 19.

Claim Amendments

The claims were amended for consistency. Claim 1 was further amended to correct antecedent basis and to include a zoom lens option. If there are any questions about the claim amendments the Examiner is invited to contact Applicant's representative at the number below.

Double Patenting Rejection

Claims 1 - 18 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 - 18 of parent Application No. 12/586,221, now US 8,451,339 B2.

Applicant does not admit that the claims are obvious in view of U.S. Patent No. 8,451,339. However, a Terminal Disclaimer and the requisite fees in compliance with 37 C.F.R. § 1.321 is enclosed herewith to obviate these rejections.

CONCLUSION

It is respectfully submitted that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone the undersigned at 612-373-6912 to facilitate prosecution of this application.

If necessary, please charge any additional fees or deficiencies, or credit any overpayments to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402-0938
612-373-6912

Date: November 15, 2019

By /Timothy E. Bianchi/

Timothy E. Bianchi
Reg. No. 39,610

Electronic Patent Application Fee Transmittal

Application Number:	13691805
Filing Date:	02-Dec-2012
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Filer:	Timothy E. Bianchi/Amanda Brace
Attorney Docket Number:	5311.001US3

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	10	50	500
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 - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	160	160
		Total in USD ($)		**1360**

Electronic Acknowledgement Receipt	
EFS ID:	37771504
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Timothy E. Bianchi/Amanda Brace
Filer Authorized By:	Timothy E. Bianchi
Attorney Docket Number:	5311.001US3
Receipt Date:	15-NOV-2019
Filing Date:	02-DEC-2012
Time Stamp:	19:22:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1360
RAM confirmation Number	E2019AEJ22357452
Deposit Account	190743
Authorized User	Amanda Brace
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)	

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		5311001US3_RespforFiling.pdf	211624 fc4812bb46b59a1d0d8a905c693cc940bdad7380	yes	13

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Transmittal Letter	1	1
Extension of Time	2	2
Terminal Disclaimer Filed	3	3
Amendment/Req. Reconsideration-After Non-Final Reject	4	4
Claims	5	11
Applicant Arguments/Remarks Made in an Amendment	12	13

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	34059 a0fe91343db3f07b561ed34630ecd431ec483325	no	2

Warnings:

Information:

Total Files Size (in bytes):	245683

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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

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	November 15, 2019
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Amendment and Response under 37 C.F.R. § 1.111 (10 pgs.)
X Petition for Extension of Time (1 pg.)
X Terminal Disclaimer (1 pg.)
X **Authorization to charge Deposit Account 19-0743 in the amount of $500.00 to cover the fee for additional claims.**
X **Authorization to charge Deposit Account 19-0743 in the amount of $700.00 to cover the Extension of Time Fee.**
X **Authorization to charge Deposit Account 19-0743 in the amount of $160.00 to cover the fee for the Terminal Disclaimer**

The fee for additional claims has been calculated as follows:

CLAIMS AS AMENDED						
	Claims Remaining After Amendment		Highest Number Previously Paid For	Present Extra	Rate	Fee
TOTAL CLAIMS	30	-	20	10	x 50.00 =	500.00
INDEPENDENT CLAIMS	3	-	3	0	x 230.00 =	0.00
[] MULTIPLE DEPENDENT CLAIMS PRESENTED						0.00
TOTAL						500.00

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2699
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

PETITION FOR A THREE-MONTH EXTENSION OF TIME

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

In accordance with the provision of 37 C.F.R § 1.136(a), it is respectfully requested that a three-month extension of time be granted in which to respond to the Office Action mailed May 15, 2019, said period of response being extended from August 15, 2019 to November 15, 2019.

Please charge Deposit Account No. 19-0743 in the amount of $700.00 to cover the required extension fee. Please charge any additional fees or credit overpayment to deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date November 15, 2019

By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

Modified PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. 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 displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number 5311.001US3

In re Application of: Neal Solomon

Application No.: 13/691,805

Filed: December 2, 2012

For: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

The applicant, **Optimum Imaging Technologies LLC**, owner of the entire interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No.(s) **8,451,339** as the term of said **prior patent(s)** is presently shortened by any terminal disclaimer. The applicant 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(s)** 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 applicant 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(s)**, "as the term of said **prior patent(s)** is presently shortened by any terminal disclaimer," in the event that said **prior patent(s)** 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.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 39,610

/Timothy E. Bianchi/	November 15, 2019
Timothy E. Bianchi	**Date**
Principal	**612-373-6912**
Title	**Telephone Number**

☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2699	
Filed:	December 2, 2012	Docket: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

COMMUNICATION RE: LATE SUBMISSION OF DECLARATION

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

In compliance with 37 CFR 1.63, we submit the Signed Declaration. Corresponding fees with regard to the late submission were paid with the filing of the Petition for Revival of an Application on February 11, 2019, therefore applicants believe no additional fees are due at this time.

Applicants assume the application is now in proper order and in condition for allowance. Please direct any inquiries to the undersigned at (612) 373-6912. If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

Schwegman Lundberg & Woessner, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date November 22, 2019 By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

TEB:CMG:cb

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon

Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the attached:

X Communication Re: Late Submission of Declaration (1 pg.).
X Signed Declaration (1 pg.).

It is believed that no additional fee is required. However, if necessary, please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

Schwegman Lundberg & Woessner, P.A.
Customer No: 21186
TEB:CMG:cb

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being transmitted using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 22nd day of November, 2019.

Cheryl Breyfogle
Name

/Cheryl Breyfogle/
Signature

Electronic Acknowledgement Receipt

EFS ID:	37839065
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	David L. Buck/Cheryl Breyfogle
Filer Authorized By:	David L. Buck
Attorney Docket Number:	5311.001US3
Receipt Date:	22-NOV-2019
Filing Date:	02-DEC-2012
Time Stamp:	17:58:57
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		5311001US3DEC.pdf	295167 6b2dd6fd840bfee02db4216a4656cb601bb13a88	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Oath or Declaration filed	3	3
	Miscellaneous Incoming Letter	2	2
	Transmittal Letter	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	295167	

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.

<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.
<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.
<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.

Amended PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 13/691,805, filed on December 2, 2012 .

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Neal Solomon Date (Optional) :

Signature: / Neal Solomon /

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Application No.: 13/691,805
Filed: December 2, 2012
Confirmation No.: 6244
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Examiner: MARLY S.B. CAMARGO
Group Art Unit: 2699
Docket No.: 5311.001US3

AMENDMENT & RESPONSE UNDER 37 C.F.R. § 1.111 (CORRECTED)

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

Applicant received a Non-Final Office Action dated May 15, 2019. An Amendment and Response was timely filed with a Petition, as well as the appropriate fee, to obtain a three-month extension of the period for responding to the Office Action, thereby moving the deadline for response from August 15, 2019 to November 15, 2019.

The Office sent a Notice of Non-Compliant Amendment (37 C.F.R. 1.121) in response to the Amendment and Response of November 15, 2019, noting that claim 24 was missing.

Additionally, a Terminal Disclaimer was rejected because the Office asserts that the undersigned representative does not have Power of Attorney. The Terminal Disclaimer is corrected to list Applicant Neal Solomon (who is the sole owner and Chief Managing Member of Optical Imaging Technologies LLC) as providing the Terminal Disclaimer. The requisite terminal disclaimer fee was submitted with the last submission of the Terminal Disclaimer.

Please enter the following:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	January 15, 2020
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Response to Notice of Non-Compliance (10 pgs.)
X Terminal Disclaimer (1 pg.)

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

Electronic Acknowledgement Receipt

EFS ID:	38309332
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Timothy E. Bianchi/Jamie Agnes
Filer Authorized By:	Timothy E. Bianchi
Attorney Docket Number:	5311.001US3
Receipt Date:	15-JAN-2020
Filing Date:	02-DEC-2012
Time Stamp:	23:15:34
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		SIGNED_5311_001US3_RespTD.pdf	222878 01a93caeaaf159ee3634822aa7286feadcc23e11	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Terminal Disclaimer Filed	12	12
	Applicant Arguments/Remarks Made in an Amendment	10	11
	Claims	3	9
	Amendment/Req. Reconsideration-After Non-Final Reject	2	2
	Transmittal Letter	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	222878	

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.

<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.
<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.
<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.

PTO/AIA/26 (04-14)
Approved for use through 11/30/2020. OMB 0651-0031
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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 5311.001US3

In re Application of: Neal Solomon

Application No.: 13/691,805

Filed: December 2, 2012

For: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

The applicant, **Neal Solomon**, owner of **100** percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. **8,451,339** as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant 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 applicant 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.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 39,610

/Timothy E. Bianchi/	January 15, 2020
Signature	Date
Timothy E. Bianchi	
Typed or printed name	
Principal	(612) 373-6912
Title	Telephone Number

☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) and 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 of Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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REMARKS

This responds to the Non-Final Office Action dated May 15, 2019. As requested all future communications will be directed to Art Unit 2699. The last Amendment and Response included a petition to extend the due date of the response for 3 months and authorization to charge the SLW deposit account 19-0743 for any fees necessary to keep the application pending.

Claims 1-11, 13-16, and 18-19 are presently amended. New claims 20-30 are added. As a result, claims 1-30 are now pending in this application.

New Claims

Claims 20-30 are dependent claims that relate to correction of certain aberrations which are stated in original claim 2 and generally disclosed in the application. Accordingly, Applicant respectfully requests that the Examiner consider and allow the newly added claims.

Interview Summary

The undersigned would like to thank Examiner MARLY S.B. CAMARGO for the courtesy of a telephone interview on August 16, 2019.

Amendments to claim 1 were discussed. Applicant's representative provided a marked up claim 1 as a proposal for amendment to make it more readable. Applicant agreed to file a terminal disclaimer. Applicant's representative also informed the Examiner that a priority claim was being corrected.

Claim Objections

Claim set includes two claims numbered 18. Correction to the claim disclosure was required. The second instance of claim 18 was amended to relabel it as claim 19.

Claim Amendments

The claims were amended for consistency. Claim 1 was further amended to correct antecedent basis and to include a zoom lens option. If there are any questions about the claim amendments the Examiner is invited to contact Applicant's representative at the number below.

Double Patenting Rejection

Claims 1 - 18 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 - 18 of parent Application No. 12/586,221, now US 8,451,339 B2.

Applicant does not admit that the claims are obvious in view of U.S. Patent No. 8,451,339. However, a Terminal Disclaimer and the requisite fees in compliance with 37 C.F.R. § 1.321 is enclosed herewith to obviate these rejections.

CONCLUSION

It is respectfully submitted that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone the undersigned at 612-373-6912 to facilitate prosecution of this application.

If necessary, please charge any additional fees or deficiencies, or credit any overpayments to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402-0938
612-373-6912

Date: January 15, 2020

By /Timothy E. Bianchi/

Timothy E. Bianchi
Reg. No. 39,610

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A digital imaging system for correcting optical image aberrations in a digital video, comprising:

a digital video camera ~~mechanism~~ including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit including~~,~~ a digital signal processor~~, system software,~~ configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;

wherein ~~an~~ the integrated circuit uses ~~system~~ the in-camera software to identify at least one optical image aberration and ~~by accessing the database;~~

~~wherein the integrated circuit uses the database to identify at least one algorithm to use~~ to correct the at least one optical ~~and/or digital~~ image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database;

wherein ~~when~~ the video ~~image file~~ is captured by the at least one digital sensor ~~the digital file~~ and is forwarded to the digital signal processor;

wherein the video image file with the at least one optical ~~or digital~~ image aberration is corrected by applying digital filtration ~~by~~ using ~~at least one algorithm in~~ the digital signal processor; and

wherein the ~~modified~~ corrected ~~digital file~~ video consisting of the digital data optimized from the at least one optical ~~or digital~~ image aberration that are corrected from the original video image is stored in the memory storage sub-system.

2. (Currently Amended) The system of claim 1:

wherein the optical image aberrations include at least one of spherical, comatic, lens distortion, astigmatism, curvature of field, pin cushion, barrel distortion, chromatic aberrations, scattered light, ~~red eye, dust~~ and/or flare types of optical image aberrations.

3. (Currently Amended) The system of claim 1:

wherein the optical image aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the comers of the image or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the comers of the image; and

wherein the image exposure is optimized to correct the vignetting.

4. (Currently Amended) The system of claim 1:

wherein the digital signal processor applies at least one fast Fourier transform (FFT) algorithm to correct the at least one optical image aberration.

5. (Currently Amended) The system of claim 1:

wherein each lens type is registered in the camera database;

wherein the multiple optical aberrations of each lens is listed in the database;

wherein the filtration solutions to the lens optical aberrations are listed in the database;

wherein the filtration of each lens optical aberration is applied by the digital signal processor; and

wherein after the digital signal processor applies the filtration to correct the optical image aberrations the corrected digital file is forwarded to storage in memory.

6. (Currently Amended) A digital imaging system for correcting image aberrations comprising:

a digital video camera ~~mechanism,~~ including in-camera software, an optical lens mechanism, at least one digital sensor for capturing digital video, an integrated circuit~~,~~ including a digital signal processor~~, system software,~~ configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;

wherein the video ~~image data file~~ is forwarded ~~from the at least one digital sensor~~ to storage in memory;

wherein at least one optical ~~and/or digital~~ aberration in at least two frames of the digital

video ~~image file~~ are identified ~~by comparing image files in the database management system by~~ using the ~~system~~ in-camera software and the integrated circuit;

~~wherein the at least one filtration algorithms required to correct the at least one optical and/or digital aberration of at least two frames of the digital video file are sent from the integrated circuit to the digital signal processor;~~

wherein the at least one optical ~~and/or digital~~ aberration from the optical lens mechanism of at least two frames of the digital video ~~file~~ are corrected by using the digital signal processor to apply at least one digital filtration algorithm; and

wherein the ~~modified~~ corrected digital video file ~~consisting of the digital data optimized from the at least one aberration that are corrected from the original video images~~ is stored in memory.

7. (Currently Amended) The system of claim 6:

wherein the optical image aberrations include spherical, comatic, lens distortion, astigmatism, chromatic aberrations, curvature of field, pin cushion, barrel distortion, scattered light, ~~red eye, dust~~ and/or flare types of optical aberrations.

8. (Currently Amended) The system of claim 6:

~~wherein the digital aberrations include moire and/or aliasing~~ wherein the digital signal processor applies at least one fast Fourier transform (FFT) algorithm to correct the at least one optical image aberration.

9. (Currently Amended) The system of claim 6:

wherein the digital signal processor applies a fast Fourier transform (FFT) algorithm to correct ~~optical and/or~~ digital aberrations of at least two frames in the digital video ~~file~~.

10. (Currently Amended) The system of claim 6:

wherein the digital signal processor applies color filtration to at least two frames of the digital video image ~~file~~.

11. (Currently Amended) The system of claim 6:

wherein the digital video ~~image file~~ is filtered to correct at least one optical and/or digital aberrations after initial capture and before the digital video ~~image file~~ is initially sent to storage.

12. (Original) The system of claim 6:

wherein the integrated circuit may be a microprocessor, an application specific integrated circuit or a system on a chip.

13. (Currently Amended) The system of claim 6:

wherein the optical image aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the comers of the at least two image frames or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the comers of the image of at least two image frames; and

wherein the image exposure for at least two frames in the digital video file is optimized to correct the vignetting.

14. (Currently Amended) A digital imaging system for correcting image aberrations comprising:

a digital video camera ~~mechanism,~~ including in-camera software, an optical lens mechanism, at least one digital sensor for capturing digital video, an integrated circuit~~,~~ including a digital signal processor~~, system software,~~ configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens;

wherein the zoom lens changes focal length positions;

wherein when the digital video ~~image file~~ is ~~captured by the at least one digital sensor the file is~~ forwarded to the digital signal processor and to memory;

wherein the integrated circuit uses system software to access the database to identify at least one optical ~~and/or digital aberrations~~ aberration in at least one frame of the video ~~file~~ at any focal length of a zoom lens configuration;

wherein the integrated circuit accesses the database to obtain at least one filtration correction algorithm to the optical ~~and/or digital aberrations~~ image aberration of at least one frame in the video file and forwards the at least one filtration algorithms to the digital signal processor;

wherein the digital video ~~image file~~ is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the digital video ~~file~~ and corrects the at least one optical ~~and/or digital aberrations~~ image aberration in at least one video frame for the at least one focal length in the zoom lens configuration; and

wherein the ~~modified~~ corrected digital video ~~image file consisting of the digital data optimized from the at least one optical and/or digital aberrations in at least one frame of the video file of at least one focal length of the zoom lens that are corrected from the original video image~~ is stored in memory.

15. (Currently Amended) The system of claim 14:

wherein the optical aberrations include vignetting, spherical, comatic, lens distortion, chromatic aberrations, curvature of field, pin cushion, barrel distortion, scattered light, ~~red eye, dust~~ and/or flare types of optical aberrations.

16. (Currently Amended) The system of claim 14:

wherein the digital signal processor applies a fast Fourier transform (FFT) algorithm to correct optical and/or digital aberrations in the digital video ~~file~~.

17. (Original) The system of claim 14:

wherein each focal length of a zoom lens in at least one video image frame is analyzed for a different set of optical aberrations.

18. (Currently Amended) The system of claim 14:

wherein the digital signal processor applies color filtration to at least one frame of the digital video image ~~file~~.

[[18.]]19. (Currently Amended) The system of claim 14:

wherein the optical image aberration is vignetting;

wherein the digital signal processor applies neutral density filtration from one third of a stop to three stops in the center of the image and/or wherein the digital signal processor applies an algorithm to lighten the corners of at least one image frame or the digital signal processor applies both neutral density filtration in the image center and/or an algorithm to lighten the comers of the image of at least one image frame; and

wherein the image exposure for at least one frame in the digital video file is optimized to correct the vignetting.

20. (New) The system of claim 1, wherein the system is configured to correct red-eye.

21. (New) The system of claim 1, wherein the system is configured to correct for dust.

22. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for spherical aberrations.

23. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for chromatic aberrations.

24. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for scattered light aberrations.

25. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for comatic aberrations.

26. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for astigmatism aberrations.

27. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for lens distortion aberrations.

28. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for pin cushion aberrations.

29. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for curvature of field aberrations.

30. (New) The system of claim 1, wherein the system includes machine readable instructions for the system to correct for barrel distortion aberrations.

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2699
	Examiner Name	Marly Camargo
Sheet 1 of 4	Attorney Docket No: 5311.001US3	

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document
	US-6,023,977	2/15/2000	Langdon, Donald R, et al.
	US-6,055,330	4/25/2000	Eleftheriadis, Alexandros, et al.
	US-6,508,764	1/21/2003	Thiele, Karl E, et al.
	US-6,850,272	2/1/2005	Terashita, Takaaki
	US-7,245,319	7/17/2007	Enomoto, Jun
	US-7,321,685	1/22/2008	Okada, Miyuki, et al.
	US-7,406,182	7/29/2008	Ono, Shuji
	US-7,551,205	6/23/2009	Kubo, Masahiro, et al.
	US-7,612,805	11/3/2009	Solomon, Neal
	US-7,619,663	11/17/2009	Sakurai, Keiichi, et al.
	US-7,636,111	12/22/2009	Oota, Makoto
	US-7,701,484	4/20/2010	Habe, Masaru
	US-7,764,874	7/27/2010	Awazu, Kouhei, et al.
	US-8,106,976	1/31/2012	Kawasaka, Yasuki
	US-8,451,339	5/28/2013	Solomon, Neal
	US-20020163586A1	11/7/2002	Noguchi, Takafumi
	US-20030210343A1	11/13/2003	Okada, Hiroyuki
	US-20040071318A1	4/15/2004	Cheung, Humphrey, et al.
	US-20050099507A1	5/12/2005	Lee, Hoseong
	US-20050200722A1	9/15/2005	Ono, Shuji
	US-20050219391A1	10/6/2005	Sun, Jian, et al.
	US-20060285761A1	12/21/2006	Kasperkiewicz, Tomasz S, et al.
	US-20070002158A1	1/4/2007	Robinson, Dirk M
	US-20070080280A1	4/12/2007	Havens, William H
	US-20070236574A1	10/11/2007	Alon, Alex, et al.
	US-20070247672A1	10/25/2007	Nguyen, Hugh P
	US-20080151069A1	6/26/2008	Koizumi, Takahiko, et al.
	US-20080174678A1	7/24/2008	Solomon, Neal
	US-20100033604A1	2/11/2010	Solomon, Neal
	US-20100073508A1	3/25/2010	Okamoto, Satoshi
	US-20110096176A1	4/28/2011	Nakami, Yoshihiro, et al.

FOREIGN PATENT DOCUMENTS

Examiner Initial *	Foreign Document Number	Publication Date	Name of Patentee or Applicant of cited Document	T 1
	JP-2004343358A	12/2/2004	Kishida, Hironori	

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	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2699
	Examiner Name	Marly Camargo
Sheet 2 of 4	Attorney Docket No: 5311.001US3	

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS

Examiner Initial *	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T 1
	"36-1 Canon Declaration of Ryan M. Mott 11/7/2019", 5 pgs	
	"36-13 Canon Exhibit L to Declaration of Ryan M. Mott 11/7/2019", 9 pgs	
	"36-15 Canon Exhibit N to Declaration of Ryan M. Mott 11/7/2019", 8 pgs	
	"36-17 Canon Exhibit P to Declaration of Ryan M. Mott 11/7/2019", 9 pgs	
	"36-20 Canon Exhibit S to Declaration of Ryan M. Mott 11/7/2019", 9 pgs	
	"36-22 Canon Declaration of Ana C. Tavares 11/7/2019", 6 pgs	
	"36-23 Canon Declaration of Hironori Aokage 11/7/2019", 3 pgs	
	"36-24 Canon Declaration of Seiichi Hamada 11/7/2019", 3 pgs	
	"39 Canon Redacted Opposed Motion to Transfer Venue to Edny", 21 pgs	
	"Application Serial No. 11/825,521, Non Final Office Action mailed 08-15-08", 13 pgs	
	"Application Serial No. 11/825,521, Notice of Allowance mailed 07-23-19", 22 pgs	
	"Application Serial No. 11/825,521, Response filed 04-27-09 to Restriction Requirement mailed 04-02-09", 3 pgs	
	"Application Serial No. 11/825,521, Response filed 12-12-08 to Non Final Office Action mailed 08-15-08", 10 pgs	
	"Application Serial No. 11/825,521, Restriction Requirement mailed 04-02-09", 6 pgs	
	"Application Serial No. 12/586,221, Non Final Office Action mailed 05-24-12", 18 pgs	
	"Application Serial No. 12/586,221, Notice of Allowance mailed 09-06-12", 10 pgs	
	"Application Serial No. 12/586,221, PTO Response to Rule 312 Communication mailed 04-25-13", 2 pgs	
	"Application Serial No. 12/586,221, Response filed 03-02-12 to Restriction Requirement mailed 12-29-11", 11 pgs	
	"Application Serial No. 12/586,221, Response filed 08-23-12 to Non Final Office Action mailed 05-24-12", 19 pgs	
	"Application Serial No. 12/586,221, Restriction Requirement mailed 12-29-11", 5 pgs	
	"Canon GL2 Instruction Manual", 163 pgs	
	"Canon Inc's Invalidity Contentions and Disclosures under P.R. 3-3 and 3-4", 2:19-cv-00246-JRG, 32 pgs	
	"Canon XL 1s A NTSC Instruction Manual", 124 pgs	
	"Canon XL1 A NTSC Instruction Manual", 88 pgs	
	"Canon XL2 Instruction Manual", 126 pgs	
	"Canon ZR10 NTSC Instruction Manual", 113 pgs	
	"Canon ZR100 Instruction Manual", 103 pgs	
	"Canon ZR20 NTSC Instruction Manual", 114 pgs	
	"Canon ZR25 MC NTSC Instruction Manual", 146 pgs	
	"Canon ZR300200 Instruction Manual", 152 pgs	

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2699
	Examiner Name	Marly Camargo
Sheet 3 of 4	Attorney Docket No: 5311.001US3	

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS

Examiner Initial *	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T1
	"Canon ZR5045 Instruction Manual", 164 pgs	
	"Canon ZR706560 Instruction Manual", 158 pgs	
	"Canon ZR90IM Instruction Manual", 153 pgs	
	"Coolpix 7900 Canon0063894", 165 pgs	
	"DxO Optics Pro Canon0063666", 153 pgs	
	"EF Lenswork III: The Eyes of EOS", 4 the ED, Canon Inc. Lens Product Group, (2009), 10 pgs	
	"JP H11-313250 11/9/1999 Canon0062291", 5 pgs	
	"JP H11-313250 English Translation 11/9/1999 Canon0065023", 6 pgs	
	"JP2000-184247 6/30/2000 Canon0062296", 12 pgs	
	"JP2000-184247 English Translation 6/30/2000 Canon0065045", 13 pgs	
	"JP2002-190979 7/5/2002 Canon0062325", 11 pgs	
	"JP2002-190979 English Translation 7/5/2002 Canon0065058", 12 pgs	
	"JP2002-199410 7/12/2002 Canon0062336", 17 pgs	
	"JP2002-199410 English Translation 7/12/2002 Canon0065070", 18 pgs	
	"JP2004-328506 English Translation 11/18/2004 Canon0065088", 21 pgs	
	"JP2004-328506 11/18/2004 Canon0062353", 17 pgs	
	"JP2004-343358 English Translation 12/2/2004 Canon0065109", 31 pgs	
	"JP2006-072660 3/16/2006 Canon0062397", 13 pgs	
	"JP2006-072660 English Translation 3/16/2006 Canon0065140", 14 pgs	
	"Kodak EasyShare V570 Canon0063819", 75 pgs	
	"Lumix DMC-FZ30 Canon 0064649", 148 pgs	
	"Olympus E-1 Canon0064059", 182 pgs	
	"Olympus E-300 Canon0064241", 212 pgs	
	"Olympus E-330 Canon0064453", 196 pgs	
	"Photoshop CS2 Canon0062668", Part 1 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 2 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 3 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 4 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 5 of 5, 163 pgs	
	"SD200-300 Digital ELPH Canon0063487", 179 pgs	
	"US 5,905,530 5/18/1999 Canon 0062546", 71 pgs	
	"US 7,590,305 9/15/2009 Canon0064843", 23 pgs	
	"US 7,738,015 6/15/2010 Canon0064866", 23 pgs	
	"US 7,936,392 5/3/2011 Canon0062617", 51 pgs	
	"US2001/0008418A1 7/19/2001 Canon0062410", 45 pgs	
	"US2003/0095197A1 5/22/2003 Canon0064797", 32 pgs	

EXAMINER **DATE CONSIDERED**

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant is to place a check mark here if English language Translation is attached

Modified form PTO/SB/08A(04-07) OMB 651-0031
US Patent & Trademark Office: U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2699
	Examiner Name	Marly Camargo
Sheet 4 of 4	Attorney Docket No: 5311.001US3	

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS		
Examiner Initial *	**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, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T 1**
	"US2004/0150732A1 8/5/2004 Canon0062455", 31 pgs	
	"US2004/0207733A1 10/21/2004 Canon0062486", 60 pgs	
	"WO2005/093653A1 6/10/2005 Canon0064889", 128 pgs	
	"Zuiko Digital 14-45mm f.3.5 Canon0065019", 2 pgs	
	"Zuiko Digital ED50mm f2.0 Macro CANON0065017", 2 pgs	

EXAMINER **DATE CONSIDERED**

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant is to place a check mark here if English language Translation is attached

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2699
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244

Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicant respectfully requests that this Information Disclosure Statement be entered and the documents listed on the attached PTO 1449 Form be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that a copy of the PTO 1449 Form, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Pursuant to 37 C.F.R. § 1.97(c)(2), Applicant hereby authorizes the Commissioner to charge the fee of $120.00 as set forth in 37 C.F.R. § 1.17(p), to Deposit Account No. 19-0743. Please charge any additional fees or deficiencies, or credit any overpayment to Deposit Account No. 19-0743.

Pursuant to 37 C.F.R. § 1.98(a)(2), copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R § 1.98(a)(2).

The Examiner is invited to contact the undersigned at the telephone number indicated if there are any questions regarding this communication.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 1/16/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

TEB:caf

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2699
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

COMMUNICATION CONCERNING PRIOR OR COPENDING APPLICATION(S)

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

Pursuant to the guidance of MPEP §§ 2001.06(b) and 2004(9), Applicant would like to bring the following additional application(s) to the Examiner's attention. The identification of these applications is not intended to suggest that the subject matter claimed in any listed application is, or has been, substantially similar to any claim or claims in the present application.

Serial No./ Patent No.	Filing Date	Attorney Docket	Title
11/825,521 7,612,805	July 6, 2007	5311.001US1	DIGITAL IMAGING SYSTEM AND METHODS FOR SELECTIVE IMAGE FILTRATION
12/586,221 8,451,339	September 18, 2009	5311.001US2	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS
16/692,939	November 22, 2019	5311.001US4	DIGITAL CAMERA WITH IN-CAMERA SOFTWARE FOR IMAGE CORRECTION
16/692,972	November 22, 2019	5311.001US5	DIGITAL CAMERA WITH WIRELESS IMAGE TRANSFER
16/694,838	November 25, 2019	5311.001US6	DIGITAL CAMERA WITH IN-CAMERA SOFTWARE FOR DIGITAL IMAGE CORRECTION OF PIXEL INFORMATION

16/694,850	November 25, 2019	5311.001US7	WIRELESS DEVICE WITH BUILT-IN CAMERA AND UPDATABLE CAMERA SOFTWARE FOR IMAGE CORRECTION

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
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Minneapolis, MN 55402
(612) 373-6912

Date 1/16/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	N/A
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Communication Concerning Prior and Copending Applications (2 pgs.)
X Supplemental Information Disclosure Statement (2 pgs.), Form 1449 (4 pgs.) Copies of Cited References (72).
X Authorization to charge Deposit Account 19-0743 in the amount of $120.00 to cover the fee for consideration of Information Disclosure Statement under 37 C.F.R. § 1.97(c).

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

Electronic Patent Application Fee Transmittal	
Application Number:	13691805
Filing Date:	02-Dec-2012
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Filer:	Garrett M. Hall/Jamie Johnson
Attorney Docket Number:	5311.001US3
Filed as Small 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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt	
EFS ID:	38322334
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Garrett M. Hall/Jamie Johnson
Filer Authorized By:	Garrett M. Hall
Attorney Docket Number:	5311.001US3
Receipt Date:	16-JAN-2020
Filing Date:	02-DEC-2012
Time Stamp:	21:54:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$120
RAM confirmation Number	E20201FL56491380
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		13691805_SIDS_01-16-2020.pdf	216516 cc1ad554ac6dfc1a1a58ed38d8bc9f80caccc38cd	yes	9
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Information Disclosure Statement (IDS) Form (SB08)		6	9	
	Transmittal Letter		4	5	
	Miscellaneous Incoming Letter		2	3	
	Miscellaneous Incoming Letter		1	1	
Warnings:					
Information:					
2	Foreign Reference	0001_jp_2004343358_a.pdf	880812 644c07321894f1424d774ca3f858740093c68e2	no	28
Warnings:					
Information:					
3	Non Patent Literature	0002_20191107_361_canon_declaration_of_ryan_m_mott.pdf	478698 63b6b157df05d2ea202f0fdc0a59bca69e482683	no	5
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4	Non Patent Literature	0003_20191107_3613_canon_exhibit_l_to_declaration_of_ryan_m_mott.pdf	1643752 46fe58cd7042470f8f0fc911aa87eddb12b15091	no	9
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5	Non Patent Literature	0004_20191107_3615_canon_exhibit_n_to_declaration_of_ryan_m_mott.pdf	2000897 1c1e6ce7ee49df80d6142165c8470f5b4926cfea	no	8
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11	Non Patent Literature	0010_20191112_39_canon_redacted_opposed_motion_to_transfer_venue_to_edny.pdf	257192 2d857c2e3e649bceb28dca0a399a153d773e6220	no	21
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12	Non Patent Literature	0011_5311001us1_oarn_08152008.pdf	1187680 a70070a86debfa66a3f42a8836e2f4307f4e7223	no	13
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Information:					
14	Non Patent Literature	0013_5311001us1_rrr1mo_04272009.pdf	204578 2ca5f5a562ecba3067e774b218f198c05857cc63	no	3
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15	Non Patent Literature	0014_5311001us1_aarn_08152008.pdf	1035786 998ed9600afe8e495f1819f82217c1e2672218e4	no	10
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16	Non Patent Literature	0015_5311001us1_rerr_04022009.pdf	499193 7f22851e30b94a3f01d829f257dabf3092f85e02	no	6
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17	Non Patent Literature	0016_5311001us2_oarn_05242012.pdf	1631641 3e16bd68489bbf2ab8f02a08abc76b5cfe13d746	no	18
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18	Non Patent Literature	0017_5311001us2_noar_09062012.pdf	1159357 a5ecfddb63fbff60d4ba80456b487c329bdd102d	no	10
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Information:					
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45	Non Patent Literature	0042_jp2002190979_canon0065058_en_translation.pdf	4426159 5074741f5735fb3178e8cbc841acfafa9cb5788b	no	12
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47	Non Patent Literature	0044_a_jp2002199410_canon0065070_en_translation.pdf	21997283 10cc595785ea64376ad115f71d9e57afa69a67c5	no	8
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51	Non Patent Literature	0047_a_jp2004343358_canon0065109_en_translation.pdf	24198513 07095e1bd28c630811cc3a8292668e21ef02724f	no	15
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52	Non Patent Literature	0047_b_jp2004343358_canon0065109_en_translation.pdf	20537795 55e2a5234d81f74716f1d43e75d64355ca473acc	no	16
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53	Non Patent Literature	0048_jp2006072660_canon0062397_original.pdf	3322837 6af74020b3c7036bb727c390d2ee8d98eb41d9b2	no	13
Warnings:					
Information:					

54	Non Patent Literature	0049_jp2006072660_canon0065140_en_translation.pdf	4381357 02f5e64c3aecf15b33abd2272f25e5ef589e92d1	no	14
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55	Non Patent Literature	0050_easyshare_v570_canon0063819.pdf	9355507 981fe567e5eadde8bdad5c8902ede590dac0dfc5	no	75
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Information:					
56	Non Patent Literature	0051_lumix_dmcfz30_canon0064649.pdf	18812840 9c30339785999d8b3f855e61a994969a3488f31f	no	148
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Information:					
			Total Files Size (in bytes):	427260386	

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.

