UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 7,916,180 B2
APPLICATION NO.	: 11/788279
DATED	: March 29, 2011
INVENTOR(S)	: Olsen et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, item (65), under "Prior Publication Data", in Column 1, Line 1, delete "US 2010/0060746 A9 Mar. 11, 2010" and insert
-- US 2010/0060746 A9 Mar. 11, 2010
US 2008/0174670 A1 Jul. 24, 2008 --.

Page 2, item (56), under "Other Publications", in Column 2, Line 2, delete "Proc" and insert -- Proc. --.

Page 2, item (56), under "Other Publications", in Column 2, Line 9, delete "so" and insert -- of --.

Page 2, item (56), under "Other Publications", in Column 2, Line 23, delete "Optcs," and insert -- Optics, --.

Signed and Sealed this
Sixteenth Day of August, 2011

David J. Kappos

David J. Kappos
Director of the United States Patent and Trademark Office

SPE RESPONSE FOR CERTIFICATE OF CORRECTION

DATE : 6/23/11

TO SPE OF : ART UNIT 2622

SUBJECT : Request for Certificate of Correction for Appl. No.: 11788279 Patent No.: 7916180

CofC mailroom date:
06/17/11

Please respond to this request for a certificate of correction within 7 days.

FOR IFW FILES:

Please review the requested changes/corrections as shown in the **COCIN** document(s) in the IFW application image. No new matter should be introduced, nor should the scope or meaning of the claims be changed.

Please complete the response (see below) and forward the completed response to scanning using document code **COCX**.

FOR PAPER FILES:

Please review the requested changes/corrections as shown in the attached certificate of correction. Please complete this form (see below) and forward it with the file to:

Certificates of Correction Branch (CofC)
Randolph Square – 9D10-A
Palm Location 7580

Note: should the changes be made on the title page?

RoChaun Hardwick
Certificates of Correction Branch
571 272-0470

Thank You For Your Assistance

The request for issuing the above-identified correction(s) is hereby:
Note your decision on the appropriate box.

- ■ **Approved** — **All** changes apply.
- ☐ **Approved in Part** — Specify below which changes **do not** apply.
- ☐ **Denied** — State the reasons for denial below.

Comments: Changes are Approved

/Jason Chan/, SPE, Art Unit 2622

SPE RESPONSE FOR CERTIFICATE OF CORRECTION

DATE : 6/23/11

TO SPE OF : ART UNIT 2622

SUBJECT : Request for Certificate of Correction for Appl. No.: 11788279 Patent No.: 7916180

CofC mailroom date:
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- ☐ **Approved in Part** — Specify below which changes **do not** apply.
- ☐ **Denied** — State the reasons for denial below.

Comments: _____

_____

_____

_____

_____ _____
SPE **Art Unit**

SPE RESPONSE FOR CERTIFICATE OF CORRECTION

DATE : 6/23/11

TO SPE OF : ART UNIT 2622

SUBJECT : Request for Certificate of Correction for Appl. No.: 11788279 Patent No.: 7916180

CofC mailroom date:
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- ☐ **Approved** — **All** changes apply.
- ☐ **Approved in Part** — Specify below which changes **do not** apply.
- ☐ **Denied** — State the reasons for denial below.

Comments: _____

_____

_____

_____

_____ _____
SPE **Art Unit**

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
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.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,916,180 B2

APPLICATION NO.: 11/788,279

ISSUE DATE : March 29, 2011

INVENTOR(S) : Olsen et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, item (65), under "Prior Publication Data", in Column 1, Line 1, delete "US 2010/0060746 A9 Mar. 11, 2010" and insert - -
US 2010/0060746 A9 Mar. 11, 2010
US 2008/0174670 A1 Jul. 24, 2008 - -.

Page 2, item (56), under "Other Publications", in Column 2, Line 2, delete "Proc" and insert - - Proc. - -.

Page 2, item (56), under "Other Publications", in Column 2, Line 9, delete "so" and insert - - of - -.

Page 2, item (56), under "Other Publications", in Column 2, Line 23, delete "Optcs," and insert - - Optics, - -.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

_____
_____
_____
_____
_____

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, 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.

Electronic Patent Application Fee Transmittal

Application Number:	11788279
Filing Date:	19-Apr-2007
Title of Invention:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
First Named Inventor/Applicant Name:	Richard Ian Olsen
Filer:	Blayne Donnis Green/Lindsey Hunt
Attorney Docket Number:	088245-6123

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Certificate of correction	1811	1	100	100
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**100**

Electronic Acknowledgement Receipt	
EFS ID:	10329840
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Blayne Donnis Green/Lindsey Hunt
Filer Authorized By:	Blayne Donnis Green
Attorney Docket Number:	088245-6123
Receipt Date:	17-JUN-2011
Filing Date:	19-APR-2007
Time Stamp:	14:02:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$100
RAM confirmation Number	284
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Request for Certificate of Correction	CoC_7916180.pdf	81444 6aae0e18d16308dacc91876720836ba79858c064	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30276 3d64144b4f895e030e093be836408b0e5528641e	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	111720	

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	03/29/2011	7916180	088245-6123	5189

23524 7590 03/09/2011

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

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 842 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):

Richard Ian Olsen, Irvine, CA;
Darryl L. Sato, Irvine, CA;
Feng-Qing Sun, Irvine, CA;
James Gates, Irvine, CA;

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

Paper No.

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON WI 53701-1497

MAILED

FEB 22 2011

OFFICE OF PETITIONS

In re Application of :
Olsen et al. :
Application No. 11/788,279 :
Filed: April 19, 2007 :
Atty Docket No. 088245-6123 :
Title: SIMULTANEOUS MULTIPLE :
FIELD OF VIEW DIGITAL CAMERAS :

DECISION
ON APPLICATION FOR
PATENT TERM ADJUSTMENT

This is in response to the "REQUEST FOR RECONSIDERATION OF PATENT TERM ADJUSTMENT FOR PATENT APPLICATION UNDER 37 C.F.R. §1.705(b)," filed January 19, 2011. Applicant submits that the correct patent term adjustment to be indicated on the patent is nine hundred and nine (909) days, not five hundred and twenty-three (523) days as calculated by the Office as of the mailing of the initial determination of patent term adjustment. Applicant requests this correction solely on the basis that the Office will take in excess of three years to issue this patent.

As the instant application for patent term adjustment requests reconsideration of the patent term adjustment as it relates to the Office's failure to issue the patent within 3 years of the filing date, the application for patent term adjustment under 37 CFR 1.705(b) is **DISMISSED as PREMATURE**.

Knowledge of the actual date the patent issues is required to calculate the amount, if any, of additional patent term patentee is entitled to for Office failure to issue the patent within 3 years. See § 1.702(b). (This is true even where a request for continued examination (RCE) was filed). The computer will not undertake the § 1.702(b) calculation until the actual date of issuance of the patent has been determined. Likewise, the computer will not calculate any further Office delay under § 1.702(a)(4) or applicant delay under § 1.704(c)(10) until the actual date of issuance of the patent has been determined. As

such, the Office cannot make a determination on the correctness of the patent term adjustment until the patent has issued.

Requesting reconsideration of the patent term adjustment to be indicated on the patent under 37 CFR 1.705(b) based on the initial determination of patent term adjustment and a projected issuance date of the patent (or even the filing date of the request for continued examination) is premature. Accordingly, it is appropriate to dismiss as premature such a request.

Rather than file an application for patent term adjustment under 37 CFR 1.705(b) contesting the 37 CFR 1.702(b) calculation at the time of the mailing of the notice of allowance, Applicant is advised that he may wait until the time of the issuance of the patent and file a request for reconsideration of the patent term adjustment pursuant to 37 CFR 1.705(d). As the USPTO does not calculate the amount of time earned pursuant to 37 CFR 1.702(b) until the time of the issuance of the patent, the Office will consider any request for reconsideration of the patent term adjustment due to an error in the calculation of 37 CFR 1.702(b) to be timely if the request for reconsideration is filed within two months of the issuance of the patent. However, as to all other bases for contesting the initial determination of patent term adjustment received with the notice of allowance, Applicant must timely file an application for patent term adjustment prior to the payment of the issue fee.[1]

The Office acknowledges submission of the $200.00 fee set forth in 37 CFR 1.18(e). No additional fees are required.

Any request for reconsideration of the patent term adjustment indicated on the patent must be timely filed within 2 months after issuance pursuant to 37 CFR 1.705(d) and must include payment of the required fee under 37 CFR 1.18(e).

---

[1] For example, if Applicant disputes both the calculation of patent term adjustment under 37 CFR 1.702(a)(1) for Office failure to mail a first Office action or notice of allowance not later than fourteen months after the date on which the application was filed and under 37 CFR 1.702(b) for Office failure to issue a patent within three years of the actual filing date of the application, then Applicant must still timely file an application for patent term adjustment prior to the payment of the issue fee to contest the calculation of Office delay in issuing a first Office action or notice of allowance. See 37 CFR 1.705(b) and 35 U.S.C. 154(b)(3)(B). A dispute as to the calculation of the § 1.702(a)(1) period raised on request for reconsideration of patent term adjustment under 37 CFR 1.705(d) will be dismissed as untimely filed.

The Office of Data Management has been advised of this decision. This application is being referred to the Office of Data Management for issuance of the patent.

Telephone inquiries regarding this decision should be directed to the undersigned at (571) 272-3225.

/Paul Shanoski/
Paul Shanoski
Senior Attorney
Office of Petitions

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

23524 7590 02/04/2011

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
02/04/2011	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.

Response to Rule 312 Communication	Application No.	Applicant(s)
	11/788,279	OLSEN ET AL.
	Examiner	Art Unit
	JAMES M. HANNETT	2622

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

1. ☒ The amendment filed on *19 January 2011* under 37 CFR 1.312 has been considered, and has been:

   a) ☒ entered.

   b) ☐ entered as directed to matters of form not affecting the scope of the invention.

   c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
   Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

   d) ☐ disapproved. See explanation below.

   e) ☐ entered in part. See explanation below.

/James M Hannett/
Primary Examiner, Art Unit 2622

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Conf. No.:	5189

Enter
2/1/2011
/JMH/

AMENDMENT UNDER 37 CFR 1.312

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

This communication is responsive to the Notice of Allowance dated October 28, 2010 concerning the above-referenced patent application. Prior to payment of the issue fee, please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 9 of this document.

Please amend the application as follows:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

REQUEST FOR RECONSIDERATION OF PATENT TERM ADJUSTMENT FOR PATENT APPLICATION UNDER 37 C.F.R. §1.705(b)

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

Sir:

Applicants have calculated PTA for the captioned patent application and have determined that the patent is entitled to 909 days of Patent Term Adjustment, as shown on the attached sheet, which shows the relevant delays under 37 CFR §§1.702, 1.703 and 1.704:

(a) Total PTO delay:	967 days
(b) Total Applicant delay:	58 days
Final PTA Determination under 37 CFR §1.703(f):	909 days

In accordance with 1.705(b)(2)(ii), the relevant dates as specified in §§1.703(a) through (e) for which an adjustment is sought and the adjustment as specified in § 1.703(f) to which the patent is entitled are clearly represented in the attached PTA Calculation.

The relevant dates where the applicant is not in agreement with the PTO's determination are discussed in more detail below.

Applicant believes that this discrepancy occurred as a result of the PTO 's failure to include 386 days of additional PTA accumulated in applicant's favor based on the provisions of 37 C.F.R. §§ 1.702(b)(1) and 1.703(b)(1), wherein PTA begins to accumulate in applicant's favor on the day after the commencement of three years from the filing date.

The Section of the Notice of Allowance titled "Determination of Patent Term Adjustment under 35 U.S.C. §154(b)" makes the statement that:

> "If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 523 days".

This statement is incorrect because it does not take into account accrued patent term adjustment under 37 C.F.R. §1.703(b) due to having an overall pendency of greater than three years, and the overall Patent Term Adjustment would be 909 days, as shown in the attached calculation.

37 C.F.R. §1.705(d) states that "Any request for reconsideration under this section that raises issues that were raised, or could have been raised, in an application for patent term adjustment under paragraph (b) of this section shall be dismissed as untimely as to those issues." As the above-identified error was made at allowance, the applicant is filing this request for reconsideration under an abundance of caution, in the knowledge that the PTO does not include patent term adjustment resulting from 1.703(b) in it's PTA calculations at allowance.

In accordance with §1.705(b)(2)(iv)(A), the circumstances during the prosecution of the application resulting in the patent that constitute a failure to engage in reasonable efforts to conclude processing or examination of such application as set forth in § 1.704 are clearly represented in the attached PTA Calculation.

Applicants therefore respectfully request that the patent be accorded 909 days PTA.

Fees in the amount of $200.00 set forth in 37 C.F.R. § 1.18(e) to cover the fee for this request are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. § 1.705, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

However, because this PTA error is due to a Patent Office error in interpreting and applying the PTA statute, a refund of the fee is respectfully requested.