Electronic Acknowledgement Receipt

EFS ID:	38322387
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	Digital imaging system for correcting video image aberrations
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Garrett M. Hall/Jamie Johnson
Filer Authorized By:	Garrett M. Hall
Attorney Docket Number:	5311.001US3
Receipt Date:	16-JAN-2020
Filing Date:	02-DEC-2012
Time Stamp:	22:12:56
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	0052_b_rzolympus_e1_canon0064059.pdf	23123069 2f86052789562f69b5db80ec78f2c2c9a4b909d4	no	91

Warnings:

Information:					
2	Non Patent Literature	0053_olympus_e300_canon0064241.pdf	22137828 c27fad2a9aeb79b02e0d627c746fa58ba5b1f261	no	212
Warnings:					
Information:					
3	Non Patent Literature	0054_olympus_e330_canon0064453.pdf	19987292 76ae6e973e8ba2aa34f22882426ce24773a01f6d	no	196
Warnings:					
Information:					
4	Non Patent Literature	0055_a_rzphotoshop_cs2_canon0062668_part1.pdf	15625765 6de6f5b4eaee293d127bba5bda83b4a8be4ff203	no	86
Warnings:					
Information:					
5	Non Patent Literature	0055_b_rzphotoshop_cs2_canon0062668_part1.pdf	23799852 f05422289f40f983fd211fd9fc2c902da22205e9	no	77
Warnings:					
Information:					
6	Non Patent Literature	0056_b_rzphotoshop_cs2_canon0062668_part2.pdf	22654464 f38e835223287c0c117ec820afc3f427ba1481dc	no	81
Warnings:					
Information:					
7	Non Patent Literature	0056_rzphotoshop_cs2_canon0062668_part2.pdf	22354391 b0c017ee62705698857cda0002111d0f6c6a2f91	no	82
Warnings:					
Information:					
8	Non Patent Literature	0057_a_rzphotoshop_cs2_canon0062668_part3.pdf	18617223 ef597f0c0aacc8afa3fe3957787b60ccb359f533	no	88
Warnings:					
Information:					

9	Non Patent Literature	0057_b_rzphotoshop_cs2_canon0062668_part3.pdf	17097319 e4cd827d7b1eb48125a53e7ef00fdf59034b21fe	no	75
Warnings:					
Information:					
10	Non Patent Literature	0058_a_rzphotoshop_cs2_canon0062668_part4.pdf	20940674 d645511302877ee776673965893a2cfa91bd6db2	no	82
Warnings:					
Information:					
11	Non Patent Literature	0058_b_rzphotoshop_cs2_canon0062668_part4.pdf	22294312 2b188661748a7d70379773f605309be5a229fc8e	no	81
Warnings:					
Information:					
12	Non Patent Literature	0059_a_rzphotoshop_cs2_canon0062668_part5.pdf	17998120 3ce6d9fca0a4b46d95d49fd4c6cedc213dbabd3b	no	55
Warnings:					
Information:					
13	Non Patent Literature	0059_b_rzphotoshop_cs2_canon0062668_part5-2.pdf	14292846 4a4153dcd32431117a9a32aadef1547bd7d718ac	no	56
Warnings:					
Information:					
14	Non Patent Literature	0059_c_rzphotoshop_cs2_canon0062668_part5.pdf	15862792 c37b278629722d8f346afa8ea4e7042fc8688095	no	52
Warnings:					
Information:					
15	Non Patent Literature	0060_sd200300_digital_elph_canon0063487.pdf	18911145 b31b2e4c54184ea5e3ba7e48bda48e40ab91a47f	no	179
Warnings:					
Information:					

16	Non Patent Literature	0061_us5905530_canon0062546.pdf	14508215 9d4594ce77101a7d519de031ae302aa978b2e469	no	71
Warnings:					
Information:					
17	Non Patent Literature	0062_us_7590305_canon0064843.pdf	5793908 4ebde57ad468da419938c15b00d57c6d28d07abd	no	23
Warnings:					
Information:					
18	Non Patent Literature	0063_us_7738015_canon0064866.pdf	6313845 8716402ba189cd201abd177aff91aef38786253f	no	23
Warnings:					
Information:					
19	Non Patent Literature	0064_us_7936392_canon0062617.pdf	11544636 3a5f3d13b654877d02913adfc4b389b3619320f5	no	51
Warnings:					
Information:					
20	Non Patent Literature	0065_us20010008418_canon0062410.pdf	9276523 169863cbc4da13abf4ae55fb6a02a9b87700bb8e	no	45
Warnings:					
Information:					
21	Non Patent Literature	0066_us20030095197_canon0064797.pdf	9719932 8461f0e9391d2c732519c11b89b965f78c3be80a	no	32
Warnings:					
Information:					
22	Non Patent Literature	0067_us20040150732_canon0062455.pdf	7543837 4675b2a3217625d10601e3f7634d8eb86ab43d3f	no	31
Warnings:					
Information:					

23	Non Patent Literature	0068_us20040207733_canon0062486.pdf	14110591 c21ab36e7a6cf48294d6ad08885ccc47726d1ed2	no	60
Warnings:					
Information:					
24	Non Patent Literature	0069_wo2005093653a1_canon0064889_original.pdf	25463602 2fece0e208b2e0062ae1919623283 09e23c4c96c	no	128
Warnings:					
Information:					
25	Non Patent Literature	0070_zuiko_digital_1445_mm_f35_canon0065019.pdf	1497489 ef56ec1009d7487b3692f1a7678f4b509a9831e9	no	2
Warnings:					
Information:					
26	Non Patent Literature	0071_zuiko_digital_50_mm_f20_canon0065017.pdf	1838265 80cc2709b4f81d218f6ebe91ab6eb5d430ac8aaa	no	2
Warnings:					
Information:					
27	Non Patent Literature	0072_canon_invalidity_contentions_2019.pdf	294902 1418d4e8580c711f6c28376672c250cfd008c7a6	no	32
Warnings:					
Information:					
28	Non Patent Literature	0022_gl2imen.pdf	4594525 fe34a421f6810c707f7929b40660854f750f46d7	no	163
Warnings:					
Information:					
			Total Files Size (in bytes):	408197362	

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

Office of the Chief Financial Officer

Document Code:WFEE

User :70580

Sale Accounting Date:01/17/2020

Sale Item Reference Number	Effective Date
13691805	01/16/2020

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20201GI47133468	2253	EXTENSION FOR RESPONSE WITHIN 3RD MONTH	$700.00	Deposit Account

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
* 13/691,805 *	13/691,805	Solomon, Neal	
	Examiner	**Art Unit**	
	CAMARGO, MARLY S.B.	2699	

Document Code - DISQ	**Internal Document - DO NOT MAIL**

TERMINAL DISCLAIMER	☐ APPROVED	☑ DISAPPROVED
Date Filed: **15 January 2020**	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

/PAMELA A YOUNG/

Technology Center: PLRC

Telephone:

See Continuation Sheet

Continuation of Approved/Disapproved Comments: • The terminal disclaimer identifies a party who is not the applicant (only for applications filed on or after September 16, 2012; See FP 14.26.10):

For cases filed on/after 9/16/12, 37 CFR 1.321 specifies that only the applicant can disclaim, and the terminal disclaimer must specify the extent of the applicant's ownership.

Below is what needs to be done to correct the defects:

• A request under 37 CFR 1.46(c) to change the applicant needs to be filed, which is (1) a request, signed by a 1.33(b) party, (2) a corrected ADS (37 CFR 1.76(c)) that identifies the "new" applicant in the applicant information, and is underlined since it is new, and (3) a 3.73(c) statement showing chain of title to the new applicant. Along with the § 1.46(c) request we need a POA that gives power to the attorney who is signing the TD, along with another copy of the TD, unless they file a TD that is signed by the applicant.
Resubmit TD , no fee is required

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

21186 7590 01/29/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER
CAMARGO, MARLY S.B.

ART UNIT	PAPER NUMBER
2699	

DATE MAILED: 01/29/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	04/29/2020

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)

21186 7590 01/29/2020
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

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.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	04/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
CAMARGO, MARLY S.B.	2699	348-241000

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,
(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.

1 _____
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 (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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

21186 7590 01/29/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	
ART UNIT	PAPER NUMBER
2699	

DATE MAILED: 01/29/2020

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 law or regulation.

Notice of Allowability	**Application No.** 13/691,805	**Applicant(s)** Solomon, Neal	
	Examiner MARLY S CAMARGO	**Art Unit** 2699	**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 11/15/2019 and 1/15/2020.
   ☐ 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 1-30 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MARLY S CAMARGO/
Examiner, Art Unit 2699

Notice of Pre-AIA or AIA Status

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

Change in Art Unit Designation for Your Application

1. The Art Unit designation of your application in the USPTO has changed from 2664 to 2699. The examiner assigned to this application remains the same. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2699.

Detailed Action

Response to Amendment

2. In response Applicant amendment filed on January 15, 2020, the Examiner acknowledges the following:

- Note: Applicant had filed a previous version of amendment to claims on November 15, 2019, wherein claim 24 was missing and after the Examiner called the Applicant representative, this last version of claims was filed as to address that problem.
- Claims 1 – 11, 14 – 16, 18 and 19 were amended.
- Previous claims included two versions of claim 18 ant the second version is now correct as to be claim #19, which was also amended. The previous claim objection in reference to the two versions of claim 18 is withdrawn by the Examiner.

- Claims 12 and 17 remain unchanged.
- New claims 20 – 30 were filed.
- A terminal disclaimer was filed by Applicant on 11/15/2019; however, at the same time claims were amended to overcome the previous Double Patent rejection; therefore, the Terminal Disclaimer was not needed. In response, the Examiner withdraws the previous rejection.
- Currently claims 1 – 30 are pending and they are being examined on the merits.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 01/16/2020 has been considered by the Examiner.

Allowable Subject Matter

4. Claims 1 – 30 are allowed.

5. The following is an examiner's statement of reasons for allowance. The closest art of record teaches: 1) a camera with objective optics and a digital filter used to determine aberration due to the objective optics and wherein the image signal outputted by the image sensor is filtered (Alon – US 2007/0236574 A1); 2) a method for correcting lateral chromatic aberration using an in-camera auto-calibration procedure (Vakrat – US 2008/0291447 A1); 3) a digital filter to be used by a digital image processor in a camera device (Robinson – US 2007/0002158 A1); however, each of them either alone or in

combination fails to provide the combination limitations as in the amended independent claims 1, 6 and 14, as it follows below.

Regarding Claim 1:

The prior art of record fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor, an integrated circuit, a digital signal processor, in-camera system software, *a database management system and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens or a fixed focal length lens; wherein integrated circuit uses in-camera software to identify at least one optical aberration and to correct the at least one optical image aberration in at least one frame of the digital video using at least one of a plurality of optical image aberration corrections in the database; wherein the video is captured by at least one digital sensor and forwarded to the digital signal processor; wherein the image file with the at least one optical image aberration is corrected by applying digital filtration by using the digital signal processor; and wherein the corrected video consisting of the digital data optimized from the at least one optical image aberration that are corrected from the original video image is stored in the memory storage sub-system.*

Therefore, as discussed above, claim 1 is allowable over the prior art of record.

Regarding Claims 2 – 5 and 20 – 30:

Claims 2 – 5 and 20 – 30 are allowable because they depend directly to claim 1 which is allowable over the prior art of record. Therefore, claims 2 – 5 and 20 – 30 are allowable for the same reasons as claim 1.

Regarding Claim 6:

The prior art of record fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor for capturing digital video, an integrated circuit, *a digital signal processor to access a database management system including a plurality of optical image aberration corrections, in-camera system software, and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens or a fixed focal length lens; wherein the video is forwarded to storage in memory; wherein at least one optical aberration in at least two frames of the digital video are identified using the in-camera software and the identified circuit; wherein the at least one optical aberration from the optical lens mechanism of the at least two frames of the digital video are corrected by using the digital signal processor to apply at least one digital filtration algorithm; and wherein the corrected digital video file is stored in memory.*

Therefore, as discussed above, claim 6 is allowable over the prior art of record.

Regarding Claims 7 – 13:

Claims 7 – 13 are allowable because they depend directly to claim 6 which is allowable over the prior art of record.

Regarding Claim 14:

The prior art of record fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor for capturing digital video, an integrated circuit, *a digital signal processor to access a database management system including a*

plurality of optical image aberration corrections, in-camera system software, and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens; wherein the zoom lens changes focal length positions; wherein when the digital video is forwarded to the digital signal processor and to memory; wherein the integral circuit uses system software to access the database to identify at least one optical aberration in at least one frame of the video at any focal length of a zoom lens configuration; wherein the integrated circuit access the database to obtain at least one filtration correction algorithm to the optical image aberration of at least one frame in the video file and forwards the at least one filtration algorithms to the digital processor; wherein the digital video is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the digital video and corrects the at least one optical image aberration in at least one video frame for the at least one focal length in the zoom lens configuration; and wherein the corrected digital video is stored in memory.

Therefore, as discussed above, claim 14 is allowable over the prior art of record.

Regarding Claims 15 – 19:

Claims 15 – 19 are allowable because they depend directly to claim 14 which is allowable over the prior art of record.

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

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

1. N. Kochi et al., US 2005/0261849 A1 – it teaches an image calibration method, comprising the steps of: receiving, at an image calibration processing device, a calibration request from a user terminal; receiving, at the image calibration processing device, a calibration object image photographed in accordance with an instruction for calibration photographing; performing a calibration process using the received calibration object image; and transmitting results of the calibration process from the image calibration processing device, wherein the user terminal performs a calibration on a subject image photographed by a camera used to photograph the calibration object image, using the results of the calibration process transmitted from the image calibration processing device, to form a corrected subject image. As for the method, aberrations are corrected as well.

2. Y. Tzur et al., US 2012/0106841 A1 – it teaches a system, method, and computer program product for automatically detecting and correcting the "purple fringing" effect, typically due to axial chromatic aberration in imaging devices. A chromaticity score is computed, denoting the amount of false color related to a purple fringing artifact.

3. D. Vakrat et al., US 2008/0291447 A1 – it teaches a device and its method of operation for the correction of lateral chromatic aberration within a digital camera or other imaging device, using calibration approaches that do not require previously acquired lens data to effect the correction. An in-camera auto-calibration procedure is performed on the

attached lens, such as when a lens is exchanged, and extracts parameters required for chromatic aberration correction, respecting zoom and focus, from one or more captured images. Based on image data extracted as a plurality of channels of a chromatic decomposition of the image, the chromatic aberration information for the lens is extracted. From the chromatic aberration information, the correction factors for the lens are determined.

4. P. Askey et al., US 8,194,136 B1 – it teaches methods and systems which are provided for measuring, analyzing, and/or providing analysis results of optical characteristics of optical articles, such as camera lenses. For example, certain embodiments measure, analyze, and/or provide analysis results of some or all of the following characteristics: sharpness, chromatic aberration, distortion, vignetting, and other characteristics.

5. T. Chibal, US 2007/0103744 A1 – it teaches an information processing apparatus for correcting chromatic aberration of video data, comprising: white saturation pixel detecting means for detecting a white saturation pixel having white saturation using a G signal of the video data composed of an RGB signal; spatial signal processing means for performing a spatial signal process on the RGB signal across a plurality of lines; color signal generating means for generating a color signal from the RGB signal processed by the spatial signal processing means; white saturation distribution information generating means for generating white saturation distribution information representing a distribution of the white saturation pixels detected by the white saturation pixel detecting means; and chromatic aberration correcting means for correcting a chromatic aberration of the color signal generated by the color signal generating means, using the white saturation

distribution information generated by the white saturation distribution information generating means.

Contact

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARLY CAMARGO whose telephone number is (571)270-3729. The examiner can normally be reached on 6:00AM - 10PM, M-F, EST.

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

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

/MARLY S CAMARGO/
Examiner, Art Unit 2699

Examiner-Initiated Interview Summary	Application No. 13/691,805	Applicant(s) Solomon, Neal	
	Examiner MARLY S CAMARGO	Art Unit 2699	AIA (FITF) Status No

All participants (applicant, applicant's representative, PTO personnel):

(1) MARLY S.B.. CAMARGO. (3) _____.

(2) Mr. Timothy Bianchi (RG# 39,610). (4) _____.

Date of Interview: 16 January 2020.

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: 24.

Identification of prior art discussed: n/a.

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...)

See Continuation Sheet.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of 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

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: The Examiner had called Mr. Bianchi previously and left a message about a TD which was disapprove and a missing claim 24 on the amendment filed on 11/15/2019 and left a message about the problems. Since Mr. Bianchi did not call back, the Examiner called him to inform him that since he amended the claims, which overcame the previous Double Patent rejection, the TD was not needed. It was discussed about the missing claim 24 and about the amendment he filed on 01/15/2020. Mr. Bianchi informed the Examiner that they were filing a new IDS later on 01/16/2020 and that they wanted it to be searched and it to be part of the file documentation. The Examiner did that search and the case is allowable over the art cited in the ids.

Notice of References Cited	Application/Control No. 13/691,805	Applicant(s)/Patent Under Reexamination Solomon, Neal	
	Examiner MARLY S CAMARGO	Art Unit 2699	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-2005/0261849-A1	11-2005	Kochi; N.	G06K9/36	382/254
*	B	US-2010/0106841-A1	05-2012	Tzur; Y.	G06K9/40	382/167
*	C	US2008/0291447-A1	11-2008	Vakrat; D.	H04N5/225	348/241
*	D	US-2007/0103744-A1	05-2007	Chibal; T.	H04N9/646	348/252
*	E	US-8,194,136-B1	01-2012	Askey; P.	H04N5/2351	348/187
	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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2699

CPC						
Symbol					**Type**	**Version**
H04N	/	5	/	217	F	2013-01-01
H04N	/	5	/	238	I	2013-01-01
H04N	/	5	/	2253	I	2013-01-01
H04N	/	5	/	2254	I	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	30	
/MARLY S CAMARGO/ Examiner, Art Unit 2699	18 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200118

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2699

INTERNATIONAL CLASSIFICATION					
CLAIMED					
H04N	/	5	/	225	
H04N	/	5	/	217	
H04N	/	5	/	238	
H04N	/	5	/	228	
H04N	/	5	/	357	
H04N	/	5	/	374	

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
348	241	335	222.1	207.99	340	345
382	275	252	321	167	253	264
359	16	637	666	665	676	

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	30	
/MARLY S CAMARGO/ Examiner, Art Unit 2699	18 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200118

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2699

☑ 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		10		19		28								
	2		11		20		29								
	3		12		21		30								
	4		13		22										
	5		14		23										
	6		15		24										
	7		16		25										
	8		17		26										
	9		18		27										

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	30	
/MARLY S CAMARGO/ Examiner, Art Unit 2699	18 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200118

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2699

CPC - Searched*		
Symbol	**Date**	**Examiner**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	05/10/2019	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	01/13/2020	M. Camargo

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/10/2019	M. Camargo
382	254,255,264,263,266,275	05/10/2019	M. Camargo
359	16,637,666,665,207.2,354,676	05/10/2019	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	01/13/2020	M. Camargo
382	167,254,255,264,263,266,275	01/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	01/13/2020	M. Camargo

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

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2699

Search Notes		
Search Notes	**Date**	**Examiner**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC. and the results teaxt limited - see attached search history printout.	05/10/2019	M. Camargo
EAST as BRS	05/10/2019	M. Camargo
inventor	05/10/2019	M. Camargo
assignee	05/10/2019	M. Camargo
Google and Google Patents	05/01-10/2019	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC. and the results text limited - see attached search history printout.	01/13/2020	M. Camargo
EAST - updated	01/13,17/2020	M. Camargo
inventor - updated	01/13/2020	M. Camargo
assignee - updated	01/13/2020	M. Camargo
Google & Google Patents	01/10/2020- 01/17/ 2020	M. Camargo

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
EAST		01/13/2020	M. Camargo
inventor		01/13/2020	M. Camargo
assignee		01/13/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	01/13/2020	M. Camargo
382	167,254,255,264,263,266,275	01/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	01/13/2020	M. Camargo

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2699

CPC	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	01/13/2020	M. Camargo
claim (US PAT/ US PG Pub)	((aberration$1 with digital with database)).clm.	01/13/2020	M. Camargo
claim	((aberration$1 with digital with database) and vignet $5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))). clm.	01/13/2020	M. Camargo
claim	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag $3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	01/13/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	01/13/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	01/13/2020	M. Camargo

/MARLY S CAMARGO/ Examiner, Art Unit 2699	

Modified form PTO/SB/08A(04-07) OMB 651-0031
US Patent & Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2699
	Examiner Name	Marly Camargo
Sheet 1 of 4	Attorney Docket No: 5311.001US3	

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document
	US-6,023,977	2/15/2000	Langdon, Donald R, et al.
	US-6,055,330	4/25/2000	Eleftheriadis, Alexandros, et al.
	US-6,508,764	1/21/2003	Thiele, Karl E, et al.
	US-6,850,272	2/1/2005	Terashita, Takaaki
	US-7,245,319	7/17/2007	Enomoto, Jun
	US-7,321,685	1/22/2008	Okada, Miyuki, et al.
	US-7,406,182	7/29/2008	Ono, Shuji
	US-7,551,205	6/23/2009	Kubo, Masahiro, et al.
	US-7,612,805	11/3/2009	Solomon, Neal
	US-7,619,663	11/17/2009	Sakurai, Keiichi, et al.
	US-7,636,111	12/22/2009	Oota, Makoto
	US-7,701,484	4/20/2010	Habe, Masaru
	US-7,764,874	7/27/2010	Awazu, Kouhei, et al.
	US-8,106,976	1/31/2012	Kawasaka, Yasuki
	US-8,451,339	5/28/2013	Solomon, Neal
	US-20020163586A1	11/7/2002	Noguchi, Takafumi
	US-20030210343A1	11/13/2003	Okada, Hiroyuki
	US-20040071318A1	4/15/2004	Cheung, Humphrey, et al.
	US-20050099507A1	5/12/2005	Lee, Hoseong
	US-20050200722A1	9/15/2005	Ono, Shuji
	US-20050219391A1	10/6/2005	Sun, Jian, et al.
	US-20060285761A1	12/21/2006	Kasperkiewicz, Tomasz S, et al.
	US-20070002158A1	1/4/2007	Robinson, Dirk M
	US-20070080280A1	4/12/2007	Havens, William H
	US-20070236574A1	10/11/2007	Alon, Alex, et al.
	US-20070247672A1	10/25/2007	Nguyen, Hugh P
	US-20080151069A1	6/26/2008	Koizumi, Takahiko, et al.
	US-20080174678A1	7/24/2008	Solomon, Neal
	US-20100033604A1	2/11/2010	Solomon, Neal
	US-20100073508A1	3/25/2010	Okamoto, Satoshi
	US-20110096176A1	4/28/2011	Nakami, Yoshihiro, et al.

FOREIGN PATENT DOCUMENTS

Examiner Initial *	Foreign Document Number	Publication Date	Name of Patentee or Applicant of cited Document	T 1
	JP-2004343358A	12/2/2004	Kishida, Hironori	

EXAMINER /MARLY S CAMARGO/ DATE CONSIDERED 01/17/2020

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant is to place a check mark here if English language Translation is attached

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.S.C/

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2699
	Examiner Name	Marly Camargo
Sheet 2 of 4	Attorney Docket No: 5311.001US3	

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS

Examiner Initial *	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T1
/M.S.C/	"36-1 Canon Declaration of Ryan M. Mott 11/7/2019", 5 pgs	
	"36-13 Canon Exhibit L to Declaration of Ryan M. Mott 11/7/2019", 9 pgs	
	"36-15 Canon Exhibit N to Declaration of Ryan M. Mott 11/7/2019", 8 pgs	
	"36-17 Canon Exhibit P to Declaration of Ryan M. Mott 11/7/2019", 9 pgs	
	"36-20 Canon Exhibit S to Declaration of Ryan M. Mott 11/7/2019", 9 pgs	
	"36-22 Canon Declaration of Ana C. Tavares 11/7/2019", 6 pgs	
	"36-23 Canon Declaration of Hironori Aokage 11/7/2019", 3 pgs	
	"36-24 Canon Declaration of Seiichi Hamada 11/7/2019", 3 pgs	
	"39 Canon Redacted Opposed Motion to Transfer Venue to Edny", 21 pgs	
	"Application Serial No. 11/825,521, Non Final Office Action mailed 08-15-08", 13 pgs	
	"Application Serial No. 11/825,521, Notice of Allowance mailed 07-23-19", 22 pgs	
	"Application Serial No. 11/825,521, Response filed 04-27-09 to Restriction Requirement mailed 04-02-09", 3 pgs	
	"Application Serial No. 11/825,521, Response filed 12-12-08 to Non Final Office Action mailed 08-15-08", 10 pgs	
	"Application Serial No. 11/825,521, Restriction Requirement mailed 04-02-09", 6 pgs	
	"Application Serial No. 12/586,221, Non Final Office Action mailed 05-24-12", 18 pgs	
	"Application Serial No. 12/586,221, Notice of Allowance mailed 09-06-12", 10 pgs	
	"Application Serial No. 12/586,221, PTO Response to Rule 312 Communication mailed 04-25-13", 2 pgs	
	"Application Serial No. 12/586,221, Response filed 03-02-12 to Restriction Requirement mailed 12-29-11", 11 pgs	
	"Application Serial No. 12/586,221, Response filed 08-23-12 to Non Final Office Action mailed 05-24-12", 19 pgs	
	"Application Serial No. 12/586,221, Restriction Requirement mailed 12-29-11", 5 pgs	
	"Canon GL2 Instruction Manual", 163 pgs	
	"Canon Inc's Invalidity Contentions and Disclosures under P.R. 3-3 and 3-4", 2:19-cv-00246-JRG, 32 pgs	
	"Canon XL 1s A NTSC Instruction Manual", 124 pgs	
	"Canon XL1 A NTSC Instruction Manual", 88 pgs	
	"Canon XL2 Instruction Manual", 126 pgs	
	"Canon ZR10 NTSC Instruction Manual", 113 pgs	
	"Canon ZR100 Instruction Manual", 103 pgs	
	"Canon ZR20 NTSC Instruction Manual", 114 pgs	
	"Canon ZR25 MC NTSC Instruction Manual", 146 pgs	
/M.S.C/	"Canon ZR300200 Instruction Manual", 152 pgs	

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Examiner Initial *	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T1
/M.S.C/	"Canon ZR5045 Instruction Manual", 164 pgs	
	"Canon ZR706560 Instruction Manual", 158 pgs	
	"Canon ZR90IM Instruction Manual", 153 pgs	
	"Coolpix 7900 Canon0063894", 165 pgs	
	"DxO Optics Pro Canon0063666", 153 pgs	
	"EF Lenswork III: The Eyes of EOS", 4 the ED, Canon Inc. Lens Product Group, (2009), 10 pgs	
	"JP H11-313250 11/9/1999 Canon0062291", 5 pgs	
	"JP H11-313250 English Translation 11/9/1999 Canon0065023", 6 pgs	
	"JP2000-184247 6/30/2000 Canon0062296", 12 pgs	
	"JP2000-184247 English Translation 6/30/2000 Canon0065045", 13 pgs	
	"JP2002-190979 7/5/2002 Canon0062325", 11 pgs	
	"JP2002-190979 English Translation 7/5/2002 Canon0065058", 12 pgs	
	"JP2002-199410 7/12/2002 Canon0062336", 17 pgs	
	"JP2002-199410 English Translation 7/12/2002 Canon0065070", 18 pgs	
	"JP2004-328506 English Translation 11/18/2004 Canon0065088", 21 pgs	
	"JP2004-328506 11/18/2004 Canon0062353", 17 pgs	
	"JP2004-343358 English Translation 12/2/2004 Canon0065109", 31 pgs	
	"JP2006-072660 3/16/2006 Canon0062397", 13 pgs	
	"JP2006-072660 English Translation 3/16/2006 Canon0065140", 14 pgs	
	"Kodak EasyShare V570 Canon0063819", 75 pgs	
	"Lumix DMC-FZ30 Canon 0064649", 148 pgs	
	"Olympus E-1 Canon0064059", 182 pgs	
	"Olympus E-300 Canon0064241", 212 pgs	
	"Olympus E-330 Canon0064453", 196 pgs	
	"Photoshop CS2 Canon0062668", Part 1 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 2 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 3 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 4 of 5, 163 pgs	
	"Photoshop CS2 Canon0062668", Part 5 of 5, 163 pgs	
	"SD200-300 Digital ELPH Canon0063487", 179 pgs	
	"US 5,905,530 5/18/1999 Canon 0062546", 71 pgs	
	"US 7,590,305 9/15/2009 Canon0064843", 23 pgs	
	"US 7,738,015 6/15/2010 Canon0064866", 23 pgs	
	"US 7,936,392 5/3/2011 Canon0062617", 51 pgs	
	"US2001/0008418A1 7/19/2001 Canon0062410", 45 pgs	
/M.S.C/	"US2003/0095197A1 5/22/2003 Canon0064797", 32 pgs	

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/M.S.C/	"US2004/0150732A1 8/5/2004 Canon0062455", 31 pgs	
/M.S.C/	"US2004/0207733A1 10/21/2004 Canon0062486", 60 pgs	
/M.S.C/	"WO2005/093653A1 6/10/2005 Canon0064889", 128 pgs	
/M.S.C/	"Zuiko Digital 14-45mm f.3.5 Canon0065019", 2 pgs	
/M.S.C/	"Zuiko Digital ED50mm f2.0 Macro CANON0065017", 2 pgs	

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	64	(US-20030210343-$ | US-20050219391-$ | US-20080174678-$ | US-20110096176-$ | US-0062546-$ | US-0064649-$ | US-6023977-$ | US-6055330-$ | US-6508764-$ | US-6850272-$ | US-7245319-$ | US-7321685-$ | US-7406182-$ | US-7551205-$ | US-7612805-$ | US-7619663-$ | US-7636111-$ | US-7701484-$ | US-7764874-$ | US-8106976-$ | US-8451339-$ | US-5905530-$ | US-7590305-$ | US-7738015-$ | US-7936392-$ | US-20020163586-$ | US-20050099507-$ | US-20060285761-$ | US-20070002158-$ | US-20070236574-$ | US-20080151069-$ | US-20100073508-$ | US-20040150732-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:58
L2	4	(11/825521 | 12/586221 | 13/691805).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:58
L3	4	(TO-030212-$ | TO-042709-$ | TO-082312-$ | TO-121208-$ | AI-20060285761-$ | HI-1313250-$ | HI-1313250119-$ | JP-2004343358-$ | JP-20001842476-$ | JP-20021909797-$ | JP-20021994107-$ | JP-2004328506-$ | JP-20060726803-$ | ZR-706560-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:59
L4	2	1 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:48
L5	3	2 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:48
L6	0	3 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:49
S1	0	13/691805	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:06
S2	2	12/586221	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:06
S3	4	11/825521	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2019/05/10 12:08

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S4	139	(neal with solomon).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:09
S5	17	(neal with solomon).in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:10
S6	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:11
S7	6	("20070080280" | "20070236574").PN. OR ("8451339").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:19
S8	0	(11/278268).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:25
S9	1	(11/546531).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:26
S10	116	("1269422" | "20030098952" | "20040008853" | "20040218283" | "20040227063" | "20040228003" | "20050002113" | "20050014306" | "20050100270" | "20050212952" | "20050218231" | "20060072915" | "20060076540" | "20060086596" | "20070063048" | "20070080280" | "20070116858" | "20080144185" | "20080144186" | "20080245872" | "20090072037" | "2062468" | "2300251" | "3161718" | "3305294" | "3583790" | "3761157" | "3778170" | "4134393" | "4191594" | "4210121" | "4249516" | "4261655" | "4286839" | "4289379" | "4312709" | "4407567" | "4487659" | "4514048" | "4783153" | "4783155" | "4784479" | "4802746" | "5091801" | "5150234" | "5305356" | "5389222" | "5396144" | "5684637" | "5892625" | "5917657" | "5973852" | "6081388" | "6109852" | "6188526" | "6212015" | "6368954" | "6369954" | "6376971" | "6399954" | "6437925" | "6449081" | "6475639" | "6529620" | "6538823" | "6542309" | "6545815" | "6545816" | "6586859" | "6628040" | "6702483" | "6715876" | "6734903" | "6747806" | "6762210" | "6806621" | "6806988" | "6809462" | "6812624" | "6882086" | "6891317" | "6934090" | "6936809" | "7169822" | "7224106" | "7301708" | "7416125" | "RE39874").PN. OR ("8027095").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:27
S11	28	("20020176148" | "20040228003" | "5071229" | "5150234").PN. OR ("6934090").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:32
S12	480	(marly with camargo).xa,xp.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:36
S13	18	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:36
S14	5	("20060228097" | "8395677" | "9077842" | "9392176" | "9998652").PN. OR ("10237485").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:38
S15	9	("20080309771" | "20090256952" | "20100013947" | "20100194966" | "20120274837" | "20140036134" | "20140340567" | "6363220").PN. OR ("9998652").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:39
S16	12	(aberration$1 with digital with database)	US-PGPUB;	OR	ON	2019/05/10

			USPAT; USOCR			12:42
S17	10	(aberration$1 with digital with database) and vignet$5	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:43
S18	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:44
S19	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:46
S20	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:46
S21	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49
S22	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49
S23	33470	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
S24	15928	382/254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
S25	5250	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:33
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S27	17	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S28	9	S23 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S29	0	S24 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21

S30	0	S25 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S31	5	S26 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:22
S32	0	canon.as. and (aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:22
S34	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S35	0	fuji.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S36	0	microsoft.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S37	0	panasoninc.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
S38	0	nikon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
S39	0	omnivision.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:26
S40	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S41	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S42	0	pelican.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S43	0	fotonation.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
S44	0	(carl with zeiss).as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
S45	139	(neal with solomon).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 09:56
S46	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 09:57
S47	104	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT; USOCR;	OR	ON	2020/01/13 09:59

			EPO; JPO; DERWENT			
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S49	522	(marly with camargo).xa,xp.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:03
S50	18	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:03
S51	7	("20070080280" | "20070236574").PN. OR ("8451339").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 10:06
S52	12	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 10:26
S53	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:31
S54	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:31
S55	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:32
S56	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:33
S57	0	canon.as. and (aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S58	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S59	0	fuji.as. and ((aberration$1 with digital with database) and vignet$5 and	US-PGPUB;	OR	ON	2020/01/13

		(integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			10:34
S60	0	sony.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S61	0	microsoft.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:35
S62	0	apple.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:35
S63	0	aptina.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:35
S64	0	oplympus.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S65	0	panasonic.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S66	0	omnivision.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S67	0	fotonation.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:37
S68	0	pelican.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:37
S69	0	nikon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/01/13 10:38

			EPO; JPO; DERWENT; IBM_TDB			
S70	0	(eastman with kodak).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:39
S71	0	(blur with technologies).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:45
S72	0	(d$blur with technologies).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:46
S73	0	casio.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:48
S74	8	(digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:55
S75	8	("20050261849" | "20070030357" | "20070236574" | "20080174678").PN. OR ("8384785").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:03
S76	6	("20070236574" | "20080174678").PN. OR ("8395668").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:09
S77	21	(dudi with vakrat).in.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:13
S78	7	(dudi with vakrat).in. and aberration$1	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:13
S79	19	("20030038957" | "20040150732" | "20040227978" | "20050162532" | "20060061664" | "20060062562" | "20060232681" | "20070103744" | "4466018" | "5713053" | "6788822" | "6807299" | "6822762" | "6862373" | "7088388" | "7158686" | "7973850" | "8089555" | "8194136").PN. OR ("8654240").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:20
S80	48	(katsuhiko with nagata).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:33
S81	9	(katsuhiko with nagata).in. and aberration$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:34
S82	1	(12/717769).APP.	USPAT; USOCR	OR	ON	2020/01/13 11:37

S83	174	(jeffrey with stafford).in.	USPAT; USOCR	OR	ON	2020/01/13 11:39
S84	1109	(jeffrey with stafford).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39
S85	212	(jeffrey with roger with stafford).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39
S86	8	(jeffrey with roger with stafford).in. and aberration$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39
S87	34600	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S88	23944	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S89	5422	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S90	132232	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S91	7	S87 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:42
S92	0	S88 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43
S93	0	S89 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43
S94	5	S90 and ((aberration$1 with digital with database) and vignet$5 and	US-PGPUB;	OR	ON	2020/01/13

		(integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			11:43
S95	6	S87 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:44
S96	0	S88 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S97	0	S89 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S98	4	S90 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S99	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:49
S100	0	((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:50
S101	0	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:51
S102	1	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:52
S103	0	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:54

EAST Search History (Interference)

Ref	Hits	Search Query	DBs	Default	Plurals	Time

#				Operator		Stamp
S104	96	(neal with solomon).in.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S105	3	(neal with solomon).as.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S106	21404	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S107	15418	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S108	3017	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:48
S109	42109	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:48
S110	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:49
S111	0	((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:50
S112	0	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:51
S113	1	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:52
S114	0	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:54

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SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/691,805	12/02/2012	348	2699	5311.001US3

APPLICANTS

INVENTORS

Neal Solomon, Oakland, CA;

** **CONTINUING DATA** **********

** **FOREIGN APPLICATIONS** **********

** **IF REQUIRED, FOREIGN FILING LICENSE GRANTED** ** SMALL ENTITY **
12/27/2012

Foreign Priority claimed ❑ Yes ☑ No 35 USC 119(a-d) conditions met ❑ Yes ☑ No Verified and Acknowledged /MARLY S.B. CAMARGO/ Examiner's Signature	❑ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	19	18	3

ADDRESS

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402
UNITED STATES

TITLE

Digital imaging system for correcting video image aberrations

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13/691,805	12/02/2012	2699	1365	5311.001US3	18	3

CONFIRMATION NO. 6244

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21186
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Date Mailed: 03/02/2020

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Neal Solomon, Oakland, CA;

Applicant(s)

Neal Solomon, Oakland, CA;

Power of Attorney: The patent practitioners associated with Customer Number 21186

Domestic Priority data as claimed by applicant

This application is a CON of 12/586,221 09/18/2009 PAT 8451339
which is a CON of 11/825,521 07/06/2007 PAT 7612805
which claims benefit of 60/807,065 07/11/2006

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

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Permission to Access Search Results: No

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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 13/691,805**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
**** SMALL ENTITY ****
Title

DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

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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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.