Respectfully submitted,

Date 1/19/14

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4466
Facsimile: (608) 258-4258

Nicholas M. Lagerwall
Attorney for Applicant
Registration No. 63,272

CLOSE WINDOW ALL CASES SELECT CASE

Patent Term Adjustment Calculation System

Add a new event to this case

Docket Number: 088245-6123
Application Number: 11/788279
Patent Number: N/A

	Event Description	Event Date	Days from Filing	PTO Days	Applicant Days
Edit Delete	Application Filing Date	04/19/2007	0		
	14 month From Application date	06/19/2008	427		
Edit Delete	Non-Final Office Action	01/21/2010	1,008	581	
Edit Delete	IDS NOT falling under 1.704(c)(6), (8) or (10) filed at PTO	03/23/2010	1,069		
	3 Year Period Starts	04/19/2010	1,096		
Edit Delete	Non-Final Office Action Rsp. Rcv'd at PTO	04/20/2010	1,097		
Edit Delete	IDS under 1.704(c)(8) filed at PTO	06/09/2010	1,147		50
Edit Delete	Final Office Action	08/04/2010	1,203		
Edit Delete	Final Office Action Response Received at PTO	09/28/2010	1,258		
Edit Delete	IDS under 1.704(c)(8) filed at PTO	10/06/2010	1,266		8
Edit Delete	Notice of Allowance	10/28/2010	1,288		
	Projected Patent Grant Date	05/10/2011	1,482	386	
			Totals:	967	58
			PTA:	909	

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Atty. Dkt. No. 088245-6123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

ISSUE FEE TRANSMITTAL

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

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Respectfully submitted,

Date January 19, 2011

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4466
Facsimile: (608) 258-4258

Nicholas M. Lagerwall
Attorney for Applicant
Registration No. 63,272

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Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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23524 7590 10/28/2010

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(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

TITLE OF INVENTION: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	01/28/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
HANNETT, JAMES M	2622	348-218100

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

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

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

2. For printing on the patent front page, list

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

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(A) NAME OF ASSIGNEE: Protarius Filo AG, L.L.C.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Dover, Delaware

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

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

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

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

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Authorized Signature _____ Date January 19, 2011

Typed or printed name Nicholas M. Lagerwall Registration No. 63,272

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Electronic Patent Application Fee Transmittal	
Application Number:	11788279
Filing Date:	19-Apr-2007
Title of Invention:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
First Named Inventor/Applicant Name:	Richard Ian Olsen
Filer:	Nicholas M. Lagerwall/Linda Anderson
Attorney Docket Number:	088245-6123
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Application for patent term adjustment	1455	1	200	200
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Utility Appl issue fee	1501	1	1510	1510
Publ. Fee- early, voluntary, or normal	1504	1	300	300
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**2010**

Electronic Acknowledgement Receipt

EFS ID:	9259543
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Nicholas M. Lagerwall/Linda Anderson
Filer Authorized By:	Nicholas M. Lagerwall
Attorney Docket Number:	088245-6123
Receipt Date:	19-JAN-2011
Filing Date:	19-APR-2007
Time Stamp:	16:20:01
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Amendment after Notice of Allowance (Rule 312)	312amendment.pdf	328423 ba40bf04e07d6ef1fc4a0561c65faea573aac892	no	9
Warnings:					
Information:					
2	Patent Term Adjustment Petition	PTAPetition.pdf	142889 5ac93eeaf806e4dd5446eef4235fe3eaacb27cf0	no	4
Warnings:					
Information:					
3	Issue Fee Payment (PTO-85B)	Issuefeetrans.pdf	135167 459920c13ee5a680ad2c6ea9b9018aa5d0c067ef	no	2
Warnings:					
Information:					
4	Fee Worksheet (PTO-875)	fee-info.pdf	33823 f790ceea9e537cd4684d324aa6ceb395ac6e6a0a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	640302		

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

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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
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Conf. No.:	5189

AMENDMENT UNDER 37 CFR 1.312

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This communication is responsive to the Notice of Allowance dated October 28, 2010 concerning the above-referenced patent application. Prior to payment of the issue fee, please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 9 of this document.

Please amend the application as follows:

Amendments to the Claims:

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

Listing of Claims:

1. (Previously Presented) A digital camera comprising:

a plurality of channels, wherein each channel includes an optics component and an array of photo-detectors integrated on a semiconductor substrate, the plurality of channels including a first channel having a first field of view (FOV) comprising a first angular width of a scene imaged by the camera and a second channel having a second FOV comprising a second angular width of the scene imaged by the camera, wherein the first and second angular widths are different; and

a processing component coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels, the processing component configured to combine data of a frame from at least one of the plurality of channels to provide an image having a relatively high resolution.

2. (Currently Amended) The digital camera of claim 1, wherein the optics component of the first channel has a first focal length, and the array of photo-detectors of the first channel has a first dimension.

3. (Currently Amended) The digital camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal length, and the array of photo-detectors of the second channel has the first dimension.

4. (Currently Amended) The digital camera of claim 2, wherein the optics component of the second channel has the first focal length, and the array of photo-detectors of the second channel has a second dimension that is different from the first dimension.

5. (Currently Amended) The digital The camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal

length, and the array of photo-detectors of the second channel has a second dimension that is different from the first dimension.

6. (Currently Amended) The digital camera of claim 1, wherein the plurality of channels comprises a third channel having a third FOV.

7. (Currently Amended) The digital camera of claim 6, wherein the third FOV is different from one or more of the first FOV and the second FOV.

8. (Currently Amended) The digital camera of claim 6, wherein the plurality of channels comprises a fourth channel having a fourth FOV.

9. (Currently Amended) The digital camera of claim 8, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

10. (Currently Amended) The digital camera of claim 1, wherein the processing component is configured to separately and simultaneously control a parameter of the optics component of each channel.

11. (Currently Amended) The digital camera of claim 1, wherein the optics component of the first channel includes a different configuration than the optics component of the second channel.

12. (Currently Amended) The digital camera of claim 1, wherein the optics component includes at least one lens.

13. (Currently Amended) The digital camera of claim 1, wherein the optics component includes at least one filter.

14. (Currently Amended) The digital camera of claim 1, wherein each channel is configured to pass light including a plurality of colors.

15. (Currently Amended) The digital camera of claim 1, wherein the first channel is configured to pass light of a first color and the second channel is configured to pass light of a second color.

16. (Currently Amended) The digital camera of claim 1, wherein the plurality of channels are configured to pass light of a first color.

17. (Previously Presented) A digital camera comprising:

a first channel including a first optics component and a first image sensor integrated in a semiconductor substrate and configured to provide a first field of view (FOV) that comprises a first angular width of a scene imaged by the camera;

a second channel including a second optics component and a second image sensor integrated in the semiconductor substrate and configured to provide a second FOV that comprises a second angular width of the scene imaged by the camera, wherein the first and second angular widths are different; and

a processing component coupled to the first and second channels and configured to independently control simultaneous data acquisition with the first and second channels during a frame.

18. (Currently Amended) The digital camera of claim 17, wherein the first optics component has a first focal length, and the first image sensor has a first pixel count.

19. (Currently Amended) The digital camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has the first pixel count.

20. (Currently Amended) The digital camera of claim 18, wherein the second optics component has the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

21. (Currently Amended) The digital camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

22. (Previously Presented) A method comprising:

configuring a first optics component relative to a first image sensor to form a first channel having a first field of view (FOV) that comprises a first angular width of a scene;

configuring a second optics component relative to a second image sensor to form a second channel having a second FOV that comprises a second angular width of the scene, wherein the first and second angular widths are different;

independently controlling simultaneous data acquisition with each of the first and second channels during a frame; and

combining data received during the frame from one or more of the first and second channels to provide an image.

23. (Original) The method of claim 22, comprising forming the first image sensor and the second image sensor in a semiconductor substrate.

24. (Original) The method of claim 22, wherein configuring the first optics component relative to the first image sensor comprises configuring the first optics component with a first focal length and configuring the first image sensor to include a first pixel count.

25. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different than the first focal length and configuring the second image sensor to include the first pixel count.

26. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics

component with the first focal length and configuring the second image sensor to include a second pixel count that is different than the first pixel count.

27. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different from the first focal length and configuring the second image sensor to include a second pixel count that is different than the first pixel count.

28. (Original) The method of claim 22, comprising configuring a third optics component relative to a third image sensor to form a third channel having a third FOV, wherein the third FOV is different from one or more of the first FOV and the second FOV.

29. (Original) The method of claim 28, comprising forming the third image sensor in a semiconductor substrate along with the first and the second image sensors.

30. (Original) The method of claim 28, comprising configuring a fourth optics component relative to a fourth image sensor to form a fourth channel having a fourth FOV, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

31. (Original) The method of claim 30, comprising forming the fourth image sensor in a semiconductor substrate along with the first, the second and the third image sensors.

32. (Original) The method of claim 22, comprising separately and simultaneously controlling a parameter of one or more of the first and the second optics components.

33. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component differently than the second optics component.

34. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a same color as the second optics component.

35. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a different color than the second optics component.

36. (Previously Presented) A method comprising:

forming a first image sensor and a second image sensor in a semiconductor substrate;

configuring a first optics component relative to the first image sensor to form a first channel having a first field of view (FOV) that comprises a first angular width of a scene;

configuring a second optics component relative to the second image sensor to form a second channel having a second FOV that comprises a second angular width of the scene, wherein the first and second angular widths are different; and

forming a processing component in the semiconductor substrate and configuring the processing component to independently control simultaneous data acquisition by the first and second channels during a frame.

37. (Previously Presented) A solid-state camera system produced according to a method comprising:

forming a first image sensor and a second image sensor in a semiconductor substrate;

configuring a first optics component relative to the first image sensor to form a first channel having a first field of view (FOV) that corresponds to a first angular width of a scene;

configuring a second optics component relative to the second image sensor to form a second channel having a second FOV that corresponds to a second angular width of the scene, wherein the first and second angular widths are different; and

forming a processing component in the semiconductor substrate and configuring the processing component to independently control simultaneous data acquisition by the first and second channels during a frame.

38. (Previously Presented) The digital camera of claim 1, wherein the processing component is further configured to generate a combined image based at least in part on data from both the first and second channels.

39. (Previously Presented) The digital camera of claim 1, wherein at least a portion of the first FOV overlaps with at least a portion of the second FOV.

REMARKS

Applicants respectfully request entry of the foregoing amendment. Claims 2-16 and 18-21 have been amended to recite "digital camera" to conform with the corresponding independent claims. The amendment does not change the scope of the claims. Accordingly, entry of the amendment is requested.

Applicants believe no fees are due in connection with this Rule 312 amendment. In the event this is not correct, the undersigned authorizes the Commissioner to charge Deposit Account No. 19-0741.

Respectfully submitted,

Date January 19, 2011

By _____

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Customer Number: 23524
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Facsimile: (608) 258-4258

Nicholas M. Lagerwall
Attorney for Applicant
Registration No. 63,272

PTO/SB/08 (09-06)
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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: August 17, 2009				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	2	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4,385,373	05-24-1983	Howe	
		5,654,752	08-05-1997	Yamazaki	
		6,381,072	04-30-2004	Burger	
		6,727,521	~~05-18-2002~~	Merrill et al. 04-2004	
		7,170,665	01-30-2007	Kaneko et al.	
		7,280,290	10-09-2007	Araki et al.	
		2002/0051071	05-02-2002	Itano et al.	
		2002/0089596	07-11-2002	Suda	
		2002/0122124	09-05-2002	Suda	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		International Search Report and Written Opinion for PCT/US2005/30256 mailed July 7, 2008.	
		International Preliminary Report on Patentability for PCT/US2005/030256 issued March 17, 2009.	
		International Search Report and Written Opinion for PCT/US2006/25781 mailed July 22, 2008.	

Examiner Signature	/James Hannett/	Date Considered	01/18/2010

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

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MADI_1986768.1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	11/788,279
				Filing Date	4/19/2007
Date Submitted: February 4, 2009				First Named Inventor	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	Lin Ye
Sheet	1	of	4	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,971,065	07-20-1976	Bayer	
		5,694,165	12-02-1997	Yamazaki et al.	
		5,742,659	4-21-1998	Atac et al.	
		5,760,832	6-2-1998	Yamanaka, et al.	
		6,137,535	10-24-2000	Meyers, Mark Marshall	
		6,429,898	~~6-7-2005~~	Shoda et al.	08-2002
		6,437,335	8-20-2002	Bohn, David D.	
		6,570,613	5-27-2003	Howell	
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		6,714,239	3-30-2004	Guidash	
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		6,882,864	4-19-2005	Miyake	
		6,885,404	4-26-2005	Suda	
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		7,095,159	8-22-2006	Machida	
		7,095,561	8-22-2006	Mitchell et al.	
		7,115,853	10-3-06	Jiang et al.	
		7,164,113	1-16-2007	Inokuma et al.	
		7,199,348	4-3-2007	Olsen et al.	
		7,214,926	5-8-2007	Gruhlke, et al.	
		7,223,954	5-29-2007	McNulty, Peter C.	
		7,236,306	6-26-2007	Janson, Jr. et al.	
		7,256,944	8-14-2007	Labaziewicz, et al.	
		7,305,180	12-7-~~2006~~	Labaziewicz, et al.	12-2007
		7,358,483	4-15-2008	Mitsugi et al.	
		7,362,357	4-22-2008	Brown et al.	
		7,379,104	5-27-2008	Hattori et al.	
		7,417,674	8-26-2008	Gruhlke	

CH 12436

Examiner Signature	/James Hannett/	Date Considered	01/18/2010

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

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If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

MADI_1805009.1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

23524 7590 12/09/2010

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
12/09/2010	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.

Supplemental Notice of Allowability	**Application No.** 11/788,279	**Applicant(s)** OLSEN ET AL.	
	Examiner JAMES M. HANNETT	**Art Unit** 2622	

-- 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 *the IDS filed 12/2/2010*.

2. ☒ The allowed claim(s) is/are *1-39*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of 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.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ 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. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 12/2/2010
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/James M Hannett/
Primary Examiner, Art Unit 2622

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: December 2, 2010				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
/JH/		Second Office Action on Chinese Application 200580032374.0, issued September 9, 2010.	