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LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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

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

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MAR 03 2020
OFFICE OF PETITIONS

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

Inventor: Neal Solomon
Application No. 13/691,805
Filing Date: December 2, 2012
Attorney Docket No. 5311.001US3

Decision on Petition under
37 C.F.R. §§ 1.78(c) and 1.78(e)

This is a decision on the renewed petition under 37 C.F.R. §§ 1.78(c) and 1.78(e) filed October 17, 2019, to accept unintentionally delayed claims under 35 U.S.C. §§ 119(e) and 120.

The petition is **granted**.

A petition under 37 C.F.R. §§ 1.78(c) and 1.78(e) was filed on August 20, 2019.

The Office issued a decision dismissing the petition on October 15, 2019.

The renewed petition was filed on October 17, 2019. The renewed petition corrects the deficiency identified in the prior decision.

The requirements set forth in 37 C.F.R. §§ 1.78(c) and (e) have been satisfied, and the late claims for priority under 35 U.S.C. §§ 119(e) and 120 are accepted as being unintentionally delayed.

This decision grants the petition to accept the unintentionally delayed domestic benefit claim to the prior-filed applications because the petition requirements of 37 C.F.R. §§ 1.78(c) and 1.78(e) and the formal requirements for claiming domestic benefit (*See* MPEP §§ 211.01 et. seq.) have been met. This acceptance should not be construed as meaning that this application is entitled to the benefit of the prior-filed applications. Whether a claimed invention in a nonprovisional application is entitled to the benefit of the filing date of a prior-filed application on the basis of the disclosure thereof is determined during examination if it becomes necessary to do so (e.g., intervening reference and interference proceeding). *See* MPEP § 211.05.

A corrected Filing Receipt including the unintentionally delayed benefit claims accompanies this decision on petition.

Any questions concerning this matter may be directed to Attorney Advisor Steven Brantley at (571) 272-3203.

Charles Steven Brantley
Attorney Advisor
Office of Petitions
Attachment: Corrected Filing Receipt

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United States Patent and Trademark Office
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/691,805	12/02/2012	2699	1365	5311.001US3	18	3

CONFIRMATION NO. 6244

CORRECTED FILING RECEIPT

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

OC000000113087928

Date Mailed: 03/02/2020

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Neal Solomon, Oakland, CA;

Applicant(s)

Neal Solomon, Oakland, CA;

Power of Attorney: The patent practitioners associated with Customer Number 21186

Domestic Priority data as claimed by applicant

This application is a CON of 12/586,221 09/18/2009 PAT 8451339
which is a CON of 11/825,521 07/06/2007 PAT 7612805
which claims benefit of 60/807,065 07/11/2006

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

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

If Required, Foreign Filing License Granted: 12/27/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/691,805**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
**** SMALL ENTITY ****
Title

DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Preliminary Class

348

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.

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

7590 03/11/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	
ART UNIT	PAPER NUMBER
2699	
NOTIFICATION DATE	DELIVERY MODE
03/11/2020	ELECTRONIC

NOTICE REQUIRING INVENTOR'S OATH OR DECLARATION

☐ An inventor's oath or declaration in compliance with 37 CFR 1.63 or substitute statement in compliance with 37 CFR 1.64 executed by or with respect to each inventor has not yet been submitted.

The inventor's oath or declaration or substitute statement dated 11/28/19 is defective. The inventor's oath or declaration does not comply with 37 CFR 1.63 or the substitute statement does not comply with 37 CFR 1.64 because it:

☐ does not include a statement that the person executing the oath or declaration or substitute statement believes the named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application for which the oath or declaration is being submitted.

☐ does not state that the application was made or was authorized to be made by the person executing the oath or declaration or substitute statement.

☐ does not acknowledge that any willful false statement made in such oath or declaration or substitute statement is punishable under section 1001 of title 18 by fine or imprisonment of not more than 5 years, or both.

☐ does not identify the person executing the oath or declaration or substitute statement by his or her legal name.

☐ does not identify the application to which the oath or declaration or substitute statement is directed.

☑ Other: Oath 11/28/19 does not provide residence information. Oath should include inventor residence or be submitted with ADS per 37 CFR 1.76

The substitute statement dated _____ does not comply with 37 CFR 1.64 because it:

☐ does not identify the inventor with respect to whom the statement applies.

☐ does not identify the relationship to the non-signing inventor.

☐ does not identify the circumstances permitting execution of the statement.

☐ was signed by someone other than the applicant.

☑ Other: Please note: ADS 10/17/19 provided only for Continuity data.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor MUST be filed **no later than the date on which the issue fee is paid.** See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application. This period for reply is not extendable under 37 CFR 1.136(a).

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

(571)-272-4200 or 1(888)-786-0101
Patent Publication Branch
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

21186 7590 03/18/2020
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	

ART UNIT	PAPER NUMBER
2699	

NOTIFICATION DATE	DELIVERY MODE
03/18/2020	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):

SLW@blackhillsip.com
uspto@slwip.com

Corrected ***Notice of Allowability***	**Application No.** 13/691,805	**Applicant(s)** Solomon, Neal	
	Examiner MARLY S CAMARGO	**Art Unit** 2699	**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 X-RUSH of 3/9/2020 and petition filed by Applicant of 3/3/2020.
   ☐ 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 1-30 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MARLY S CAMARGO/
Examiner, Art Unit 2699

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BIB DATA SHEET

CONFIRMATION NO. 6244

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/691,805	12/02/2012	348	2699	5311.001US3

APPLICANTS

INVENTORS

Neal Solomon, Oakland, CA;

**** CONTINUING DATA ***************************

This application is a CON of 12/586,221 09/18/2009 PAT 8451339
which is a CON of 11/825,521 07/06/2007 PAT 7612805
which claims benefit of 60/807,065 07/11/2006

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
12/27/2012

Foreign Priority claimed ❑ Yes ☑ No 35 USC 119(a-d) conditions met ❑ Yes ☑ No Verified and Acknowledged /MARLY S.B. CAMARGO/ Examiner's Signature	❑ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	19	18	3

ADDRESS

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402
UNITED STATES

TITLE

DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
1365	No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

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	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

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	10210602		2019-02-19	Campbell, Richard John	
	2	7327390		2008-02-05	Gallagher, Andrew C	
	3	9077842		2015-07-07	Natsume, Satoshi	

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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	20020012054	A1	2002-01-31	Osamoto, Akira	
	2	20020041383	A1	2002-04-11	Lewis, Clarence A, et al.	
	3	20030039402	A1	2003-02-27	Robins, David R, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	4	20040150726	A1	2004-08-05	Gallagher, Andrew C	
	5	20050030394	A1	2005-02-10	Mendis, Sunetra K, et al.	
	6	20060120599	A1	2006-06-08	Steinberg, Eran, et al.	
	7	20070252074	A1	2007-11-01	Ng, Yi-ren, et al.	
	8	20080175514	A1	2008-07-24	Nose, Atsushi, et al.	
	9	20120229654	A1	2012-09-13	Solomon, Neal	

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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							

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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]

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	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	1	"Application Serial No. 16 692,972, Notice of Allowance mailed 01-24-20", 17 pages.	
	2	"Application Serial No. 16 692,939, Non Final Office Action mailed 02-04-20", 22 pages.	
	3	"Application Serial No. 16 694,838, Non Final Office Action mailed 02-13-20", 21 pages.	
	4	"Application Serial No. 16 694,850, Non Final Office Action mailed 03-04-20", 25 pages.	

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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	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

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	/Timothy E. Bianchi/	Date (YYYY-MM-DD)	2020-04-21
Name/Print	Timothy E. Bianchi	Registration Number	39,610

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 record s.

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:	13691805
Filing Date:	02-Dec-2012
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Filer:	Garrett M. Hall/Clayton Finn
Attorney Docket Number:	5311.001US3

Filed as Small 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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt	
EFS ID:	39222807
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Garrett M. Hall/Clayton Finn
Filer Authorized By:	Garrett M. Hall
Attorney Docket Number:	5311.001US3
Receipt Date:	21-APR-2020
Filing Date:	02-DEC-2012
Time Stamp:	17:03:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$120
RAM confirmation Number	E20204KH03595867
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	13691805_Transmittal_4-21-2020.pdf	1108448 3f4abd6cd1d2491bad087b2b93e48cebbd6b4a90	no	2
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	13691805_IDS_4-21-2020.pdf	645706 0936aa17b91d292303ed71feba030bf342a7cd09	no	5
Warnings:					
Information:					
3	Non Patent Literature	0001_2_npl_5311001us4_oarnpe_2420_f.pdf	1035771 9111af30e53381ae68ad512288de7eba43dd814f	no	22
Warnings:					
Information:					
4	Non Patent Literature	0002_2_npl_5311001us5_noar_12420_f.pdf	1000472 a601751d2f8f21b1022947d3362bf31a51e68857	no	17
Warnings:					
Information:					
5	Non Patent Literature	0003_2_npl_5311001us6_oarnpe_21320_f.pdf	1168774 96e4d6b50770a931da18afe3873fc00c1266ecd6	no	21
Warnings:					
Information:					
6	Non Patent Literature	0004_2_npl_5311001us7_oarnpe_3420_f.pdf	1307110 c616a31655f3b922415ce5ef977333bdbb673ee9	no	25
Warnings:					
Information:					

7	Fee Worksheet (SB06)	fee-info.pdf	30074 0882d18a002f20fb994cca8233a9c5e7510598e7	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	6296355	

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

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2699
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicant respectfully requests that this Information Disclosure Statement be entered and the documents listed on the attached PTO 1449 Form be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that a copy of the PTO 1449 Form, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Pursuant to 37 C.F.R. § 1.97(c)(2), Applicant hereby authorizes the Commissioner to charge the fee of $120.00 as set forth in 37 C.F.R. § 1.17(p), to Deposit Account No. 19-0743. Please charge any additional fees or deficiencies, or credit any overpayment to Deposit Account No. 19-0743.

Pursuant to 37 C.F.R. § 1.98(a)(2), copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R § 1.98(a)(2).

The Examiner is invited to contact the undersigned at the telephone number indicated if there are any questions regarding this communication.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 4/21/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
TEB:caf Reg. No. 39,610

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2699	
Filed:	December 2, 2012	Docket: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

COMMUNICATION RE: LATE SUBMISSION OF DECLARATION

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

In compliance with 37 CFR 1.63, we submit the Signed Declaration. Corresponding fees with regard to the late submission were paid with the filing of the application on December 2, 2012 therefore applicants believe no additional fees are due at this time.

Applicants assume the application is now in proper order and in condition for allowance. Please direct any inquiries to the undersigned at (612) 373-6912. If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

Schwegman Lundberg & Woessner, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 4/24/2020

By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

TEB:CMG:kap

Electronic Acknowledgement Receipt

EFS ID:	39262148
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	James D. Hallenbeck/Kimberlie Pates
Filer Authorized By:	James D. Hallenbeck
Attorney Docket Number:	5311.001US3
Receipt Date:	24-APR-2020
Filing Date:	02-DEC-2012
Time Stamp:	16:59:19
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		5311001US3_UADS.pdf	331380 48f372d3d0c022e19a1ad678a4c1d88aefb8403a	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	1
	Miscellaneous Incoming Letter	2	2
	Application Data Sheet	3	8
	Miscellaneous Incoming Letter	9	9
	Oath or Declaration filed	10	10
Warnings:			
Information:			
	Total Files Size (in bytes):	331380	

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

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the attached:

X Communication Re: Update to Application Data Sheet (1 Pg.).
X Marked Up Application Data Sheet (6 Pgs.).
X Communication Re: Late Submission of Declaration (1 pg.).
X Signed Declaration (1 pg.).

It is believed that no additional fee is required. However, if necessary, please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

Schwegman Lundberg & Woessner, P.A.
Customer No.: 21186

By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 24th day of April, 2020.

Kimberlie Pates
Name

/Kimberlie Pates/
Signature

Amended PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 13/691,805, filed on December 2, 2012 .

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Neal Solomon Date (Optional) : _____

Signature: Neal Solomon

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2699
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

COMMUNICATION RE: UPDATE TO APPLICATION DATA SHEET

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

Applicants hereby request that the information provided on the Application Data Sheet filed in the above-referenced application on December 2, 2012, be updated with the information as provided on the enclosed marked up Application Data Sheet.

We therefore submit a marked up copy of the Application Data Sheet which shows the Inventor's address/residence.

Once this request is entered, it is respectfully requested that the USPTO update their records and provide confirmation of the above request by way of an Updated Filing Receipt.

It is believed that no fee is required to fulfill this request, however, if necessary, please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

Schwegman Lundberg & Woessner, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 4/24/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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: Neal Solomon

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Neal		Solomon	

Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service

City	Oakland	State/Province	California	Country of Residence	United States of America

Mailing Address of Inventor:

Address 1	PO Box 21297		
Address 2			
City	Oakland	State/Province	California
Postal Code	94620	Country	United States of America

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	
Email Address	

Application Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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 Publication

Publication Information:

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

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

Representative Information:

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). Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
This application	is a continuation of	12/586,221	2009-09-18
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/586,221	is a continuation of	11/825,521	2007-07-06
Prior Application Status	Expired		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
11/825,521	Claims benefit of provisional	60/807,065	2006-07-11

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(d). 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(h)(1) and (2). Under the POX 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).

Application Number	Country	Parent Filing Date (YYYY-MM-DD)	Access Code (if applicable)

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

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

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

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

☐ Deceased	☐ Legally incapacitated

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here: ☐

Organization Name:

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING IMAGE ABERRATIONS	

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.

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.

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.

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		Postal Code	
Phone Number		Fax Number	
Email Address			

Signature:

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	/Timothy E. Bianchi/			Date (YYYY-MM-DD)	2020-04-24
First Name	Timothy	Last Name	Bianchi	Registration Number	39,610

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 22313-14**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2699	
Filed:	December 2, 2012	Docket No.: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

COMMUNICATION RE: FEE ADDRESS

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

In response to the Notice of Allowance and Issue Fee Due, please record the Fee Address under the provisions of 37 CFR 1.363 as the following:

Customer Number 21186

Please direct any inquiries to the undersigned attorney at (612) 373-6912.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 4/24/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

TEB:CMG:kap

Electronic Patent Application Fee Transmittal

Application Number:	13691805
Filing Date:	02-Dec-2012
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Filer:	James D. Hallenbeck/Kimberlie Pates
Attorney Docket Number:	5311.001US3

Filed as Small 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	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**500**

Electronic Acknowledgement Receipt	
EFS ID:	39262432
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	James D. Hallenbeck/Kimberlie Pates
Filer Authorized By:	James D. Hallenbeck
Attorney Docket Number:	5311.001US3
Receipt Date:	24-APR-2020
Filing Date:	02-DEC-2012
Time Stamp:	17:13:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$500
RAM confirmation Number	E20204NH13478766
Deposit Account	190743
Authorized User	Kimberlie Pates
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)	

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		5311001US3_IFEE.pdf	288317 4d42134dc77cd007d9d5dcc55fbc6cbe1ce63c77	yes	3

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	1
Issue Fee Payment (PTO-85B)	2	2
Miscellaneous Incoming Letter	3	3

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30352 4fd34ee8e1258f3f9be6e80d95b3d88c773f4e33	no	2

Warnings:

Information:

Total Files Size (in bytes):	318669

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

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	April 29, 2020
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

Notice of Allowance Date: January 29, 2020

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

We are transmitting herewith the following:

X Issue Fee Transmittal (Form PTOL-85).
X Communication Re: Fee Address (1 page).
X Authorization to charge Deposit 19-0743 in the amount of $500.00 to cover the Small Entity Issue Fee Payment.

Please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN LUNDBERG & WOESSNER, P.A. By /Timothy E. Bianchi/
Customer No.: 21186 Timothy E. Bianchi
TEB:CMG:kap Reg. No. 39,610

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 24th day of April, 2020.

Kimberlie Pates /Kimberlie Pates/
Name Signature

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)

21186 7590 01/29/2020
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

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.

Kimberlie Pates	(Typed or printed name)
/Kimberlie Pates/	(Signature)
April 24, 2020	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	04/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
CAMARGO, MARLY S.B.	2699	348-241000

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,
(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.

1 Schwegman Lundberg
2 & Woessner, P.A.
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: Optimum Imaging Technologies LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Austin, Texas

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. 190743

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 /Timothy E. Bianchi/ Date 4/24/2020

Typed or printed name Timothy E. Bianchi Registration No. 39,610

Petitioners Ex. 1002; Page 349 of 617

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

7590 04/28/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	
ART UNIT	**PAPER NUMBER**
2697	
NOTIFICATION DATE	**DELIVERY MODE**
04/28/2020	ELECTRONIC

NOTICE OF NON-COMPLIANT INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement (IDS) filed 04/21/2020 in the above-identified application fails to meet the requirements of 37 CFR 1.97(d) for the reason(s) specified below. Accordingly, the IDS will be placed in the file, but the information referred to therein has not been considered.

The IDS is not compliant with 37 CFR 1.97(d) because:

☒ The IDS lacks a statement as specified in 37 CFR 1.97(e).

☐ The IDS lacks the fee set forth in 37 CFR 1.17(p).

☐ The IDS was filed after the issue fee was paid. Applicant may wish to consider filing a petition to withdraw the application from issue under 37 CFR 1.313(c) to have the IDS considered. See MPEP 1308.

/BC/

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

FORM PTOM327-B (Rev. 02/08)

Notice of References Cited	Application/Control No. 13/691,805	Applicant(s)/Patent Under Reexamination Solomon, Neal	
	Examiner MARLY S CAMARGO	Art Unit 2699	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-2005/0261849-A1	11-2005	Kochi; N.	G06K9/36	382/254
*	B	US-2010/0106841-A1	~~05-2012~~ 04/2010	~~Tzur, Y.~~ Barnert	G06K9/40	382/167
*	C	US2008/0291447-A1	11-2008	Vakrat; D.	H04N5/225	348/241
*	D	US-2007/0103744-A1	05-2007	Chibal; T.	H04N9/646	348/252
*	E	US-8,194,136-B1	01-2012	Askey; P.	H04N5/2351	348/187
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

Change(s) applied to document. /S.B./ 4/30/2020

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.

Modified PTO/SB/36 (07-09)
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 displays a valid OMB control number.

RESCISSION OF PREVIOUS NONPUBLICATION REQUEST
(35 U.S.C. 122(b)(2)(B)(ii))
AND, IF APPLICABLE
NOTICE OF FOREIGN FILING
(35 U.S.C. 122(b)(2)(B)(iii))

Send completed form to:
Mail Stop PG Pub
Commissioner for Patents
P.O. Box 1450 Alexandria, VA 22313-1450 FAX: (571) 273-8300

Application Number	13/691,805
Filing Date	December 2, 2012
First Named Inventor	Neal Solomon
Title	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
Atty Docket Number	5311.001US3
Art Unit	2699
Examiner	Marly Camargo

A request that the above-identified application not be published under 35 U.S.C. 122(b) (nonpublication request) was included with the above-identified application on filing pursuant to 35 U.S.C. 122(b)(2)(B)(i).
I hereby rescind the previous nonpublication request.

If a notice of foreign or international filing is or will be required by 35 U.S.C. 122(b)(2)(B)(iii) and 37 CFR 1.213(c), I hereby provide such notice. This notice is being provided no later than forty-five (45) days after the date of such foreign or international filing.

If a notice of subsequent foreign or international filing required by 35 U.S.C. 122(b)(2)(B)(iii) and 37 CFR 1.213(c) was not filed within forty-five (45) days after the date of filing of the foreign or international application, the application is ABANDONED, and a petition to revive under 37 CFR 1.137(b) is required. See 37 CFR 1.137(f).

/Timothy E. Bianchi/ — Signature
05/12/2020 — Date
Timothy E. Bianchi — Typed or printed name
39,610 — Registration Number
(612) 373-6912 — Telephone Number

This request must be signed in compliance with 37 CFR 1.33(b).

If information or assistance is needed in completing this form, please contact the Pre-Grant Publication Division at (703)605-4283 or by e-mail at PGPub@USPTO.gov.

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop PG Pub, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature: / ROBYN MILLER/

Name (Print/Type): Robyn Miller — Date: 05/12/2020

SEND TO: Mail Stop PG Pub, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

A/N 16/692,939 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Application No.: 13/691,805
Filed: December 12, 2012
Confirmation No.: 6244
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Examiner: MARLY S.B. CAMARGO
Group Art Unit: 2699
Docket No.: 5311.001US3

COMMUNICATION RE: NONPUBLICATION RESCISSION

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

Applicant and inventor Neal Solomon hereby rescinds the *pro-se* nonpublication request filed with the above-identified U.S. application on December 12, 2012. Applicant notes that the certification for the nonpublication request was improper based on a prior-filed, lapsed PCT application (PCT/US07/15544 filed on July 7, 2007), which was filed before the December 12, 2012 filing date of the above-identified U.S. application. Pursuant to M.P.E.P. § 1122(III), "…the Office will not consider the U.S. application as abandoned for having made the nonpublication request." M.P.E.P. § 1122(III).

If the Office requires any more information for processing this rescission, Applicant will provide such information upon request.

Respectfully submitted,

Date 5/12/20

By Neal Solomon

Neal Solomon
Inventor, Optimum Imaging Technologies LLC

Electronic Acknowledgement Receipt

EFS ID:	39416746
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Nathan D. Ellefson/Robyn Miller
Filer Authorized By:	Nathan D. Ellefson
Attorney Docket Number:	5311.001US3
Receipt Date:	12-MAY-2020
Filing Date:	02-DEC-2012
Time Stamp:	13:41:40
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		5311001US3_RESCISSIONFORFILING.pdf	1017924 03c1c360edd373e0cbf02d4b14ff3dac6d56288d	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	1
	Rescind Nonpublication Request for Pre Grant Pub	2	2
	Miscellaneous Incoming Letter	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	1017924	

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

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	N/A
Examiner:	Marly Camargo	Group Art Unit:	2699
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Rescission of Previous NonPublication Request (35 U.S.C. 122(b)(2)(B)(ii)) (1 pg.)
X Communication Re: NonPublication Rescission (1 pg)

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	06/02/2020	10674046	5311.001US3	6244

21186 7590 05/13/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

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

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

Neal Solomon, Oakland, CA;

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	5311.001US3

CONFIRMATION NO. 6244

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

NONPUBLICATION RESCISSION LETTER

OC000000116968914

Date Mailed: 05/14/2020

Communication Regarding Rescission Of Nonpublication Request and/or Notice of Foreign Filing

Applicant's rescission of the previously-filed nonpublication request and/or notice of foreign filing is acknowledged. The paper has been reflected in the Patent and Trademark Office's (USPTO's) computer records so that the earliest possible projected publication date can be assigned.

The projected publication date is 08/20/2020.

If applicant rescinded the nonpublication request before or on the date of "foreign filing,"[1] then no notice of foreign filing is required.

If applicant foreign filed the application after filing the above application and before filing the rescission, and the rescission did not also include a notice of foreign filing, then a notice of foreign filing (not merely a rescission) is required to be filed within 45 days of the date of foreign filing. See 35 U.S.C. § 122(b)(2)(B)(iii), and Clarification of the United States Patent and Trademark Office's Interpretation of the Provisions of 35 U.S.C. § 122(b)(2)(B)(ii)-(iv), 1272 Off. Gaz. Pat. Office 22 (July 1, 2003).

If a notice of foreign filing is required and is not filed within 45 days of the date of foreign filing, then the application becomes abandoned pursuant to 35 U.S.C. § 122(b)(2)(B)(iii). In this situation, applicant should either file a petition to revive or notify the Office that the application is abandoned. See 37 CFR 1.137(f). Any such petition to revive will be forwarded to the Office of Petitions for a decision. Note that the filing of the petition will not operate to stay any period of reply that may be running against the application.

Questions regarding petitions to revive should be directed to the Office of Petitions at (571) 272-3282.

[1] Note, for purpose of this notice, that "foreign filing" means "filing an application directed to the same invention in another country, or under a multilateral international agreement, that requires publication of applications 18 months after filing".

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**.

/ggasgedom/

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/691,805	Filing Date 12/02/2012	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $31 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $125 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	05/15/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 30	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ 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.**

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

REQUEST FOR CONTINUED EXAMINATION (RCE) TRANSMITTAL		
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Confirmation Number	6244
	Group Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3
	Customer No.	21186

This is a Request for Continued Examination (RCE) under 37 C.F.R § 1.114 of the above-identified application entitled
DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

1. Submission required under 37 C.F.R. § 1.114:

   X Information Disclosure Statement (6 pages), Form 1449 (0 page), and copies of cited documents (13).

2. Fees

   X Authorization to charge deposit account 19-0743 in the amount of $650.00 to pay the RCE filing fee required under 37 C.F.R. § 1.17(e).

The Commissioner is hereby authorized to charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

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	13691805
Filing Date	2012-12-02
First Named Inventor	Neal Solomon
Art Unit	2699
Examiner Name	Marly Camargo
Attorney Docket Number	5311.001US3

U.S.PATENTS

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	10210602		2019-02-19	Campbell, Richard John	
	2	10674047		2020-06-02	Solomon, Neal	
	3	7327390		2008-02-05	Gallagher, Andrew C	
	4	9077842		2015-07-07	Natsume, Satoshi	

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	20020012054	A1	2002-01-31	Osamoto, Akira	
	2	20020041383	A1	2002-04-11	Lewis, Clarence A, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	3	20030039402	A1	2003-02-27	Robins, David R, et al.	
	4	20040150726	A1	2004-08-05	Gallagher, Andrew C	
	5	20050030394	A1	2005-02-10	Mendis, Sunetra K, et al.	
	6	20060120599	A1	2006-06-08	Steinberg, Eran, et al.	
	7	20070252074	A1	2007-11-01	Ng, Yi-ren, et al.	
	8	20080175514	A1	2008-07-24	Nose, Atsushi, et al.	
	9	20120229654	A1	2012-09-13	Solomon, Neal	

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							☐

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

NON-PATENT LITERATURE DOCUMENTS

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

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.	T5
	1	"Application Serial No. 16 692,972, Notice of Allowance mailed 01-24-20", 17 pages.	☐
	2	"Application Serial No. 16 692,939, Non Final Office Action mailed 02-04-20", 22 pages.	☐
	3	"Application Serial No. 16 694,838, Non Final Office Action mailed 02-13-20", 21 pages.	☐
	4	"Application Serial No. 16 694,850, Non Final Office Action mailed 03-04-20", 25 pages.	☐
	5	"Application Serial No. 16 692,939, Examiner Interview Summary mailed 05-06-20", 4 pg	☐
	6	"Application Serial No. 16 692,939, Response to Non Final Office Action mailed 02-04-20 filed 05-04-20", 12 pages.	☐
	7	"PCTUS2007015544 Published International Application 10-23-2008", (10 23 2008), 3 pages.	☐
	8	"PCTUS2007015544 Notification Recording Change 11-21-2008", (11 21 2008), 1 page.	☐
	9	"PCTUS2007015544 Written Opinion ISA 01-11-2009", (1 11 2009), 7 pages.	☐
	10	"PCTUS2007015544 IPRP 01-13-2009", (1 13 2009), 8 pages.	☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	11	"Application Serial No. 16 694,838, Examiner Interview Summary mailed 05-13-20", 4 pages.	☐
	12	"Application Serial No. 16 694,850, Examiner Interview Summary mailed 05-13-20", 4 pages.	☐
	13	"PCTUS2007015544 Documents 1-17-2008", (1 17 2008), 147 pages.	☐

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	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	2699
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

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	/Timothy E. Bianchi/	Date (YYYY-MM-DD)	2020-05-15
Name/Print	Timothy E. Bianchi	Registration Number	39,610

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 record s.

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:	13691805
Filing Date:	02-Dec-2012
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Filer:	Joseph P. Mehrle/Amanda Brace
Attorney Docket Number:	5311.001US3

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
PETITION FEE-37CFR 1.17(H) (GROUP II)	2464	1	70	70
RCE- 1ST REQUEST	2801	1	650	650
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**720**

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : May 15, 2020

In re Application of :

Neal Solomon

DECISION ON PETITION
UNDER CFR 1.313(c)(2)

Application No : 13691805
Filed : 02-Dec-2012
Attorney Docket No : 5311.001US3

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed May 15, 2020 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 2697 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt	
EFS ID:	39454535
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Joseph P. Mehrle/Amanda Brace
Filer Authorized By:	Joseph P. Mehrle
Attorney Docket Number:	5311.001US3
Receipt Date:	15-MAY-2020
Filing Date:	02-DEC-2012
Time Stamp:	15:50:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$720
RAM confirmation Number	E20205EF50540866
Deposit Account	190743
Authorized User	Amanda Brace
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)	

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	Petition automatically granted by EFS	petition-request.pdf	31525 2e532351a2cc870895b509b9cdf9a01049dfd314	no	2
Warnings:					
Information:					
2		5311001US3_SIDSforFiling.pdf	196452 76b01e4ea5e16f47d467d08bb4d21b4a9f4ddca7	yes	7

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Request for Continued Examination (RCE)	1	1
Information Disclosure Statement (IDS) Form (SB08)	2	7

Warnings:					
Information:					
3	Other Reference-Patent/App/Search documents	0001_2_npl_16692939exirexaminer_interview_summary20200506_f.pdf	229722 00471011fc1aeef3c5033d7a04f116ca35154891	no	4
Warnings:					
Information:					
4	Other Reference-Patent/App/Search documents	0002_2_npl_16694838exirexaminer_interview_summary20200513_f.pdf	250336 e19523106f1f77384c926bc0e548ede4e9bd1e18	no	4
Warnings:					
Information:					
5	Other Reference-Patent/App/Search documents	0003_2_npl_16694850exirexaminer_interview_summary20200513_f.pdf	234709 1cf1e04af9195cd0206a5f9447be89abd49cc992	no	4
Warnings:					
Information:					

6	Other Reference-Patent/App/Search documents	0004_2_npl_5311001us4_aarn_050420_f.pdf	86528 8f184cb287e07076a80e8a9377d2d331e6404c7f	no	12
Warnings:					
Information:					
7	Other Reference-Patent/App/Search documents	0005_2_npl_5311001us4_oarnpe_2420_f.pdf	1035771 4538cb0c41771408a7de077789fb065aa50710ac	no	22
Warnings:					
Information:					
8	Other Reference-Patent/App/Search documents	0006_2_npl_5311001us5_noar_12420_f.pdf	1000472 749af474fe275854ba393d9dc12a52f1ff917262	no	17
Warnings:					
Information:					
9	Other Reference-Patent/App/Search documents	0007_2_npl_5311001us6_oarnpe_21320_f.pdf	1168774 189efe6ee15fce1f685e731fe9adfb0ca2aec8f6	no	21
Warnings:					
Information:					
10	Other Reference-Patent/App/Search documents	0008_2_npl_5311001us7_oarnpe_3420_f.pdf	1307110 4f672bf0118b45b533868f4578f701dd5e29beae	no	25
Warnings:					
Information:					
11	Other Reference-Patent/App/Search documents	0009_2_npl_pctus2007015544_documents_17012008_f.pdf	6824352 355c8d99e66de7c18f08cecfdebaa3dbc930125f	no	147
Warnings:					
Information:					
12	Other Reference-Patent/App/Search documents	0010_2_npl_pctus2007015544_iprp_13012009_f.pdf	326102 c539113aa445b0adacfbedc494606d877b54ad38	no	8
Warnings:					
Information:					

13	Other Reference-Patent/App/Search documents	0011_2_npl_pctus2007015544_notification_recording_change_211_f.pdf	42477 f33a6f01c63f486b1db4d99321aa0a0d3df554db	no	1
Warnings:					
Information:					
14	Other Reference-Patent/App/Search documents	0012_2_npl_pctus2007015544_published_international_application_f.pdf	110824 8b82f826dda3c845c66cb18718f4ada089052390	no	3
Warnings:					
Information:					
15	Other Reference-Patent/App/Search documents	0013_2_npl_pctus2007015544_written_opinion_isa_11012009_f.pdf	286030 298299a089555edacac4830eef2907fdd94dca5c	no	7
Warnings:					
Information:					
16	Fee Worksheet (SB06)	fee-info.pdf	32180 2d837ef8f652ed1ab44ac8b8366ad89ae92869e6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	13163364		

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.

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web	PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)**
Application Number	13691805
Filing Date	02-Dec-2012
First Named Inventor	Neal Solomon
Art Unit	2697
Examiner Name	MARLY CAMARGO
Attorney Docket Number	5311.001US3
Title	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:
(1) Petition fee; and
(2) One of the following reasons:
(a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
(b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
(c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee

◉	Small Entity
○	Micro Entity
○	Regular Undiscounted

Reason for withdrawal from issue

◯ One or more claims are unpatentable ◉ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees) ◯ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).
RCE request,submission, and fee. ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that : The RCE request ,submission, and fee have already been filed in the above-identified application on ☒ Are attached.
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 has been given power of attorney in this application. ◯ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity. ◯ 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 e-petition

Signature	/Timothy E. Bianchi/
Name	Timothy E. Bianchi
Registration Number	39610

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

21186 7590 05/29/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER
CAMARGO, MARLY S.B.

ART UNIT	PAPER NUMBER
2697	

DATE MAILED: 05/29/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$500.00	$0	08/31/2020

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)

21186 7590 05/29/2020
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

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.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$500.00	$0	08/31/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
CAMARGO, MARLY S.B.	2697	348-241000

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,
(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.

1 _____
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 (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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

21186 7590 05/29/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	
ART UNIT	**PAPER NUMBER**
2697	

DATE MAILED: 05/29/2020

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 law or regulation.

Notice of Allowability	**Application No.** 13/691,805	**Applicant(s)** Solomon, Neal	
	Examiner MARLY S CAMARGO	**Art Unit** 2697	**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 filed on 05/15/2020.
   ☐ 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 1-30 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MARLY S CAMARGO/
Examiner, Art Unit 2697

Notice of Pre-AIA or AIA Status

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

Change in Art Unit Designation for Your Application

1. The Art Unit designation of your application in the USPTO has changed from 2699 to 2697. The examiner assigned to this application remains the same. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2697.

Detailed Action

Response to Amendment

2. In response Applicant RCE filed on May 15, 2020, the Examiner acknowledges the following:

- Claims 1 – 30 remain the same.
- Currently claims 1 – 30 are pending and they are being considered for examination.

Information Disclosure Statement

3. The information disclosure statement (IDS) documents submitted on 04/21/2020 and on 05/15/2020 are acknowledged by the Examiner.

Continued Examination Under 37 CFR 1.114

4. 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 05/15/2020 has been entered.

Allowable Subject Matter

5. Claims 1 – 30 are allowed.

6. The following is an examiner's statement of reasons for allowance: The closest art of record teaches: 1) a camera with objective optics and a digital filter used to determine aberration due to the objective optics and wherein the image signal outputted by the image sensor is filtered (Alon – US 2007/0236574 A1); 2) a method for correcting lateral chromatic aberration using an in-camera auto-calibration procedure (Vakrat – US 2008/0291447 A1); 3) a digital filter to be used by a digital image processor in a camera device (Robinson – US 2007/0002158 A1); 4) camera apparatus separating a beam into color beams of three colors and displays an image synthesizing first, second and third image signals, wherein the lens apparatus includes a memory unit storing correcting data in an image height direction of the second and third image signals on the first image signal

for correcting aberration of the image taking optical system, and a lens controlling unit extracting the correcting data of the image taking optical system state, wherein the camera apparatus includes a camera controller moving the second and third image signals in the image height direction, and displaying an image obtained by superimposing the color image signals, wherein the image pickup apparatus includes a controller, and wherein the lens controlling unit adjusts the correcting data, and the memory unit stores the adjusted correcting data (Natsume – US 9,077,842 B2); 5) an aberration correction apparatus including a correction data holding section that holds correction data on a correction level used to correct chromatic aberration of magnification; a center position discrepancy data holding section that holds center position discrepancy data on the discrepancy between the center of an image area and the position of an aberration center of the chromatic aberration of magnification; an aberration center calculating section that selects one of the center position discrepancy data that corresponds to a combination of the discrepancy variation conditions in an imaging apparatus and calculates the position of the aberration center based on the selected center position discrepancy data; an image height calculating section; a magnification chromatic aberration correction level calculating section; and a pixel value correcting section (Kikuchi – US 8,395,677 B2).