Examiner Signature	/James Hannett/	Date Considered	12/08/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

MADI_2488284.1

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: December 2, 2010				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		Second Office Action on Chinese Application 200580032374.0, issued September 9, 2010.	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

MADI_2488284.1

Electronic Patent Application Fee Transmittal	
Application Number:	11788279
Filing Date:	19-Apr-2007
Title of Invention:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
First Named Inventor/Applicant Name:	Richard Ian Olsen
Filer:	Nicholas M. Lagerwall/Linda Anderson
Attorney Docket Number:	088245-6123
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	8949858
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Nicholas M. Lagerwall/Linda Anderson
Filer Authorized By:	Nicholas M. Lagerwall
Attorney Docket Number:	088245-6123
Receipt Date:	02-DEC-2010
Filing Date:	19-APR-2007
Time Stamp:	12:56:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	11786
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1		SuppIDS.pdf	744624 5f60756045e1b27fc4c825bd7785c85d32734a0e	yes	13

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Transmittal Letter	1	3
Information Disclosure Statement (IDS) Filed (SB/08)	4	4
NPL Documents	5	13

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	30599 797a1c8d5769824a6b6fa50944257489a73a8882	no	2

Warnings:

Information:

Total Files Size (in bytes):	775223

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:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of a document known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to

antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed document is being submitted in compliance with 37 CFR §1.97(d), before payment of the issue fee.

RELEVANCE OF EACH DOCUMENT

Any document listed on the attached PTO/SB/08 was cited as being relevant during the prosecution of the corresponding Chinese application. A copy of the Chinese Office Action is attached setting forth the portion of each document considered relevant by the examiner. An English-language counterpart of the foreign-language document has been provided.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

STATEMENT

The undersigned hereby states in accordance with 37 CFR §1.97(e)(1) that each item of information contained in this supplemental information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three (3) months prior to filing of this Statement.

FEE

Fees in the amount of $180.00 to cover the fee associated with an information disclosure statement under 37 CFR §1.97(d) are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this submission under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date December 2, 2010

By 

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4466
Facsimile: (608) 258-4258

Nicholas M. Lagerwall
Attorney for Applicant
Registration No. 63,272

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

23524 7590 11/23/2010

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MADISON, WI 53701-1497

EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
11/23/2010	PAPER

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Supplemental Notice of Allowability	**Application No.** 11/788,279	**Applicant(s)** OLSEN ET AL.	
	Examiner JAMES M. HANNETT	**Art Unit** 2622	

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1. ☒ This communication is responsive to *the IDS filed 10/6/2010*.

2. ☒ The allowed claim(s) is/are *1-39*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of 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)).

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   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
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7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/James M Hannett/
Primary Examiner, Art Unit 2622

PTO/SB/08 (09-06)
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Substitute for form 1449/PTO				*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: October 6, 2010				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2003/0151685	08-14-2003	LA GRONE, MARCUS J.	
		2005/0248667	11-10-2005	SCHWENG ET AL.	
		2005/0285955	12-29-2005	UTZ ET AL.	
		6,375,075	04-23-2002	ACKLEY ET AL.	
		6,885,398	04-26-2005	SLADEN, PETER	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		Notice of Allowance on U.S. Application 11/888,582, mailed August 6, 2010.	
		Non-Final Office Action on U.S. Application 11/810,623, mailed 8/18/2010	
		Final Office Action on U.S. Application 11/788,120, mailed 7/30/2010	

Examiner Signature	/James Hannett/	Date Considered	11/18/2010

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

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If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

MADI_2433896.1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

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
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NOTICE OF ALLOWANCE AND FEE(S) DUE

23524 7590 10/28/2010

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

DATE MAILED: 10/28/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

TITLE OF INVENTION: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	01/28/2011

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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

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

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

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

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

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

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

23524 7590 10/28/2010

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

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

Certificate of Mailing or Transmission

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

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

TITLE OF INVENTION: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	01/28/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
HANNETT, JAMES M	2622	348-218100

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

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

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

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(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 has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

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

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

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

23524 7590 10/28/2010

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P.O. BOX 1497
MADISON, WI 53701-1497

EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

DATE MAILED: 10/28/2010

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

The Patent Term Adjustment to date is 523 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 523 day(s).

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

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

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

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Notice of Allowability	Application No.	Applicant(s)	
	11/788,279	OLSEN ET AL.	
	Examiner	Art Unit	
	JAMES M. HANNETT	2622	

-- 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 *the after final amendment filed 9/28/2010*.

2. ☒ The allowed claim(s) is/are *1-39*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of 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.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ 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. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/James M Hannett/
Primary Examiner, Art Unit 2622

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: the prior art does not teach the use of a camera having a plurality of channels, wherein each channel includes an optics component and an array of photo-detectors integrated on a semiconductor substrate, the plurality of channels including a first channel having a first field of view (FOV) comprising a first angular width of a scene imaged by the camera and a second channel having a second FOV comprising a second angular width of the scene imaged by the camera, wherein the first and second angular widths are different; and a processing component coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels, the processing component configured to combine data of a frame from at least one of the plurality of channels to provide an image having a relatively high resolution.

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022 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).

/James M. Hannett/
Primary Examiner
Art Unit 2622

JMH
October 27, 2010

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	Art Unit
	JAMES M HANNETT	2622

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

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

CLAIM		DATE								
Final	Original	01/18/2010	08/01/2010	10/05/2010						
1	1	✓	✓	=						
2	2	✓	✓	=						
3	3	O	O	=						
4	4	O	O	=						
5	5	O	O	=						
6	6	✓	✓	=						
7	7	✓	✓	=						
8	8	✓	✓	=						
9	9	✓	✓	=						
10	10	✓	✓	=						
11	11	✓	✓	=						
12	12	✓	✓	=						
13	13	✓	✓	=						
14	14	✓	✓	=						
15	15	✓	✓	=						
16	16	✓	✓	=						
17	17	✓	✓	=						
18	18	✓	✓	=						
19	19	O	O	=						
20	20	O	O	=						
21	21	O	O	=						
22	22	✓	✓	=						
23	23	✓	✓	=						
24	24	✓	✓	=						
25	25	O	O	=						
26	26	O	O	=						
27	27	O	O	=						
28	28	✓	✓	=						
29	29	✓	✓	=						
30	30	✓	✓	=						
31	31	✓	✓	=						
32	32	✓	✓	=						
33	33	✓	✓	=						
34	34	✓	✓	=						
35	35	✓	✓	=						
36	36	✓	✓	=						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	**Art Unit**
	JAMES M HANNETT	2622

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

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

CLAIM		DATE								
Final	Original	01/18/2010	08/01/2010	10/05/2010						
37	37	✓	✓	=						
38	38		✓	=						
39	39		✓	=						

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	**Art Unit**
	JAMES M HANNETT	2622

ORIGINAL		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
348	218.1	H	0	4	N	5 / 225 (2006.01.01)					

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17	33	33										
2	2	18	18	34	34										
3	3	19	19	35	35										
4	4	20	20	36	36										
5	5	21	21	37	37										
6	6	22	22	38	38										
7	7	23	23	39	39										
8	8	24	24												
9	9	25	25												
10	10	26	26												
11	11	27	27												
12	12	28	28												
13	13	29	29												
14	14	30	30												
15	15	31	31												
16	16	32	32												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	39	
/JAMES M HANNETT/ Primary Examiner.Art Unit 2622	10/5/2010	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	Art Unit
	JAMES M HANNETT	2622

SEARCHED			
Class	Subclass	Date	Examiner
348	218.1	10/5/2010	JMH

SEARCH NOTES		
Search Notes	Date	Examiner
East Search	10/5/2010	JMH
Inventor Name Search	10/5/2010	JMH

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	PGPUB text search, see interference search report.	10/5/2010	JMH

	/JAMES M HANNETT/ Primary Examiner.Art Unit 2622

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.	
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS	
Appl. No.:	11/788,279	Enter /JMH/
Filing Date:	4/19/2007	11/5/2010
Examiner:	James M. Hannett	
Art Unit:	2622	
Conf. No.:	5189	

AMENDMENT AND REPLY UNDER 37 CFR 1.116

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

This communication is responsive to the Final Office Action dated August 4, 2010 concerning the above-referenced patent application, making October 4, 2010, two months from the mailing date. Therefore, this response is timely filed within the Advisory Period.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 9 of this document.

Please amend the application as follows:

UNITED STATES PATENT AND TRADEMARK OFFICE

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

BIB DATA SHEET

CONFIRMATION NO. 5189

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/788,279	04/19/2007 RULE	250	2622	088245-6123

APPLICANTS

Richard Ian Olsen, Irvine, CA;
Darryl L. Sato, Irvine, CA;
Feng-Qing Sun, Irvine, CA;
James Gates, Irvine, CA;

**** CONTINUING DATA **************************

This application is a CIP of 11/212,803 08/25/2005 ABN
and claims benefit of 60/795,946 04/28/2006
and said 11/212,803 08/25/2005
claims benefit of 60/604,854 08/25/2004
and claims benefit of 60/695,946 07/01/2005

**** FOREIGN APPLICATIONS **************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

02/19/2009

Foreign Priority claimed	35 USC 119(a-d) conditions met	Verified and Acknowledged	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ Yes ☑ No	☐ Yes ☑ No	/JAMES M HANNETT/ Examiner's Signature	☐ /JMH/ Initials	CA	22	37	4

ADDRESS

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497
UNITED STATES

TITLE

Simultaneous multiple field of view digital cameras

FILING FEE RECEIVED		
1414	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

BIB (Rev. 05/07).

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	555	angular adj width$4 .clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/10/05 10:58
L2	6	1 and camera .clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/10/05 11:02
L3	0	2 and field adj of adj view . clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/10/05 11:02
S1	20689	camera and optical near4 fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:15
S2	2520	camera and optical near4 fiber with bundle	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S3	510	S2 and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S4	269	S3 and arrays	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S5	267	S4 and lens	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S6	228	S5 and filter	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16

S7	14	S6 and color adj filter$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:17
S8	2	("20080170293").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:28
S9	188	S6 and ccd	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31
S10	141	S9 and color	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31
S11	126	S10 and pixels	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31
S12	25370	fiber adj bundle	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:34
S13	529	fiber adj bundle with (CCD or imager or image adj sensor or image-sensor)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
S14	418	S13 and lens$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
S15	92	S14 and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
S16	148	hannett .xa.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38

S17	148	hannett .xp.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
S18	296	S16 or S17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
S19	9	S18 and fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
S20	0	("2008/0170293").URPN.	USPAT	OR	OFF	2010/01/18 13:40
S21	16	("3064519" | "3227034" | "3248552" | "3726997" | "3785736" | "4637055" | "4862511" | "5086483" | "5131055" | "5148502" | "5216484").PN. OR ("5850479").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 13:41
S22	1584	camera and optical near4 fiber with guide	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:48
S23	849	S22 and (CCD or imager or image adj sensor or image-sensor)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:48
S24	119	S23 and color adj filter$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:49
S25	10	("4153333" | "4564760" | "4570063" | "4591714" | "4591715" | "4776667" | "4824194").PN. OR ("5122657").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 13:53
S26	677	(348/262,264,218.1).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:57

S27	0	("26andfiber").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:57
S28	41	S26 and fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:57
S29	8	(US-20080170293-$ or US-20040012689-$ or US-20040012688-$ or US-20020024606-$).did. or (US-5850479-$ or US-7239345-$ or US-5691765-$ or US-4323925-$).did.	US-PGPUB; USPAT	OR	OFF	2010/01/18 14:05
S30	157	("20020063775" | "3064519" | "3110816" | "3227034" | "3248552" | "3448276" | "3560644" | "3609367" | "3726997" | "3785736" | "4044384" | "4054881" | "4062045" | "4103435" | "4541007" | "4571616" | "4613866" | "4637055" | "4742356" | "4757378" | "4772942" | "4805015" | "4858149" | "4862511" | "4879596" | "4879597" | "4881122" | "4928175" | "4931817" | "4943854" | "4943864" | "4952024" | "4957351" | "4970666" | "4984089" | "5015188" | "5015189" | "5023725" | "5049987" | "5084763" | "5086483" | "5101269" | "5109194" | "5130794" | "5131055" | "5148310" | "5148502" | "5172266" | "5185667" | "5187571" | "5200818" | "5216484" | "5268998" | "5293529" | "5311305" | "5313567" | "5319744" | "5359363" | "5432895" | "5475511" | "5479597" | "5553618" | "5586231" | "5659323" | "5703961" | "5879289" | "6154251" | "6292608" | "6393144" | "6501518" | "6522787" | "6535226" | "6750904").PN. OR ("2002/0024606" | "2004/0012688" | "2004/0012689" |	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 14:16

		"2008/0170293" | "4323925" | "5691765" | "5850479" | "7239345").URPN.				
S31	39	S30 and fiber	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 14:17
S32	11	S26 and fiber and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 14:23
S33	148	hannett .xa.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 16:59
S34	150	hannett .xp.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 16:59
S35	298	S33 or S34	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 16:59
S36	2	S35 and left with right with vertical with register$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 17:00
S37	29	S35 and vertical with register $4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 17:01
S38	4792	(702/19).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:23
S39	1161	S38 and switch$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:24
S40	535	S39 and buffer	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:24

S41	19	S39 and buffer with memory	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:24
S42	15	(("6411727") or ("6681033") or ("6456267") or ("2004207384") or ("2006057025") or ("6856161")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:26
S43	19	S41 and circuit	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:26
S44	40	S38 and switch$4 with DNA	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:34
S45	30	S44 and buffer	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:34
S46	1	S45 and circuit	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:34
S47	397	S40 and DNA	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:36
S48	77	S47 and circuit	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:36
S49	73	S48 and biological	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:37
S50	0	S48 and biological adj sensor	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:37

S51	9	S48 and biological with sensor	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:38
S52	45	S48 and biological and sensor	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/03 15:38

EAST Search History (Interference)

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10/5/10 11:02:46 AM
C:\Documents and Settings\JHannett\My Documents\EAST\Workspaces\11788279.wsp

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
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Substitute for form 1449/PTO				*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: October 6, 2010				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2003/0151685	08-14-2003	LA GRONE, MARCUS J.	
		2005/0248667	11-10-2005	SCHWENG ET AL.	
		2005/0285955	12-29-2005	UTZ ET AL.	
		6,375,075	04-23-2002	ACKLEY ET AL.	
		6,885,398	04-26-2005	SLADEN, PETER	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		Notice of Allowance on U.S. Application 11/888,582, mailed August 6, 2010.	
		Non-Final Office Action on U.S. Application 11/810,623, mailed 8/18/2010	
		Final Office Action on U.S. Application 11/788,120, mailed 7/30/2010	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

Electronic Patent Application Fee Transmittal	
Application Number:	11788279
Filing Date:	19-Apr-2007
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Filer:	Christopher L. Kalafut/Linda Anderson
Attorney Docket Number:	088245-6123
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	8568337
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	06-OCT-2010
Filing Date:	19-APR-2007
Time Stamp:	12:15:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	8645
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1		SuppIDS.pdf	61298 dabf3cac14aebc1d6eaf0ef4dee9ae0127b2d7bc	yes	4
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	3	
	Information Disclosure Statement (IDS) Filed (SB/08)		4	4	
Warnings:					
Information:					
2		NPLdocs.pdf	375538 2903bfd2e27c23ba0fcab2926251d286175b32cf	yes	29
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	NPL Documents		1	7	
	NPL Documents		8	21	
	NPL Documents		22	29	
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	30082 2a5ed4d2261d4e96b7e12e44b79456280bcf6f02	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	466918		

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:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to

antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(d), before payment of the issue fee.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

STATEMENT

The undersigned hereby states in accordance with 37 CFR §1.97(e)(2) that no item of information contained in this supplemental information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the supplemental 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 supplemental information disclosure statement.

FEE

Fees in the amount of $180.00 to cover the fee associated with an information disclosure statement under 37 CFR §1.97(d) are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this submission under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date October 6, 2010

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
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Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Conf. No.:	5189

AMENDMENT AND REPLY UNDER 37 CFR 1.116

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

This communication is responsive to the Final Office Action dated August 4, 2010 concerning the above-referenced patent application, making October 4, 2010, two months from the mailing date. Therefore, this response is timely filed within the Advisory Period.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 9 of this document.

Please amend the application as follows:

Amendments to the Claims:

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

Listing of Claims:

1. (Currently Amended) A digital camera comprising:

a plurality of channels, wherein each channel includes an optics component and an array of photo-detectors integrated on a semiconductor substrate, the plurality of channels including a first channel having a first field of view (FOV) comprising a first angular [[extent]] width of a scene imaged by the camera and a second channel having a second FOV comprising a second angular [[extent]] width of the scene imaged by the camera, wherein the first and second angular [[extents]] widths are different; and

a processing component coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels, the processing component configured to combine data of a frame from at least one of the plurality of channels to provide an image having a relatively high resolution.

2. (Original) The camera of claim 1, wherein the optics component of the first channel has a first focal length, and the array of photo-detectors of the first channel has a first dimension.

3. (Original) The camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal length, and the array of photo-detectors of the second channel has the first dimension.

4. (Original) The camera of claim 2, wherein the optics component of the second channel has the first focal length, and the array of photo-detectors of the second channel has a second dimension that is different from the first dimension.

5. (Original) The camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal length, and the array of

photo-detectors of the second channel has a second dimension that is different from the first dimension.

6. (Original) The camera of claim 1, wherein the plurality of channels comprises a third channel having a third FOV.

7. (Original) The camera of claim 6, wherein the third FOV is different from one or more of the first FOV and the second FOV.

8. (Original) The camera of claim 6, wherein the plurality of channels comprises a fourth channel having a fourth FOV.

9. (Original) The camera of claim 8, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

10. (Original) The camera of claim 1, wherein the processing component is configured to separately and simultaneously control a parameter of the optics component of each channel.

11. (Original) The camera of claim 1, wherein the optics component of the first channel includes a different configuration than the optics component of the second channel.

12. (Original) The camera of claim 1, wherein the optics component includes at least one lens.

13. (Original) The camera of claim 1, wherein the optics component includes at least one filter.

14. (Original) The camera of claim 1, wherein each channel is configured to pass light including a plurality of colors.

15. (Original) The camera of claim 1, wherein the first channel is configured to pass light of a first color and the second channel is configured to pass light of a second color.

16. (Original) The camera of claim 1, wherein the plurality of channels are configured to pass light of a first color.

17. (Currently Amended) A digital camera comprising:

a first channel including a first optics component and a first image sensor integrated in a semiconductor substrate and configured to provide a first field of view (FOV) that comprises a first angular [[extent]] width of a scene imaged by the camera;

a second channel including a second optics component and a second image sensor integrated in the semiconductor substrate and configured to provide a second FOV that comprises a second angular [[extent]] width of the scene imaged by the camera, wherein the first and second angular [[extents]] widths are different; and

a processing component coupled to the first and second channels and configured to independently control simultaneous data acquisition with the first and second channels during a frame.

18. (Original) The camera of claim 17, wherein the first optics component has a first focal length, and the first image sensor has a first pixel count.

19. (Original) The camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has the first pixel count.

20. (Original) The camera of claim 18, wherein the second optics component has the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

21. (Original) The camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

22. (Currently Amended) A method comprising:

configuring a first optics component relative to a first image sensor to form a first channel having a first field of view (FOV) that comprises a first angular [[extent]] width of a scene;

configuring a second optics component relative to a second image sensor to form a second channel having a second FOV that comprises a second angular [[extent]] width of the scene, wherein the first and second angular [[extents]] widths are different;

independently controlling simultaneous data acquisition with each of the first and second channels during a frame; and

combining data received during the frame from one or more of the first and second channels to provide an image.

23. (Original) The method of claim 22, comprising forming the first image sensor and the second image sensor in a semiconductor substrate.

24. (Original) The method of claim 22, wherein configuring the first optics component relative to the first image sensor comprises configuring the first optics component with a first focal length and configuring the first image sensor to include a first pixel count.

25. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different than the first focal length and configuring the second image sensor to include the first pixel count.

26. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with the first focal length and configuring the second image sensor to include a second pixel count that is different than the first pixel count.

27. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different from the first focal length and configuring the second image sensor to include a second pixel count that is different than the first pixel count.

28. (Original) The method of claim 22, comprising configuring a third optics component relative to a third image sensor to form a third channel having a third FOV, wherein the third FOV is different from one or more of the first FOV and the second FOV.

29. (Original) The method of claim 28, comprising forming the third image sensor in a semiconductor substrate along with the first and the second image sensors.

30. (Original) The method of claim 28, comprising configuring a fourth optics component relative to a fourth image sensor to form a fourth channel having a fourth FOV, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

31. (Original) The method of claim 30, comprising forming the fourth image sensor in a semiconductor substrate along with the first, the second and the third image sensors.

32. (Original) The method of claim 22, comprising separately and simultaneously controlling a parameter of one or more of the first and the second optics components.

33. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component differently than the second optics component.

34. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a same color as the second optics component.

35. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a different color than the second optics component.

36. (Currently Amended) A method comprising:

forming a first image sensor and a second image sensor in a semiconductor substrate;

configuring a first optics component relative to the first image sensor to form a first channel having a first field of view (FOV) that comprises a first angular [[extent]] width of a scene;

configuring a second optics component relative to the second image sensor to form a second channel having a second FOV that comprises a second angular [[extent]] width of the scene, wherein the first and second angular [[extents]] widths are different; and

forming a processing component in the semiconductor substrate and configuring the processing component to independently control simultaneous data acquisition by the first and second channels during a frame.

37. (Currently Amended) A solid-state camera system produced according to a method comprising:

forming a first image sensor and a second image sensor in a semiconductor substrate;

configuring a first optics component relative to the first image sensor to form a first channel having a first field of view (FOV) that corresponds to a first angular [[extent]] width of a scene;

configuring a second optics component relative to the second image sensor to form a second channel having a second FOV that corresponds to a second angular [[extent]] width of the scene, wherein the first and second angular [[extents]] widths are different; and

forming a processing component in the semiconductor substrate and configuring the processing component to independently control simultaneous data acquisition by the first and second channels during a frame.

38. (Previously Presented) The digital camera of claim 1, wherein the processing component is further configured to generate a combined image based at least in part on data from both the first and second channels.

39. (Previously Presented) The digital camera of claim 1, wherein at least a portion of the first FOV overlaps with at least a portion of the second FOV.

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Independent Claims 1, 17, 22, 36, and 37 have been amended. No new matter has been added. Support for these amendments can be found at least in paragraphs [0047]-[0052] of the published specification. Claims 1-39 remain pending in this application.

Applicants respectfully request entry of the foregoing claim amendments as they place the application in condition for allowance or in better condition for appeal.

I. Examiner Interview

Applicants thank the Examiner for the courtesy extended during the interview on August 20, 2010 with Applicants' representative Nicholas Lagerwall. During the interview the rejection in view of the *Abell* reference was discussed, and the Examiner agreed that the above amendments to the claims to change the language "extent" to "width" would overcome the present rejections.

II. Claim Rejections Under 35 U.S.C. § 103

On page 2 of the present Office Action, Claims 1, 2, 6-18, 22-24, and 28-37 were rejected under 35 U.S.C. 103(a) as allegedly being anticipated by U.S. Patent No. 5,691,765 to Schieltz et al. (hereinafter "*Schieltz*") in view of U.S. Patent No. 4,323,925 to Abell et al. (hereinafter "*Abell*"). Independent Claims 1, 7, 22, 36, and 37 have been amended. Applicants respectfully submit that *Schieltz* and *Abell*, alone or in combination, fail to disclose, teach, or suggest at least one element recited in each of independent Claims 1, 7, 22, 36, and 37.

On page 3 of the present Office Action, the Examiner in referring to *Schieltz* states (with emphasis added):

> However, the use of the fiber bundles prevents the four image sensors from capturing different angular extents of a scene imaged by the camera and does not teach wherein the four image sensors each capture images that are images captured with different angular extents of the scene.

Thus, the Examiner acknowledges that *Schieltz* does not show "a first channel having a first field of view (FOV) comprising a first angular width of a scene imaged by the camera and a second channel having a second FOV comprising a second angular width of the scene imaged by the camera, wherein the first and second angular widths are different," as recited in Claim 1 (and similar features recited in Claims 17, 22, 36, and 37).

The Examiner then points to *Abell*, Figs. 2 and 3 and col. 5, lines 18-29 and argues that this configuration "results in each image sensor receiving a different angular extent of the scene." (Office Action, p. 3.) The Examiner then argues that one would find it obvious to replace the optical system of *Schieltz* with the optics of Fig. 2 of *Abell*. The Examiner concludes that "this configuration results in each image sensor receiving a different angular extent of the scene." (Office Action, p. 4.) Applicants, however, respectfully disagree.

However, in order to advance prosecution, independent Claim 1 has been amended to recite a "first channel having a first field of view (FOV) comprising a first angular width of a scene imaged by the camera and a second channel having a second FOV comprising a second angular width of the scene imaged by the camera, wherein the first and second angular widths are different" (emphasis added). Although different in scope, Claims 17, 22, 36, and 37 have been similarly amended.

Fig. 2, reproduced below for convenience, shows "arrayed optical lenses" of *Abell* (see col. 2, line 40):

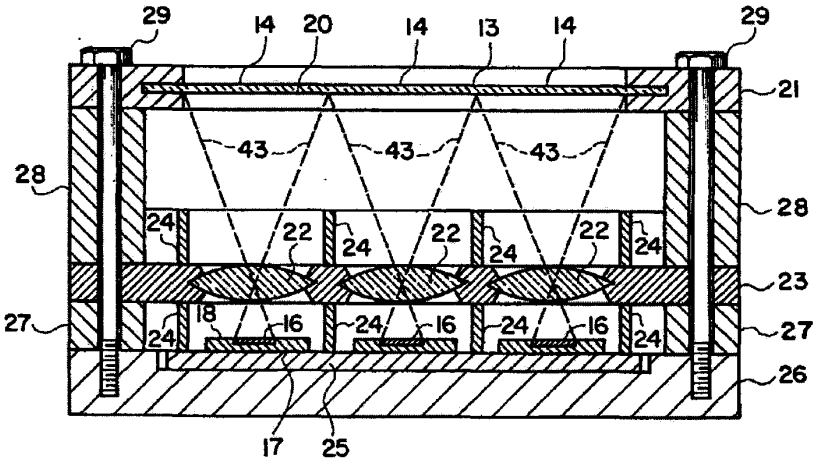


Fig 2

There is no suggestion in *Abell* that the optical configuration of the arrayed lenses results in different angular widths of a scene. Indeed, the dashed lines labeled 43 in Fig. 2 suggests that the optical lenses 22 are identical in size and thus have a same angular width.

Accordingly, Applicants respectfully submit that *Schieltz* and *Abell*, alone or in combination, fail to disclose, teach, or suggest at least one element recited in each of independent Claims 1, 17, 22, 36, and 37 (and their associated dependent claims). Reconsideration and withdrawal of the rejection of Claims 1, 2, 6-18, 22-24 and 28-37 under 35 U.S.C. § 103(a) is therefore respectfully requested.