Even though Alon, Vakrat, Robinson, Natsume and Kikuchi teach some of the features of the current invention such as a camera with a lens device, wherein the camera correct aberrations in the images captured caused by the optics aberrations/distortions, each of them either alone or in combination fails to provide the combination limitations as in the amended independent claims 1, 6 and 14, as it follows below.

Regarding Claim 1:

The combination of Alon, Vakrat, Robinson, Natsume and Kikuchi fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor, an integrated circuit, a digital signal processor configured to access in-camera system software, *a database management system including a plurality of optical image aberrations corrections and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens or a fixed focal length lens; wherein integrated circuit uses in-camera software to identify at least one optical aberration and to correct the at least one optical image aberration in at least one frame of the digital video using at least one of a plurality of optical image aberration corrections in the database; wherein the video is captured by at least one digital sensor and forwarded to the digital signal processor; wherein the image file with the at least one optical image aberration is corrected by applying digital filtration by using the digital signal processor; and wherein the corrected video consisting of the digital data optimized from the at least one optical image aberration that are corrected from the original video image is stored in the memory storage sub-system.*

Therefore, as discussed above, claim 1 is allowable over the prior art of record.

Regarding Claims 2 – 5 and 20 – 30:

Claims 2 – 5 and 20 – 30 are allowable because they depend directly to claim 1 which is allowable over the prior art of record. Therefore, claims 2 – 5 and 20 – 30 are allowable for the same reasons as claim 1.

Regarding Claim 6:

The combination of Alon, Vakrat, Robinson, Natsume and Kikuchi fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor for capturing digital video, an integrated circuit, *a digital signal processor configured to access a database management system including a plurality of optical image aberration corrections, in-camera system software, and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens or a fixed focal length lens; wherein the video is forwarded to storage in memory; wherein at least one optical aberration in at least two frames of the digital video are identified using the in-camera software and the identified circuit; wherein the at least one optical aberration from the optical lens mechanism of the at least two frames of the digital video are corrected by using the digital signal processor to apply at least one digital filtration algorithm; and wherein the corrected digital video file is stored in memory.*

Therefore, as discussed above, claim 6 is allowable over the prior art of record.

Regarding Claims 7 – 13:

Claims 7 – 13 are allowable because they depend directly to claim 6 which is allowable over the prior art of record.

Regarding Claim 14:

The combination of Alon, Vakrat, Robinson, Natsume and Kikuchi fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor for capturing digital video, an integrated circuit, *a digital signal processor configured to*

access a database management system including a plurality of optical image aberration corrections, in-camera system software, and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens; wherein the zoom lens changes focal length positions; wherein when the digital video is forwarded to the digital signal processor and to memory; wherein the integral circuit uses system software to access the database to identify at least one optical aberration in at least one frame of the video at any focal length of a zoom lens configuration; wherein the integrated circuit access the database to obtain at least one filtration correction algorithm to the optical image aberration of at least one frame in the video file and forwards the at least one filtration algorithms to the digital processor; wherein the digital video is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the digital video and corrects the at least one optical image aberration in at least one video frame for the at least one focal length in the zoom lens configuration; and wherein the corrected digital video is stored in memory.

Therefore, as discussed above, claim 14 is allowable over the prior art of record.

Regarding Claims 15 – 19:

Claims 15 – 19 are allowable because they depend directly to claim 14 which is allowable over the prior art of record.

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

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

1. T. Murata, US 2009/0167925 A1 – it teaches a distortion correcting method comprising the operations of preparing, in advance, distortion information that is obtained by expressing distortion aberration of an imaging optical system in the form of a function of a position on an image surface; calculating distortion amounts of an image taken by said optical system using said distortion information prepared in advance; and performing distortion correction on said image based on said calculated distortion amounts, wherein: a combination of the number of terms of said function and the number of orders of respective terms of said function are determined according to at least one of desired accuracy of said distortion correction and an allowable information amount of said distortion information.

2. S. Shmunk et al., US 10,282,822 B2 – it teaches an optical system for removing optical aberrations, wherein the optical system has an optical profile, the optical system comprising: a lens which forms a captured image having optical aberrations, an array of photosensitive elements disposed within the optical system, a conversion component that converts the captured image into a digital image, and a computational component configured to form a corrected image by removing the optical aberrations from the digital

image through corrections based on the optical profile, wherein the optical aberrations comprising longitudinal aberrations.

3. N. Koishi, US 10,237,485 B2 – it teaches an image processing apparatus which processes a captured image based on an image formed on an image surface of an imager by an imaging optical system including a vibration-proof optical system which is driven in correspondence with an image blur on the image surface, comprising: a vibration-proof optical system driving amount acquiring section which acquires a driving amount of the vibration-proof optical system in a direction orthogonal to an optical axis of the imaging optical system; a distortion aberration correcting section which uses a deviation amount between the optical axis and an image center of the captured image to correct a distortion aberration on the image surface based on the deviation amount to the captured image; and a deviation amount converting section which calculates the deviation amount corresponding to the driving amount acquired by the vibration-proof optical system driving amount acquiring section as a converted central deviation amount on the basis of a correlation between a shape of the distortion aberration on the image surface corresponding to the driving amount of the vibration-proof optical system and a shape of the distortion aberration on the image surface corresponding to the deviation amount, wherein the distortion aberration correcting section corrects the distortion aberration by using the converted central deviation amount as the deviation amount.

4. A. Kikuchi et al., US 8,395,677 B2 – it teaches an aberration correction apparatus comprising a correction data holding section that holds correction data on a correction level used to correct chromatic aberration of magnification, the correction data provided for each predetermined combination of aberration variation conditions that change a

chromatic separation level due to the chromatic aberration of magnification and include at least an image height; a center position discrepancy data holding section that holds center position discrepancy data on the discrepancy between the center of an image area and the position of an aberration center of the chromatic aberration of magnification, the center position discrepancy data provided for each combination of predetermined discrepancy variation conditions that change the discrepancy; an aberration center calculating section that selects one of the center position discrepancy data that corresponds to a combination of the discrepancy variation conditions in an imaging apparatus and calculates the position of the aberration center based on the selected center position discrepancy data; an image height calculating section that calculates an aberration center corresponding image height of a processed pixel with respect to the position of the aberration center; a magnification chromatic aberration correction level calculating section that selects one of the correction data that corresponds to a combination of the aberration variation conditions in the imaging apparatus and calculates a magnification chromatic aberration correction level based on the selected correction data; and a pixel value correcting section that corrects the pixel value of the processed pixel based on the calculated magnification chromatic aberration correction level.

Contact

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARLY CAMARGO whose telephone number is (571)270-3729. The examiner can normally be reached on 6:00AM - 10PM, M-F, EST.

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

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

/MARLY S CAMARGO/
Examiner, Art Unit 2697

Notice of References Cited	Application/Control No. 13/691,805	Applicant(s)/Patent Under Reexamination Solomon, Neal	
	Examiner MARLY S CAMARGO	Art Unit 2697	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-2009/0167925-A1	07-2009	Murata; T.	H04N9/64	348/251
*	B	US-10,282,822-B2	05-2019	Ahmunk; D.	G06T5/002	382/275
*	C	US-10,237,485-B2	03-2019	Koishi;; N.	H04N5/23267	348/208.5
*	D	US-8,395,677-B2	03-2013	Kikuchi; A.	H04N5//228	348/222.1
	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)
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	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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

CPC						
Symbol					**Type**	**Version**
H04N	/	5	/	217	F	2013-01-01
H04N	/	5	/	238	I	2013-01-01
H04N	/	5	/	2253	I	2013-01-01
H04N	/	5	/	2254	I	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	30	
/MARLY S CAMARGO/ Examiner, Art Unit 2697	25 May 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200525

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04N	/	5	/	225
H04N	/	5	/	217
H04N	/	5	/	238
H04N	/	5	/	228
H04N	/	5	/	357
H04N	/	5	/	374
H04N	/	5	/	76
G06K	/	9	/	36
G06K	/	9	/	40
G01J	/	1	/	20
G01J	/	1	/	04
G01J	/	3	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
348	241	335	222.1	207.99	340	345
382	275	252	321	167	253	264
359	16	637	666	665	676	

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 30	
/MARLY S CAMARGO/ Examiner, Art Unit 2697 (Primary Examiner)	25 May 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

☑ 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		10		19		28								
	2		11		20		29								
	3		12		21		30								
	4		13		22										
	5		14		23										
	6		15		24										
	7		16		25										
	8		17		26										
	9		18		27										

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	30	
/MARLY S CAMARGO/ Examiner, Art Unit 2697	25 May 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200525

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

CPC - Searched*		
Symbol	**Date**	**Examiner**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	05/10/2019	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	01/13/2020	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	05/25/2020	M. Camargo

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/10/2019	M. Camargo
382	254,255,264,263,266,275	05/10/2019	M. Camargo
359	16,637,666,665,207.2,354,676	05/10/2019	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	01/13/2020	M. Camargo
382	167,254,255,264,263,266,275	01/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	01/13/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/25/2020	M. Camargo
382	167,254,255,264,263,266,275	05/25/2020	M. Camargo
359	16,637,666,665,207.2,354,676	05/25/2020	M. Camargo

/MARLY S CAMARGO/ Examiner, Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

* 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**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC. and the results teaxt limited - see attached search history printout.	05/10/2019	M. Camargo
EAST as BRS	05/10/2019	M. Camargo
inventor	05/10/2019	M. Camargo
assignee	05/10/2019	M. Camargo
Google and Google Patents	05/01-10/2019	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC. and the results text limited - see attached search history printout.	01/13/2020	M. Camargo
EAST - updated	01/13,17/2020	M. Camargo
inventor - updated	01/13/2020	M. Camargo
assignee - updated	01/13/2020	M. Camargo
Google & Google Patents	01/10/2020- 01/17/ 2020	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC. and the results text limited - see attached search history printout.	05/25/2020	M. Camargo
EAST - updated	05/25/2020	M. Camargo
inventor - updated	05/25/2020	M. Camargo
assignee - updated	05/25/2020	M. Camargo
Google & Google Patents	05/20/2020- 05/25/ 2020	M. Camargo

/MARLY S CAMARGO/ Examiner, Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
EAST		01/13/2020	M. Camargo
inventor		01/13/2020	M. Camargo
assignee		01/13/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	01/13/2020	M. Camargo
382	167,254,255,264,263,266,275	01/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	01/13/2020	M. Camargo
CPC	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	01/13/2020	M. Camargo
claim (US PAT/ US PG Pub)	((aberration$1 with digital with database)).clm.	01/13/2020	M. Camargo
claim	((aberration$1 with digital with database) and vignet $5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))). clm.	01/13/2020	M. Camargo
claim	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag $3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	01/13/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	01/13/2020	M. Camargo

/MARLY S CAMARGO/ Examiner, Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

claim	((digital with camera$1 or video$1) and ((aberration $1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	01/13/2020	M. Camargo
EAST		05/25/2020	M. Camargo
inventor		05/25/2020	M. Camargo
assignee		05/25/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/25/2020	M. Camargo
382	167,254,255,264,263,266,275	05/25/2020	M. Camargo
359	16,637,666,665,207.2,354,676	05/25/2020	M. Camargo
CPC	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	05/25/2020	M. Camargo
claim (US/ US PG Pub)	((aberration$1 with digital with database)).clm.	05/25/2020	M. Camargo
claim	(camera and (aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	05/25/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position $1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	05/25/2020	M. Camargo

/MARLY S CAMARGO/ Examiner, Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

claim	((digital with camera$1 or video$1) and ((aberration $1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm .	05/25/2020	M. Camargo

/MARLY S CAMARGO/ Examiner, Art Unit 2697	

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BIB DATA SHEET

CONFIRMATION NO. 6244

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/691,805	12/02/2012	348	2697	5311.001US3

APPLICANTS

INVENTORS

Neal Solomon, Oakland, CA;

**** CONTINUING DATA ***************************

This application is a CON of 12/586,221 09/18/2009 PAT 8451339
which is a CON of 11/825,521 07/06/2007 PAT 7612805
which claims benefit of 60/807,065 07/11/2006

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
12/27/2012

Foreign Priority claimed ❑ Yes ☑ No 35 USC 119(a-d) conditions met ❑ Yes ☑ No Verified and Acknowledged /MARLY S.B. CAMARGO/ Examiner's Signature	❑ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	19	18	3

ADDRESS

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402
UNITED STATES

TITLE

DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

FILING FEE RECEIVED		
1365	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

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	13691805
Filing Date	2012-12-02
First Named Inventor	Neal Solomon
Art Unit	~~2699~~ 2697
Examiner Name	Marly Camargo
Attorney Docket Number	5311.001US3

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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	10210602		2019-02-19	Campbell, Richard John	
	2	7327390		2008-02-05	Gallagher, Andrew C	
	3	9077842		2015-07-07	Natsume, Satoshi	

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	1	20020012054	A1	2002-01-31	Osamoto, Akira	
	2	20020041383	A1	2002-04-11	Lewis, Clarence A, et al.	
	3	20030039402	A1	2003-02-27	Robins, David R, et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.S.C/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	~~2690~~ 2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	4	20040150726	A1	2004-08-05	Gallagher, Andrew C	
	5	20050030394	A1	2005-02-10	Mendis, Sunetra K, et al.	
	6	20060120599	A1	2006-06-08	Steinberg, Eran, et al.	
	7	20070252074	A1	2007-11-01	Ng, Yi-ren, et al.	
	8	20080175514	A1	2008-07-24	Nose, Atsushi, et al.	
	9	20120229654	A1	2012-09-13	Solomon, Neal	

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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]
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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]

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	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	~~2699~~ 2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	1	"Application Serial No. 16 692,972, Notice of Allowance mailed 01-24-20", 17 pages.	
	2	"Application Serial No. 16 692,939, Non Final Office Action mailed 02-04-20", 22 pages.	
	3	"Application Serial No. 16 694,838, Non Final Office Action mailed 02-13-20", 21 pages.	
	4	"Application Serial No. 16 694,850, Non Final Office Action mailed 03-04-20", 25 pages.	

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EXAMINER SIGNATURE

Examiner Signature	/MARLY S CAMARGO/	Date Considered	05/25/2020

*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.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	~~2699~~ 2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

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	/Timothy E. Bianchi/	Date (YYYY-MM-DD)	2020-04-21
Name/Print	Timothy E. Bianchi	Registration Number	39,610

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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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	"124" and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:49
L2	0	"S124" and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:52
L3	0	"S125" and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:52
L4	7	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3	US-PGPUB; USPAT; USOCR;	OR	ON	2020/05/25 13:53

		with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	FPRS; EPO; JPO; DERWENT; IBM_TDB			
L5	0	359/16,637,666,665,207.2,354,676.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:54
L6	5	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:54
L7	1	(US-10210602-$ | US-10674047-$ | US-13691805-$ | US-20020012054-$ | US-20020041383-$ | US-20030039402-$ | US-20040150726-$ | US-20050030394-$ | US-20060120599-$ | US-20070252074-$ | US-20080175514-$ | US-20120229654-$ | US-7327390-$ | US-9077842-$).DID. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:55
L8	39	("20040150732" | "20040218813" | "20050179788" | "20080007630" | "20080240709" | "20080291447" | "20090009633" | "20090052769" | "20090167925" | "20090202171" | "20090262231" | "20120300112" | "5227832" | "6646760" | "6747757" | "7321685" |	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/05/25 13:56

		"7425988").PN. OR ("9077842").URPN. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	EPO; JPO; DERWENT; IBM_TDB			
L9	6	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:57
L10	0	382/167,254,255,264,263,266,275.ccls. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:58
L11	1	(US-10210602-$ | US-10674047-$ | US-13691805-$ | US-20020012054-$ | US-20020041383-$ | US-20030039402-$ | US-20040150726-$ | US-20050030394-$ | US-20060120599-$ | US-20070252074-$ | US-20080175514-$ | US-20120229654-$ | US-7327390-$ | US-9077842-$).DID. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:59
L12	4	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/05/25 14:00

		and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	EPO; JPO; DERWENT; IBM_TDB			
L13	0	382/167,254,255,264,263,266,275.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:01
L14	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:02
L15	0	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:03
L16	0	((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2020/05/25 14:07

			JPO; DERWENT; IBM_TDB			
L17	0	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:07
L18	1	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:08
L19	5	((camera with lens) with (aberration$1 with digital with database))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:09
L20	3	((camera with lens) with (aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/05/25 14:09

			DERWENT; IBM_TDB			
L21	10	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:10
L22	14	(camera and (aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:11
L23	0	(camera and (aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:14
L24	14	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWE	OR	ON	2020/05/25 14:15

			NT; IBM_TDB			
L25	0	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:15
L26	6	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:15
L27	0	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:16
L28	13	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/05/25 14:17

			IBM_TDB			
L29	1	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:18
S1	0	13/691805	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:06
S2	2	12/586221	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:06
S3	4	11/825521	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2019/05/10 12:08

			IBM_TDB			
S4	139	(neal with solomon).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:09
S5	17	(neal with solomon).in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:10
S6	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:11
S7	6	("20070080280" | "20070236574").PN. OR ("8451339").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:19
S8	0	(11/278268).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:25

S9	1	(11/546531).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:26
S10	116	("1269422" | "20030098952" | "20040008853" | "20040218283" | "20040227063" | "20040228003" | "20050002113" | "20050014306" | "20050100270" | "20050212952" | "20050218231" | "20060072915" | "20060076540" | "20060086596" | "20070063048" | "20070080280" | "20070116858" | "20080144185" | "20080144186" | "20080245872" | "20090072037" | "2062468" | "2300251" | "3161718" | "3305294" | "3583790" | "3761157" | "3778170" | "4134393" | "4191594" | "4210121" | "4249516" | "4261655" | "4286839" | "4289379" | "4312709" | "4407567" | "4487659" | "4514048" | "4783153" | "4783155" | "4784479" | "4802746" | "5091801" | "5150234" | "5305356" | "5389222" | "5396144" | "5684637" | "5892625" | "5917657" | "5973852" | "6081388" | "6109852" | "6188526" | "6212015" | "6368954" | "6369954" | "6376971" | "6399954" | "6437925" | "6449081" | "6475639" | "6529620" | "6538823" | "6542309" | "6545815" | "6545816" | "6586859" | "6628040" | "6702483" | "6715876" | "6734903" | "6747806" | "6762210" | "6806621" | "6806988" | "6809462" | "6812624" | "6882086" | "6891317" | "6934090" | "6936809" | "7169822" | "7224106" | "7301708" | "7416125" | "RE39874").PN. OR ("8027095").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:27
S11	28	("20020176148" | "20040228003" | "5071229" | "5150234").PN. OR ("6934090").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:32
S12	480	(marly with camargo).xa,xp.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:36

S13	18	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:36
S14	5	("20060228097" | "8395677" | "9077842" | "9392176" | "9998652").PN. OR ("10237485").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:38
S15	9	("20080309771" | "20090256952" | "20100013947" | "20100194966" | "20120274837" | "20140036134" | "20140340567" | "6363220").PN. OR ("9998652").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:39
S16	12	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:42
S17	10	(aberration$1 with digital with database) and vignet$5	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:43
S18	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:44
S19	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:46
S20	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:46

S21	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49
S22	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49
S23	33470	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
S24	15928	382/254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
S25	5250	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:33

S26	119424	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:20
S27	17	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S28	9	S23 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S29	0	S24 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21

S30	0	S25 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S31	5	S26 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:22
S32	0	canon.as. and (aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:22
S34	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S35	0	fuji.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23

S36	0	microsoft.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S37	0	panasoninc.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
S38	0	nikon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
S39	0	omnivision.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:26
S40	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S41	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S42	0	pelican.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S43	0	fotonation.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
S44	0	(carl with zeiss).as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
S45	139	(neal with solomon).in.	US-PGPUB; USPAT; USOCR;	OR	ON	2020/01/13 09:56

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S46	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 09:57
S47	104	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/01/13 09:59
S48	17	(neal with solomon).in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:01
S49	522	(marly with camargo).xa,xp.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWE	OR	ON	2020/01/13 10:03

			NT; IBM_TDB			
S50	18	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:03
S51	7	("20070080280" | "20070236574").PN. OR ("8451339").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 10:06
S52	12	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 10:26
S53	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:31
S54	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 10:31

			IBM_TDB			
S55	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:32
S56	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:33
S57	0	canon.as. and (aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S58	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 10:34

			IBM_TDB			
S59	0	fuji.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S60	0	sony.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S61	0	microsoft.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:35
S62	0	apple.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 10:35

			IBM_TDB			
S63	0	aptina.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:35
S64	0	oplympus.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S65	0	panasonic.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S66	0	omnivision.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 10:36

			IBM_TDB			
S67	0	fotonation.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:37
S68	0	pelican.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:37
S69	0	nikon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:38
S70	0	(eastman with kodak).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 10:39

			IBM_TDB			
S71	0	(blur with technologies).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:45
S72	0	(d$blur with technologies).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:46
S73	0	casio.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:48
S74	8	(digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 10:55

			IBM_TDB			
S75	8	("20050261849" | "20070030357" | "20070236574" | "20080174678").PN. OR ("8384785").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:03
S76	6	("20070236574" | "20080174678").PN. OR ("8395668").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:09
S77	21	(dudi with vakrat).in.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:13
S78	7	(dudi with vakrat).in. and aberration$1	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:13
S79	19	("20030038957" | "20040150732" | "20040227978" | "20050162532" | "20060061664" | "20060062562" | "20060232681" | "20070103744" | "4466018" | "5713053" | "6788822" | "6807299" | "6822762" | "6862373" | "7088388" | "7158686" | "7973850" | "8089555" | "8194136").PN. OR ("8654240").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:20
S80	48	(katsuhiko with nagata).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:33
S81	9	(katsuhiko with nagata).in. and aberration$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/01/13 11:34

			DERWENT; IBM_TDB			
S82	1	(12/717769).APP.	USPAT; USOCR	OR	ON	2020/01/13 11:37
S83	174	(jeffrey with stafford).in.	USPAT; USOCR	OR	ON	2020/01/13 11:39
S84	1109	(jeffrey with stafford).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39
S85	212	(jeffrey with roger with stafford).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39
S86	8	(jeffrey with roger with stafford).in. and aberration$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39

S87	34600	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S88	23944	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S89	5422	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S90	132232	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41

S91	7	S87 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:42
S92	0	S88 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43
S93	0	S89 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43
S94	5	S90 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43

S95	6	S87 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:44
S96	0	S88 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S97	0	S89 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S98	4	S90 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45

S99	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:49
S100	0	((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:50
S101	0	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:51
S102	1	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:52

S103	0	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:54
S115	64	(US-20030210343-$ | US-20050219391-$ | US-20080174678-$ | US-20110096176-$ | US-0062546-$ | US-0064649-$ | US-6023977-$ | US-6055330-$ | US-6508764-$ | US-6850272-$ | US-7245319-$ | US-7321685-$ | US-7406182-$ | US-7551205-$ | US-7612805-$ | US-7619663-$ | US-7636111-$ | US-7701484-$ | US-7764874-$ | US-8106976-$ | US-8451339-$ | US-5905530-$ | US-7590305-$ | US-7738015-$ | US-7936392-$ | US-20020163586-$ | US-20050099507-$ | US-20060285761-$ | US-20070002158-$ | US-20070236574-$ | US-20080151069-$ | US-20100073508-$ | US-20040150732-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:58
S116	4	(11/825521 | 12/586221 | 13/691805).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:58
S117	4	(TO-030212-$ | TO-042709-$ | TO-082312-$ | TO-121208-$ | AI-20060285761-$ | HI-1313250-$ | HI-1313250119-$ | JP-2004343358-$ | JP-20001842476-$ | JP-20021909797-$ | JP-20021994107-$ | JP-2004328506-$ | JP-20060726803-$ | ZR-706560-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:59

S118	2	S115 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:48
S119	3	S116 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:48
S120	0	S117 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:49
S121	104	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/05/25 10:12
S122	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR;	OR	ON	2020/05/25 10:15

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S123	34600	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:27
S124	24041	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:28
S125	5427	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:28
S126	143054	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/05/25 10:32

			EPO; JPO; DERWENT; IBM_TDB			
S127	23	(US-10210602-$ | US-10674047-$ | US-13691805-$ | US-20020012054-$ | US-20020041383-$ | US-20030039402-$ | US-20040150726-$ | US-20050030394-$ | US-20060120599-$ | US-20070252074-$ | US-20080175514-$ | US-20120229654-$ | US-7327390-$ | US-9077842-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:34
S128	31	("20030076420" | "20040135889" | "5461440" | "5671297" | "6115104" | "6219446" | "6323934" | "6657658" | "6935521" | "6937370" | "7065255" | "7151564").PN. OR ("7327390").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 10:42
S129	19	("20040150732" | "20040218813" | "20050179788" | "20080007630" | "20080240709" | "20080291447" | "20090009633" | "20090052769" | "20090167925" | "20090202171" | "20090262231" | "20120300112" | "5227832" | "6646760" | "6747757" | "7321685" | "7425988").PN. OR ("9077842").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 10:55
S130	1	(12/085550).APP.	USPAT; USOCR	OR	ON	2020/05/25 10:59
S131	9	("20020168115" | "6097430" | "6219446" | "6683652" | "7030911").PN. OR ("7425988").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:05
S132	16	("20040190762" | "20070279618" | "20080225227" | "20090231565" | "20100014065" | "20120207401" | "20130077891" | "20130124159" | "20150235068" | "20150293018" | "20180040109" | "6862373" | "7425988" | "7995108" | "8340453" | "8508655").PN. OR ("10282822").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:07

S133	1	(14/181550).APP.	USPAT; USOCR	OR	ON	2020/05/25 11:09
S134	17	("5241372" | "6747702" | "6788813").PN. OR ("7321685").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:18
S135	11	("20060067663" | "7221793" | "7321685" | "7783128" | "8085626").PN. OR ("8446477").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:21
S136	5	("20060228097" | "8395677" | "9077842" | "9392176" | "9998652").PN. OR ("10237485").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:28
S137	10	("20030194143" | "20040218813" | "20060232681" | "20070177019" | "20080291447" | "20090207271" | "20120044369").PN. OR ("8395677").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:32

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L30	96	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:18
L31	3	(neal with solomon).as.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:19
L32	21412	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB;	OR	ON	2020/05/25 14:19

			USPAT			
L33	15422	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:19
L34	3017	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:19
L35	44882	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:20
L36	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:20
L37	0	(camera and (aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:21
L39	0	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT	OR	ON	2020/05/25 14:22
L40	1	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory	US-PGPUB; USPAT	OR	ON	2020/05/25 14:23

		or storage or buffer) and (DSP or (digital signal process$3))))).clm.				
S104	96	(neal with solomon).in.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S105	3	(neal with solomon).as.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S106	21404	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S107	15418	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:47
S108	3017	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:48
S109	42109	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:48
S110	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:49
S111	0	((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or	US-PGPUB;	OR	ON	2020/01/13 11:50

		chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	USPAT			
S112	0	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:51
S113	1	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:52
S114	0	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT	OR	ON	2020/01/13 11:54

5/25/2020 2:30:29 PM
C:\Users\mcamargo\Documents\EAST\Workspaces\13691805.wsp

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
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	13691805
Filing Date	2012-12-02
First Named Inventor	Neal Solomon
Art Unit	~~2693~~ 2697
Examiner Name	Marly Camargo
Attorney Docket Number	5311.001US3

U.S.PATENTS

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	10210602		2019-02-19	Campbell, Richard John	
	2	10674047		2020-06-02	Solomon, Neal	
	3	7327390		2008-02-05	Gallagher, Andrew C	
	4	9077842		2015-07-07	Natsume, Satoshi	

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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	20020012054	A1	2002-01-31	Osamoto, Akira	
	2	20020041383	A1	2002-04-11	Lewis, Clarence A, et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.S.C/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	~~2699~~ 2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	3	20030039402	A1	2003-02-27	Robins, David R, et al.	
	4	20040150726	A1	2004-08-05	Gallagher, Andrew C	
	5	20050030394	A1	2005-02-10	Mendis, Sunetra K, et al.	
	6	20060120599	A1	2006-06-08	Steinberg, Eran, et al.	
	7	20070252074	A1	2007-11-01	Ng, Yi-ren, et al.	
	8	20080175514	A1	2008-07-24	Nose, Atsushi, et al.	
	9	20120229654	A1	2012-09-13	Solomon, Neal	

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	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	~~2697~~ 2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

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.	T5
	1	"Application Serial No. 16 692,972, Notice of Allowance mailed 01-24-20", 17 pages.	☐
	2	"Application Serial No. 16 692,939, Non Final Office Action mailed 02-04-20", 22 pages.	☐
	3	"Application Serial No. 16 694,838, Non Final Office Action mailed 02-13-20", 21 pages.	☐
	4	"Application Serial No. 16 694,850, Non Final Office Action mailed 03-04-20", 25 pages.	☐
	5	"Application Serial No. 16 692,939, Examiner Interview Summary mailed 05-06-20", 4 pg	☐
	6	"Application Serial No. 16 692,939, Response to Non Final Office Action mailed 02-04-20 filed 05-04-20", 12 pages.	☐
	7	"PCTUS2007015544 Published International Application 10-23-2008", (10 23 2008), 3 pages.	☐
	8	"PCTUS2007015544 Notification Recording Change 11-21-2008", (11 21 2008), 1 page.	☐
	9	"PCTUS2007015544 Written Opinion ISA 01-11-2009", (1 11 2009), 7 pages.	☐
	10	"PCTUS2007015544 IPRP 01-13-2009", (1 13 2009), 8 pages.	☐

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.S.C/

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	First Named Inventor	Neal Solomon
	Art Unit	~~2699~~ 2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

	11	"Application Serial No. 16 694,838, Examiner Interview Summary mailed 05-13-20", 4 pages.	☐
	12	"Application Serial No. 16 694,850, Examiner Interview Summary mailed 05-13-20", 4 pages.	☐
	13	"PCTUS2007015544 Documents 1-17-2008", (1 17 2008), 147 pages.	☐

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EXAMINER SIGNATURE

Examiner Signature	/MARLY S CAMARGO/	Date Considered	05/25/2020

*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.

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	Application Number	13691805
	Filing Date	2012-12-02
	First Named Inventor	Neal Solomon
	Art Unit	~~2690~~ 2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3

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	/Timothy E. Bianchi/	Date (YYYY-MM-DD)	2020-05-15
Name/Print	Timothy E. Bianchi	Registration Number	39,610

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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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	5311.001US3

CONFIRMATION NO. 6244

21186
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PUBLICATION NOTICE

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Title:DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Publication No.US-2020-0267286-A1
Publication Date:08/20/2020

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REQUEST FOR CONTINUED EXAMINATION (RCE) TRANSMITTAL		
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Confirmation Number	6244
	Group Art Unit	2697
	Examiner Name	Marly Camargo
	Attorney Docket Number	5311.001US3
	Customer No.	21186

This is a Request for Continued Examination (RCE) under 37 C.F.R § 1.114 of the above-identified application entitled
DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

1. Submission required under 37 C.F.R. § 1.114:

   X Information Disclosure Statement (2 pgs.), Form 1449 (5 pgs.), and copies of cited documents (55).

2. Fees

   X Authorization to charge deposit account 19-0743 in the amount of $950.00 to pay the subsequent RCE filing fee required under 37 C.F.R. § 1.17(e)(2).

The Commissioner is hereby authorized to charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

US005414782A

United States Patent [19]

Carasso

[11] Patent Number: 5,414,782

[45] Date of Patent: May 9, 1995

[54] **PROCEDURE FOR DIGITAL IMAGE RESTORATION**

[75] Inventor: **Alfred S. Carasso**, North Potomac, Md.

[73] Assignee: **The United States of Amercia as represented by the Secretary of Commerce**, Washington, D.C.

[21] Appl. No.: **991,105**

[22] Filed: **Dec. 16, 1992**

[51] **Int. Cl.**[6] **G06K 9/40**

[52] **U.S. Cl.** **382/270**; 364/413.19; 382/128

[58] **Field of Search** 382/6, 54, 42; 364/413.13, 413.17, 413.19, 822

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,315,318	2/1982	Kato et al.	382/6
4,329,588	5/1982	Barrett et al.	364/416
4,331,877	5/1982	Barrett et al.	364/414
4,633,504	12/1986	Wihl	382/54
4,758,304	7/1988	McNeil et al.	156/626
4,877,479	10/1989	McNeil et al.	156/626
4,903,205	2/1990	Hishinuma	382/6
4,907,156	3/1990	Doi et al.	382/6
4,947,323	8/1990	Smith	364/413.13
5,047,968	9/1991	Carrington et al.	382/54

OTHER PUBLICATIONS

N. S. Kopeika, "Spectral Characteristics of Image Quality for Imaging Horizontally Through the Atmosphere," Applied Optics, vol. 16 (1977), pp. 2422–2426.

R. Weber, "The Ground-Based Electro-Optical Detection of Deep-Space Satellites," Applications of Electronic Imaging Systems, SPIE, vol. 143 (1978), pp. 59–69.

N. S. Kopeika, "Imaging Through the Atmosphere for Airborne Reconnaissance," Optical Engineering, vol. 26 (1987), pp. 1146–1154.

J. D. Gonglewski et al., "Laboratory and Field Results in Low Light Postdetection Turbulence Compensation Using Self Referenced Speckle Holography," Digital Image Synthesis and Inverse Optics, SPIE, vol. 1351 (1990), pp. 798–806.

H. T. Yura, "Imaging in Clear Ocean Water," Applied Optics, vol. 12 (1973), pp. 1061–1066.

C. B. Johnson, "A Method for Characterizing Electro-Optical Device Modulation Transfer Functions," Photographic Science and Engineering, vol. 14 (1970), pp. 413–415.

C. B. Johnson, "Classification of Electron-Optical Device Modulation Transfer Functions," Advances in Electronics and Electron Physics, vol. 33B (1972), pp. 579–584.

C. B. Johnson et al., "High Resolution Microchannel Plate Image Tube Development," Electron Image Tubes and Image Intensifiers II, SPIE, vol. 1449 (1991), pp. 2–12.

F. C. Wagner et al., "A Characterization of the Scatter Point-Spread-Function in Terms of Air Gaps," IEEE Transactions on Medical Imaging, vol. 7 (1988), pp. 337–344.

(List continued on next page.)

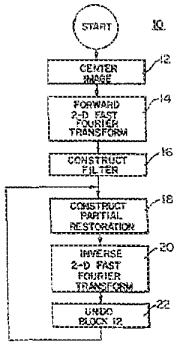
Primary Examiner—Joseph Mancuso

Attorney, Agent, or Firm—Panitch Schwarze Jacobs & Nadel

[57] **ABSTRACT**

The image restoration system and method of the present invention is applied to point spread functions p(x,y) which may be described in the Fourier domain as $\hat{p}(\xi,\eta)=\exp\{-\Sigma_{i=1}^{J}\lambda_i(\xi^2+\eta^2)^{\beta_i}\}$, $\lambda_i \geq 0$, $0<\beta_i \leq 1$, to improve noise performance and permit identification of fine detail. The novel method formulates the image restoration problem as a problem in the partial differential equations describing diffusion phenomena using a new type of a priori constraint. The restored image is obtained by minimizing a quadratic functional incorporating this new constraint. The solution of the minimization problem may be obtained directly by means of fast Fourier transform algorithms. The restoration method may be performed as a sequence of partial restorations as $t \downarrow 0$ wherein the partial restorations become sharper and noisier as $t \downarrow 0$, or as a single full restoration. The sequence of partial restorations may reveal features of the image before such features become obscured by noise and may permit adjustment of the parameters characterizing the blurring functions and constraints.

12 Claims, 3 Drawing Sheets



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OTHER PUBLICATIONS

S. Webb et al., "Constrained Deconvolution of SPECT Liver Tomograms by Direct Digital Image Restoration," Medical Physics, vol. 12 (1985), pp. 53–58.

U. Raff et al., "Improvement of Lesion Detection in Scintigraphic Images by SVD Techniques for Resolution Recovery," IEEE Transactions on Medical Imaging, vol. MI–5 (1986), pp. 35–44.