III. Allowable Subject Matter

On page 8 of the present Office Action, Claims 3-5, 19-21, and 25-27 are objected to as being dependent upon a rejected base claim, but are noted as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants thank the Examiner for noting the allowable subject matter of these claims. However,

for at least the foregoing reasons, Applicants believe that independent Claims 1, 17, 22, 36, and 37 (from which Claims 3-5, 19-21, and 25-27 depend) are in condition for allowance. As such, Applicants respectfully request allowance of Claims 3-5, 19-21, and 25-27.

IV. Conclusion

Applicants believe that the present application is in condition for allowance. Favorable consideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this Application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extension of time is needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extension fee to Deposit Account No. 19-0741.

Respectfully submitted,

Date September 28, 2010

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4292
Facsimile: (608) 258-4258

Paul S. Hunter
Attorney for Applicant
Registration No. 44,787

Electronic Acknowledgement Receipt

EFS ID:	8514076
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Paul S. Hunter/Shawn Stevenson
Filer Authorized By:	Paul S. Hunter
Attorney Docket Number:	088245-6123
Receipt Date:	28-SEP-2010
Filing Date:	19-APR-2007
Time Stamp:	15:08:59
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		6123Amend92810.pdf	185587 f9da3852821a74e14d2f83c529d3e07254f57b0e	yes	14

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	2
	Amendment After Final	3	14
Warnings:			
Information:			
	Total Files Size (in bytes):	185587	

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.

Atty. Dkt. No. 088245-6123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Ian Olsen, et al.

Title: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

Appl. No.: 11/788,279

Filing Date: 4/19/2007

Examiner: James M. Hannett

Art Unit: 2622

Conf. No.: 5189

AMENDMENT TRANSMITTAL

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

Transmitted herewith is an amendment in the above-identified application.

[**X**] The fee required for additional claims is calculated below:

	Claims As Amended		Previously Paid For		Extra Claims Present		Rate		Additional Claims Fee
Total Claims:	39	-	39	=	0	x	$52.00	=	$0.00
Independent Claims:	5	-	5	=	0	x	$220.00	=	$0.00
First presentation of any Multiple Dependent Claims:						+	$390.00	=	$0.00
CLAIMS FEE TOTAL								=	$0.00

If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Please direct all correspondence to the undersigned attorney or agent indicated below.

Respectfully submitted,

Date September 28, 2010

By _____

FOLEY & LARDNER LLP
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Paul S. Hunter
Attorney for Applicant
Registration No. 44,787

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. 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 11/788,279	Filing Date 04/19/2007	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 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			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 09/28/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 39	Minus	** 39	= 0	X $ =		OR	X $52=	0
Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $ =		OR	X $220=	0
☐ 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	0

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ 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 number found in the appropriate box in column 1.

Legal Instrument Examiner:
/LAWANDA MILTON/

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

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

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

23524 7590 08/04/2010

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EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
08/04/2010	PAPER

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

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

Office Action Summary	Application No.	Applicant(s)	
	11/788,279	OLSEN ET AL.	
	Examiner	Art Unit	
	JAMES M. HANNETT	2622	

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *20 April 2010*.

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

3)☐ 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

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6-18,22-24 and 28-39* is/are rejected.

7)☒ Claim(s) *3-5,19-21 and 25-27* is/are objected to.

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

Application Papers

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

10)☒ The drawing(s) filed on *4/19/2007* 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).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

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

a)☐ All b)☐ Some * c)☐ None of:

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

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

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

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

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 6/9/2010, 3/23/2010, 3/10/2010, 2/16/2010 has been considered by the examiner.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 6-18, 22-24 and 28-37 have been considered but are moot in view of the new ground(s) of rejection.

Furthermore, in regards to the argument that Schieltz does not show a processing component coupled to first and second channels and instead shows multiple controllers coupled to respective channels. The examiner has viewed the combination of the multiple controllers as the claimed processing component.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1: Claims 1, 2, 6-18, 22-24 and 28-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,691,765 Schieltz et al in view of USPN 4,323,925 Abell et al.

2: As For Claim 1, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 A digital camera comprising: a plurality of channels (25-28), wherein each channel includes an optics component (fiber optics) and an array of photo-detectors (45-48) integrated on a semiconductor substrate, the plurality of channels including a

first channel (25) having a first field of view (FOV) and a second channel (26) having a second FOV that is different than the first FOV; and a processing component (74) coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels (25-28), the processing component (74) configured to combine data of a frame from at least one of channels to provide an image having a relatively high resolution (150). However, the use of the fiber bundles prevents the four image sensors from capturing different angular extents of a scene imaged by the camera and does not teach wherein the four image sensors each capture images that are images captured with different angular extents of the scene.

Abell et al depicts in Figures 2 and 3 and teaches on Column 5, Lines 18-29 the use of a camera that has multiple image sensors and in one embodiment images the scene with a lens and then transmits the captured image to multiple image sensors using fiber bundles similar to Schieltz et al. However, Abell et al teaches that it is advantageous to eliminate the single lens and fiber bundle optics and use the optics depicted in Figure 2 in order to reduce the cost of the imaging system. This configuration results in each image sensor receiving a different angular extent of the scene.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the optical system of Schieltz et al comprising the lens and the fiber bundles with the optics of Figure 2 of Abell et al in order to reduce

the cost of the imaging system. Furthermore, this configuration results in each image sensor receiving a different angular extent of the scene.

3: In Regards to Claim 2, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the optics component of the first channel has a first focal length, and the array of photo-detectors of the first channel has a first dimension.

4: In Regards to Claim 6, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the plurality of channels comprises a third channel having a third FOV.

5: As For Claim 7, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the third FOV is different from one or more of the first FOV and the second FOV.

6: In Regards to Claim 8, Schieltz et al Figure 1 Column 3, Lines 11-67 wherein the plurality of channels comprises a fourth channel (28) having a fourth FOV.

7: As For Claim 9, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

8: In Regards to Claim 10, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the processing component is configured to separately and simultaneously control a parameter of the optics component of each channel.

9: As For Claim 11, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the optics component of the first channel includes a different configuration than the optics component of the second channel.

10: In Regards to Claim 12, Schieltz et al in view of Abell et al further teaches the optics component includes at least one lens (20).

11: As For Claim 13, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 wherein the optics component includes at least one filter. Schieltz et al teaches that color signals are generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to generate a Cr, Cb and Y signal.

12: In Regards to Claim 14, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 wherein each channel is configured to pass light including a plurality of colors. Schieltz et al teaches that color signals are generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to generate a Cr, Cb and Y signal.

13: As For Claim 15, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 Schieltz et al teaches that color signals are generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to generate a Cr, Cb and Y signal from each sensor. Therefore, the first channel is configured to pass light of a first color and the second channel is configured to pass light of a second color.

14: In Regards to Claim 16, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 Schieltz et al teaches that color signals are

generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to generate a Cr, Cb and Y signal from each sensor. Therefore the plurality of channels are configured to pass light of a first color.

15: As For Claim 17, Claim 17 is rejected for reasons discussed related to Claim 1.

16: In Regards to Claim 18, Claim 18 is rejected for reasons discussed related to Claim 2.

17: In Regards to Claim 22, Claim 22 is rejected for reasons discussed related to Claim 1.

18: As For Claim 23, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising forming the first image sensor and the second image sensor in a semiconductor substrate.

19: In Regards to Claim 24, Claim 24 is rejected for reasons discussed related to Claim 2.

20: In Regards to Claim 28, Claim 28 is rejected for reasons discussed related to Claim 6.

21: As For Claim 29, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising forming the third image sensor in a semiconductor substrate along with the first and the second image sensors.

22: In Regards to Claim 30, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising configuring a fourth optics component (28) relative to a fourth image sensor (48) to form

a fourth channel having a fourth FOV, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

23: As For Claim 31, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising forming the fourth image sensor in a semiconductor substrate along with the first, the second and the third image sensors.

24: In Regards to Claim 32, Claim 32 is rejected for reasons discussed related to Claim 10.

25: As For Claim 33, Claim 33 is rejected for reasons discussed related to Claim 11.

26: In Regards to Claim 34, Claim 34 is rejected for reasons discussed related to Claim 14.

27: As For Claim 35, Claim 35 is rejected for reasons discussed related to Claim 15.

28: In Regards to Claim 36, Claim 36 is rejected for reasons discussed related to Claim 1.

29: As For Claim 37, Claim 37 is rejected for reasons discussed related to Claim 1.

30: In regards to Claim 38, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the processing component is further configured to generate a combined image based at least in part on data from both the first and second channels.

31: As for Claim 39, Abell et al further teaches on Column 3, 41-60 wherein at least a portion of the first FOV overlaps with at least a portion of the second FOV.

Allowable Subject Matter

Claims 3-5, 19-21 and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022 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).

/James M. Hannett/
Primary Examiner
Art Unit 2622

JMH
August 3, 2010

Notice of References Cited	Application/Control No. 11/788,279	Applicant(s)/Patent Under Reexamination OLSEN ET AL.	
	Examiner JAMES M. HANNETT	Art Unit 2622	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,323,925	04-1982	Abell et al.	348/340
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	Art Unit
	JAMES M HANNETT	2622

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

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

CLAIM		DATE								
Final	Original	01/18/2010	08/01/2010							
	1	✓	✓							
	2	✓	✓							
	3	O	O							
	4	O	O							
	5	O	O							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
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	36	✓	✓							

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CLAIM		DATE								
Final	Original	01/18/2010	08/01/2010							
	37	✓	✓							
	38		✓							
	39		✓							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	20689	camera and optical near4 fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:15
S2	2520	camera and optical near4 fiber with bundle	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S3	510	S2 and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S4	269	S3 and arrays	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S5	267	S4 and lens	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S6	228	S5 and filter	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
S7	14	S6 and color adj filter$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:17
S8	2	("20080170293").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:28
S9	188	S6 and ccd	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31

S10	141	S9 and color	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31
S11	126	S10 and pixels	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31
S12	25370	fiber adj bundle	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:34
S13	529	fiber adj bundle with (CCD or imager or image adj sensor or image-sensor)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
S14	418	S13 and lens$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
S15	92	S14 and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
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S17	148	hannett .xp.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
S18	296	S16 or S17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
S19	9	S18 and fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
S20	0	("2008/0170293").URPN.	USPAT	OR	OFF	2010/01/18 13:40

S21	16	("3064519" | "3227034" | "3248552" | "3726997" | "3785736" | "4637055" | "4862511" | "5086483" | "5131055" | "5148502" | "5216484").PN. OR ("5850479").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 13:41
S22	1584	camera and optical near4 fiber with guide	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:48
S23	849	S22 and (CCD or imager or image adj sensor or image-sensor)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:48
S24	119	S23 and color adj filter$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:49
S25	10	("4153333" | "4564760" | "4570063" | "4591714" | "4591715" | "4776667" | "4824194").PN. OR ("5122657").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 13:53
S26	677	(348/262,264,218.1).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:57
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S32	11	S26 and fiber and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 14:23
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S34	150	hannett .xp.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 16:59
S35	298	S33 or S34	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 16:59
S36	2	S35 and left with right with vertical with register$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/19 17:00
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S38	2	("20100060746").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/08/01 19:25

EAST Search History (Interference)

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8/ 1/ 10 9:12:21 PM
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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: March 10, 2010				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

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/JH/		First Office Action for Chinese Application 200580032374.0, notification date 2/5/10.	

Examiner Signature	/James Hannett/	Date Considered	08/01/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: February 16, 2010				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

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/JH/		Notice of Allowance for U.S. Application 11/478,242, mailed December 30, 2009.	
/JH/		Notice of Allowance for U.S. Application 11/888,546, mailed December 14, 2009.	
/JH/		Office Action on U.S. Application 11/810,623 mailed February 4, 2010.	

Examiner Signature	/James Hannett/	Date Considered	08/01/2010

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	Art Unit
	JAMES M HANNETT	2622

SEARCHED			
Class	Subclass	Date	Examiner
348	218.1	8/1/2010	JMH

SEARCH NOTES		
Search Notes	Date	Examiner
East Search	8/1/2010	JMH
Inventor Name Search	8/1/2010	JMH

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

	/JAMES M HANNETT/ Primary Examiner.Art Unit 2622

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/JH/		2003/0209651	11-13-2003	IWASAKI, TATSUYA	
/JH/		5,766,980	06-16-1998	OHTAGAKI ET AL.	

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/JH/		EP-1 032 045	08-30-2000	SANYO ELECTRIC CO.		

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/JH/		Search Report for EP Application 05793927.4, dated February 26, 2010	

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/JH/		2004/0080638	04-29-2004	LEE, WON-HO	

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/JH/		Notice of Allowance of U.S. Application 11/825,382, mailed May 5, 2010.	
/JH/		Office Action on U.S. Application 11/788,120, mailed 4/16/2010	

Examiner Signature	/James Hannett/	Date Considered	08/01/2010

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Substitute for form 1449/PTO				*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: June 9, 2010				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2004/0080638	04-29-2004	LEE, WON-HO	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		Notice of Allowance of U.S. Application 11/825,382, mailed May 5, 2010.	
		Office Action on U.S. Application 11/788,120, mailed 4/16/2010	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	7775175
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	09-JUN-2010
Filing Date:	19-APR-2007
Time Stamp:	11:50:01
Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		SuppIDS.pdf	315408 985188e71eaa1501322be320d894783b67124d94	yes	20

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	3
	Information Disclosure Statement (IDS) Filed (SB/08)	4	4
	NPL Documents	5	11
	NPL Documents	12	20
Warnings:			
Information:			
	Total Files Size (in bytes):	315408	

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:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to

antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(c), before the mailing date of any of a final action under 37 CFR §1.113, a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English. The listed documents were cited during the prosecution of related U.S. Applications 11/825,382 and 11/788,120.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

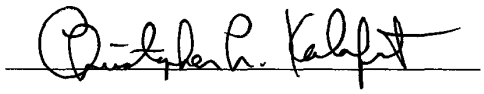
STATEMENT

The undersigned hereby states in accordance with 37 CFR §1.97(e)(2) that no item of information contained in this supplemental information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the supplemental 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 supplemental information disclosure statement.