B. C. Penney et al., "Constrained Least–Squares Restoration of Nuclear Medicine Images: Selecting the Coarseness Function," Medical Physics, vol. 14 (1987), pp. 849–858.

B. C. Penney et al., "Relative Importance of the Error Sources in Wiener Restoration of Scintigrams," IEEE Transactions on Medical Imaging, vol. 9 (1990), pp. 60–70.

K. S. Pentlow et al., "Quantitative Imaging of I–124 Using Positron Emission Tomography with Applications to Radioimmunodiagnosis and Radioimmunotherapy," Medical Physics, vol. 18 (1991), pp. 357–366.

S. M. Mohapatra et al., "Transfer Function Measurement and Analysis for a Magnetic Resonance Imager," Medical Physics, vol. 18 (1991), pp. 1141–1144.

S. Rudin et al., "Improving Fluoroscopic Image Quality with Continously Variable Zoom Magnification," Medical Physics, vol. 18 (1991), pp. 972–977.

E. L. Nickoloff et al., "A Simplified Approach for Modulation Transfer Function Determinations in Computed Tomography," Medical Physics, vol. 12 (1985), pp. 437–442.

F. F. Yin et al., "Measurement of the Presampling Modulation Transfer Function of Film Digitizers Using a Curve Fitting Technique," Medical Physics, vol. 17 (1990), pp. 962–966.

P. J. Papin et al., "A Prototype Amorphous Selenium Imaging Plate System for Digital Radiography," Medical Physics, vol. 14 (1987), pp. 322–329.

S. Sanada et al., "Comparison of Imaging Properties of a Computed Radiography System and Screen–Film Systems," Medical Physics, vol. 18 (1991), pp. 414–420.

H. Fujita et al., "A Simple Method for Determining the Modulation Transfer Function in Digital Radiography," IEEE Transactions on Medical Imaging, vol. 11 (1992), pp. 34–39.

M. Takahashi et al., "Digital TV Tomography: Description and Physical Assessment," Medical Physics, vol. 17 (1990), pp. 681–685.

Y. Higashida et al., "Dual–Film Cassette Technique for Studying the Effect of Radiographic Image Quality on Diagnostic Accuracy," Medical Physics, vol. 11 (1984), pp. 646–652.

H. Kuhn et al., "Imaging Characteristics of Different Mammographic Screens," Medical Physics, vol. 19 (1992), pp. 449–457.

N. V. Rao, "Development of High Resolution Camera Tube for 2000 Line TV System," Electron Image Tubes and Image Intensifiers, SPIE, vol. 1243 (1990), pp. 81–86.

R. Barden et al., "High Resolution MS–Type Saticon Pick–Up Tube with Optimized Electron Optical Properties," Electron Image Tubes and Image Intensifiers II, SPIE, vol. 1449 (1991), pp. 136–147.

K. A. Costello et al., "Imaging GaAs Vacuum Photodiode with 40% Quantum Efficiency at 530 nm," Electron Image Tubes and Image Intensifiers, SPIE, vol. 1243 (1990), pp. 99–106.

A. S. Carasso et al., "Digital Removal of Random Media Image Degradations By Solving the Diffusion Equation Backwards in Time," SIAM Journal on Numerical Analysis, vol. 15 (1978), pp. 344–367.

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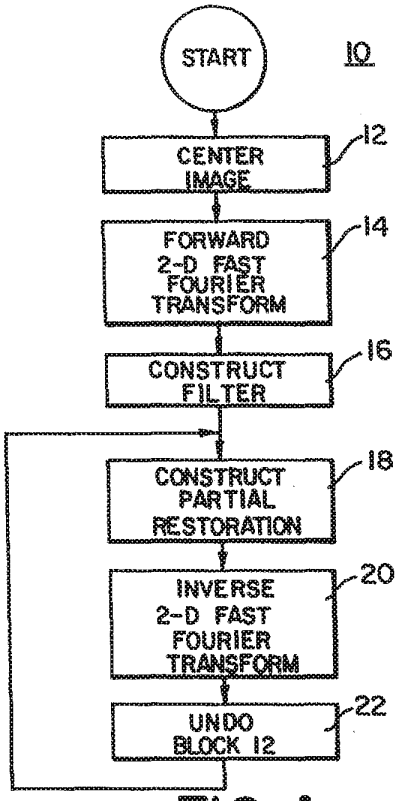


FIG. 1

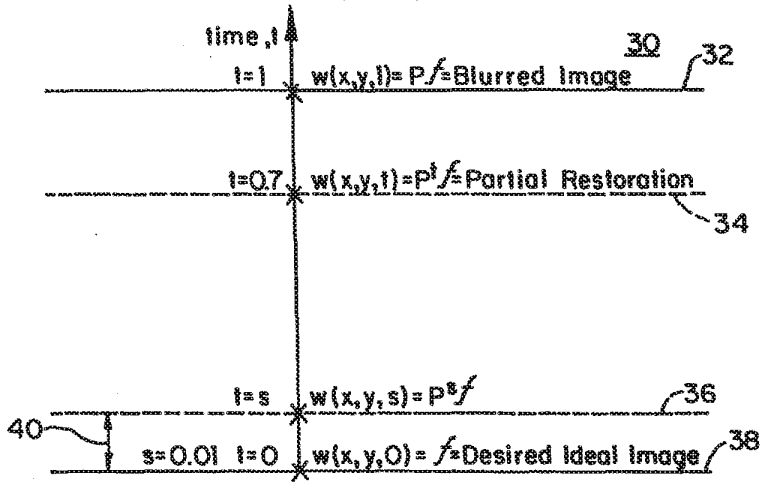


FIG. 2

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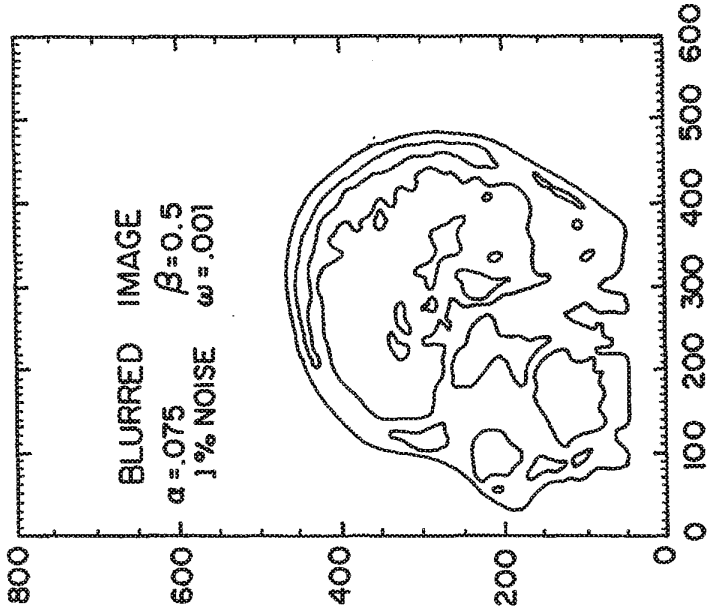


FIG. 4

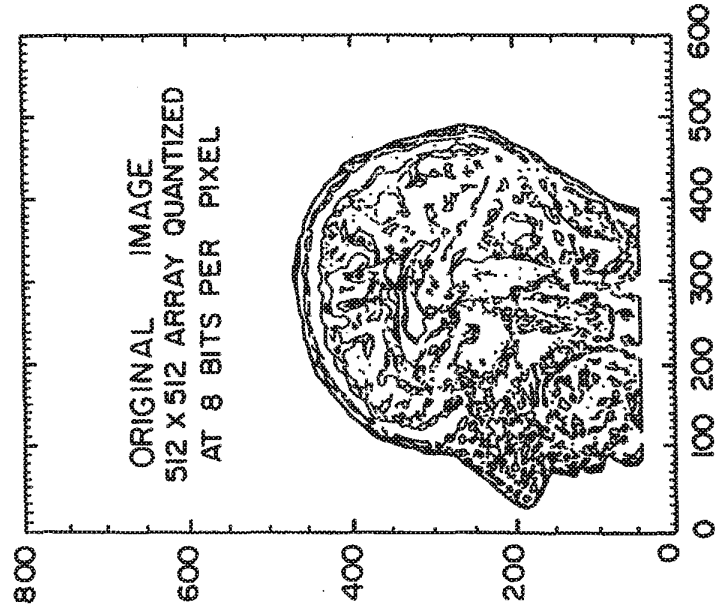


FIG. 3

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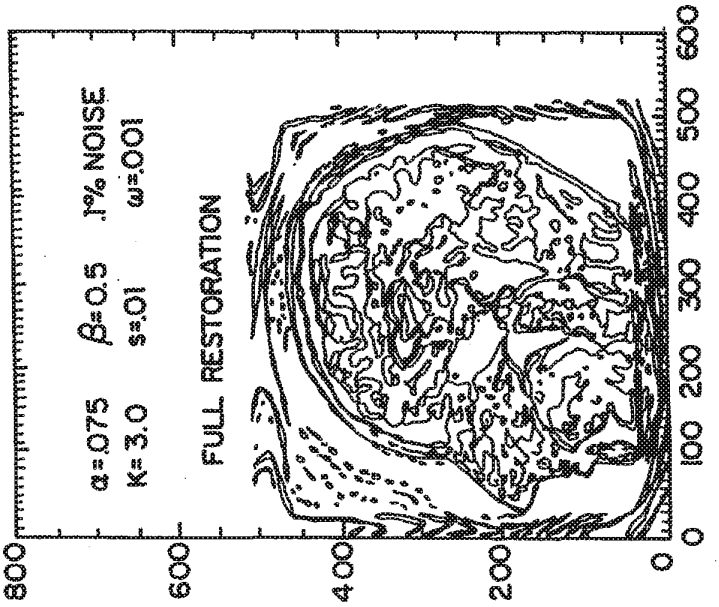


FIG. 6

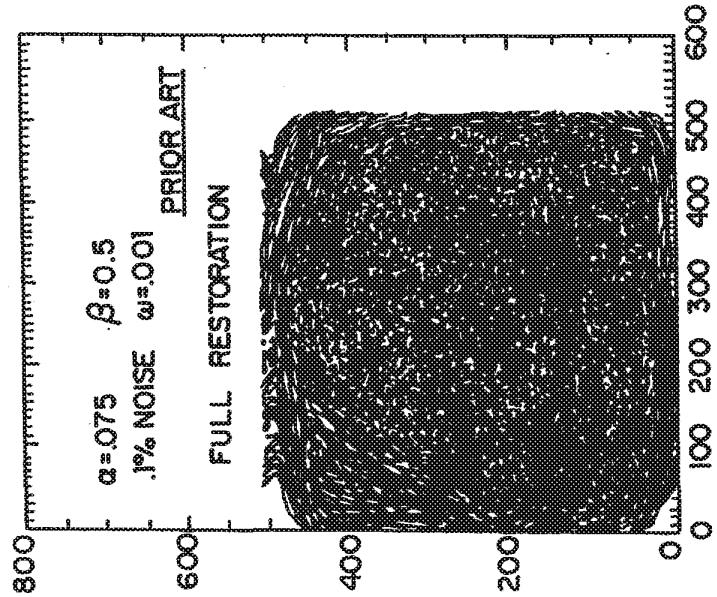


FIG. 5

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PROCEDURE FOR DIGITAL IMAGE RESTORATION

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to image processing, and, in particular, to image restoration.

2. Statement of Related Art

Comprehensive coverage of prior art in the field of image restoration relevant to the system and method may be found in H. C. Andrews and B. R. Hunt, *Digital Image Restoration*, Prentice-Hall Signal Processing Series, Prentice-Hall, Inc., Englewood Cliffs, N.J. (1977); W. K. Pratt, *Digital Image Processing*, 2nd Edition, John Wiley and Sons, New York (1988); H. Stark, *Image Recovery, Theory and Application*, Academic Press, Inc., Harcourt Brace Jovanovich, Publishers, New York (1987); R. C. Gonzalez and P. Wintz, *Digital Image Processing*, 2nd Edition, Addison-Wesley Publishing Company, Inc., Advanced Book Program, Reading, Mass. (1987); and R. L. Lagendijk and J. Biemond, *Iterative Identification and Restoration of Images*, Kluwer International Series in Engineering and Computer Science, Kluwer Academic Publishers, Boston, Mass. (1991). For space-invariant blurs, digital image restoration is associated with the solution of two dimensional ill-posed convolution integral equations of the form

$$g(x,y) = \int_{-\infty}^{\infty}\int_{-\infty}^{\infty} p(x-u,y-v)f(u,v)dudv, \quad \text{Equation (1)}$$

where g(x,y) is the degraded image, f(x,y) is the desired ideal image, and p(x,y) is the known point spread function of the imaging system. The point spread function acts so as to blur or smooth out the ideal image, making it impossible to distinguish fine details in the recorded image g(x,y). Separately, g(x,y) is further contaminated by measurement noise. Thus:

$$g(x,y)=g_c(x,y)+n(x,y), \quad (2)$$

where $g_c(x,y)$ is the blurred image that would have been recorded in the absence of noise, and n(x,y) represents the cumulative effects of all noise processes affecting final acquisition of the digitized array g(x,y). This includes the case of multiplicative noise, where n(x,y) is a function of f(x,y). The noise component n(x,y) is unknown, but may be presumed small. Likewise, $g_c(x,y)$ is unknown. The type and intensity of the blurring caused by p, together with the magnitude of the noise in g, ultimately limit the quality of the restoration that can be achieved. It is convenient to write Equation (1) in operator notation as:

$$Pf=g, \quad (3)$$

where P is the integral operator in $L^2(R^2)$ with kernel p(x-u,y-v).

The two dimensional Fourier transform plays a major role in the subsequent analysis. For a function a(x,y) of the space variables x,y, the Fourier transform $\hat{a}(\xi,\eta)$ may be expressed as:

$$\hat{a}(\xi,\eta) = \int_{-\infty}^{\infty}\int_{-\infty}^{\infty} a(x,y)e^{-2\pi i(\xi x+\eta y)}dxdy. \quad \text{Equation (4)}$$

The Fourier transform of the point spread function is called the optical transfer function and is an important tool in image analysis. The convolution theorem states that the transform of a convolution is the product of the individual transforms. The Parseval theorem states that the L^2 scalar product of two functions in the space variables x,y is equal to their scalar product in the transform variables ξ,η. These and other results from Fourier analysis in L^2 are well known in the art. For convolution equations such as Equation (1), it is advantageous to perform the analysis and computations in the Fourier domain. After image processing, the inverse Fourier transform is used to return to the space variables x,y.

The class G of point spread functions, described by Equation (5A) below, plays a key role in several civilian and military applications, including biomedical imaging; night vision systems; undersea imaging; imaging through the atmosphere; remote sensing; high definition television; and industrial applications. Consider first the class of point spread functions p(x,y) described as follows in the Fourier transform domain:

$$\hat{p}(\xi,\eta)=e^{-\lambda(\xi^2+\eta^2)^{\beta}}, \lambda>0, 0<\beta\leq 1. \quad (5)$$

The case $\beta=1$ corresponds to a Gaussian point spread function. This case occurs in quite diverse applications, including undersea imaging (see H. T. Yura, 'Imaging in Clear Ocean Water,' *Applied Optics*, Vol. 12 (1973), pp. 1061–1066); low light-level electro-optical detection (see R. Weber, 'The Ground-Based Electro-Optical Detection of Deep-Space Satellites,' *Applications of Electronic Imaging Systems*, Proceedings of the Society of Photo-Optical Instrumentation Engineers, Vol. 143, R. E. Franseen and D. K. Schroder, Eds. (1978), pp. 59–69); nuclear medicine gamma camera scintigrams (see S. Webb et al., 'Constrained Deconvolution of SPECT Liver Tomograms by Direct Digital Image Restoration,' *Medical Physics*, Vol. 12 (1985), pp. 53–58; U. Raff et al., 'Improvement of Lesion Detection in Scintigraphic Images by SVD Techniques for Resolution Recovery,' *IEEE Transactions on Medical Imaging*, Vol. MI-5 (1986), pp. 35–44; B. C. Penney et al., 'Constrained Least Squares Restoration of Nuclear Medicine Images: Selecting the Coarseness Function,' *Medical Physics*, Vol. 14 (1987), pp. 849–859; B. C. Penney et al., 'Relative Importance of the Error Sources in Wiener Restoration of Scintigrams,' *IEEE Transactions on Medical Imaging*, Vol. 9 (1990), pp. 60–70; K. S. Pentlow et al., 'Quantitative Imaging of I-124 Using Positron Emission Tomography with Applications to Radioimmunodiagnosis and Radioimmunotherapy,' *Medical Physics*, Vol. 18 (1991), pp. 357–366); magnetic resonance imaging (see S. M. Mohapatra et al., 'Transfer Function Measurement and Analysis for a Magnetic Resonance Imager,' *Medical Physics*, Vol. 18 (1991), pp. 1141–1144); and computed tomography scanners (see E. L. Nickoloff and R. Riley, 'A Simplified Approach for Modulation Transfer Function Determinations in Computed Tomography,' *Medical Physics*, Vol. 12 (1985), pp. 437–442).

The case $\beta=5/6$ describes blurring caused by atmospheric turbulence under long time exposure. This optical transfer function is important in post processing of

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degraded images obtained in airborne reconnaissance, in remote sensing from environmental or surveillance satellites, in the detection of deep-space satellites from ground-based telescopes, and in observational astronomy (see J. C. Wyant, Ed., *Imaging Through the Atmosphere*, Proceedings of the Society of Photo-Optical Instrumentation Engineers, Vol. 75 (1976); N. S. Kopeika, 'Spectral Characteristics of Image Quality for Imaging Horizontally Through the Atmosphere,' *Applied Optics*, Vol. 16 (1977), pp. 2422–2426; R. Weber, 'The Ground-Based Electro-Optical Detection of Deep-Space Satellites,' *Applications of Electronic Imagining Systems*, Proceedings of the Society of Photo-Optical Instrumentation Engineers, Vol. 143, R. E. Franseen and D. K. Schroder, Eds. (1978), pp. 59–69; N. S. Kopeika, 'Imaging Through the Atmosphere for Airborne Reconnaissance,' *Optical Engineering*, Vol. 26 (1987), pp. 1146–1154; J. D. Gonglewski and D. G. Voelz, 'Laboratory and Field Results in Low Light Post-detection Turbulence Compensation Using Self Referenced Speckle Holography,' *Digital Image Synthesis and Inverse Optics*, Proceedings of the Society of Photo-Optical Instrumentation Engineers, Vol. 1351, A. F. Gmitro, P. S. Idell, and I. J. LaHaie, Eds. (1990), pp. 798–806).

The case $\beta=\frac{1}{2}$ corresponds to the Cauchy or Lorentzian density, and may be used to describe X-ray scattering in radiology (see F. C. Wagner et al., 'A Characterization of the Scatter Point Spread Function in Terms of Air Gaps,' *IEEE Transactions on Medical Imaging*, Vol. 7 (1988), pp. 337–344).

A wide variety of electron-optical devices obey Equation (5) with a value of β satisfying $\frac{1}{2}\leqq\beta\leqq 1$ (see C. B. Johnson, 'A Method for Characterizing Electro-Optical Device Modulation Transfer Functions,' *Photographic Science and Engineering*, Vol. 14 (1970), pp. 413–415; C. B. Johnson, 'Classification of Electron-Optical Device Modulation Transfer Function,' *Advances in Electronics and Electron Physics*, Vol. 33B . (1972), pp. 579–584; C. B. Johnson et al., 'High-Resolution Microchannel Plate Image Tube Development,' *Electron Image Tubes and Image Intensifiers II*, Proceedings of the Society of Photo-Optical Instrumentation Engineers, Vol. 1449, I. P. Csorba, Ed. (1991), pp. 2–12).

Such devices constitute important elements of various biomedical imaging modalities, including image intensifier-video camera (II-TV) fluoroscopic systems (see S. Rudin et al., 'Improving Fluoroscopic Image Quality with Continuously Variable Zoom Magnification,' *Medical Physics*, Vol. 19 (1991), pp 972–977); radiographic film digitizers (see F. F. Yin et al., 'Measurement of the Presampling Transfer Function of Film Digitizers Using a Curve Fitting Technique,' *Medical Physics*, Vol. 17 (1990), pp. 962–966); radiographic selenium imaging plates (see P. J. Papin and H. K. Huang, 'A Prototype Amorphous Selenium Imaging Plate System for Digital Radiography,' *Medical Physics*, Vol. 14 (1987), pp. 322–329); computed radiography photostimulable phosphor systems (see S. Sanada et al., 'Comparison of Imaging Properties of a Computed Radiography System and Screen-Film Systems,' *Medical Physics*, Vol. 18 (1991), pp . 414–420; H. Fujita et al., 'A Simple Method for Determining the Modulation Transfer Function in Digital Radiography,' *IEEE Transactions on Medical Imaging*, Vol. 11 (1992), pp. 34–39); digital TV tomography systems (see M. Takahashi et al., 'Digital TV Tomography: Description and Physical Assessment,' *Medical Physics*, Vol. 17 (1990), pp. 681–685); and radiographic screen-film systems (see Y. Higashida et al., 'Dual-Film Cassette Technique for Studying the Effect of Radiographic Image Quality on Diagnostic Accuracy,' *Medical Physics*, Vol. 11 (1984), pp. 646–652; H. Kuhn and W. Knupfer, 'Imaging Characteristics of Different Mammographic Screens,' *Medical Physics*, Vol. 19 (1992), pp. 449–457).

Other important image tube/image intensifier applications include high definition television (HDTV) (see N. V. Rao, 'Development of a High-Resolution Camera Tube for 2000-Line TV System,' *Electron Tubes and Image Intensifiers*, Proceedings of the Society for Photo-Optical Instrumentation Engineers, Vol. 1243, I. P. Csorba, Ed. (1990), pp. 81–86; R. Barden et al., 'High Resolution MS-Type Saticon Pick-Up Tube with Optimized Electron-Optical Properties,' *Electron Tubes and Image Intensifiers II*, Proceedings of the Society for Photo-Optical Instrumentation Engineers, Vol. 1449, I. P. Csorba, Ed. (1991), pp. 136– 147), and night vision and undersea imaging systems (see K. A. Costello et al., 'Imagining GaAs Vacuum PhotoDiode with 40% Quantum Efficiency at 530 nm,' *Electron Tubes and Image Intensifiers*, Proceedings of the Society for Photo-Optical Instrumentation Engineers, Vol. 1243, I. P. Csorba, Ed. (1990), pp. 99–106.

In a typical imaging situation, several electron-optical devices may be cascaded together and used to image objects through a distorting medium such as the atmosphere or the ocean. The overall optical transfer function is then the product of finitely many functions of the type given by Equation (5), i.e.,

$$\tilde{p}(\xi,\eta)=e^{-\sum_{i=1}^{J}\lambda_i^{\beta_i}(\xi^2+\eta^2)^{\beta_i}},\quad \lambda_i\geqq 0,\quad 0<\beta_i\leqq 1. \qquad \text{Equation (5A)}$$

Each factor in this product represents a component of the total blur, and is described by Equation (5) with a particular value for λ and β. A method for determining λ_i and β_i for each component is discussed in C. B. Johnson, 'Classification of Electron-Optical Device Modulation Transfer Function,' Advances in Electronics and Electron Physics, Vol 33B (1972), pp. 579–584. Equation (5A) also describes cascaded electron-optical devices forming the imaging chain in many digital radiography systems. Frequency domain characterization of such systems is an important and ongoing task, as is evident from the above-cited references. In several industrial applications, the general functional form defined by Equation (5A) may be found to best-fit an empirically determined optical transfer function, by suitable choices of the parameters λ_i, β_i and J.

It is emphasized that while many imaging phenomena do not have optical transfer functions that can be well-described by Equation (5A), the latter nevertheless encompasses a significant set of imaging problems. We denote by G the class of optical transfer functions defined by Equation (5A). Note that Equation (5) is a special case of Equation (5A). The functions in G are infinitely divisible probability density functions.

Most current approaches to image restoration are based on linear system inverse filter theory, where the input is the degraded image, and the single output is an approximation to the ideal image. Using a priori constraints on the unknown ideal image, various regularization methods are employed in these approaches, in order to stabilize the deconvolution procedure in the

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presence of noise. Tikhonov regularization is one of the best-known examples of such procedures. This method is closely related to Wiener filtering. The Tikhonov regularization method is also known as constrained least squares. In its simplest form, Tikhonov restoration is based on the following a priori information concerning the unknown ideal image f(x,y) in Equation (1), and the noise n(x,y) in the degraded image g(x,y):

$$\| f \| \leq M, \quad \| n \| \leq \epsilon, \tag{6}$$

where $\| \ \|$ denotes the $L^2(R^2)$ norm. This leads to the following constrained restoration problem for Equation (3). Given ϵ, $M>0$, with $\epsilon/M<<1$, find all $f \in L^2(R^2)$ such that

$$\| Pf-g \| \leq \epsilon, \ \| f \| \leq M. \tag{7}$$

Let $\omega=\epsilon/M$. In this context, ω may be viewed as the L^2 noise-to-signal ratio. Tikhonov restoration provides a solution to Equation (7) by finding the function $f^T(x,y)$ which minimizes the Tikhonov functional:

$$\| Pf-g \|^2+\omega^2 \| f \|^2, \tag{8}$$

over all f in L^2. Using the normal equations, $[P^*P+\omega^2 I]f^T=P^*g$, where P^* is the Hilbert space adjoint of P, together with Fourier transforms, it is easily shown that $f^T(x,y)$ satisfies $pf^T=g^T$, where $g^T(x,y)$ is defined in the Fourier domain as follows:

$$\hat{g}^T(\xi,\eta)=\hat{g}(\xi,\eta)/[1+\omega^2|\hat{p}(\xi,\eta)|^{-2}]. \tag{9}$$

In particular, Tikhonov restoration may be understood to solve Equation (3) with a modified right hand side g^T, obtained by filtering g in the frequency domain with a specific low-pass filter. The filter is a function of ω and the known optical transfer function $\hat{p}(\xi,\eta)$. The Tikhonov solution may be obtained by inverse Fourier transforming $\hat{f}^T(\xi,\eta)=\hat{g}^T(\xi,\eta)/\hat{p}(\xi,\eta)$ The a priori bound constraint on $\| f \|$ in Equation (6) prevents explosive growth of noise in the restoration process. However, that constraint is not strong enough to prevent substantial noise contamination from obscuring fine detail in the restored image.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a flow chart representation of the image restoration method of the present invention;

FIG. 2 shows a graphical description of the constraint in Equation (13);

FIG. 3 shows a contour map representation of an original image;

FIG. 4 shows a contour map representation of a blurred image corresponding to the original image of FIG. 3;

FIG. 5 shows a contour map representation of a restored image generated by applying the prior art Tikhonov restoration method to the blurred image of FIG. 4; and

FIG. 6 shows a contour map representation of a restored image generated by applying the restoration method of the present invention to the blurred image of FIG. 4.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIG. 1, a flow chart representation of image restoration method 10 of the present invention is shown. It will be understood that the particular form of the optical transfer function in Equation (5A) plays no role in Tikhonov restoration. Indeed, Tikhonov regularization may be applied to a much wider class of image restoration problems. However, the fact that point spread functions in class G are infinitely divisible probability density functions plays an essential role in image restoration method 10. The blurred image g(x,y) is now viewed as the end result of a diffusion process applied to the desired ideal image f(x,y). This follows by recognizing Equation (5A) as the causal fundamental solution for the following parabolic initial value problem for the function w(x,y,t):

$$\frac{\partial w}{\partial t} = -\sum_{i=1}^{J} \gamma_i(-\Delta)^{\beta_i} w, \quad t>0, \quad x,y \in R^2 \qquad \text{Equation (10)}$$

$w(x,y,0)=f(x,y)$.

In Equation (10), $\gamma_i=\lambda_i(4\pi^2)^{-\beta_i}>0$, are the diffusion coefficients. If all $\beta_i=1$, Equation (10) is the classical heat equation. For $0<\beta_i<1$, Equation (10) represents a generalized diffusion process. Fourier analysis of Equation (10) shows that if Equation (3) holds with the kernel of P satisfying Equation (5A), then the blurred noiseless image $g_c(x,y)$ is the solution of Equation (10) at $t=1$,

$$g_c(x,y)=w(x,y,1) \tag{11}$$

For any t with $0 \leq t \leq 1$, Fourier analysis may be used to define the fractional powers p^t of the integral operator P when its kernel satisfies Equation (5A). The kernel of p^t is the optical transfer function given by Equation (5A) with λ_i replaced by $t\lambda_i$. Moreover, $p^t p^r=p^{t+r}$ for any $t,r \geq 0$ and $p^0=I$, where I is the identity operator on $L^2(R^2)$. The forward solution of Equation (10) is given by $w(x,y,t)=p^t f$. Consequently, for point spread functions in class G, image restoration is exactly equivalent to solving the partial differential equation problem in Equation (10) backwards in time, using the given degraded image g(x,y), rather than $g_c(x,y)$, as data at $t=1$. The desired ideal image is the corresponding solution at $t=0$,

$$f(x,y)=w(x,y,0) \tag{12}$$

For any t with $0<t<1$, w(x,y,t) constitutes a partial restoration, while w(x,y,0) is the full restoration. In the absence of noise, with data $g_c(x,y)$ in place of g(x,y), w(x,y,t) closely approximates f(x,y), provided t is sufficiently small, the λ_i are small, and f(x,y) is sufficiently well-behaved, i.e., high frequency components do not dominate the power spectrum of f(x,y). This is likely to be the case in the vast majority of images f(x,y) encountered in practical applications.

Thus, if $n(x,y)=0$ in Equation (2), then for some fixed small $s>0$, and a small constant δ, the inequality $\| w(.,s)-f \| \leq \delta$, holds. When $n(x,y) \neq 0$, such an inequality is not true because spurious high frequency noise artifacts can seriously contaminate the restoration process as $t \downarrow 0$. However, in the presence of noise, such an inequality may be imposed as an additional constraint. In this case, noise artifacts in the restored image may be expected to be substantially reduced.

Since $\| n \| \leq \epsilon$, it is convenient to put $\delta=K\epsilon$ for some small constant $K>0$. With $w(x,y,s)=P^s f$, this new constraint may then be expressed as follows: For fixed

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small $s>0$ and small constant $K>0$, where both s and K are determined on the basis of a priori information,

$$\| (I-P^s)f \| \leq K\epsilon. \tag{13}$$

Referring now to FIG. 2, there is shown graphical representation **30** of the constraint in Equation (13). The desired ideal image f(x,y) corresponds to w(x,y,0), the data at time t=0 in the partial differential equation problem, Equation (10). This corresponds to line **38** of representation **30**. It will be understood that line **38** corresponds to If of Equation (13). The blurred noiseless image, $g_e(x,y)=Pf=w(x,y,1)$, is the corresponding solution at time t=1 as shown at line **32**. At any intermediate time t with $0<t<1$, $w(x,y,t)=p^t f$ is a partial restoration, becoming the full restoration f, as $t \downarrow 0$. An example is shown at line **34** wherein t=0.7.

If $g_e(x,y)$ could be used as data at t=1 in the time-reversed problem, then for small $s>0$, $w(x,y,s)=P^s f$ would be a good approximation to f, i.e., $\| f-P^s f \|$ would be a small quantity. An example t=s for a small value of s is shown at line **36**. In reality, one must use the noisy image g(x,y) as data at t=1. In that case, high frequency noise amplification in the Tikhonov restoration process causes $w(x,y,s)=P^s f$ to differ appreciably from f. In the present invention, the requirement that $\| f-P^s f \|$ be small is enforced as an explicit additional constraint, in Equation (13). An example with the explicit choice s=0.01 is indicated as reference numeral **40** in FIG. 2. This explicit requirement results in greatly reduced noise amplification.

Returning to the original problem, Equation (3), with the optical transfer function given by Equation (5A), a new constrained problem may be formulated. Given ϵ, M, K, $s>0$, with $s<1$ and $(\epsilon/M)<1$, find all $f \in L^2(R2)$ such that

$$\| Pf-g \| \leq \epsilon, \ \| f \| \leq M, \ \| (I-P^s)f \| \leq K\epsilon \tag{14}$$

In an analogy with Tikhonov restoration, a solution to the new constrained problem may be determined by finding that function $f^c(x,y)$ which minimizes the functional of the present invention:

$$\| Pf-g \|^2 + \| (\epsilon/M)f+(1/K)(I-P^s)f \|^2, \tag{15}$$

over all f in L^2. With $\omega=\epsilon/M$, $\mu=1/(1+K\omega)$ and $B=I-\mu P^s$, the functional of the present invention may be written more compactly as

$$\| Pf-g \|^2+(1/\mu K)^2 \| Bf \|^2. \tag{16}$$

As before, the normal equations $[P^*P+(1/\mu K)^2 B^*B]f^c=P^*g$, combined with Fourier analysis, show that $Pf^c=g^c$, with $g^c(x,y)$ defined as follows in the Fourier domain:

$$\hat{g}^c(\xi,\eta)=\hat{g}(\xi,\eta)/[1+(1/\mu K)^2|\hat{p}(\xi,\eta)|^{-2}(1-\mu\hat{p}(\xi,\eta)^s)^2]. \tag{17}$$

Image restoration method **10** of the present invention is performed by inverse Fourier transforming $\hat{f}^c(\xi,\eta)=\hat{g}^c(\xi,\eta)/\hat{p}(\xi,\eta)$. Note that with s=0, the new constraint set forth in Equation (13) is automatically satisfied. In that case, the inventive functional in Equation (15) reduces to the Tikhonov functional in Equation (8). At the same time, since $\omega=(1-\mu)/\mu K$, the inventive filter in Equation (17) reduces to the Tikhonov filter in Equation (9). Thus, $f^c(x,y)=f^T(x,y)$ if s=0. However, $f^c(x,y) \neq f^T(x,y)$ when $s>0$, as the two filters are then markedly different in their behavior at intermediate and high frequencies.

It will be understood that restoration procedures for point spread functions in class G may be mathematically compared. Furthermore, for point spread functions in class G, the fact that the new constraint in Equation (13) leads to a better restoration than does the constraint in Equation (6), can be proved mathematically. The improvement may be shown on the basis of error bounds for the restoration, as a function of the L^2 noise level ϵ in the degraded image g(x,y). It is useful in this proof to estimate the error in the partial restorations, $p^t f$ at any value of t with $0 \leq t \leq 1$. Consider first the Tikhonov restoration of the prior art. Let f(x,y) be any solution of the constrained restoration problem, Equation (7), with optical transfer function given by Equation (5A), and let $f^T(x,y)$ be the Tikhonov restoration. Then,

$$\| P^t(f-f^T) \| \leq (1+\sqrt{2})M^{1-t}\epsilon^t, \ 0 \leq t \leq 1. \tag{Equation (18)}$$

The inequality in Equation (18) is obtained using logarithmic convexity theorems for the related diffusion equation, Equation (10), and is understood by those skilled in the art to be best-possible. See Theorem 2 in Alfred S. Carasso et al., 'Digital Removal of Random Media Image Degradations by Solving the Diffusion Equation Backwards in Time,' *SIAM Journal on Numerical Analysis*, Vol. 15, (1978), pp. 344–367. Thus, a stronger error bound in the L^2 norm cannot be obtained for the constrained restoration problem in Equation (7). The behavior of the Tikhonov error as $t \downarrow 0$ is of major concern. If $\epsilon=10^{-4}$ in Equation (6), then $\epsilon^t=10^{-0.04} \simeq 0.912$ at t=0.01. The inequality in Equation (18) implies a systematic loss of significant information as $t \downarrow 0$. In particular, at t=0, we have $\| f-f^T \| \leq (1+\sqrt{2})M$. Thus, although the difference between f and f^T is bounded, there is no guarantee that noise artifacts in the Tikhonov restoration are necessarily small.

However, in image restoration process **10** of the present invention, the following result may be proven. Let f(x,y) be any solution of the new constrained restoration problem, Equation (14), with an optical transfer function given by Equation (5A) and let $f^c(x,y)$ be the restoration of an image according to image restoration method **10**. Then,

$$\| P^t(f-f^c) \| \leq 2\sqrt{5}\,\Gamma^{1-t}\epsilon, \ 0 \leq t \leq 1, \tag{Equation (19)}$$

where F is the unique solution of the transcendental equation $z=K+z^{1-s}$ and $1<\Gamma<<M/\epsilon$, provided $s>>s^*=K\epsilon/(M \ \mathrm{Log}(M/\epsilon))$.