Although Applicant believes that no fee is required, the Commissioner is hereby authorized to charge any additional fees which may be due to Deposit Account No. 19-0741.

Respectfully submitted,

Date June 9, 2010

By 

FOLEY & LARDNER LLP
Customer Number: 23524
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Christopher L. Kalafut
Attorney for Applicant
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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

23524 7590 04/22/2010

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EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
04/22/2010	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.

Interview Summary	Application No.	Applicant(s)	
	11/788,279	OLSEN ET AL.	
	Examiner	Art Unit	
	JAMES M. HANNETT	2622	

All participants (applicant, applicant's representative, PTO personnel):

(1) *JAMES M. HANNETT*. (3)_____.

(2) *Nicholas Lagerwall*. (4)_____.

Date of Interview: *20 April 2010*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *1-39*.

Identification of prior art discussed: *USPN 5,691,765 Schieltz et al*.

Agreement with respect to the claims f)☒ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *the applicant proposed claim amendments to overcome the current grounds of rejection. The examiner informed the applicant that the Proposed amendments do overcome the current grounds of rejection.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

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. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/James M Hannett/ Primary Examiner, Art Unit 2622	

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 examiner's 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 applicant's 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 applicant's 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 examiner's 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 examiner's initials.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Ian Olsen, et al.

Title: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

Appl. No.: 11/788,279

Filing Date: 4/19/2007

Examiner: James M. Hannett

Art Unit: 2622

Conf. No.: 5189

AMENDMENT AND REPLY UNDER 37 CFR 1.111

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

Dear Examiner:

This communication is responsive to the **Non-Final Office Action** dated January 21, 2010 concerning the above-referenced patent application, making April 21, 2010, three months from the mailing date. Therefore, this response is timely filed.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 9 of this document.

Please amend the application as follows:

Amendments to the Claims:

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

Listing of Claims:

1. (Currently Amended) A digital camera comprising:

a plurality of channels, wherein each channel includes an optics component and an array of photo-detectors integrated on a semiconductor substrate, the plurality of channels including a first channel having a first field of view (FOV) comprising a first angular extent of a scene imaged by the camera and a second channel having a second FOV comprising a second angular extent of the scene imaged by the camera ~~that is different than the first FOV~~, wherein the first and second angular extents are different; and

a processing component coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels, the processing component configured to combine data of a frame from at least one of the plurality of channels to provide an image having a relatively high resolution.

2. (Original) The camera of claim 1, wherein the optics component of the first channel has a first focal length, and the array of photo-detectors of the first channel has a first dimension.

3. (Original) The camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal length, and the array of photo-detectors of the second channel has the first dimension.

4. (Original) The camera of claim 2, wherein the optics component of the second channel has the first focal length, and the array of photo-detectors of the second channel has a second dimension that is different from the first dimension.

5. (Original) The camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal length, and the array of

photo-detectors of the second channel has a second dimension that is different from the first dimension.

6. (Original) The camera of claim 1, wherein the plurality of channels comprises a third channel having a third FOV.

7. (Original) The camera of claim 6, wherein the third FOV is different from one or more of the first FOV and the second FOV.

8. (Original) The camera of claim 6, wherein the plurality of channels comprises a fourth channel having a fourth FOV.

9. (Original) The camera of claim 8, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

10. (Original) The camera of claim 1, wherein the processing component is configured to separately and simultaneously control a parameter of the optics component of each channel.

11. (Original) The camera of claim 1, wherein the optics component of the first channel includes a different configuration than the optics component of the second channel.

12. (Original) The camera of claim 1, wherein the optics component includes at least one lens.

13. (Original) The camera of claim 1, wherein the optics component includes at least one filter.

14. (Original) The camera of claim 1, wherein each channel is configured to pass light including a plurality of colors.

15. (Original) The camera of claim 1, wherein the first channel is configured to pass light of a first color and the second channel is configured to pass light of a second color.

16. (Original) The camera of claim 1, wherein the plurality of channels are configured to pass light of a first color.

17. (Currently Amended) A digital camera comprising:

a first channel including a first optics component and a first image sensor integrated in a semiconductor substrate and configured to provide a first field of view (FOV) that comprises a first angular extent of a scene imaged by the camera;

a second channel including a second optics component and a second image sensor integrated in the semiconductor substrate and configured to provide a second ~~field of view~~ FOV that comprises a second angular extent of the scene imaged by the camera, wherein the first and second angular extents are different; and

a processing component coupled to the first and second channels and configured to independently control simultaneous data acquisition with the first and second ~~each of the plurality of~~ channels during a frame.

18. (Original) The camera of claim 17, wherein the first optics component has a first focal length, and the first image sensor has a first pixel count.

19. (Original) The camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has the first pixel count.

20. (Original) The camera of claim 18, wherein the second optics component has the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

21. (Original) The camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

22. (Currently Amended) A method comprising:

configuring a first optics component relative to a first image sensor to form a first channel having a first field of view (FOV) that comprises a first angular extent of a scene;

configuring a second optics component relative to a second image sensor to form a second channel having a second FOV that comprises a second angular extent of the scene, wherein the first and second angular extents are different ~~than the first FOV~~;

independently controlling simultaneous data acquisition with each of the first and second channels during a frame; and

combining data received during the frame from one or more of the first and second channels to provide an image.

23. (Original) The method of claim 22, comprising forming the first image sensor and the second image sensor in a semiconductor substrate.

24. (Original) The method of claim 22, wherein configuring the first optics component relative to the first image sensor comprises configuring the first optics component with a first focal length and configuring the first image sensor to include a first pixel count.

25. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different than the first focal length and configuring the second image sensor to include the first pixel count.

26. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with the first focal length and configuring the second image sensor to include a second pixel count that is different than the first pixel count.

27. (Original) The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different from the first focal length and configuring

the second image sensor to include a second pixel count that is different than the first pixel count.

28. (Original) The method of claim 22, comprising configuring a third optics component relative to a third image sensor to form a third channel having a third FOV, wherein the third FOV is different from one or more of the first FOV and the second FOV.

29. (Original) The method of claim 28, comprising forming the third image sensor in a semiconductor substrate along with the first and the second image sensors.

30. (Original) The method of claim 28, comprising configuring a fourth optics component relative to a fourth image sensor to form a fourth channel having a fourth FOV, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

31. (Original) The method of claim 30, comprising forming the fourth image sensor in a semiconductor substrate along with the first, the second and the third image sensors.

32. (Original) The method of claim 22, comprising separately and simultaneously controlling a parameter of one or more of the first and the second optics components.

33. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component differently than the second optics component.

34. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a same color as the second optics component.

35. (Original) The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a different color than the second optics component.

36. (Currently Amended) A method comprising:

forming a first image sensor and a second image sensor in a semiconductor substrate;

configuring a first optics component relative to the first image sensor to form a first channel having a first field of view (FOV) that comprises a first angular extent of a scene;

configuring a second optics component relative to the second image sensor to form a second channel having a second FOV that comprises a second angular extent of the scene, wherein the first and second angular extents are different ~~than the first FOV~~; and

forming a processing component in the semiconductor substrate and configuring the processing component to independently control simultaneous data acquisition by the first and second channels during a frame.

37. (Currently Amended) A solid-state camera system produced according to ~~the method of claim 36.~~ a method comprising:

forming a first image sensor and a second image sensor in a semiconductor substrate;

configuring a first optics component relative to the first image sensor to form a first channel having a first field of view (FOV) that corresponds to a first angular extent of a scene;

configuring a second optics component relative to the second image sensor to form a second channel having a second FOV that corresponds to a second angular extent of the scene, wherein the first and second angular extents are different; and

forming a processing component in the semiconductor substrate and configuring the processing component to independently control simultaneous data acquisition by the first and second channels during a frame.

38. (New) The digital camera of claim 1, wherein the processing component is further configured to generate a combined image based at least in part on data from both the first and second channels.

39. (New) The digital camera of claim 1, wherein at least a portion of the first FOV overlaps with at least a portion of the second FOV.

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claims 1, 17, 22, and 36 have been amended, and new Claims 38 and 39 have been added. Support for the claim amendments and new claims can be found at least in paragraphs [0047]-[0050] and [0059] of the published specification. After entry of the claim amendments and new claim, Claims 1-39 will be pending in this application.

I. Examiner Interview

Applicants thank the Examiner for the courtesy extended during the interview on April 20, 2010 with Applicants' representative Nicholas Lagerwall. During the interview the claim amendments detailed above were discussed. The Examiner stated that the proposed claim amendments would overcome the current rejections under 35 U.S.C. § 102(b).

II. Claim Rejections - 35 USC § 102

On page 2 of the present Office Action, Claims 1, 2, 6-18, 22-24 and 28-37 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,691,765 Schieltz et al. (hereinafter "*Schieltz*"). Independent Claims 1, 17, 22, 36, and 37 have been amended. Applicants respectfully submit that *Schieltz* fails to disclose at least one element recited in each of Claims 1, 17, 22, 36, and 37.

A. *Schieltz* fails to disclose first and second fields of view having different angular extents.

Independent Claim 1 recites, in part:

> the plurality of channels including a first channel having a first field of view (FOV) comprising a first angular extent of a scene imaged by the camera and a second channel having a second FOV

> comprising a second angular extent of the scene imaged by the camera, wherein the first and second angular extents are different;

(emphasis added.)

Independent Claims 17, 22, 36, and 37, although different in scope, recite similar elements. Applicants respectfully submit that *Schieltz* fails to disclose such elements.

On page 2 of the Office Action, the Examiner analogizes the "light conduits 25 and 26" of *Schieltz* to "first and second channels" having "first and second field of views," as recited in Claim 1. However, Applicants respectfully submit that the light conduits 25 and 26 of *Schieltz* do not correspond to field of views having different "angular extents of a scene imaged by the camera," as recited in Claim 1. For example, column 3, lines 21-37 of *Schieltz* states, in part:

> Lens 20 has a primary axis Z and forms a circular image 14 on image plane 13.
>
> ...
>
> Image 14 is preferably split into four separate components by splitter 30. Image 14 could be split into any number of components, depending on the resolution required and the available technology. When image 14 is split into four components, each component respectively contains an image 15, 16, 17 or 18 made up of one quadrant of circular image 14. (See FIG. 2). Splitter 30 is made up of four light conduits 25, 26, 27 and 28.

(emphasis added.) Fig. 2 is illustrated below for convenience:

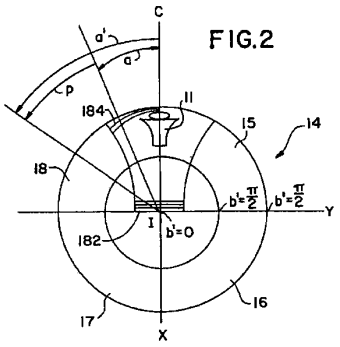


FIG.2

As such, *Schieltz* discloses that a single image 14 is equally divided into four separate components 15, 16, 17, and 18. Each component of the image is then sent through its respective light conduit and is separately processed. However, *Schieltz* fails to disclose that the components 15, 16, 17, and 18 correspond to different angular extents of a scene. To the contrary, Fig. 2 of *Schieltz* appears to illustrate that the components 15, 16, 17, and 18 are identical in size and thus have same angular extents.

Thus, *Schieltz* does not show "a first channel having a first field of view (FOV) comprising a first angular extent of a scene imaged by the camera and a second channel having a second FOV comprising a second angular extent of the scene imaged by the camera, wherein the first and second angular extents are different," as recited in Claim 1 (and similar features recited in Claims 17, 22, 36, and 37).

B. Video processing circuit 74 of *Schieltz* is not the same as the "processing component" recited in Claim 1.

Independent Claim 1 recites, in part:

> a processing component coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition **with each of** the plurality of channels

(emphasis added.) Independent Claims 17, 22, 36, and 37, although different in scope, recite similar elements.

On page 2 of the Office Action, the Examiner points to "video processing circuit 74" of *Schieltz* as corresponding to this claim element. However, column 3, line 62 – column 4, line 4 of *Schieltz* shows that "video processing circuit 74" is not coupled to multiple channels but rather is one component of multiple circuits which are each coupled to a respective signal. The "video processing circuit 74" is not coupled to a plurality of channels. Column 3, line 62 – column 4, line 4 of *Schieltz* states:

> Signals 55, 56, 57 and 58 are fed into CCD control processor 60 which is made up **four identical off the shelf video camera sensor image controllers 65, 66, 67 and 68**, each corresponding respectively to one of signals 55, 56, 57 or 58. ***Each* of the control processors contains** a CCD clocking circuit 72, **a video processing circuit 74** and a color space converter 76. Color space conversion circuit 76 produces chrominance and luminance signals Cr, Cb and Y for each signal 55, 56, 57 and 58.

(emphasis added.)

As such, *Schieltz* does not show a processing component coupled to first and second channels. Instead, *Schieltz* shows multiple controllers, wherein each controller of the multiple controllers is coupled to a respective channel. Thus, *Schieltz* does not show "a processing component coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels," as recited in Claim 1 (and as recited in similar features of Claims 17, 22, 36, and 37).

Accordingly, Applicants respectfully submit that *Schieltz* fails to disclose at least one element recited in each of independent Claims 1, 17, 22, 36, and 37 (and their associated dependent claims). Reconsideration and withdrawal of the rejection of Claims 1, 2, 6-18, 22-24 and 28-37 under 35 U.S.C. § 102(b) is therefore respectfully requested.

III. Allowable Subject Matter

On page 6 of the present Office Action, Claims 3-5, 19-21 and 25-27 are objected to as being dependent upon a rejected base claim, but are noted as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For at least the foregoing reasons, Applicant believes the rejected claims should not be rejected and, as such, the objected to claims would not depend from rejected claims.

IV. New Claims 38 and 39

New Claims 38 and 39 have been added. New Claims 38 and 39 depend from independent Claim 1. As discussed above, *Schieltz* fails to disclose at least one element recited in independent Claim 1. As such, Applicants respectfully request favorable consideration of Claims 38 and 39 based at least on their dependence from Claim 1.

IV. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable consideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this Application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extension of time is needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extension fee to Deposit Account No. 19-0741.

Respectfully submitted,

Date April 20, 2010

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4292
Facsimile: (608) 258-4258

Paul S. Hunter
Attorney for Applicant
Registration No. 44,787

Electronic Patent Application Fee Transmittal

Application Number:	11788279
Filing Date:	19-Apr-2007
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Filer:	Paul S. Hunter/Lee Jankoski
Attorney Docket Number:	088245-6123

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	1202	2	52	104
Independent claims in excess of 3	1201	1	220	220
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**324**

Electronic Acknowledgement Receipt	
EFS ID:	7449109
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Paul S. Hunter/Lee Jankoski
Filer Authorized By:	Paul S. Hunter
Attorney Docket Number:	088245-6123
Receipt Date:	20-APR-2010
Filing Date:	19-APR-2007
Time Stamp:	15:03:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$324
RAM confirmation Number	1210
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1		6123Amend42010.pdf	532351 06ff9041e21c4d63fbf6a90989af2ef4962f3c14	yes	15

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	2
	Amendment/Req. Reconsideration-After Non-Final Reject	3	15

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	31536 0025919ba1f6c94a599031dd1ce42c09b63363e3	no	2

Warnings:

Information:

Total Files Size (in bytes):	563887

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Ian Olsen, et al.

Title: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

Appl. No.: 11/788,279

Filing Date: 4/19/2007

Examiner: James M. Hannett

Art Unit: 2622

Confirmation Number: 5189

AMENDMENT TRANSMITTAL

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

Sir:

Transmitted herewith is an amendment in the above-identified application.

[**X**] The fee required for additional claims is calculated below:

	Claims As Amended		Previously Paid For		Extra Claims Present		Rate		Additional Claims Fee
Total Claims:	39	-	37	=	2	x	$52.00	=	$104.00
Independent Claims:	5	-	4	=	1	x	$220.00	=	$220.00
First presentation of any Multiple Dependent Claims:						+	$390.00	=	$0.00
							CLAIMS FEE TOTAL	=	$324.00

[ ] Applicant hereby petitions for an extension of time under 37 C.F.R. §1.136(a) for the total number of months checked below:

[ ] Extension for response filed within the first month:	$130.00	$0.00
[ ] Extension for response filed within the second month:	$490.00	$0.00
[ ] Extension for response filed within the third month:	$1,110.00	$0.00
[ ] Extension for response filed within the fourth month:	$1,730.00	$0.00
[ ] Extension for response filed within the fifth month:	$2,350.00	$0.00
EXTENSION FEE TOTAL:		$0.00
[ ] Statutory Disclaimer Fee under 37 C.F.R. 1.20(d):	$140.00	$0.00
CLAIMS, EXTENSION AND DISCLAIMER FEE TOTAL:		$324.00
[ ] Small Entity Fees Apply (subtract ½ of above):		$0.00
Extension Fees Previously Paid:		$0.00
TOTAL FEE:		$324.00

The above-identified fees of $324.00 are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Please direct all correspondence to the undersigned attorney or agent indicated below.

Respectfully submitted,

Date April 20, 2010

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4292
Facsimile: (608) 258-4258

Paul S. Hunter
Attorney for Applicant
Registration No. 44,787

FEE SHEET

Serial Number 11/788279 Document Date 4.20.10

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
	Total (37 CFR 1.16(i))	* 39	Minus	** 37	= 2
	Independent (37 CFR 1.16(h))	* 5	Minus	*** 4	= 1
	Application Size Fee (37 CFR 1.16(s))				
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))				

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
X =		OR	X =	
X =		OR	X =	
N/A		OR	N/A	
TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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Total			

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: March 23, 2010				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2003/0209651	11-13-2003	IWASAKI, TATSUYA	
		5,766,980	06-16-1998	OHTAGAKI ET AL.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		EP-1 032 045	08-30-2000	SANYO ELECTRIC CO.		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		Search Report for EP Application 05793927.4, dated February 26, 2010	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

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BOULT WADE TENNANT,
27 Furnival Street
London EC4A 1PQ (GB)

(54) Electroluminescence display apparatus

(57) A color display device having an organic EL element for each display pixel. The element emissive area in the display pixel of any color among the R, G, and B display pixels has a size that is different from the element emissive area of the display pixel of another color. Furthermore, the element emissive areas in the display pixels for R, G, and B are designed to take into consideration not only the emission efficiency of the emissive elements of the display pixels but also the luminance ratio of red to green to blue in accordance with the chromaticity of the target display white of the display device and with the chromaticity of each red, green, and blue color emitted by the emissive elements of the respective display pixels. This prevents the organic EL elements of colors for which the emission efficiency is low from selectively deteriorating, and facilitates the control of white balance in the color display.

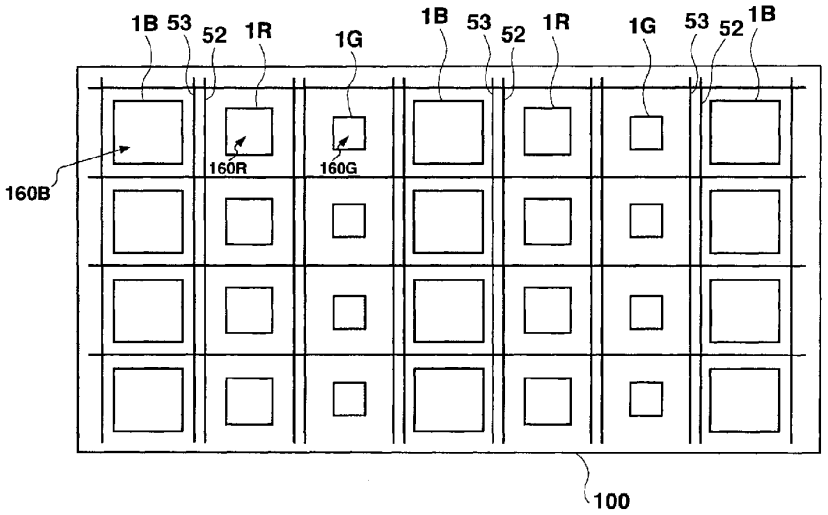


Fig. 4

EP 1 032 045 A2

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to an electroluminescence display apparatus comprising an electroluminescence (hereinafter also referred to as EL) element and a thin film transistor (hereinafter referred to as TFT) element.

2. Description of the Related Art

[0002] In recent years, the EL display apparatus employing EL elements has attracted attention as being the display apparatus to replace CRTs and LCDs.

[0003] Furthermore, research and development have been conducted on display apparatuses having TFTs as the switching elements to drive the EL elements.

[0004] Fig. 1 is a top plan view showing a display pixel and periphery in an organic EL display apparatus of the related art, Fig. 2A shows a cross-sectional view along line A-A of Fig. 1, and Fig. 2B shows a cross-sectional view along line B-B of Fig. 1.

[0005] As shown in Fig. 1, a display pixel is formed in a region surrounded by gate signal lines 51 and drain signal lines 52. A first TFT 30 is provided in proximity to an intersection of both signal lines, and a source 13s of the TFT 30 serves as a capacitance electrode 55, which forms a capacitor with a holding capacitance electrode line 54 to be described later, and is connected to a gate 41 of a second TFT 40. A source 43s of the second TFT 40 is connected to an anode 61 of an organic EL element 60, and a drain 43d at the other end is connected to a power source line 53, which is a current source that is supplied to the organic EL element 60.

[0006] Furthermore, in the proximity of the TFTs, the holding capacitance electrode line 54 is positioned in parallel with the gate signal lines 51. The holding capacitance electrode line 54 is formed from a material such as chromium, and the capacitance electrode 55 is connected to the source 13s of the TFT 30. The electric charge is stored between the holding capacitance electrode line 54 and the capacitance electrode 55, via a gate insulating film 12, thus forming a capacitor. This holding capacitor is provided to hold a voltage that is applied to the gate electrode 41 of the second TFT 40.

[0007] As shown in Figs. 2A and 2B, the organic EL display apparatus is formed by laminating in sequence the TFT and the organic EL element onto a substrate 10, such as a substrate formed from glass or synthetic resin, a conductive substrate, or a semiconductor substrate. However, when a conductive substrate or a semiconductor substrate is used for the substrate 10, an insulating film is formed, such as from SiO_2 or SiN, on which the TFT and organic EL display element are formed.

[0008] The first TFT 30, which is a switching TFT, will be described first.

[0009] As shown in Fig. 2A, gate signal lines 51 also serving as gate electrodes 11 and formed from a refractory metal, such as chromium or molybdenum, and the holding capacitance electrode 54 are formed on the insulating substrate 10, such as of quartz glass or no-alkali glass. Next, the gate insulating film 12 and an active layer 13, which is formed from a polysilicon (p-Si) film, are formed in sequence.

[0010] On the entire surface of the gate insulating film 12, the active layer 13 and stopper insulating films 14, is formed an interlayer insulating film 15 in which a $Si0_2$ film, a SiN film, and a $Si0_2$ film are laminated in sequence. A drain electrode 16, which is filled with a metal, such as A1, is provided at a contact hole formed at a position corresponding to a drain 13d of the interlayer insulating film 15. Furthermore, a planarization insulating film 17, which is formed from an organic resin, is formed on the entire surface of the substrate so as to planarize the surface.

[0011] The second TFT 40, which is a TFT for driving the organic EL element, will be described next.

[0012] As shown in Fig. 2B, the gate electrodes 41, which is formed from a refractory metal, such as Cr or Mo, the gate insulating film 12, and the active layer 43 which is formed from a p-Si film, are formed in sequence on the insulating substrate 10 which is made of quartz glass or no-alkali glass. In the active layer 43 are provided channels 43c, and on both sides of the channels 43c, the source 43s and the drain 43d. On the entire surface of the gate insulating film 12 and the active layer 43 is formed the interlayer insulating film 15 in which a SiO_2 film, a SiN film, and a SiO_2 film are laminated in sequence. A power source line 53 connected to a power source (not shown) and filled with a metal, such as A1, is provided at a contact hole formed to correspond to the drain 43d. Furthermore, the planarization insulating film 17, which is formed from an organic resin or the like, is formed on the entire surface so as to planarize the surface. A contact hole is formed at a position corresponding to the source 43s of the planarization insulating film 17 and the interlayer insulating film 15, and a transparent electrode, namely, the anode 61 of the organic EL element, which is formed from ITO (indium tin oxide) and contacting the source 43s via this contact hole, is provided on the planarization insulating film 17.

[0013] The organic EL element 60, provided at each pixel so as to enable light emission at each pixel, has a structure in which are formed in sequence the anode 61 made of a transparent electrode, such as ITO, a hole transport layer 62 having a first hole transport layer formed such as from MTDATA (4,4',4"-tris(3-methylphenylphenylamino)triphenylamine) and a second hole transport layer formed such as from TPD (N,N'-diphenyl-N,N'-di(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine), an emissive layer 63 formed such as from $Bebq_2$ (bis(10-hydroxybenzo[h]quinolinato) beryllium)

Ex.1002 / Page 152 of 423
TESLA, INC.

including a Quinacridon derivative, an electron transport layer 64 formed such as from $Bebq_2$, and a cathode 66 formed from an alloy, such as magnesium-indium. The hole transport layer 62, the emissive layer 63, and the electron layer 64 form an emissive element layer 65.

[0014] In this organic EL element, holes injected from the anode and electrons injected from the cathode recombine, and organic molecules forming the emissive layer are excited and yield exitons. Light is released from the emissive layer in the process where the exitons undergo radiation deactivation, and this light is released to the outside from the transparent anode via the transparent insulating substrate.

[0015] However, the emission efficiency of the emissive layer for emitting light of various colors differs with each color.

[0016] However, in the EL display apparatus of the related art shown in Fig. 3, emissive regions 1B, 1R, and 1G for the display pixel of the respective color are arranged in a matrix configuration at every intersection of a plurality of the gate signal lines 51 and a plurality of the drain signal lines 53 and all have identical emissive areas in size. Thus, in order to obtain the same luminance at the display pixels having a low emission efficiency, a current larger than that supplied to the other display pixels having a high emission efficiency must be supplied. This causes the life of those display pixels having a low emission efficiency, in particular, to shorten, and also possibly causes the life of the EL display apparatus to shorten.

[0017] Furthermore, when the emissive areas of the display pixels of various colors, each having a different emission efficiency, are set to be identical, color balance (white balance) is difficult to achieve, and higher currents must be supplied to certain emissive layers to achieve such a balance. Thus, a drawback is that deterioration occurs at the EL elements in the display pixels supplied with the higher currents.

SUMMARY OF THE INVENTION

[0018] It is therefore an object of the present invention, which takes into consideration the above-mentioned disadvantage of the related art, to provide a display apparatus having emissive elements, such as EL elements, in which the control of white balance is simple and the service life is long.