The significant difference between the results of Equation (18) and the results of Equation (19) is that ϵ rather than ϵ^t appears on the right hand side of the inequality in Equation (19). This is the result of the additional constraint, Equation (13), which greatly reduces the possibility that spurious high frequency noise components in the data g(x,y) will contaminate the restoration near t=0. Thus, with M=10, $\epsilon=10^{-4}$, s=0.01, and K=3, it will be understood that $\Gamma \simeq 72$ and that $\| f-f^c \| \leq 0.0322$. However, it will also be understood that $\| f-f^T \| \leq 24.2$. In this example, the error bound in the restoration according to image restoration method **10** is approximately seven hundred fifty times

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smaller than that for the Tikhonov restoration of the prior art, provided the desired image satisfies Equation (13).

Computational implementation of image restoration method **10** will be understood by those skilled as follows. The essential idea in the implementation of image restoration method **10** is the use of the discrete Fourier transform to mimic the operations described above in the continuous Fourier transform domain. These computations are fast because of the use of the fast fourier transform to implement discrete Fourier transform operations. The close connection between the continuous and discrete Fourier transforms, under appropriate conditions, is taught in detail in E. O. Brigham, The Fast Fourier Transform, Prentice-Hall, Inc., Englewood Cliffs, N.J., (1974).

Method **10** of the present invention may be performed upon the degraded image $g(x_j y_k)$ expressed as a digitized N×N array, where N is a power of 2, and where j,k are integers with $0 \leqq j, k \leqq N-1$. With l the width of the image, let $\Delta x = \Delta y = l/N$ be the sampling interval, so that $x_j = j\Delta x$, $y_k = k\Delta y$. The actual image transformed by image restoration method **10** is assumed to be surrounded by a border of zeroes of sufficient width to eliminate wrap-around errors in discrete convolutions. The N×N array includes the actual image and its border. The optical transfer function for the imaging process is assumed given by Equation (5A) with known λ_i and β_i. Likewise, the positive constants ϵ, M, K, and s in Equation (14) are assumed to be known on the basis of a priori information.

Referring again to FIG. **1**, reference is made to the identifying numerals of the representation of image restoration method **10** of the present invention. As shown in centering block **12** of image restoration method **10**, the first step is to center the origin in the frequency array. This may be done by forming:

$$g(x_j y_k) = (-1)^{j+k} g(x_j y_k), \quad 0 \leqq j,k \leqq N-1$$

In forward transform block **14** a forward two-dimensional fast Fourier transform is performed upon $g(x_j y_k)$ as determined in centering block **12**. The fast fourier transform of block **14** may be performed by forming:

$$G(\xi_m, \eta_n) = \Delta x \Delta y \Sigma_{j=0}^{N-1} \Sigma_{k=0}^{N-1} g(x_j y_k) \exp\{-2\pi i(mj+nk)/N\},$$

where $0 \leqq m, n \leqq N-1$ and $\xi_m = (m-N/2)/l, \eta_n = (n-N/2)/l$, $l = N\Delta x$.

The inventive filter of image restoration method **10** is then constructed in Fourier space as represented by filter construction block **16**. This filter is constructed with known λ_i, β_i, ϵ, M, K, $s > 0$. In order to construct the novel filter of image restoration method **10** let $\omega = \epsilon/M$, $\mu = 1/(1+K\omega)$, and let

$$\rho_{mn} = \exp\{-\Sigma_{i=1}^{I} \lambda_i (\xi_m^2 + \eta_n^2)^{\beta_i}\}, \text{ for } 0 \leqq m, n \leqq N-1.$$

Then form:

$$G(\xi_m, \eta_n) = \rho_{mn}^2 G(\xi_m, \eta_n) / \{\rho_{mn}^2 + (1/\mu K)^2 (1-\mu\rho_{mn}^2)^2\},$$

where $0 \leqq m, n \leqq N-1$.

In partial restoration block **18** of image restoration method **10**, a partial restoration at t, $0 \leqq t \leqq 1$, is constructed by forming:

$$G(\xi_m, \eta_n) = \rho_{mn}^{t-1} G(\xi_m, \eta_n),$$

where $0 \leqq m, n \leqq N-1$.

In inverse transform block **20** an inverse two-dimensional fast Fourier transform is performed upon $G(\xi_m, \eta_n)$ which was constructed in restoration block **18**. The inverse transform shown in inverse transform block **20** may be obtained by forming

$$f(x_j y_k, t) = l^{-2} \Sigma_{m=0}^{N-1} \Sigma_{n=0}^{N-1} G(\xi_m, \eta_n) \exp\{2\pi i(mj+nk)/N\},$$

where $0 \leqq j, k \leqq N-1$. The centering of centering block **12** is then undone in block **22** of image restoration method **10** by forming

$$f(x_j y_k, t) = (-1)^{j+k} f(x_j y_k, t),$$

where $0 \leqq j,k \leqq N-1$. Execution of image restoration method **10** may then return to partial restoration block **18** for any other desired value of t.

The result of performing the operations of block **22** is a partial restoration of an image according to image restoration method **10** at the preselected value of t. The user of image restoration method **10** may dispense with partial restoration and proceed directly to full restoration by setting $t=0$ when restoration block **18** is executed.

The scaling of the fast Fourier transforms in blocks **14**, **20** was chosen so as to correspond to continuous Fourier transform operations in a manner well known to those skilled in the art. However, the factor $\Delta x \Delta y$ may be omitted from the forward transform block **14** provided l^{-2} is replaced with N^{-2} in reverse transform block **20**. It is straightforward to modify the procedure so as to handle rectangular $N_1 \times N_2$ images; see e.g., R. C. Gonzalez and P. Wintz, Digital Signal Processing, Second Edition, Addison-Wesley, Reading, Mass. (1987).

The system of method **10** may be implemented with tentative values of some of the parameters λ_i, β_i, ϵ, M, K, s. Image restoration method **10** may be repeated with adjusted values. A sequence of partial restorations as $t \downarrow 0$ is a useful option in that context because noise and ringing usually increase as $t \downarrow 0$. Thus, by performing the restoration in 'slow-motion,' an experienced user may more easily determine the influence of various parameter values and more quickly arrive at corrected values. Tikhonov restoration is obtained by setting $s=0$ in filter construction block **16**.

Image restoration method **10** may be experimentally verified in the following manner. In a simulation of blurring caused by X-ray scattering, an undegraded phantom image $f(x_j y_k)$ was artificially blurred by convolution with an optical transfer function given by Equation (5). The image, shown in FIG. **3**, consisted of a five hundred twelve by five hundred twelve array, quantized at eight bits per pixel. Blurring was accomplished in the Fourier domain, by multiplying $F(\xi_m, \eta_n)$, obtained as in forward transform block **14** above by $q_{mn} = \exp\{-\alpha([l\xi_m]^2 + [l\eta_n]^2)^\beta\}$, where $\alpha = 0.075$ and $\beta = 0.5$. An inverse Fast Fourier Transform, followed by the operations of block **22**, produces the blurred substantially noiseless image $g_e(x_j y_k)$ in Equation (2).

Multiplicative noise was simulated by adding 0.1% uniformly distributed random noise to g_e. Thus, $n(x_j y_k) = 0.001 v_{jk} g_e(x_j y_k)$, where v_{jk} is a random num-

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ber drawn from a uniform distribution in the range $[-1,1]$. This yields $\|n\| \leq \epsilon \leq 0.001 \|g_\epsilon\|$. Further, since $\|g_\epsilon\| \leq \|f\|$, we find $\omega = \epsilon \|f\|^{-1} \leq 0.001$. The value $g(x_j,y_k) = g_\epsilon(x_j,y_k) + n(x_j,y_k)$ is referred to as the blurred image. The blurred image is shown in FIG. 4.

Tikhonov restoration was applied to the blurred image using $\omega = 0.001$. The full restoration was contaminated by noise artifacts that made it impossible to visualize the image. See FIG. 5. A sequence of partial Tikhonov restorations was obtained at $t=0.35$, $t=0.25$, $t=0.15$, $t=0.005$, in addition to the full restoration at $t=0$. It will be understood that the partial restorations became sharper and noisier as $t \downarrow 0$. One may use the evolution as $t \downarrow 0$ to identify features that become obscured by noise at $t=0$. The growing influence of noise as $t \downarrow 0$ is a reflection of the $O(\epsilon^t)$ error bound characteristic of Tikhonov regularization as shown in Equation (18).

Image restoration method **10** was applied to the same blurred image, using $\omega = 0.001$, $K=3$, and $s=0.01$. In view of the conservatively small value for s, the assumption that f satisfies Equation (13) is sound. Indeed, the full restoration is now found to be relatively free from noise, and to provide substantial improvement over the full prior art Tikhonov restoration. See FIG. 6. This is in accordance with Equation (19) in Theorem 2. The sequence of partial restorations at $t=0.35$, $t=0.25$, $t=0.15$, and $t=0.05$ in image restoration method **10** is likewise found to be better behaved than the corresponding prior art Tikhonov sequence.

The above experiment illustrates the preceding theoretical developments set forth with respect to image restoration method **10**. At the same time, the experiment demonstrates the soundness of the computational implementation. Thus, image restoration method **10** may be reduced to practice as shown, for point spread functions in class G.

It is believed that image restoration method **10** may be advantageously applied in biomedical imaging, night vision systems, undersea imaging, imaging through the atmosphere, remote sensing, high definition television, as well as several other scientific and industrial applications where electron optics and class G point spread functions play a major role. Two key ideas make image restoration method **10** useful as a diagnostic tool in these and other fields. First, the substantial qualitative improvement in the full restoration that results from the additional constraint in Equation (13). Second, the display of the evolution of the restoration as t approaches 0. Together, these factors offer the possibility of greatly improved diagnostic capabilities, and provide a useful addition to current image restoration technology.

It is believed that method **10** is useful in this manner because it is based on mathematical tools which are different from prior art restoration algorithms. In contrast to the input-output linear system theory familiar to researchers with backgrounds in electrical engineering or computer science, and exemplified by Tikhonov restoration or Wiener filtering, method **10** is based upon partial differential equations, semi-group theory, and the mathematics of diffusion phenomena. The two key ideas mentioned in the preceding paragraph stem from this particular mathematical basis.

It will be understood that method **10** may be implemented on a general purpose computer programmed to perform the operations of blocks **12–22**. Alternately method **10** may be performed using dedicated conventional hardware to perform such conventional operations as the transforms of blocks **14**, **20**. Additionally it will be understood by those skilled in the art that dedicated hardware may be provided, using conventional synthesis and fabrication techniques, for performing other operations within method **10**.

I claim:

1. An image restoration method in a system having an image sensor and a digitizer, comprising the steps of:

(a) providing an imaging system described by an integral operator P;

(b) transmitting an ideal image f(x,y) through an image blurring and degrading transmission medium to provide a degraded image g(x,y) wherein the degraded image g(x,y) may be represented as $Pf=g$;

(c) receiving said degraded image g(x,y) from said transmission medium by said image sensor;

(d) digitizing said degraded image g(x,y) by said digitizer;

(e) transforming said degraded image g(x,y) to provide a time modified representation $w(x,y,t)=P^t f$ wherein $w(x,y,0)=P^0 f$ represents the ideal image f(x,y) at time $t=0$ prior to the operation of the integral operator P upon f and $w(x,y,1)=Pf=g$ represents the degraded image g(x,y) when the image is received by said image sensor;

(f) requiring the magnitude of the difference between the ideal image f and a blurred version of f to be less than a preassigned tolerance value by minimizing $\|f-P^s f\|$ wherein $P^s f$ represents an image at time $t=s$ as s approaches 0;

(g) determining a plurality of values of w(x,y,t) in accordance with said minimizing;

(h) adjusting said image in accordance with said determined plurality of values to provide a plurality of adjusted images;

(i) selecting an adjusted image of said plurality of adjusted images; and

(j) displaying said selected image.

2. The image restoration method of claim **1**, comprising the further steps of:

displaying a sequence of partially restored images represented as w(x,y,t) for a plurality of values of t as t approaches 0; and

determining an optimum image of said plurality of partially restored images in accordance with said displayed sequence.

3. The image restoration method of claim **1**, wherein said constraining comprises the step of imposing the constraint $\|f-P^s f\| \leq K\epsilon$, where K is a constant and ϵ is representative of at least one image restoration parameter.

4. The image restoration method of claim **3**, comprising the further step of imposing the constraint $\|Pf-g\| \leq \epsilon$, wherein ϵ is representative of at least one image restoration parameter.

5. The image restoration method of claim **4**, comprising the further step of imposing the constraint $\|f\| \leq M$, wherein $M >> \epsilon$.

6. The image restoration method of claim **5**, comprising the further step of determining a restored image f(x,y) which minimizes the quantity

$$\{\|Pf-g\|^2 + \|(\epsilon/M)f + (1/K)(f-P^s f)\|^2\}.$$

7. The image restoration method of claim **6**, wherein a plurality of images $w(x,y,t)=P^t f$ are determined for a corresponding plurality of values of the time t.

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8. The image restoration method of claim 7, wherein said plurality of values of time comprises a sequence of progressively smaller values.

9. The image restoration method of claim 8, wherein the values of said restoration parameters are adjusted in accordance with said plurality of images for successively smaller values of time.

10. The image restoration method of claim 7, wherein each image $w(x,y,t)=P^t f$ is determined in the Fourier Transform domain by $\hat{w}(\xi,\eta,t)=\hat{p}(\xi,\eta)^t\hat{f}(\xi,\eta)$, wherein $\hat{w}(\xi,\eta,t)$ is the Fourier transform of $w(x,y,t)$, $\hat{p}(\xi,\eta)$ is an optical transfer function of said system, and $\hat{f}(\xi,\eta)$ is the Fourier transform of $f(x,y)$.

11. The image restoration method of claim 6, wherein said restored image $f(x,y)$ is determined through algebraic operations performed in the Fourier Transform domain.

12. The image restoration method of claim 1, wherein $\hat{f}(\xi,\eta)$, the Fourier Transform of $f(x,y)$, is determined by $\hat{f}(\xi,\eta)=\hat{g}(\xi,\eta)/\{\hat{p}(\xi,\eta)[1+(\mu K|\hat{p}(\xi,\eta)|)^{-2}(1-\mu\hat{p}(\xi,\eta)^s)^2]\}$, wherein $\hat{g}(\xi,\eta)$ is the Fourier Transform of the degraded image $g(x,y)$, $\hat{p}(\xi,\eta)$ is an optical transfer function of said system, ϵ is representative of at least one constant, K is a constant, $\mu=(1+K\epsilon/M)^{-1}$, $M>>\epsilon$ and s is a substantially small value of time.

* * * * *

PETITIONER CANON, INC.
EX. 1025

Petitioners Ex. 1002; Page 461 of 617

Electronic Patent Application Fee Transmittal

Application Number:	13691805
Filing Date:	02-Dec-2012
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Filer:	Robert Mark Hirning/Jamie Johnson
Attorney Docket Number:	5311.001US3

Filed as Small 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($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	950	950
		Total in USD ($)		**950**

Electronic Acknowledgement Receipt	
EFS ID:	40418674
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Robert Mark Hirning/Jamie Johnson
Filer Authorized By:	Robert Mark Hirning
Attorney Docket Number:	5311.001US3
Receipt Date:	28-AUG-2020
Filing Date:	02-DEC-2012
Time Stamp:	18:37:44
Application Type:	Utility under 35 USC 111(a)

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RAM confirmation Number	E20208RI38230358
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		13691805_SIDS_08-28-2020.pdf	224426 874c763220e9749a2f1c7fe33cd7c9f8ce0af83c	yes	8
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Information Disclosure Statement (IDS) Form (SB08)		4	8	
	Transmittal Letter		2	3	
	Request for Continued Examination (RCE)		1	1	
Warnings:					
Information:					
2	Non Patent Literature	0001_16692939foarfinal_office_action_received20200618.pdf	2758092 ec6815d1a30476bbc56213b5b0d61eacb17296e3	no	24
Warnings:					
Information:					
3	Non Patent Literature	0002_16692972noarnotice_of_allowance_received20200612.pdf	1737483 74871460ae7e5ab2075d9dcf84b546ff14219c89	no	13
Warnings:					
Information:					
4	Non Patent Literature	0003_5311001us7_cnoa_08272020.pdf	1897749 0ffe718347ea40948de5e5a52be5ef3bc7ad0d3f	no	17
Warnings:					
Information:					
5	Non Patent Literature	0004_20200720__ipr20200132 1__1040_exhibit__ex_1040_vol_001_canon_powershot_sd300_powershot.pdf	24171314 b775f238d213a280bf5145c070019fcb190a5cfd	no	89

Warnings:					
Information:					
6	Non Patent Literature	0005a_20200720__ipr2020013 21__1040_exhibit__ex_1040_v ol_002_canon_powershot_sd3 00_powershot.pdf	20300962 aeb93ca511f0790d238a00b2ad7a4636a66 1cb93	no	45
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Information:					
7	Non Patent Literature	0005b_20200720__ipr2020013 21__1040_exhibit__ex_1040_v ol_002_canon_powershot_sd3 00_powershot-2.pdf	16462109 6f57086d931ed0693f634b25bbfe746ceb4 8569b	no	45
Warnings:					
Information:					
8	Non Patent Literature	0006_20200720__ipr20200132 1__1025_exhibit__ex_1025_us _pat_no_5414782_carasso_pta b.pdf	2375797 171b912c549131f1469e6129ff2f96b2a396 4b22	no	12
Warnings:					
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9	Non Patent Literature	0007_20200720__ipr20200132 1__1018_exhibit__ex_1018_gu an_et_al_digital_image_correc ting_met.pdf	1452185 7e0b7bad359362711cbd702b65b6279344 bb8e2e	no	9
Warnings:					
Information:					
10	Non Patent Literature	0008_20200720__ipr20200132 1__1023_exhibit__ex_1023_a_ certified_translation_of_jp2000 _18424.pdf	712142 e0c845e70dd433f2b1648b7ae470d7c7a70 86809	no	13
Warnings:					
Information:					
11	Non Patent Literature	0009_20200720__ipr20200132 1__1015_exhibit__ex_1015_a_ certified_translation_of_jp2002 _19097.pdf	1952698 2045ea95f85f1e937e5a174c37e41511f408 6c47	no	12
Warnings:					
Information:					
12	Non Patent Literature	0010_20200720__ipr20200132 2__1039_exhibit__ex_1039_a_ certified_translation_of_jp2002 _19941.pdf	1014440 3e3631b51c4065941e3ca020e3d47b87336 25e42	no	18
Warnings:					
Information:					

13	Non Patent Literature	0011_20200720__ipr20200132 1__1011_exhibit__ex_1011_a_ certified_translation_of_jp2004 _32850.pdf	1162251 7b3d25907de29b3d0ab855ea05a3f5db6e 92f74d	no	21
Warnings:					
Information:					
14	Non Patent Literature	0012_20200720__ipr20200132 2__1009_exhibit__ex_1009_a_ certified_translation_of_jp2004 _34335.pdf	811070 283117843ed21015d57be62fc6d6400863e 557e7	no	31
Warnings:					
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15	Non Patent Literature	0013_20200720__ipr20200132 1__1027_exhibit__ex_1027_a_ certified_translation_of_jp2006 _72660.pdf	669334 9daf70e24b73094f66e8fa0ef9d4e380d42f2 965	no	14
Warnings:					
Information:					
16	Non Patent Literature	0014_20200720__ipr20200132 1__1013_exhibit__ex_1013_a_ certified_translation_of_jph11_ 313250.pdf	464775 af19c888a4b0e2322435c1f8132b7bd5bd4 98003	no	6
Warnings:					
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17	Non Patent Literature	0015_20200720_ipr202001321 _1004exhibit_ex_1004_claim_s truction_memo_opinion_order _219cv002.pdf	610588 fd4649f8fc6d3568ba2d900ffe6dfe502d623 329	no	60
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Information:					
18	Non Patent Literature	0016_20200720_ipr202001321 _1003exhibit_ex_1003_compla int_optimumvcanon_no219cv2 46_jrg_ed_t.pdf	860112 5d5a94d32739eb198286b28b3706b0007e 1bcf29	no	26
Warnings:					
Information:					
19	Non Patent Literature	0017_20200720__ipr20200132 2__1002_exhibit__ex_1002_de claration_of_leonard_laub_pta b.pdf	1074311 87626e720a501032e6f20e2a04de35e6295 3d73f	no	94
Warnings:					
Information:					

20	Non Patent Literature	0018_20200720__ipr20200132 1__1019_exhibit__ex_1019_de claration_of_kiyoto_nagai_july _15_202.pdf	753917 b2c9bcbe82a574c01e4812a04b51b8a74ac 74543	no	11
Warnings:					
Information:					
21	Non Patent Literature	0019_20200720_ipr202001321 _1002exhibit_ex_1002_declara tion_leonard_laub_ptab.pdf	1887189 db486e6873bea6c826f92be49a3db421987 7b616	no	117
Warnings:					
Information:					
22	Non Patent Literature	0020_20200720__ipr20200132 1__1026_exhibit__ex_1026_us _pat_no_4903204_dobbins_pt ab.pdf	5335267 9c4374bee38cc34dc8555ca680cf9d561f37 1cf9	no	28
Warnings:					
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23	Non Patent Literature	0021_20200720__ipr20200132 1__1012_exhibit__ex_1012_us _patent_no_7245319_enomot o_ptab.pdf	1772454 355f5114efd52df6e7912daa148763efb3a6 2320	no	10
Warnings:					
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24	Non Patent Literature	0022_20200720__ipr20200132 2__1038_exhibit__ex_1038_us pto_file_history_for_the_339_ patent_p.pdf	17350322 41321dd3c09def8528e78df15220b071174 97d9b	no	234
Warnings:					
Information:					
25	Non Patent Literature	0023_20200720__ipr20200132 1__1029_exhibit__ex_1029_us _pat_app_no_20070080280_h avens_ptab.pdf	5688038 ab933b9557fd6efbf586d5c04668e17e59d6 c482	no	32
Warnings:					
Information:					
26	Non Patent Literature	0024_20200720__ipr20200132 1__1030_exhibit__ex_1030_th e_us_national_stage_version_ of_wo2005.pdf	9813322 485f10711bc97e10b5f27a1c1c8d45093b0 514b7	no	85
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27	Non Patent Literature	0025_20200720__ipr20200132 1__1033_exhibit__ex_1033_a_j apanese_patent_office_machin e_transl.pdf	6994129 4540b532638f1a08e5cfe57525724be9720 1a075	no	21
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Information:					
28	Non Patent Literature	0026_20200720__ipr20200132 1__1034_exhibit__ex_1034_a_j apanese_patent_office_machin e_transl.pdf	5564579 2d256ca0de4618747a36ef3bb29af6655a9 8c801	no	12
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Information:					
32	Non Patent Literature	0030_20200720__ipr20200132 1__1028_exhibit__ex_1028_us _pat_no_7609297_master_pta b.pdf	8701940 2b44460e71629bf4c1d50125c4fde256bfc9 f078	no	55
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Information:					
33	Non Patent Literature	0031_20200720__ipr20200132 1__1031_exhibit__ex_1031_us _pat_no_7936392_ng_ptab. pdf	6579706 6323936c1404eda62a0103aa08aa25ca5b1 1154e	no	51
Warnings:					
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34	Non Patent Literature	0032_20200720_ipr20200132 1_1006_exhibit_ex_1006_us200 20135688_niikawa_ptab.pdf	6346978 a8e98740a690e46eb3d8180c2607027c3b6 593d1	no	47
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Warnings:					
Information:					
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Warnings:					
Information:					
37	Non Patent Literature	0035_20200720_ipr202001321 _1_petition_ipr_us7612805_pt ab.pdf	536010 a12f439a6742770e2a22f41175932128bd4 386d5	no	74
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Information:					
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Warnings:					
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Warnings:					
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40	Non Patent Literature	0038_20200720__ipr20200132 2__2_power_of_attorney__pet itioners_power_of_attorney_pt ab.pdf	248198 32de31eaa42ac74084435dba85df2c5f2eb 5caef	no	4
Warnings:					
Information:					

41	Non Patent Literature	0039_20200720__ipr20200132 1__1020_exhibit__ex_1020_ric oh_technical_report_no_31_ric oh_apr_.pdf	566941 fef941337f57081c48376253a69a9c7d323a e5f8	no	4
Warnings:					
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42	Non Patent Literature	0040_20200720__ipr20200132 2__1001_exhibit__ex_1001_us _patent_no_8451339_ptab.pdf	6514329 86e5d897bfcc26faa5275b953f08134b7d0e 3051	no	41
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47	Non Patent Literature	0045_20200720__ipr20200132 1__1042_exhibit__ex_1042_th e_nikon_guide_to_digital_pho tography_.pdf	14021923 ddd5b9b93d99c233bd8cacaa829934ecfb2 3d344	no	165
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Information:					

48	Non Patent Literature	0046a_20200720__ipr2020013 21__1037_exhibit__ex_1037_u spto_file_history_for_the_805_ patent_p-2.pdf	24486841 a64d96e4bbde15e16f9cd7342c1f85d629a 671aa	no	57
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Information:					
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55	Non Patent Literature	0050_20200720__ipr20200132 1__1014_exhibit__ex_1014_us _pat_no_5905530_yokota_pta b.pdf	8025380 de2a9ec468832b5087bd35ec9fdb82b7627 e51c4	no	71
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Information:					
56	Non Patent Literature	0051a_20200720__ipr2020013 21__1024_exhibit__ex_1024_v ol_001_gonzalez_woods_digit al_image_pr.pdf	17027251 10c6e4fc131a93ec7caf4fa4d5c46e5c7351d a40	no	221
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New Applications Under 35 U.S.C. 111

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New International Application Filed with the USPTO as a Receiving Office

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 1 of 5	Attorney Docket No: 5311.001US3	

US PATENT DOCUMENTS

	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document
	US-7,688,337	03/30/2010	Zhu, Qin-fan
	US-9,843,710	12/12/2017	Hamano, Hideyuki, et al.
	US-10,594,909	03/17/2020	Naruse, Yousuke, et al.
	US-20030002735A1	01/02/2003	Yamamoto, Hideaki, et al.
	US-20040120598A1	06/24/2004	Feng, Xiao-fan
	US-20040252906A1	12/16/2004	Liege, Bruno, et al.
	US-20080170124A1	07/17/2008	Hatanaka, Haruo, et al.
	US-20120229655A1	09/13/2012	Solomon, Neal
	US-20160314565A1	10/27/2016	Campbell, Richard John
	US-20170339334A1	11/23/2017	Bayser, Maira Gatti, et al.
	US-20170339340A1	11/23/2017	Bayser, Maira Gatti, et al.
	US-20200267287A1	08/20/2020	Solomon, Neal
	US-20200267288A1	08/20/2020	Solomon, Neal
	US-20200267289A1	08/20/2020	Solomon, Neal
	US-20200267290A1	08/20/2020	Solomon, Neal

FOREIGN PATENT DOCUMENTS

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 2 of 5	Attorney Docket No: 5311.001US3	

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS		
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	"Application Serial No. 16/692,939, Final Office Action mailed 06-18-20", 24 pages.	
	"Application Serial No. 16/692,972, Notice of Allowance mailed 06-12-20", 13 pages.	
	"Application Serial No. 16/694,850, Corrected Notice of Allowability mailed 08-27-20", 17 pgs.	
	"Canon Powershot SD300 and SD200 Camera User Guide, Petitioner Canon, Inc., Ex. 1040 - VOL. 1", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 89 pgs.	
	"Canon Powershot SD300 and SD200 Camera User Guide, Petitioner Canon, Inc., Ex. 1040 - VOL. 2", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 90 pgs.	
	"Carasso, US 5,4114,782, Petitioner Canon, Inc., Ex. 1025", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 12 pgs.	
	"Certified Translation of "Guan, et al., 'Digital Image Correcting Method for Digital Camera', Ricoh Technical Report No. 31, 103-110, (2005)", Petitioner Canon, Inc., Ex. 1018", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 9 pgs.	
	"Certified Translation of JP2000-184247A, Petitioner Canon, Inc., Ex. 1023", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 13 pgs.	
	"Certified Translation of JP2002-190979, Petitioner Canon, Inc., Ex. 1015", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 12 pgs.	
	"Certified Translation of JP2002-199410, Petitioner Canon, Inc., Ex. 1039", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 18 pgs.	
	"Certified Translation of JP2004-328506A, Petitioner Canon, Inc., Ex. 1011", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 21 pgs.	
	"Certified Translation of JP2004-343358, Petitioner Canon, Inc., Ex. 1009", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 31 pgs.	
	"Certified Translation of JP2006-72660, Petitioner Canon, Inc., Ex. 1027", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 14 pgs.	
	"Certified Translation of JPH11-313250, Petitioner Canon, Inc., Ex. 1013", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 6 pgs.	

EXAMINER **DATE CONSIDERED**

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant is to place a check mark here if English language Translation is attached

Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 3 of 5	Attorney Docket No: 5311.001US3	

	"Claim Construction Memorandum Opinion and Order, Document 88 in 2:19-CV-00246-JRG (E.D. Tex. June 11, 2019), Petitioner Canon, Inc., Ex. 1004", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 60 pgs.	
	"Complaint for Patent Infringement in 2:19-CV-00246-JRG (E.D. Tex. July 8, 2019), Petitioner Canon, Inc., Ex. 1003", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 26 pgs.	
	"Declaration Leonard Laub, Petitioner Canon, Inc., Ex. 1002", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 94 pgs.	
	"Declaration of Kiyoto Nagai, Petitioner Canon, Inc., Ex. 1019", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 11 pgs.	
	"Declaration of Leonard Laub, Petitioner Canon, Inc., Ex. 1002", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 117 pgs.	
	"Dobbins, III, US 4,903,204, Petitioner Canon, Inc., Ex. 1026", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 28 pgs.	
	"Enomoto, US 7,245,319 B1, Petitioner Canon, Inc., Ex. 1012", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 10 pgs.	
	"File History for US 8,451,339, Petitioner Canon, Inc., Ex. 1038", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 234 pgs.	
	"Havens, US20070080280A1, Petitioner Canon, Inc., Ex. 1029", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 32 pgs.	
	"Inoue, US20070171288A1, Petitioner Canon, Inc., Ex. 1030", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 85 pgs.	
	"JP Patent Office Machine Translation of JP05-323444A, Petitioner Canon, Inc., Ex. 1033", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 21 pgs.	
	"JP Patent Office Machine Translation of JP2000-224611A, Petitioner Canon, Inc., Ex. 1034", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 12 pgs.	
	"Kawanishi, US20050089241A1, Petitioner Canon, Inc., Ex. 1010", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 31 pgs.	
	"Kodak EasyShare V570 User Guide, Petitioner Canon, Inc., Ex. 1041", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 75 pgs.	

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 4 of 5	Attorney Docket No: 5311.001US3	

	"Library of Congress Catalog entry for "Russ, John C., The Image Processing Handbook, 4th Ed., CRC Press (2002)", Petitioner Canon, Inc., Ex. 1036", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 1 pg.	
	"Master, US 7,609,297 B2, Petitioner Canon, Inc., Ex. 1028", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 55 pgs.	
	"Ng, US 7,936,392 B2, Petitioner Canon, Inc., Ex. 1031", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 51 pgs.	
	"Niikawa, US20020135688A1, Petitioner Canon, Inc., Ex. 1006", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 47 pgs.	
	"Olympus Digital Camera E-1 Reference Manual, Petitioner Canon, Inc., Ex. 1043", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 182 pgs.	
	"Petition for Inter Partes Review", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 68 pgs.	
	"Petition for Inter Partes Review", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 74 pgs.	
	"Petitioner's Motion to Seal Confidential Litigation Filing, Ex. 1005", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 13 pgs.	
	"Petitioner's Power of Attorney", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 4 pgs.	
	"Petitioner's Power of Attorney", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 4 pgs.	
	"Ricoh Technical Report No. 31, RICOH, (April 20, 2006), Petitioner Canon, Inc., Ex. 1020", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, [Online] Retrieved from the Internet: <URL: https://web.archive.org/web/20060420051054/http:/www.ricoh.co.jp/about/business_overview/report/31/>, (07-20-2020), 4 pgs.	
	"Solomon, US 8,451,339 B2, Petitioner Canon, Inc., Ex. 1001", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 41 pgs.	
	"Solomon, US Patent No. 7,612,805, Petitioner Canon, Inc., Ex. 1001", IPR2020-01321, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 41 pgs.	
	"Steinberg, US 7,590,305 B2, Petitioner Canon, Inc., Ex. 1022", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 23 pgs.	
	"Steinberg, US 7,738,015 B2, Petitioner Canon, Inc., Ex. 1021", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 23 pgs.	

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Modified form PTO/SB/08A(04-07) OMB 651-0031
US Patent & Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 5 of 5	Attorney Docket No: 5311.001US3	

	"Taylor Francis Group, LLC Customer Service Publication Confirmation, Petitioner Canon, Inc., Ex. 1044", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 2 pgs.	
	"The Nikon Guide to Digital Photography with the CoolPix 7900 5900 Digital Camera, Petitioner Canon, Inc., Ex. 1042", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 165 pgs.	
	"USPTO File History for US 7,612,805, Petitioner Canon, Inc., Ex. 1037", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 288 pgs.	
	"Watanabe, US20050280877A1, Petitioner Canon, Inc., Ex. 1007", IPR2020-01321, US Patent No. 7,612,805; PR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 20 pgs.	
	"Wheeler, US20030095197A1, Petitioner Canon, Inc., Ex. 1032", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 32 pgs.	
	"Yamanaka, US20040150732A1, Petitioner Canon, Inc., Ex. 1017", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 31 pgs.	
	"Yokota, US 5,905,530, Petitioner Canon, Inc., Ex. 1014", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 71 pgs.	
	GONZALEZ, RAFAEL C, et al., "Digital Image Processing, 2nd Ed., Prentice Hall (2002), Petitioner Canon, Inc., Ex. 1024 – VOL. 1", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 442 pgs.	
	GONZALEZ, RAFAEL C, et al., "Digital Image Processing, 2nd Ed., Prentice Hall (2002), Petitioner Canon, Inc., Ex. 1024 – VOL. 2", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 373 pgs.	
	RUSS, JOHN C, "The Image Processing Handbook, 4th Ed., CRC Press (2002), Petitioner Canon, Inc., Ex. 1008 - VOL. 1", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 294 pgs.	
	RUSS, JOHN C, "The Image Processing Handbook, 4th Ed., CRC Press (2002), Petitioner Canon, Inc., Ex. 1008 - VOL. 2", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 268 pgs.	
	RUSS, JOHN C, "The Image Processing Handbook, 4th Ed., CRC Press (2002), Petitioner Canon, Inc., Ex. 1008 – VOL. 3", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 183 pgs.	

EXAMINER **DATE CONSIDERED**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2697
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

INFORMATION DISCLOSURE STATEMENT

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicant respectfully requests that this Information Disclosure Statement be entered and the documents listed on the attached PTO 1449 Form be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that a copy of the PTO 1449 Form, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Pursuant to 37 C.F.R. § 1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement. However, if an Office Action on the merits has been mailed after filing of the application or after the filing of the most recent RCE, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Information Disclosure Statement considered.

Pursuant to 37 C.F.R. § 1.98(a)(2), copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R § 1.98(a)(2).

The Examiner is invited to contact the undersigned at the telephone number indicated if there are any questions regarding this communication.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 08/28/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
TEB:jj Reg. No. 39,610

Electronic Acknowledgement Receipt

EFS ID:	40418724
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Robert Mark Hirning/Jamie Johnson
Filer Authorized By:	Robert Mark Hirning
Attorney Docket Number:	5311.001US3
Receipt Date:	28-AUG-2020
Filing Date:	02-DEC-2012
Time Stamp:	18:42:31
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	0052b_20200720__ipr2020013 21__1024_exhibit__ex_1024_v ol_002_gonzalez_woods_digit al_image_pr-3.pdf	14374952 09d52b71d335903ed9f16e15f974a7050e5 3f9d0	no	186

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2	Non Patent Literature	0053a_20200720_ipr20200132 1_1008exhibit_ex_1008_vol_0 01_johncruss_the_image_proc essing_hand.pdf	18923114 2739b74c8ed89148382108dba761f871371 f8abd	no	150
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3	Non Patent Literature	0053b_20200720_ipr20200132 1_1008exhibit_ex_1008_vol_0 01_johncruss_the_image_proc essing_hand-2.pdf	14997738 da9746260ebd53e386f7f692fe71681bdc30 458c	no	144
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4	Non Patent Literature	0054a_20200720_ipr20200132 1_1008exhibit_ex_1008_vol_0 02_russ_the_image_processin g_handbook_.pdf	14478933 79518fe3cd7a8125c0f31174f8ee07f7f94f5c df	no	135
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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.

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NOTICE OF ALLOWANCE AND FEE(S) DUE

21186 7590 09/16/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER
CAMARGO, MARLY S.B.

ART UNIT	PAPER NUMBER
2697	

DATE MAILED: 09/16/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$500.00	$0	12/16/2020

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.

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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)

21186 7590 09/16/2020
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P.O. BOX 2938
MINNEAPOLIS, MN 55402

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.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$500.00	$0	12/16/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
CAMARGO, MARLY S.B.	2697	348-241000

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,
(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.

1 _____
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 (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
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

21186 7590 09/16/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	
ART UNIT	**PAPER NUMBER**
2697	

DATE MAILED: 09/16/2020

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 law or regulation.

Notice of Allowability	Application No. 13/691,805	Applicant(s) Solomon, Neal	
	Examiner MARLY S CAMARGO	Art Unit 2697	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 filed on 08/28/2020.
   ☐ 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 1-30 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MARLY S CAMARGO/
Primary Examiner , Art Unit 2697

Notice of Pre-AIA or AIA Status

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

Change in Art Unit Designation for Your Application

1. The Art Unit designation of your application in the USPTO has changed from 2699 to 2697. The examiner assigned to this application remains the same. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2697.

Detailed Action

Response to Amendment

2. In response Applicant RCE filed on

August 28, 2020, the Examiner acknowledges the following:

- Claims 1 – 30 remain the same.
- Currently claims 1 – 30 are pending and they are being considered for examination.

Information Disclosure Statement

3. The information disclosure statement (IDS) document submitted on 08/28/2020 is acknowledged by the Examiner.

Continued Examination Under 37 CFR 1.114

4. 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 08/28/2020 has been entered.

Allowable Subject Matter

5. Claims 1 – 30 are allowed.

6. The following is an examiner's statement of reasons for allowance: The closest art of record teaches: 1) a camera with objective optics and a digital filter used to determine aberration due to the objective optics and wherein the image signal outputted by the image sensor is filtered (Alon – US 2007/0236574 A1); 2) a method for correcting lateral chromatic aberration using an in-camera auto-calibration procedure (Vakrat – US 2008/0291447 A1); 3) a digital filter to be used by a digital image processor in a camera device (Robinson – US 2007/0002158 A1); 4) camera apparatus separating a beam into color beams of three colors and displays an image synthesizing first, second and third image signals, wherein the lens apparatus includes a memory unit storing correcting data in an image height direction of the second and third image signals on the first image signal for correcting aberration of the image taking optical system, and a lens controlling unit extracting the correcting data of the image taking optical system state, wherein the

camera apparatus includes a camera controller moving the second and third image signals in the image height direction, and displaying an image obtained by superimposing the color image signals, wherein the image pickup apparatus includes a controller, and wherein the lens controlling unit adjusts the correcting data, and the memory unit stores the adjusted correcting data (Natsume – US 9,077,842 B2); 5) an aberration correction apparatus including a correction data holding section that holds correction data on a correction level used to correct chromatic aberration of magnification; a center position discrepancy data holding section that holds center position discrepancy data on the discrepancy between the center of an image area and the position of an aberration center of the chromatic aberration of magnification; an aberration center calculating section that selects one of the center position discrepancy data that corresponds to a combination of the discrepancy variation conditions in an imaging apparatus and calculates the position of the aberration center based on the selected center position discrepancy data; an image height calculating section; a magnification chromatic aberration correction level calculating section; and a pixel value correcting section (Kikuchi – US 8,395,677 B2); 6) an image correction apparatus comprising a storing unit which contains lens distortion functions for mapping points in an image having no lens distortion onto points in a lens-distorted image in association with respective zoom magnifications of a lens; a selection unit which acquires from data of an input captured image, information on a zoom magnification employed at the time of capturing of the captured image, and selects the lens distortion function corresponding to the zoom magnification from the storing unit; a perspective distortion calculation unit which calculates a perspective distortion function for mapping points in an image having no perspective distortion onto points on a

perspective-distorted image, by using an image whose lens distortion is corrected by the lens distortion function selected; and a distortion correction unit which corrects distortion of the captured image ascribable to capturing based on the perspective distortion function calculated by the perspective distortion calculation unit, wherein the selector unit selects from the memory unit a plurality of candidate lens distortion correction functions in accordance with the zoom magnification employed at the time of capturing, and corrects a sequence of sample points forming a known shape in the captured image by using each of the plurality of lens distortion correction functions for error pre-evaluation, and thereby selects one of the plurality of lens distortion functions (Inoue – US 2007/0171288 A1 – extracted from IDS)); 7) an image recording apparatus for reading image data, for executing an image process on the image data, and for storing the image-processed image data, comprising: an image producing device for obtaining the image data; an image processing device for executing an image process based on process information transmitted from the image producing device, together with the image data; and a print control device for controlling outputting and printing the image data image-processed by the image processing device and wherein the process information comprises information of a lens type, a focusing point and a zoom position at the time of producing the image, and the image processing device executes a distortion aberration correction process or a peripheral light intensity correction process based on the information of the lens type, the focusing point and the zoom position at the time of producing the image (Watanabe – US 2005/0280877 A1 – extracted from IDS)).

Even though Alon, Vakrat, Robinson, Natsume, Kikuchi, Inoue and Watanabe teach some of the features of the current invention such as a camera with a lens device,

wherein the camera correct aberrations in the images captured caused by the optics aberrations/distortions and process the images by correcting the original data file in order to determining the distortion correction process to be used to get the corrected image data and correcting the peripheral light intensity correction, each of them either alone or in combination fails to provide the combination limitations as in the amended independent claims 1, 6 and 14, as it follows below.

Regarding Claim 1:

The combination of Alon, Vakrat, Robinson, Natsume, Kikuchi, Inoue and Watanabe fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor, an integrated circuit, a digital signal processor configured to access in-camera system software, *a database management system including a plurality of optical image aberrations corrections and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens or a fixed focal length lens; wherein integrated circuit uses in-camera software to identify at least one optical aberration and to correct the at least one optical image aberration in at least one frame of the digital video using at least one of a plurality of optical image aberration corrections in the database; wherein the video is captured by at least one digital sensor and forwarded to the digital signal processor; wherein the image file with the at least one optical image aberration is corrected by applying digital filtration by using the digital signal processor; and wherein the corrected video consisting of the digital data optimized from the at least one optical image aberration that are corrected from the original video image is stored in the memory storage sub-system.*

Therefore, as discussed above, claim 1 is allowable over the prior art of record.

Regarding Claims 2 – 5 and 20 – 30:

Claims 2 – 5 and 20 – 30 are allowable because they depend directly to claim 1 and they require the same limitations as in claim 1, which is allowable over the prior art of record. Therefore, claims 2 – 5 and 20 – 30 are allowable for the same reasons as claim 1.

Regarding Claim 6:

The combination of Alon, Vakrat, Robinson, Natsume, Kikuchi, Inoue and Watanabe fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor for capturing digital video, an integrated circuit, *a digital signal processor configured to access a database management system including a plurality of optical image aberration corrections, in-camera system software, and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens or a fixed focal length lens; wherein the video is forwarded to storage in memory; wherein at least one optical aberration in at least two frames of the digital video are identified using the in-camera software and the identified circuit; wherein the at least one optical aberration from the optical lens mechanism of the at least two frames of the digital video are corrected by using the digital signal processor to apply at least one digital filtration algorithm; and wherein the corrected digital video file is stored in memory.*

Therefore, as discussed above, claim 6 is allowable over the prior art of record.

Regarding Claims 7 – 13:

Claims 7 – 13 are allowable because they depend directly to claim 6 and they require the same limitations as claim 6, which is allowable over the prior art of record. Therefore, claims 7 – 13 are allowable for the same reasons as claim 6.

Regarding Claim 14:

The combination of Alon, Vakrat, Robinson, Natsume, Kikuchi, Inoue and Watanabe fails to explicitly disclose a digital video camera comprising an optical lens mechanism, a digital sensor for capturing digital video, an integrated circuit, *a digital signal processor configured to access a database management system including a plurality of optical image aberration corrections, in-camera system software, and a memory storage sub-system; wherein the optical lens mechanism is a zoom lens; wherein the zoom lens changes focal length positions; wherein when the digital video is forwarded to the digital signal processor and to memory; wherein the integral circuit uses system software to access the database to identify at least one optical aberration in at least one frame of the video at any focal length of a zoom lens configuration; wherein the integrated circuit access the database to obtain at least one filtration correction algorithm to the optical image aberration of at least one frame in the video file and forwards the at least one filtration algorithms to the digital processor; wherein the digital video is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the digital video and corrects the at least one optical image aberration in at least one video frame for the at least one focal length in the zoom lens configuration; and wherein the corrected digital video is stored in memory.*

Therefore, as discussed above, claim 14 is allowable over the prior art of record.

Regarding Claims 15 – 19:

Claims 15 – 19 are allowable because they depend directly to claim 14 and they require the same limitations as claim 14, which is allowable over the prior art of record. Therefore, claims 15 – 19 are allowable for the same reasons as claim 14.

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."

Contact

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARLY CAMARGO whose telephone number is (571)270-3729. The examiner can normally be reached on 6:00AM - 10PM, M-F, EST.

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

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information

about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARLY S CAMARGO/
Primary Examiner , Art Unit 2697

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

CPC							
Symbol						**Type**	**Version**
G02B	/	27	/	0025		F	2013-01-01
H04N	/	5	/	238		I	2013-01-01
H04N	/	5	/	2254		I	2013-01-01
H04N	/	5	/	23212		I	2013-01-01
H04N	/	5	/	23296		I	2013-01-01
H04N	/	5	/	3572		I	2013-01-01
H04N	/	5	/	23203		I	2013-01-01
H04N	/	5	/	2353		I	2013-01-01
H04N	/	5	/	243		I	2013-01-01
H04N	/	5	/	35563		I	2013-01-01
H04N	/	5	/	2171		I	2013-01-01
H04N	/	5	/	2258		I	2013-01-01
G06T	/	7	/	194		I	2017-01-01
H04N	/	5	/	232125		I	2018-08-01
H04N	/	5	/	35721		I	2018-08-01
H04N	/	5	/	217		I	2013-01-01
H04N	/	5	/	2253		I	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	30	
/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	14 September 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200914

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04N	/	5	/	225
H04N	/	5	/	217
H04N	/	5	/	238
H04N	/	5	/	228
H04N	/	5	/	357
H04N	/	5	/	374
H04N	/	5	/	76
G06K	/	9	/	36
G06K	/	9	/	40
G01J	/	1	/	20
G01J	/	1	/	04
G01J	/	3	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
348	241	335	222.1	207.99	340	345
382	275	254	255	167	263	264
359	16	637	666	665	676	

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 30	
/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697 (Primary Examiner)	14 September 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office — Part of Paper No.: 20200914

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

☑ 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		10		19		28								
	2		11		20		29								
	3		12		21		30								
	4		13		22										
	5		14		23										
	6		15		24										
	7		16		25										
	8		17		26										
	9		18		27										

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	30	
/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	14 September 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200914

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

CPC - Searched*		
Symbol	**Date**	**Examiner**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	05/10/2019	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	01/13/2020	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	05/25/2020	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | G01J1/0411 | G01J3/028).CPC.	09/13/2020	M. Camargo

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/10/2019	M. Camargo
382	254,255,264,263,266,275	05/10/2019	M. Camargo
359	16,637,666,665,207.2,354,676	05/10/2019	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	01/13/2020	M. Camargo
382	167,254,255,264,263,266,275	01/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	01/13/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/25/2020	M. Camargo
382	167,254,255,264,263,266,275	05/25/2020	M. Camargo
359	16,637,666,665,207.2,354,676	05/25/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	09/13/2020	M. Camargo
382	167,254,255,264,263,266,275	09/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	09/13/2020	M. Camargo

* 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**
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC. and the results teaxt limited - see attached search history printout.	05/10/2019	M. Camargo
EAST as BRS	05/10/2019	M. Camargo
inventor	05/10/2019	M. Camargo
assignee	05/10/2019	M. Camargo
Google and Google Patents	05/01-10/2019	M. Camargo

/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC. and the results text limited - see attached search history printout.	01/13/2020	M. Camargo
EAST - updated	01/13,17/2020	M. Camargo
inventor - updated	01/13/2020	M. Camargo
assignee - updated	01/13/2020	M. Camargo
Google & Google Patents	01/10/2020- 01/17/ 2020	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC. and the results text limited - see attached search history printout.	05/25/2020	M. Camargo
EAST - updated	05/25/2020	M. Camargo
inventor - updated	05/25/2020	M. Camargo
assignee - updated	05/25/2020	M. Camargo
Google & Google Patents	05/20/2020- 05/25/ 2020	M. Camargo
(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | G01J1/0411 | G01J3/028).CPC. and the results text limited - see attached search history printout.	09/13/2020	M. Camargo
EAST - updated	09/13/2020- 09/14/ 2020	M. Camargo
inventor - updated	09/13/2020	M. Camargo
assignee updated	09/13/2020	M. Camargo
searched the individual CPC classification items with claim limitations	09/13/2020	M. Camargo
Google and Google Patents	09/10/2020- 09/14/ 2020	M. Camargo

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
EAST		01/13/2020	M. Camargo

/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

inventor		01/13/2020	M. Camargo
assignee		01/13/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	01/13/2020	M. Camargo
382	167,254,255,264,263,266,275	01/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	01/13/2020	M. Camargo
CPC	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	01/13/2020	M. Camargo
claim (US PAT/ US PG Pub)	((aberration$1 with digital with database)).clm.	01/13/2020	M. Camargo
claim	((aberration$1 with digital with database) and vignet $5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))). clm.	01/13/2020	M. Camargo
claim	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag $3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	01/13/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	01/13/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	01/13/2020	M. Camargo

/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

EAST		05/25/2020	M. Camargo
inventor		05/25/2020	M. Camargo
assignee		05/25/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	05/25/2020	M. Camargo
382	167,254,255,264,263,266,275	05/25/2020	M. Camargo
359	16,637,666,665,207.2,354,676	05/25/2020	M. Camargo
CPC	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	05/25/2020	M. Camargo
claim (US/ US PG Pub)	((aberration$1 with digital with database)).clm.	05/25/2020	M. Camargo
claim	(camera and (aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	05/25/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position $1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	05/25/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm .	05/25/2020	M. Camargo
EAST		09/13/2020 - 09/14/ 2020	M. Camargo

/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	Art Unit
	MARLY S CAMARGO	2697

inventor		09/13/2020	M. Camargo
assignee		09/13/2020	M. Camargo
348	241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349	09/13/2020	M. Camargo
382	167,254,255,264,263,266,275	09/13/2020	M. Camargo
359	16,637,666,665,207.2,354,676	09/13/2020	M. Camargo
CPC	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | G01J1/0411 | G01J3/028).CPC.	09/13/2020	M. Camargo
claim (US PAT/ US PG Pub)	((aberration$1 with digital with database)).clm.	09/14/2020	M. Camargo
claim	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag $3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	09/14/2020	M. Camargo
claim	((digital with camera$1 or video$1) and ((aberration $1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position $1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))).clm.	09/14/2020	M. Camargo
claim	((((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))).clm.	09/14/2020	M. Camargo

/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13/691,805	Solomon, Neal
	Examiner	**Art Unit**
	MARLY S CAMARGO	2697

claim	((digital with camera$1 or video$1) and ((aberration $1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm .	09/14/2020	M. Camargo

/MARLY S CAMARGO/ Primary Examiner , Art Unit 2697	

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www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 6244

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/691,805	12/02/2012	348	2697	5311.001US3

APPLICANTS

INVENTORS

Neal Solomon, Oakland, CA;

**** CONTINUING DATA ***************************

This application is a CON of 12/586,221 09/18/2009 PAT 8451339
which is a CON of 11/825,521 07/06/2007 PAT 7612805
which claims benefit of 60/807,065 07/11/2006

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
12/27/2012

Foreign Priority claimed ❑ Yes ☑ No 35 USC 119(a-d) conditions met ❑ Yes ☑ No Verified and Acknowledged /MARLY S.B. CAMARGO/ Examiner's Signature	❑ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	19	18	3

ADDRESS

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402
UNITED STATES

TITLE

DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

FILING FEE RECEIVED		
1365	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	701	carasso.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 08:52
L2	0	carasso.in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 08:53
L3	1	carasso.in. and aberration$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 08:53
L4	149	carasso.in. and digital	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/09/14 08:55

			IBM_TDB			
L5	38	"5,414,782".pn. | "4,903,204".pn. | "7,245,319".pn. | "20070080280".pn. | "20050089241".pn. | "7,609,297".pn. | "7,938,392".pn. | "20020135688".pn. | "7,590,305".pn. | "7,738,015".pn. | "20020280877".pn. | "20030095197".pn. | "20040150732".pn. | "5,905,530".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 09:05
L6	0	("5,414,782".pn. | "4,903,204".pn. | "7,245,319".pn. | "20070080280".pn. | "20050089241".pn. | "7,609,297".pn. | "7,938,392".pn. | "20020135688".pn. | "7,590,305".pn. | "7,738,015".pn. | "20020280877".pn. | "20030095197".pn. | "20040150732".pn. | "5,905,530".pn.) and ((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 09:37
L7	6	"20070171288".pn. | "7936392".pn. | "20050280877".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 09:39
L8	4	"20070171288".pn. | "7936392".pn. | "20050280877".pn. and ((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 09:57
L9	1	10/594151	US-PGPUB; USPAT; USOCR;	OR	ON	2020/09/14 10:00

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
L10	27	("20020154240" | "20050162517" | "5661816" | "5699440" | "5726746" | "5966209" | "6900884" | "7071966").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:03
L11	0	("20020154240" | "20050162517" | "5661816" | "5699440" | "5726746" | "5966209" | "6900884" | "7071966").PN. and ((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:06
L12	0	10/594151 and ((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:06
L13	11	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:06

L15	1	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:07
L17	0	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:08
L19	2	(((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:09
L21	2	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/14 10:11
S1	0	13/691805	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2019/05/10 12:06

			DERWENT; IBM_TDB			
S2	2	12/586221	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:06
S3	4	11/825521	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:08
S4	139	(neal with solomon).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:09
S5	17	(neal with solomon).in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:10
S6	11	(neal with solomon).as.	US-PGPUB; USPAT;	OR	ON	2019/05/10 12:11

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S7	6	("20070080280" | "20070236574").PN. OR ("8451339").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:19
S8	0	(11/278268).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:25
S9	1	(11/546531).APP.	USPAT; USOCR	OR	ON	2019/05/10 12:26
S10	116	("1269422" | "20030098952" | "20040008853" | "20040218283" | "20040227063" | "20040228003" | "20050002113" | "20050014306" | "20050100270" | "20050212952" | "20050218231" | "20060072915" | "20060076540" | "20060086596" | "20070063048" | "20070080280" | "20070116858" | "20080144185" | "20080144186" | "20080245872" | "20090072037" | "2062468" | "2300251" | "3161718" | "3305294" | "3583790" | "3761157" | "3778170" | "4134393" | "4191594" | "4210121" | "4249516" | "4261655" | "4286839" | "4289379" | "4312709" | "4407567" | "4487659" | "4514048" | "4783153" | "4783155" | "4784479" | "4802746" | "5091801" | "5150234" | "5305356" | "5389222" | "5396144" | "5684637" | "5892625" | "5917657" | "5973852" | "6081388" | "6109852" | "6188526" | "6212015" | "6368954" | "6369954" | "6376971" | "6399954" | "6437925" | "6449081" | "6475639" | "6529620" | "6538823" | "6542309" | "6545815" | "6545816" | "6586859" | "6628040" | "6702483" | "6715876" | "6734903" | "6747806" | "6762210" | "6806621" | "6806988" | "6809462" | "6812624" | "6882086" | "6891317" | "6934090" | "6936809" | "7169822" | "7224106" | "7301708" | "7416125" | "RE39874").PN. OR ("8027095").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:27
S11	28	("20020176148" | "20040228003" | "5071229" | "5150234").PN. OR ("6934090").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:32
S12	480	(marly with camargo).xa,xp.	US-PGPUB; USPAT;	OR	ON	2019/05/10 12:36

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S13	18	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 12:36
S14	5	("20060228097" | "8395677" | "9077842" | "9392176" | "9998652").PN. OR ("10237485").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:38
S15	9	("20080309771" | "20090256952" | "20100013947" | "20100194966" | "20120274837" | "20140036134" | "20140340567" | "6363220").PN. OR ("9998652").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:39
S16	12	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:42
S17	10	(aberration$1 with digital with database) and vignet$5	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:43
S18	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:44
S19	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:46
S20	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:46

S21	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49
S22	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 12:49
S23	33,470	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
S24	15,928	382/254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:32
S25	5,250	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 17:33
S26	119,424	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2019/05/10 18:20

			DERWENT; IBM_TDB			
S27	17	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S28	9	S23 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S29	0	S24 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S30	0	S25 and S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:21
S31	5	S26 and S27	US-PGPUB; USPAT;	OR	ON	2019/05/10 18:22

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S32	0	canon.as. and (aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/05/10 18:22
S34	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S35	0	fuji.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S36	0	microsoft.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:23
S37	0	panasoninc.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
S38	0	nikon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:24
S39	0	omnivision.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:26
S40	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29

S41	0	olympus.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S42	0	pelican.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:29
S43	0	fotonation.as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
S44	0	(carl with zeiss).as. and ((aberration$1 with digital with database) and vignet$5)	US-PGPUB; USPAT; USOCR	OR	ON	2019/05/10 18:30
S45	139	(neal with solomon).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 09:56
S46	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 09:57
S47	104	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/01/13 09:59
S48	17	(neal with solomon).in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR;	OR	ON	2020/01/13 10:01

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S49	522	(marly with camargo).xa,xp.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:03
S50	18	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:03
S51	7	("20070080280" | "20070236574").PN. OR ("8451339").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 10:06
S52	12	(aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 10:26
S53	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:31

S54	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:31
S55	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:32
S56	10	(aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:33
S57	0	canon.as. and (aberration$1 with digital with database)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S58	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/01/13 10:34

			DERWENT; IBM_TDB			
S59	0	fuji.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S60	0	sony.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:34
S61	0	microsoft.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:35
S62	0	apple.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:35
S63	0	aptina.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT;	OR	ON	2020/01/13 10:35

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S64	0	oplympus.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S65	0	panasonic.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S66	0	omnivision.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:36
S67	0	fotonation.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 10:37

			IBM_TDB			
S68	0	pelican.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:37
S69	0	nikon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:38
S70	0	(eastman with kodak).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:39
S71	0	(blur with technologies).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:45
S72	0	(d$blur with technologies).as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/01/13 10:46

			EPO; JPO; DERWENT; IBM_TDB			
S73	0	casio.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:48
S74	8	(digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 10:55
S75	8	("20050261849" | "20070030357" | "20070236574" | "20080174678").PN. OR ("8384785").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:03
S76	6	("20070236574" | "20080174678").PN. OR ("8395668").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:09
S77	21	(dudi with vakrat).in.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:13
S78	7	(dudi with vakrat).in. and aberration$1	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:13
S79	19	("20030038957" | "20040150732" | "20040227978" | "20050162532" | "20060061664" | "20060062562" | "20060232681" | "20070103744" | "4466018" | "5713053" | "6788822" | "6807299" | "6822762" | "6862373" | "7088388" | "7158686" | "7973850" | "8089555" | "8194136").PN. OR ("8654240").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/01/13 11:20

S80	48	(katsuhiko with nagata).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:33
S81	9	(katsuhiko with nagata).in. and aberration$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:34
S82	1	(12/717769).APP.	USPAT; USOCR	OR	ON	2020/01/13 11:37
S83	174	(jeffrey with stafford).in.	USPAT; USOCR	OR	ON	2020/01/13 11:39
S84	1,109	(jeffrey with stafford).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39
S85	212	(jeffrey with roger with stafford).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39

S86	8	(jeffrey with roger with stafford).in. and aberration$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:39
S87	34,600	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S88	23,944	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S89	5,422	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:41
S90	132,232	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/01/13 11:41

			DERWENT; IBM_TDB			
S91	7	S87 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:42
S92	0	S88 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43
S93	0	S89 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43
S94	5	S90 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:43
S95	6	S87 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism)	US-PGPUB; USPAT;	OR	ON	2020/01/13 11:44

		and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S96	0	S88 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S97	0	S89 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S98	4	S90 and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:45
S99	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/01/13 11:49

			IBM_TDB			
S100	0	((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:50
S101	0	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:51
S102	1	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:52
S103	0	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/13 11:54
S115	64	(US-20030210343-$ | US-20050219391-$ | US-20080174678-$ | US-20110096176-$ | US-0062546-$ | US-0064649-$ | US-6023977-$ | US-6055330-$ | US-6508764-$ | US-6850272-$ | US-7245319-$ | US-7321685-$ | US-7406182-$ | US-7551205-$ | US-	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/01/17 09:58

		7612805-$ | US-7619663-$ | US-7636111-$ | US-7701484-$ | US-7764874-$ | US-8106976-$ | US-8451339-$ | US-5905530-$ | US-7590305-$ | US-7738015-$ | US-7936392-$ | US-20020163586-$ | US-20050099507-$ | US-20060285761-$ | US-20070002158-$ | US-20070236574-$ | US-20080151069-$ | US-20100073508-$ | US-20040150732-$).DID.	EPO; JPO; DERWENT; IBM_TDB			
S116	4	(11/825521 | 12/586221 | 13/691805).APP.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:58
S117	4	(TO-030212-$ | TO-042709-$ | TO-082312-$ | TO-121208-$ | AI-20060285761-$ | HI-1313250-$ | HI-1313250119-$ | JP-2004343358-$ | JP-20001842476-$ | JP-20021909797-$ | JP-20021994107-$ | JP-2004328506-$ | JP-20060726803-$ | ZR-706560-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 09:59
S118	2	S115 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:48
S119	3	S116 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:48

S120	0	S117 and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/17 10:49
S121	104	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/05/25 10:12
S122	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:15
S123	34,600	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:27
S124	24,041	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/05/25 10:28

			IBM_TDB			
S125	5,427	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:28
S126	143,054	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:32
S127	23	(US-10210602-$ | US-10674047-$ | US-13691805-$ | US-20020012054-$ | US-20020041383-$ | US-20030039402-$ | US-20040150726-$ | US-20050030394-$ | US-20060120599-$ | US-20070252074-$ | US-20080175514-$ | US-20120229654-$ | US-7327390-$ | US-9077842-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 10:34
S128	31	("20030076420" | "20040135889" | "5461440" | "5671297" | "6115104" | "6219446" | "6323934" | "6657658" | "6935521" | "6937370" | "7065255" | "7151564").PN. OR ("7327390").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 10:42
S129	19	("20040150732" | "20040218813" | "20050179788" | "20080007630" | "20080240709" | "20080291447" | "20090009633" | "20090052769" | "20090167925" | "20090202171" | "20090262231" | "20120300112" | "5227832" | "6646760" | "6747757" | "7321685" | "7425988").PN. OR ("9077842").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 10:55
S130	1	(12/085550).APP.	USPAT; USOCR	OR	ON	2020/05/25 10:59

S131	9	("20020168115" | "6097430" | "6219446" | "6683652" | "7030911").PN. OR ("7425988").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:05
S132	16	("20040190762" | "20070279618" | "20080225227" | "20090231565" | "20100014065" | "20120207401" | "20130077891" | "20130124159" | "20150235068" | "20150293018" | "20180040109" | "6862373" | "7425988" | "7995108" | "8340453" | "8508655").PN. OR ("10282822").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:07
S133	1	(14/181550).APP.	USPAT; USOCR	OR	ON	2020/05/25 11:09
S134	17	("5241372" | "6747702" | "6788813").PN. OR ("7321685").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:18
S135	11	("20060067663" | "7221793" | "7321685" | "7783128" | "8085626").PN. OR ("8446477").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:21
S136	5	("20060228097" | "8395677" | "9077842" | "9392176" | "9998652").PN. OR ("10237485").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:28
S137	10	("20030194143" | "20040218813" | "20060232681" | "20070177019" | "20080291447" | "20090207271" | "20120044369").PN. OR ("8395677").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/05/25 11:32
S138	0	"124" and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:49
S139	0	"S124" and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/05/25 13:52

			IBM_TDB			
S140	0	"S125" and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:52
S141	7	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:53
S142	0	359/16,637,666,665,207.2,354,676.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:54
S143	5	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:54
S144	1	(US-10210602-$ | US-10674047-$ | US-13691805-$ | US-20020012054-$ | US-20020041383-$ | US-20030039402-$ | US-20040150726-$ | US-20050030394-$ | US-20060120599-$ | US-20070252074-$ | US-20080175514-$ | US-20120229654-$ | US-7327390-$ |	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/05/25 13:55

		US-9077842-$).DID. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	EPO; JPO; DERWENT; IBM_TDB			
S145	39	("20040150732" | "20040218813" | "20050179788" | "20080007630" | "20080240709" | "20080291447" | "20090009633" | "20090052769" | "20090167925" | "20090202171" | "20090262231" | "20120300112" | "5227832" | "6646760" | "6747757" | "7321685" | "7425988").PN. OR ("9077842").URPN. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:56
S146	6	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:57
S147	0	382/167,254,255,264,263,266,275.ccls. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:58
S148	1	(US-10210602-$ | US-10674047-$ | US-13691805-$ | US-20020012054-$ | US-20020041383-$ | US-20030039402-$ | US-20040150726-$ | US-20050030394-$ | US-20060120599-$ | US-20070252074-$ | US-20080175514-$ | US-20120229654-$ | US-7327390-$ | US-9077842-$).DID. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 13:59

S149	4	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC. and ((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:00
S150	0	382/167,254,255,264,263,266,275.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:01
S151	10	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:02
S152	0	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:03
S153	0	((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/05/25 14:07

			DERWENT; IBM_TDB			
S154	0	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:07
S155	1	((digital with camera$1 or video$1) and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:08
S156	5	((camera with lens) with (aberration$1 with digital with database))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:09
S157	3	((camera with lens) with (aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:09
S158	10	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and	US-PGPUB; USPAT;	OR	ON	2020/05/25 14:10

		video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S159	14	(camera and (aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:11
S160	0	(camera and (aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:14
S161	14	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:15
S162	0	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/05/25 14:15

			IBM_TDB			
S163	6	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:15
S164	0	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:16
S165	13	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:17
S166	1	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/05/25 14:18
S177	5	13/691805	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/09/13 12:14

			EPO; JPO; DERWENT; IBM_TDB			
S178	9	11/825521	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 13:12
S179	109	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/09/13 13:17
S180	41	(US-10594909-$ | US-7688337-$ | US-9843710-$ | US-4903204-$ | US-5905530-$ | US-7245319-$ | US-7590305-$ | US-7609297-$ | US-7612805-$ | US-7738015-$ | US-7936392-$ | US-8451339-$ | US-20040120598-$ | US-20040252906-$ | US-20080170124-$ | US-20120229655-$ | US-20170339334-$ | US-20170339340-$ | US-20180314565-$ | US-20050089241-$ | US-20050280877-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 13:43
S181	1	(15/334908).APP.	USPAT; USOCR	OR	ON	2020/09/13 13:54
S182	11	("20040008258" | "20070288499" | "20110058060" | "20130235254" | "20140009636" | "20140082501" | "20140201241" | "20140350924" | "20150235064" | "20150261744" | "20160182814").PN. OR ("10070050").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 13:54
S183	1	(15/160063).APP.	USPAT; USOCR	OR	ON	2020/09/13 13:57
S184	10	("20040008258" | "20070288499" | "20110058060" | "20130235254" | "20140082501" | "20140201241" |	US-PGPUB;	OR	ON	2020/09/13 13:57

		"20140350924" | "20150235064" | "20150261744" | "20160182814").PN. OR ("9918006").URPN.	USPAT; USOCR			
S185	1	(12/932865).APP.	USPAT; USOCR	OR	ON	2020/09/13 13:58
S186	6	("20070236574" | "20080174678").PN. OR ("8395668").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 13:58
S187	1	(11/146331).APP.	USPAT; USOCR	OR	ON	2020/09/13 14:01
S188	6	("20030174886" | "5917578" | "6072586" | "6650435" | "6747757").PN. OR ("7535598").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 14:01
S189	1	(10/323112).APP.	USPAT; USOCR	OR	ON	2020/09/13 14:08
S190	65	("20030026495" | "5105278" | "5341170" | "5561611" | "5694484" | "5842059" | "6154574" | "6166384" | "6222881" | "6298145").PN. OR ("7181082").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 14:09
S191	9	("20090256952" | "20100013947" | "20110043680" | "20110164165" | "20140340567" | "20150316833" | "4384210").PN. OR ("9843710").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 14:18
S192	1	(14/699665).APP.	USPAT; USOCR	OR	ON	2020/09/13 14:20
S193	10	("20100013947" | "20100194966" | "20110095166" | "20110206359" | "20130194485" | "20140036134" | "5589909" | "6363220" | "7260322" | "9395516").PN. OR ("10025162").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 14:20
S194	101	("4352541" | "4589029" | "4695133" | "4711534" | "4827333" | "4843475" | "4963962" | "5005957" | "5153730" | "5161025" | "5172234" | "5196880" | "5239332" | "5241372").PN. OR ("5905530").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 15:57
S195	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/09/13 16:12

			IBM_TDB			
S196	22	(neal with solomon).in. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:13
S197	0	canon.as. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR	OR	ON	2020/09/13 16:29
S198	21	(marly with camargo).xa,xp. and (correct$4 with aberration$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:29
S199	109	((("SOLOMON") near3 ("Neal"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2020/09/13 16:32
S200	11	(neal with solomon).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:33
S201	34,562	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls.	US-PGPUB; USPAT;	OR	ON	2020/09/13 16:34

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S202	24,047	382/167,254,255,264,263,266,275.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:35
S203	5,427	359/16,637,666,665,207.2,354,676.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:37
S204	149,059	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | g01j1/0411 | g01j3/028).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:39
S205	149,059	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | G01J1/0411 | G01J3/028).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/09/13 16:41

			IBM_TDB			
S206	7	348/241,231.99,222.1,335,240.99,240.1,240.3,333.08,340,342,208.11,345,346-350,355,349.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:42
S207	0	382/167,254,255,264,263,266,275.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:43
S208	0	359/16,637,666,665,207.2,354,676.ccls. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:44
S209	6	(H04N5/357 | H04N5/217 | H04N5/2253 | H04N5/2254 | H04N5/228 | H04N5/238 | H04N5/76 | H04N5/225 | H04N5/374 | G06K9/36 | G06K9/40 | G01J1/20 | G01J1/0411 | G01J3/028).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:44
S210	0	(H04N5/357).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2020/09/13 16:45

			EPO; JPO; DERWENT; IBM_TDB			
S211	3	(H04N5/217).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:46
S212	1	(H04N5/2253).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:46
S213	4	(H04N5/2254).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:48
S214	0	(H04N5/228).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:49

S215	4	(H04N5/238).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:49
S216	0	(H04N5/76).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:50
S217	0	(H04N5/225).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:51
S218	0	(H04N5/374).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:51
S219	0	(G06K9/36 | G06K9/40).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2020/09/13 16:52

			DERWENT; IBM_TDB			
S220	0	(G01J1/20 | G01J1/0411 | G01J3/028).CPC. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:52
S221	3	(US-10594909-$ | US-7688337-$ | US-9843710-$ | US-4903204-$ | US-5905530-$ | US-7245319-$ | US-7590305-$ | US-7609297-$ | US-7612805-$ | US-7738015-$ | US-7936392-$ | US-8451339-$ | US-20040120598-$ | US-20040252906-$ | US-20080170124-$ | US-20120229655-$ | US-20170339334-$ | US-20170339340-$ | US-20180314565-$ | US-20050089241-$ | US-20050280877-$).DID. and ((aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:54
S222	11	((aberration$1 with digital with database)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:55
S223	19	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 16:56
S224	1	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and	US-PGPUB; USPAT;	OR	ON	2020/09/13 16:59

		video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))))).clm.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S225	19	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 17:01
S226	11	(camera and (aberration$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))) and (algorithm or procedure))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 17:02
S227	19	((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and video and (modif$5 or chang$3 or alter$4) and (stor$4 with (original with (video$1 or image$1))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 17:03
S228	11	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2020/09/13 17:04

			IBM_TDB			
S229	0	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (chang$3 with focus with position$1) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 17:05
S230	18	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 17:06
S231	2	(((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3))))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 17:09
S232	2	((digital with camera$1 or video$1) and ((aberration$1 distortion$1 with digital with database) and vignet$5 and (integrat$3 with circuit) and (lens with mechanism) and identif$5 and (imag$3 with file$1) and zoom$4 and (fixed focus lens) and (identify$3 with aberration$1) and (memory or storage or buffer) and (DSP or (digital signal process$3)))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/09/13 17:10

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 1 of 5	Attorney Docket No: 5311.001US3	

US PATENT DOCUMENTS

	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document
	US-7,688,337	03/30/2010	Zhu, Qin-fan
	US-9,843,710	12/12/2017	Hamano, Hideyuki, et al.
	US-10,594,909	03/17/2020	Naruse, Yousuke, et al.
	US-20030002735A1	01/02/2003	Yamamoto, Hideaki, et al.
	US-20040120598A1	06/24/2004	Feng, Xiao-fan
	US-20040252906A1	12/16/2004	Liege, Bruno, et al.
	US-20080170124A1	07/17/2008	Hatanaka, Haruo, et al.
	US-20120229655A1	09/13/2012	Solomon, Neal
	US-20160314565A1	10/27/2016	Campbell, Richard John
	US-20170339334A1	11/23/2017	Bayser, Maira Gatti, et al.
	US-20170339340A1	11/23/2017	Bayser, Maira Gatti, et al.
	US-20200267287A1	08/20/2020	Solomon, Neal
	US-20200267288A1	08/20/2020	Solomon, Neal
	US-20200267289A1	08/20/2020	Solomon, Neal
	US-20200267290A1	08/20/2020	Solomon, Neal

FOREIGN PATENT DOCUMENTS

Examiner Initial *	Foreign Document Number	Publication Date	Name of Patentee or Applicant of cited Document	T 1

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 2 of 5	Attorney Docket No: 5311.001US3	

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS		
Examiner Initial *	**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, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T 1**
	"Application Serial No. 16/692,939, Final Office Action mailed 06-18-20", 24 pages.	
	"Application Serial No. 16/692,972, Notice of Allowance mailed 06-12-20", 13 pages.	
	"Application Serial No. 16/694,850, Corrected Notice of Allowability mailed 08-27-20", 17 pgs.	
	"Canon Powershot SD300 and SD200 Camera User Guide, Petitioner Canon, Inc., Ex. 1040 - VOL. 1", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 89 pgs.	
	"Canon Powershot SD300 and SD200 Camera User Guide, Petitioner Canon, Inc., Ex. 1040 - VOL. 2", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 90 pgs.	
	"Carasso, US 5,4114,782, Petitioner Canon, Inc., Ex. 1025", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 12 pgs.	
	"Certified Translation of "Guan, et al., 'Digital Image Correcting Method for Digital Camera', Ricoh Technical Report No. 31, 103-110, (2005)", Petitioner Canon, Inc., Ex. 1018", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 9 pgs.	
	"Certified Translation of JP2000-184247A, Petitioner Canon, Inc., Ex. 1023", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 13 pgs.	
	"Certified Translation of JP2002-190979, Petitioner Canon, Inc., Ex. 1015", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 12 pgs.	
	"Certified Translation of JP2002-199410, Petitioner Canon, Inc., Ex. 1039", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 18 pgs.	
	"Certified Translation of JP2004-328506A, Petitioner Canon, Inc., Ex. 1011", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 21 pgs.	
	"Certified Translation of JP2004-343358, Petitioner Canon, Inc., Ex. 1009", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 31 pgs.	
	"Certified Translation of JP2006-72660, Petitioner Canon, Inc., Ex. 1027", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 14 pgs.	
	"Certified Translation of JPH11-313250, Petitioner Canon, Inc., Ex. 1013", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 6 pgs.	

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Use as many sheets as necessary)	*Complete if Known*	
	Application Number	13/691,805
	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 3 of 5	Attorney Docket No: 5311.001US3	

	"Claim Construction Memorandum Opinion and Order, Document 88 in 2:19-CV-00246-JRG (E.D. Tex. June 11, 2019), Petitioner Canon, Inc., Ex. 1004", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 60 pgs.	
	"Complaint for Patent Infringement in 2:19-CV-00246-JRG (E.D. Tex. July 8, 2019), Petitioner Canon, Inc., Ex. 1003", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 26 pgs.	
	"Declaration Leonard Laub, Petitioner Canon, Inc., Ex. 1002", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 94 pgs.	
	"Declaration of Kiyoto Nagai, Petitioner Canon, Inc., Ex. 1019", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 11 pgs.	
	"Declaration of Leonard Laub, Petitioner Canon, Inc., Ex. 1002", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 117 pgs.	
	"Dobbins, III, US 4,903,204, Petitioner Canon, Inc., Ex. 1026", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 28 pgs.	
	"Enomoto, US 7,245,319 B1, Petitioner Canon, Inc., Ex. 1012", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 10 pgs.	
	"File History for US 8,451,339, Petitioner Canon, Inc., Ex. 1038", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 234 pgs.	
	"Havens, US20070080280A1, Petitioner Canon, Inc., Ex. 1029", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 32 pgs.	
	"Inoue, US20070171288A1, Petitioner Canon, Inc., Ex. 1030", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 85 pgs.	
	"JP Patent Office Machine Translation of JP05-323444A, Petitioner Canon, Inc., Ex. 1033", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 21 pgs.	
	"JP Patent Office Machine Translation of JP2000-224611A, Petitioner Canon, Inc., Ex. 1034", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 12 pgs.	
	"Kawanishi, US20050089241A1, Petitioner Canon, Inc., Ex. 1010", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 31 pgs.	
	"Kodak EasyShare V570 User Guide, Petitioner Canon, Inc., Ex. 1041", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 75 pgs.	

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	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 4 of 5	Attorney Docket No: 5311.001US3	

	"Library of Congress Catalog entry for "Russ, John C., The Image Processing Handbook, 4th Ed., CRC Press (2002)", Petitioner Canon, Inc., Ex. 1036", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 1 pg.	
	"Master, US 7,609,297 B2, Petitioner Canon, Inc., Ex. 1028", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 55 pgs.	
	"Ng, US 7,936,392 B2, Petitioner Canon, Inc., Ex. 1031", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 51 pgs.	
	"Niikawa, US20020135688A1, Petitioner Canon, Inc., Ex. 1006", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 47 pgs.	
	"Olympus Digital Camera E-1 Reference Manual, Petitioner Canon, Inc., Ex. 1043", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 182 pgs.	
	"Petition for Inter Partes Review", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 68 pgs.	
	"Petition for Inter Partes Review", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 74 pgs.	
	"Petitioner's Motion to Seal Confidential Litigation Filing, Ex. 1005", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 13 pgs.	
	"Petitioner's Power of Attorney", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 4 pgs.	
	"Petitioner's Power of Attorney", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 4 pgs.	
	"Ricoh Technical Report No. 31, RICOH, (April 20, 2006), Petitioner Canon, Inc., Ex. 1020", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, [Online] Retrieved from the Internet: <URL: https://web.archive.org/web/20060420051054/http:/www.ricoh.co.jp/about/business_overview/report/31/>, (07-20-2020), 4 pgs.	
	"Solomon, US 8,451,339 B2, Petitioner Canon, Inc., Ex. 1001", IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 41 pgs.	
	"Solomon, US Patent No. 7,612,805, Petitioner Canon, Inc., Ex. 1001", IPR2020-01321, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 41 pgs.	
	"Steinberg, US 7,590,305 B2, Petitioner Canon, Inc., Ex. 1022", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 23 pgs.	
	"Steinberg, US 7,738,015 B2, Petitioner Canon, Inc., Ex. 1021", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 23 pgs.	

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	Filing Date	December 2, 2012
	First Named Inventor	Neal Solomon
	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 5 of 5	Attorney Docket No: 5311.001US3	

	"Taylor Francis Group, LLC Customer Service Publication Confirmation, Petitioner Canon, Inc., Ex. 1044", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 2 pgs.	
	"The Nikon Guide to Digital Photography with the CoolPix 7900 5900 Digital Camera, Petitioner Canon, Inc., Ex. 1042", IPR2020-01321, US Patent No. 7,612,805, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 165 pgs.	
	"USPTO File History for US 7,612,805, Petitioner Canon, Inc., Ex. 1037", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 288 pgs.	
	"Watanabe, US20050280877A1, Petitioner Canon, Inc., Ex. 1007", IPR2020-01321, US Patent No. 7,612,805; PR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 20 pgs.	
	"Wheeler, US20030095197A1, Petitioner Canon, Inc., Ex. 1032", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 32 pgs.	
	"Yamanaka, US20040150732A1, Petitioner Canon, Inc., Ex. 1017", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 31 pgs.	
	"Yokota, US 5,905,530, Petitioner Canon, Inc., Ex. 1014", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 71 pgs.	
	GONZALEZ, RAFAEL C, et al., "Digital Image Processing, 2nd Ed., Prentice Hall (2002), Petitioner Canon, Inc., Ex. 1024 – VOL. 1", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 442 pgs.	
	GONZALEZ, RAFAEL C, et al., "Digital Image Processing, 2nd Ed., Prentice Hall (2002), Petitioner Canon, Inc., Ex. 1024 – VOL. 2", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 373 pgs.	
	RUSS, JOHN C, "The Image Processing Handbook, 4th Ed., CRC Press (2002), Petitioner Canon, Inc., Ex. 1008 - VOL. 1", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 294 pgs.	
	RUSS, JOHN C, "The Image Processing Handbook, 4th Ed., CRC Press (2002), Petitioner Canon, Inc., Ex. 1008 - VOL. 2", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 268 pgs.	
	RUSS, JOHN C, "The Image Processing Handbook, 4th Ed., CRC Press (2002), Petitioner Canon, Inc., Ex. 1008 – VOL. 3", IPR2020-01321, US Patent No. 7,612,805; IPR2020-01322, US Patent No. 8,451,339, Canon, Inc. v. Optimum Imaging Technology, LLC, (07-20-2020), 183 pgs.	

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	Group Art Unit	2697
	Examiner Name	Marly Camargo
Sheet 1 of 1	Attorney Docket No: 5311.001US3	

US PATENT DOCUMENTS			
	USP Document Number	**Publication Date**	**Name of Patentee or Applicant of cited Document**

FOREIGN PATENT DOCUMENTS				
Examiner Initial *	**Foreign Document Number**	**Publication Date**	**Name of Patentee or Applicant of cited Document**	**T 1**

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS		
Examiner Initial *	**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, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T 1**
	"Application Serial No. 16/692,939, Response filed 08-28-20 to Final Office Action mailed 06-18-20", 9 pgs.	
	"Application Serial No. 16/692,972, Notice of Allowance mailed 09-30-20", 12 pgs.	
	"Application Serial No. 16/694,838, Response filed 09-29-20 to Final Office Action mailed 07-29-20", 11 pgs.	

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Electronic Acknowledgement Receipt

EFS ID:	40727590
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	Robert Mark Hirning/Jamie Johnson
Filer Authorized By:	Robert Mark Hirning
Attorney Docket Number:	5311.001US3
Receipt Date:	30-SEP-2020
Filing Date:	02-DEC-2012
Time Stamp:	19:28:04
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		13691805_SIDS_09-30-2020.pdf	58605 42a548e91204a2638150ebca92cd2174bac14545	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	1
	Transmittal Letter	2	3
	Information Disclosure Statement (IDS) Form (SB08)	4	4
Warnings:			
Information:			
	Total Files Size (in bytes):	58605	

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<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.
<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.
<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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	N/A
Examiner:	Marly Camargo	Group Art Unit:	2697
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Supplemental Information Disclosure Statement under 37 C.F.R. § 1.97(i) (2 pgs.), Form 1449 (1 pg.) Copies of Cited References (3).

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2697
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97(i)

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Since a Notice of Allowance has been issued, Applicant understands that the enclosed material may be placed in the file and may not be considered by the U.S. Patent Office. Kindly consider this submission in accordance with USPTO procedure, e.g., MPEP609.

Pursuant to 37 C.F.R. § 1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement. However, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 if deemed necessary.

Pursuant to 37 C.F.R. § 1.98(a)(2), copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R § 1.98(a)(2).

The Examiner is invited to contact the undersigned at the telephone number indicated if there are any questions regarding this communication.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 9/30/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
TEB:jj Reg. No. 39,610

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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

7590 10/09/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	
ART UNIT	PAPER NUMBER
2697	
NOTIFICATION DATE	DELIVERY MODE
10/09/2020	ELECTRONIC

NOTICE OF NON-COMPLIANT INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement (IDS) filed 9/30/2020 in the above-identified application fails to meet the requirements of 37 CFR 1.97(d) for the reason(s) specified below. Accordingly, the IDS will be placed in the file, but the information referred to therein has not been considered.

The IDS is not compliant with 37 CFR 1.97(d) because:

☑ The IDS lacks a statement as specified in 37 CFR 1.97(e).

☐ The IDS lacks the fee set forth in 37 CFR 1.17(p).

☐ The IDS was filed after the issue fee was paid. Applicant may wish to consider filing a petition to withdraw the application from issue under 37 CFR 1.313(c) to have the IDS considered. See MPEP 1308.

N. Horne, for

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

FORM PTOM327-B (Rev. 02/08)

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US PATENT DOCUMENTS			
	USP Document Number	**Publication Date**	**Name of Patentee or Applicant of cited Document**
	US-6,301,440	10/09/2001	Bolle, Rudolf M, et al.

FOREIGN PATENT DOCUMENTS				
Examiner Initial *	**Foreign Document Number**	**Publication Date**	**Name of Patentee or Applicant of cited Document**	**T 1**

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS		
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	"Application Serial No. 16/692,939, Non Final Office Action mailed 10-02-20", 24 pgs	
	"Application Serial No. 16/694,850, Notice of Allowance mailed 10-15-20", 15 pgs	

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Confirmation Number:	6244
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Customer Number:	21186
Filer:	Robert Mark Hirning/Jamie Johnson
Filer Authorized By:	Robert Mark Hirning
Attorney Docket Number:	5311.001US3
Receipt Date:	23-OCT-2020
Filing Date:	02-DEC-2012
Time Stamp:	12:55:43
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		13691805_SIDS_10-23-2020.pdf	199634 b8fd0fd3da2caf4a75b1a9e42ccb2b2d8a2fc8d0	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	1
	Transmittal Letter	2	3
	Information Disclosure Statement (IDS) Form (SB08)	4	4

Warnings:					
Information:					
2	Non Patent Literature	0001_2_npl_5311001us4_oarn_10022020_f.pdf	1211109 1b6d466829c9c279adab479c59df2ab0bafc7026	no	24
Warnings:					
Information:					
3	Non Patent Literature	0002_2_npl_5311001us7_noar_10152020_f.pdf	959639 ce98965f9ea813f3ecea7538a90089a6d331d636	no	15
Warnings:					
Information:					
		Total Files Size (in bytes):	2370382		

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

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	N/A
Examiner:	Marly Camargo	Group Art Unit:	2697
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Supplemental Information Disclosure Statement under 37 C.F.R. § 1.97(i) (2 pgs.), Form 1449 (1 pg.) Copies of Cited References (2).

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2697
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244

Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97(i)

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. U.S. 6,301,440 was cited by Exr. Camargo in related application Ser. No. 16/692,939 in an Office Action of Oct. 2, 2020. Kindly place this submission in the file in accordance with USPTO procedure. MPEP 609.

Pursuant to 37 C.F.R. § 1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement to be entered into the record. However, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 if deemed necessary.

Pursuant to 37 C.F.R. § 1.98(a)(2), copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R § 1.98(a)(2).

The Examiner is invited to contact the undersigned at the telephone number indicated if there are any questions regarding this communication.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date 10/23/2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
TEB:jj Reg. No. 39,610

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

7590 10/29/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CAMARGO, MARLY S.B.	

ART UNIT	PAPER NUMBER
2697	

NOTIFICATION DATE	DELIVERY MODE
10/29/2020	ELECTRONIC

NOTICE OF NON-COMPLIANT INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement (IDS) filed *10/23/2020* in the above-identified application fails to meet the requirements of 37 CFR 1.97(d) for the reason(s) specified below. Accordingly, the IDS will be placed in the file, but the information referred to therein has not been considered.

The IDS is not compliant with 37 CFR 1.97(d) because:

☑ The IDS lacks a statement as specified in 37 CFR 1.97(e).

☐ The IDS lacks the fee set forth in 37 CFR 1.17(p).

☐ The IDS was filed after the issue fee was paid. Applicant may wish to consider filing a petition to withdraw the application from issue under 37 CFR 1.313(c) to have the IDS considered. See MPEP 1308.

N. Horna, for

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

FORM PTOM327-B (Rev. 02/08)

Best Available Copy

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

MAIL ROOM
NOV 17 2020

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)

21186 7590 09/16/2020
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

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.

Kimberlie Pates	(Typed or printed name)
/Kimberlie Pates/	(Signature)
October 26, 2020	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$500.00	$0	12/16/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
CAMARGO, MARLY S.B.	2697	348-241000

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,
(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.

1 Schwegman Lundberg
2 & Woessner, P.A.
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: Optimum Imaging Technologies LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Austin, Texas

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. 190743

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 /Timothy E. Bianchi/ Date Nov. 17, 2020

Typed or printed name Timothy E. Bianchi Registration No. 39,610

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Amended PTO/AIA/82B(07-13)
Approved for use through 03/31/2021. OMB 0651-0035
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 displays a valid OMB control number.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ 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: 21186

OR

☐ 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.)

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

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

☒ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ 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)

SIGNATURE of Applicant for Patent

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).

Signature	/Neal J Solomon/	Date (Optional)	
Name	Neal Solomon		
Title	Inventor		

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.

☒ *Total of 1 forms are submitted.

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 the 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.

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	

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:

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix

Residence Information (Select One) ☐ US Residency ☐ Non US Residency ☐ Active US Military Service

City		State/Province		Country of Residence	

Mailing Address of Inventor:

Address 1			
Address 2			
City		State/Province	
Postal Code		Country	

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	
Email Address	

Application Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	

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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.

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 Publication

Publication Information:

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

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

Representative Information:

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). Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

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

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)

Foreign Priority Information:

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	

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.

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(d). 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(h)(1) and (2). Under the POX 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).

Application Number	Country	Parent Filing Date (YYYY-MM-DD)	Access Code (if applicable)

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	

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.

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.

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	

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.

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: Optimum Imaging Technologies LLC

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

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

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

☐ Deceased	☐ Legally incapacitated

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here: ☒

Organization Name: Optimum Imaging Technologies LLC

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information:

Address 1	8701 Shoal Creek Blvd.		
Address 2	#401		
City	Austin	State/Province	Texas
Country	United States of America	Postal Code	78757
Phone Number			
Email Address			

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	5311.001US3
	Application Number	13/691,805
Title of Invention	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	

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.

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.

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.

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		Postal Code	
Phone Number		Fax Number	
Email Address			

Signature:

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	/Timothy E. Bianchi/			Date (YYYY-MM-DD)	2020-11-17
First Name	Timothy	Last Name	Bianchi	Registration Number	39,610

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 22313-14**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner:	Marly Camargo
Serial No.:	13/691,805	Group Art Unit:	2697
Filed:	December 2, 2012	Docket:	5311.001US3
Customer No.:	21186	Confirmation No.:	6244
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

COMMUNICATION RE: UPDATE TO APPLICATION DATA SHEET

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

Applicants hereby request that the information provided on the Application Data Sheet filed in the above-referenced application on December 2, 2012, be updated with the information as provided on the enclosed marked up Application Data Sheet.

We therefore submit a marked up copy of the Application Data Sheet which shows an update to the Applicant/Assignee.

Once this request is entered, it is respectfully requested that the USPTO update their records and provide confirmation of the above request by way of an Updated Filing Receipt.

It is believed that no fee is required to fulfill this request, however, if necessary, please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

Schwegman Lundberg & Woessner, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date Nov. 17, 2020 By /Timothy E. Bianchi/

Timothy E. Bianchi
Reg. No. 39,610

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2697	
Filed:	December 2, 2012	Docket No.: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

COMMUNICATION RE: FEE ADDRESS

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

In response to the Notice of Allowance and Issue Fee Due, please record the Fee Address under the provisions of 37 CFR 1.363 as the following:

Customer Number 21186

Please direct any inquiries to the undersigned attorney at (612) 373-6912.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date Nov. 17, 2020 By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

TEB:CMG:kap

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Neal Solomon	Examiner: Marly Camargo	
Serial No.:	13/691,805	Group Art Unit: 2697	
Filed:	December 2, 2012	Docket No.: 5311.001US3	
Customer No.:	21186	Confirmation No.: 6244	
Title:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS		

REQUEST TO APPLY PREVIOUSLY PAID ISSUE FEE

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

An issue fee for the above-identified application was previously paid on April 24, 2020. A petition under 37 CFR 1.313(c)(2) to withdraw the above-identified application from issue after payment of the issue fee was subsequently filed on May 15, 2020. Applicant received a decision, dated March 3, 2020, granting the petition to withdraw.

Applicant respectfully requests that the above-identified previously-paid issue fee be applied toward the fee required by the new Notice of Allowance dated September 16, 2020.

This request is being submitted together with the new Issue Fee Transmittal Form PTOL-85. Please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743. Please direct any inquiries to the undersigned attorney at (612) 373-6912.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6912

Date Nov. 17, 2020

By /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

TEB:CMG:kap

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)

21186 7590 09/16/2020
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

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.

Kimberlie Pates	(Typed or printed name)
/Kimberlie Pates/	(Signature)
October 26, 2020	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/02/2012	Neal Solomon	5311.001US3	6244

TITLE OF INVENTION: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$500.00	$0	12/16/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
CAMARGO, MARLY S.B.	2697	348-241000

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,
(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.

1 Schwegman Lundberg
2 & Woessner, P.A.
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: Optimum Imaging Technologies LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Austin, Texas

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. 190743

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 /Timothy E. Bianchi/ Date Nov. 17, 2020

Typed or printed name Timothy E. Bianchi Registration No. 39,610

Petitioners Ex. 1002; Page 583 of 617

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	December 16, 2020
Examiner:	Marly Camargo	Group Art Unit:	2697
Customer No.:	21186	Confirmation No.:	6244

Notice of Allowance Date: September 16, 2020

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

We are transmitting herewith the following:

X Issue Fee Transmittal (Form PTOL-85).
X Request to Apply Previously Paid Issue Fee (1 pg.)
X Communication Re: Fee Address (1 page).
X Communication Re: Update to Application Data Sheet (1 Pg.).
X Marked Up Application Data Sheet (6 Pgs.).
X Signed Power of Attorney (1 Pg.).
X Statement Under 37 C.F.R. 3.73(c) (2 Pgs.).

Please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN LUNDBERG & WOESSNER, P.A. By /Timothy E. Bianchi/
Customer No.: 21186 Timothy E. Bianchi
TEB:CMG:kap Reg. No. 39,610

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 26th day of October, 2020.

Kimberlie Pates /Kimberlie Pates/
Name Signature

Electronic Acknowledgement Receipt

EFS ID:	41146998
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	James D. Hallenbeck/Kimberlie Pates
Filer Authorized By:	James D. Hallenbeck
Attorney Docket Number:	5311.001US3
Receipt Date:	17-NOV-2020
Filing Date:	02-DEC-2012
Time Stamp:	15:34:04
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		5311001US3_IFEE.pdf	559915 4b21a283f7d5c66ede0e657633cd6b3db3f7e16c	yes	14

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Assignee showing of ownership per 37 CFR 3.73	13	14
	Power of Attorney	12	12
	Application Data Sheet	6	11
	Miscellaneous Incoming Letter	5	5
	Miscellaneous Incoming Letter	4	4
	Miscellaneous Incoming Letter	3	3
	Issue Fee Payment (PTO-85B)	2	2
	Transmittal Letter	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	559915	

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.

Attorney Docket No. 5311.001US3

Amended PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Optimum Imaging Technologies LLC

Application No./Patent No.: 13/691,805 Filed/Issue Date: December 2, 2012

Titled: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Optimum Imaging Technologies LLC 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 049584, Frame 0495 - 0498, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

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**.

Amended PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Timothy E. Bianchi/	Nov. 17, 2020
Signature	Date
Timothy E. Bianchi	USPTO Reg. No. 39,610
Printed or Typed Name	Title or Registration Number

United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :C46167

Refund Accounting Date:11/18/2020

Effective Date	Sale Item Reference Number	Refund Total
04/24/2020	13691805	$500.00

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method	Account Number
I2020AH743433255	2501	UTILITY APPL ISSUE FEE	$500.00	DA	190743

United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :C46167

Sale Adjustment Accounting Date:11/18/2020

Effective Date	Sale Accounting Date	Sale Item Reference Number
04/24/2020	11/18/2020	13691805

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I2020AH743433255	2501	UTILITY APPL ISSUE FEE	$500.00	DA

United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :C46167

Sale Accounting Date:11/18/2020

Sale Item Reference Number	Effective Date
13691805	11/17/2020

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I2020AH749493315	2501	UTILITY APPL ISSUE FEE	$500.00	Deposit Account

Amended PTO/AIA/82B(07-13)
Approved for use through 03/31/2021. OMB 0651-0035
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 displays a valid OMB control number.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ 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: 21186

OR

☐ 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.)

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

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Optimum Imaging Technologies LLC

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ 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)

SIGNATURE of Applicant for Patent

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).

Signature	/ Neal E Solomon /	Date (Optional)	Nov 18, 2020
Name	Neal E Solomon		
Title	Managing Member		

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.

☒ *Total of 1 forms are submitted.

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Neal Solomon
Title: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Docket No.:	5311.001US3	Serial No.:	13/691,805
Filed:	December 2, 2012	Due Date:	N/A
Examiner:	Marly Camargo	Group Art Unit:	2697
Customer No.:	21186	Confirmation No.:	6244

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

We are transmitting herewith the following attached items (as indicated with an "X"):

X Signed Power of Attorney (1 pg.)
X Statement Under 37 C.F.R. 3.73(c) (2 pgs)

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Timothy E. Bianchi/
Timothy E. Bianchi
Reg. No. 39,610

Electronic Acknowledgement Receipt

EFS ID:	41179268
Application Number:	13691805
International Application Number:	
Confirmation Number:	6244
Title of Invention:	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS
First Named Inventor/Applicant Name:	Neal Solomon
Customer Number:	21186
Filer:	James D. Hallenbeck/Kimberlie Pates
Filer Authorized By:	James D. Hallenbeck
Attorney Docket Number:	5311.001US3
Receipt Date:	20-NOV-2020
Filing Date:	02-DEC-2012
Time Stamp:	10:15:54
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		5311001US3_POA.pdf	197030 16b8f77c43dc816436dadb152004ab3c95c404d4	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Assignee showing of ownership per 37 CFR 3.73	3	4
	Power of Attorney	2	2
	Transmittal Letter	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	197030	

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.

Attorney Docket No. 5311.001US3

Amended PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Optimum Imaging Technologies LLC

Application No./Patent No.: 13/691,805 Filed/Issue Date: December 2, 2012

Titled: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Optimum Imaging Technologies LLC 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 049584, Frame 0495 - 0498, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

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**.

Amended PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Timothy E. Bianchi/	November 20, 2020
Signature	Date
Timothy E. Bianchi	USPTO Reg. No. 39,610
Printed or Typed Name	Title or Registration Number

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	5311.001US3

CONFIRMATION NO. 6244

IMPROPER CPOA LETTER

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

OC000000121438368

Date Mailed: 11/20/2020

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 11/17/2020. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/ytdemisse/

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/691,805	12/02/2012	2697	1365	5311.001US3	18	3

CONFIRMATION NO. 6244

CORRECTED FILING RECEIPT

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402



Date Mailed: 11/20/2020

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Neal Solomon, Oakland, CA;

Applicant(s)

Optimum Imaging Technologies LLC, Austin, TX;

Power of Attorney: The patent practitioners associated with Customer Number 21186

Domestic Priority data as claimed by applicant

This application is a CON of 12/586,221 09/18/2009 PAT 8451339
which is a CON of 11/825,521 07/06/2007 PAT 7612805
which claims benefit of 60/807,065 07/11/2006

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

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

If Required, Foreign Filing License Granted: 12/27/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/691,805**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Preliminary Class

348

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.

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

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

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

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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

SelectUSA

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	5311.001US3

CONFIRMATION NO. 6244

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

POA ACCEPTANCE LETTER

OC000000121537842

Date Mailed: 11/25/2020

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/20/2020.

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**.

/hteffera/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/691,805	12/22/2020	10873685	5311.001US3	6244

21186 7590 12/02/2020

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

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

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

Neal Solomon, Oakland, CA;
Optimum Imaging Technologies LLC, Austin, TX;

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

AO 120 (Rev. 08/10)

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

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

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

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
1:20-cv-1238	12/22/2020	Western District of Texas, Austin Division

PLAINTIFF	DEFENDANT
Canon Inc.	Optimum Imaging Technologies LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,873,685	12/22/2020	Optimum Imaging Technologies LLC
2			
3			
4			
5			

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

DATE INCLUDED	INCLUDED BY
12/29/2020	☑ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,877,266	12/29/2020	Optimum Imaging Technologies LLC
2	10,877,267	12/29/2020	Optimum Imaging Technologies LLC
3			
4			
5			

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

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

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

AO 120 (Rev. 08/10)

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

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DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
1:20-cv-1238	12/22/2020	Western District of Texas, Austin Division

PLAINTIFF	DEFENDANT
Canon Inc.	Optimum Imaging Technologies LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,873,685	12/22/2020	Optimum Imaging Technologies LLC
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DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

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

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

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

AO 120 (Rev. 08/10)

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Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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

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

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
1:20-cv-1238-LY	12/23/2020	Western District of Texas - Austin Division

PLAINTIFF	DEFENDANT
Canon Inc.	Optimum Imaging Technologies LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,873,685	12/22/2020	Optimum Imaging Technologies LLC
2			
3			
4			
5			

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

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

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

DECISION/JUDGEMENT
Order Closing Case attached

CLERK	(BY) DEPUTY CLERK	DATE
JEANNETTE J. CLACK	Laura Lectnowski	4/29/21

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

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

FILED
2021 APR 29 AM 11:38
CLERK, US DISTRICT COURT
WESTERN DISTRICT OF TEXAS
BY _____ DEPUTY

CANON INC., PLAINTIFF,	§	
V.	§	CAUSE NO. 1:20-CV-1238-LY
OPTIMUM IMAGING TECHNOLOGIES LLC, DEFENDANT.	§	

ORDER CLOSING CASE

Before the court is the above-styled and numbered cause. On April 27, 2021, the parties filed a Stipulation of Dismissal (Doc. #23) which the court has reviewed and now approves. Accordingly,

IT IS ORDERED that the case is hereby **CLOSED**.

SIGNED this 29th day of April, 2021.

LEE YEAKEL
UNITED STATES DISTRICT JUDGE

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
1:20-cv-1238	12/22/2020	Western District of Texas, Austin Division

PLAINTIFF	DEFENDANT
Canon Inc.	Optimum Imaging Technologies LLC

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2	10,877,267	12/29/2020	Optimum Imaging Technologies LLC
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
JEANNETTE J. CLACK	Jencka Damian	12/30/2020

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

AO 120 (Rev. 08/10)

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

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
1:20-cv-1238-LY	12/23/2020	Western District of Texas - Austin Division

PLAINTIFF	DEFENDANT
Canon Inc.	Optimum Imaging Technologies LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,873,685	12/22/2020	Optimum Imaging Technologies LLC
2			
3			
4			
5			

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

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

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

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
JEANNETTE J. CLACK		12/23/2020

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

PTO/AIA/81A (02-15)
Approved for use through 03/31/2021. OMB 0651-0035
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 displays a valid OMB control number

PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	US 10,873,685
Issue Date	December 22, 2020
First Named Inventor	Neal Solomon
Title	DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO
Attorney Docket No.	1020-1002

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 144524

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☒ Applicant.

OR

☐ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Patent Owner

Signature	/ Neal E. Solomon /	Date	2/8/24
Name	Neal Solomon	Telephone	
Title and Company	Managing Member OPTIMUM IMAGING TECHNOLOGIES LLC		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☐ A total of _____ forms are submitted.

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 update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 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.

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
13/691,805	**02/08/2024 04:09:38 PM Z ET**	**5311.001US3**

Title of Invention

DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	10873685
CONFIRMATION #	6244	FILED BY	Michael Scheer
PATENT CENTER #	64262802	FILING DATE	12/02/2012
CUSTOMER #	21186	FIRST NAMED INVENTOR	Neal Solomon
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
1020-1002 US10873685 Transmittal letter for Power of Attorney.pdf	1	Transmittal Letter	88 KB
1020-1002 Executed US10873685 Power of Attorney.pdf	2	Power of Attorney	165 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
1020-1002 US10873685 Transmittal letter for Power of Attorney.pdf	E5DE9C9C44E7415862D54F70BE094045B4D1E8830E4664BBF EDD949078E5FD98DD047FE2CA31AF7755A6FC05A66036E92 5382A1823B7E268BD92F0626D5778C1

1020-1002 Executed US10873685 Power of Attorney.pdf	8F3BA5D634FA7886EBCFEF619561E292E8E72784E3087ECA5 593C3912C64F68DC62DF551D9DFE37B203D9D4A73804498A1 87CC04FC3F5DE383EE6190588A4FB8

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 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 : Neal SOLOMON	Patent No.: 10,873,685
Application No.: 13/691,805	Issue Date: December 22, 2020
Filing Date: December 2, 2012	Confirmation No.: 6244
For: DIGITAL IMAGING SYSTEM FOR CORRECTING VIDEO IMAGE ABERRATIONS	Attorney Docket No.: 1020-1002

TRANSMITTAL OF POWER OF ATTORNEY

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

Sir:

Please find attached a Revocation of Power of Attorney With a New Power of Attorney and Change of Correspondence Address (PTO/AIA/81A).

All previous Powers of Attorney have been revoked. It is respectfully requested that the undersigned be recognized as the attorney of record and all future correspondence be directed to the undersigned.

Date: February 8, 2023,

Respectfully submitted,

/ Michael J. Scheer/

Michael J. Scheer, Reg. No. 34,425
The Law Office of Michael J. Scheer PC
Customer No. 144524
818- 616-3363

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	5311.001US3

CONFIRMATION NO. 6244

144524
The Law Office of Michael J. Scheer
5531 Murietta Avenue
Sherman Oaks, CA 91401

POA ACCEPTANCE LETTER

OC000000068364317

Date Mailed: 02/15/2024

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/08/2024.

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**.

/sltorres/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/691,805	12/02/2012	Neal Solomon	5311.001US3

CONFIRMATION NO. 6244

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

POWER OF ATTORNEY NOTICE

OC000000068364264

Date Mailed: 02/15/2024

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/08/2024.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(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**.

/sltorres/

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, Virginia 22313-1450
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ACKNOWLEDGEMENT OF LOSS OF ENTITLEMENT TO ENTITY STATUS DISCOUNT

APPLICATION #	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET #	REQUEST ID
13/691,805	12/02/2012	Neal Solomon	5311.001US3	232173

The entity status change request below filed through Patent Center on 06/18/2024 has been accepted.

Certifications

APPLICANT CHANGING TO REGULAR UNDISCOUNTED FEE STATUS

Signature

I certify, in accordance with 37 CFR 1.4(d)(4), that I am one of the signatories making the entity status change.

Signature	Name	Registration #
/Michael Scheer/	Michael Scheer	34425