[0019] In order to achieve the above-mentioned object, the present invention is characterized by a color display device, in which a display pixel having an emissive element is provided for every color, wherein the emissive area of the display pixel of any one color, among the display pixels of various colors, is different in size from the emissive area of the display pixel of another color.

[0020] In another aspect of the present invention in the above-mentioned color display device, the emissive area of the display pixel is set in accordance with the emission efficiency of the emissive element provided at the display pixel.

[0021] In another aspect of the present invention, the emissive area of a display pixel of the various colors is respectively set larger for lower emission efficiency of the emissive element provided at the display pixel.

[0022] In another aspect of the present invention in the above-mentioned color display device, the emissive area of a display pixel of one color is set larger than the emissive area of a display pixel of another color having emissive element with emission efficiency higher than the emissive element provided at the display pixel of the one color.

[0023] In another aspect of the present invention, the emissive area of the display pixel having the emissive element of a color with the highest emission efficiency, among emissive elements respectively emitting different colors of light for color display, is set smaller than the emissive area of the display pixel having the emissive element of another color.

[0024] In another aspect of the present invention in the above-mentioned color display device, the emissive area of a display pixel of one color is set smaller than the emissive area of a display pixel of another color having emissive element with emission efficiency lower than the emissive element provided at the display pixel of the one color.

[0025] In another aspect of the present invention in the above-mentioned color display device, the emissive area of the display pixel having the emissive element of a color with the lowest emission efficiency, among emissive elements respectively emitting different colors of light for color display, is set larger than the emissive area of the display pixel having the emissive element of another color.

[0026] In another aspect of the present invention in the above-mentioned color display device, the emissive element is an electroluminescence element having an emissive layer between a first electrode and a second electrode.

[0027] In the present invention in the color display apparatus in which each display pixel comprises an emissive element, the emissive area of the display pixel corresponds to the emissive area of the emissive element. By setting the emissive area of the display pixel, namely, the emissive area of the emissive element, in accordance with the emission efficiency of the emissive element as in the foregoing, and by supplying, for example, the same power to the emissive elements of colors having different emission efficiencies, it becomes possible to have the same emission luminance at the various display pixels. In other words, in order to obtain a target display luminance for the respective colors, it is not necessary to supply only the emissive element of a particular color, having low emission efficiency, with a power higher than the other elements. Therefore, even for an emissive element for which deterioration accelerates as the amount of the supplied power increases, it is possi-

ble to prevent the deterioration from accelerating when a load is selectively placed on the emissive element having low emission efficiency and extend the life of the display device.

[0028] In another aspect of the present invention as in one of the above-mentioned color display devices, the emissive element is an organic electroluminescence element comprising the emissive layer using an organic compound between first electrode and second electrode.

[0029] In this sort of organic EL element, in particular, when used in a color display device, where the emission efficiency differs according to the type of organic compound used as the emissive material in the emissive layer, and a different emissive material is to be used for every color, the above-mentioned problem of deterioration of the organic EL element having a low emission efficiency is liable to occur. However, this type of problem can be prevented according to the present invention.

[0030] In another aspect of the present invention, in a color display device in which a display pixel having an emissive element is provided for every color, the emissive area of the display pixel is set for every color in accordance with the emission efficiency of the emissive element provided at the display pixel, the chromaticity of each color emitted by respective emissive element, and the chromaticity of target display white of the display device.

[0031] In another aspect of the present invention, the emissive area of the display pixel of any one color, among the display pixel of various colors, is different in size from the emissive area of the display pixel of another color.

[0032] In another aspect of the present invention in a color display device having display pixel for red, for green, and for blue, respectively having emissive element, the emissive area of said display pixel for red, for green, and for blue is set on the basis of the emission efficiency of the emissive element of each display pixel, and a luminance ratio of red to green to blue in accordance with each chromaticity of red, green, and blue emitted by respective emissive element of the display pixel, and with the chromaticity of target display white of the display device.

[0033] In another aspect of the present invention in the above-mentioned color display device, the emissive area of the display pixel of any one color among the display pixel for red, for green, and for blue is different in size from the emissive area of the display pixel of another color.

[0034] In the color display device having emissive elements, the target white that is set can be represented, for example, by the addition of the lights of R, G, and B. In this sort of device, by setting the emissive area of each display pixel in accordance with the emission efficiency of the emissive element of each color R, G, and B as described above, with the chromaticity of the R, G, and B emitted by the respective emissive element, and with the chromaticity of target display white, for example, the display of a target white is simplified with the supply of the same amount of power to each emissive element of R, G, and B. In other words, the white balance is controlled by the emissive area of each emissive element so that the white balance, while these emissive elements are driven, becomes extremely easy to control. Furthermore, since the emission efficiency of the element is taken into consideration in the emissive area of each emissive element, it is possible to prevent the emissive element having low emission efficiency from deteriorating faster than the element having high emission efficiency.

[0035] In another aspect of the present invention in the above-mentioned color display device, the emissive area of the display pixel is set by smaller one of direct contact areas between an emissive element layer including the emissive layer of the organic electroluminescence element and the first electrode, and between the emissive element layer and the second electrode.

[0036] In another aspect of the present invention in the above-mentioned color display device, the emissive element is an organic electroluminescence element composed by forming in sequence a first electrode, an emissive element layer including at least an emissive layer using an organic compound, and a second electrode, the element is separated by an insulating film between layers of the first electrode and the emissive element layer in the proximity of an edge of the first electrode, and the emissive area of each display pixel in the organic electroluminescence element of the display pixel is set in accordance with the area of the insulating film covering the edge of the first electrode.

[0037] In another aspect of the present invention in the above-mentioned color display device, the insulating film, at the edge of the first electrode, is decreased thickness toward the center of the first electrode.

[0038] When the organic EL element is used as the emissive element in this manner, the organic compound is used for the emissive layer so that there is a wide selection range of materials and variation of emission colors (chromaticity and color purity), which are extremely advantageous in the color display apparatus and so forth.

[0039] On the other hand, along with the difference in emission efficiency due to the organic compound that is used in the emissive layer, the chromaticity (for example, the chromaticity of red, green, and blue) of the emitted light differs. Therefore, when the emissive area of the organic EL element is adjusted in accordance with the emission efficiency of the element as described above, a large load can be prevented from being imposed on the organic EL element having low emission efficiency. Furthermore, the emissive area of the organic EL element can be easily set by changing the electrode area or direct contact area between the emissive element layer and the first or second electrode.

[0040] Furthermore, covering the proximity of the edge of the first electrode with the insulating film as described above enables the emissive area of the organic EL element to be set to a desired area also by adjusting the contact area of the first electrode and the emissive element layer, which includes the emissive layer. In this case, when the thickness of the insulating film in the proximity of the edge of the first electrode is made thinner toward the center of the electrode, it is possible to prevent, at the emissive element layer that is formed on the first electrode and the insulating film, a disconnection from occurring at the proximity of the boundary between the first electrode and the insulating film. Furthermore, using the planarization film for the insulating film makes it possible to reliably prevent a disconnection at the second electrode that is formed on the insulating film and the emissive element layer.

[0041] In another aspect of the present invention in the above-mentioned color display device, the display pixel with the smallest emissive area is the display pixel comprising the emissive element for emitting green light, among colors red, green, and blue.

[0042] In another aspect of the present invention in the above-mentioned color display device, the display pixel with the largest emission area is the display pixel comprising the emissive element for emitting either red or blue light, among colors red, green, and blue, or the display pixel comprising the emissive element for emitting red light and the display pixel comprising the emissive element for emitting blue light.

BRIEF DESCRIPTION OF THE DRAWINGS

[0043] Fig. 1 is a top plan view of the EL display apparatus relating to the related art.

[0044] Fig. 2A is a cross-sectional view along line A-A of Fig. 1.

[0045] Fig. 2B is a cross-sectional view along line B-B of Fig. 1.

[0046] Fig. 3 is a conceptual diagram showing a layout of emissive regions of the EL display apparatus relating to the related art.

[0047] Fig. 4 is a conceptual diagram showing emissive region areas of the EL display apparatus relating to an embodiment of the present invention.

[0048] Fig. 5 is a schematic top plan view of one display pixel of the EL display apparatus relating to the embodiment of the present invention.

[0049] Figs. 6A and 6B respectively show example cross-sectional configurations of one display pixel of the EL display apparatus relating to the embodiment of the present invention along line B-B of Fig. 5.

[0050] Fig. 7 shows a mask for anodes of the organic EL elements relating to the embodiment of the present invention.

[0051] Fig. 8 shows a mask for emissive layers of the organic EL elements relating to the embodiment of the present invention.

[0052] Fig. 9 illustrates a method for obtaining the emission luminance ratio of R, G, and B for a white display.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0053] An EL display apparatus of the present invention will be described below.

[0054] Fig. 4 is a top plan view of an EL display apparatus 100 of the present invention.

[0055] The same figure represents a case where the respective display pixels emit red (R), green (G), and blue (B) light. The basic cross-sectional configuration of each R, G, and B display pixel is shown in Fig. 5.

[0056] In the EL display apparatus 100, the gate signal lines 51 are arranged in the row direction, and the drain signal lines 52 and the power lines 53 supplying power to the EL elements from a power source are arranged in the column direction. The signal lines 51 intersect with the lines 52 and the lines 53.

[0057] In the proximity of their intersections are formed the first TFT 30 connected to both signal lines 51 and 52, the second TFT 40 supplying current from power line 53 to an organic EL element 160, and the organic EL element 160 emitting either a red, green, or blue light. The emissive region of Fig. 5 among the various display pixels 1 for emitting light of red, green, or blue, namely, the emissive region defined by the organic EL element 160, is conceptually shown in Fig. 4. (1R, 1B, and 1G are added in Fig. 4.)

[0058] As shown in Fig. 4, the display pixels for the various colors are arranged in a matrix configuration on the substrate. The emissive areas of the display pixels differ among 1R, 1B, and 1G. Specifically, in the case of Fig. 4, the emissive area of the green display pixel 1G is provided as the smallest. Emissive regions 1R and 1B of the other colors are formed with a larger area than that of emissive region 1G. More specifically in this case: Area of green emissive region 1G < area of red emissive region 1R < area of blue emissive region 1B.

[0059] The order in size of the areas of the green, red, and blue emission regions 1G, 1R, and 1B is dependent on the emission efficiency of the emissive materials of the organic EL element 160. Therefore, the order in size of the emission region areas is not fixed at the above-mentioned green < red < blue, but is determined by the emission efficiency of the emissive materials that are used.

[0060] Figs. 6A and 6B respectively show examples of a cross-sectional configuration of one display pixel of the organic EL display apparatus relating to the present embodiment along line B-B of Fig. 5. In the present embodiment, one display pixel comprises the organic EL element 160 of one of the assigned R, G, or B, the first TFT 30 for receiving a data signal in accordance with the gate signal on gate signal line 51, a holding capacitor SC for holding the data signal supplied from the data

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line 52 via the first TFT 30, and the second TFT 40 for supplying current via the power source line 53 to the organic EL element 160 in accordance with the held data signal. It should be noted that since the cross-sectional configurations of the first TFT 30 and the holding capacitor SC along line A-A of Fig. 5 are the same as those of the above-mentioned Fig. 2A, their descriptions will be omitted. Furthermore, the configuration of the second TFT 40 in Figs. 6A and 6B is the same as that of the above-mentioned Fig. 2B.

[0061] The organic EL element 160 is configured by forming an anode 161 connected to the source 43s of the second TFT 40, a cathode 166 formed as a common electrode on the substrate, and an emissive element layer 165 using an organic compound between the two electrodes. The emissive element layer 165 includes at least an emissive layer, which can be formed in a single layer or multiple layers, and as an example is shown configured in the order from the anode: the hole transport layer 162, the emissive layer 163, and the electron transport layer 164.

[0062] Furthermore, in the present embodiment, in order to perform the display of colors by emitting lights of R, G, and B at the display pixels arranged in a matrix configuration on the substrate as shown in Fig. 4, different materials, in particular, different materials for organic compounds having an emissive function, are used in the organic EL elements 160 for R, for G, and for B.

[0063] As an example, the organic EL element 160R for R employs ITO for the anode 161, MTDATA (first hole transport layer) and TPD (second hole transport layer) for the hole transport layer 162, $BeBq_2$ doped at 2% with ZnPr for the emissive layer 163, and an MgIn alloy for the cathode 166.

[0064] The organic EL element 160G for G employs ITO for the anode 161, MTDATA (first hole transport layer) and TPD (second hole transport layer) for the hole transport layer 162, $BeBq_2$ for the emissive layer 163, and an MgIn alloy for the cathode 166.

[0065] The organic EL element 160B for B employs ITO for the anode 161, MTDATA (first hole transport layer) and TPD (second hole transport layer) for the hole transport layer 162, 1AZM-Hex for the emissive layer 163, and an MgIn alloy for the cathode 166. Furthermore, besides the above-mentioned materials for B, a combination of ITO (anode), MTDATA (first hole transport layer), TPD (second hole transport layer), OXD-8 (emissive layer), and MgIn (cathode) may also be used.

[0066] The above-mentioned compound abbreviations have the standard chemical names given below.

ZnPr: 5,10,15,20-tetraphenylporphyrinato zinc
MTDATA: 4,4',4''-tris(3-methylphenylphenylamino) triphenylamine
TPD: N,N'-diphenyl-N,N'-di(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine
$BeBq_2$: bis(10-hydroxybenzo[h]quinolinato)beryllium
1AZM-Hex: (N,N'-disalicylidene-1,6-hexanediaminato)zinc
OXD-8: 3-bis[5-(p-dimethylaminophenyl)-1,3,4-oxadiazol-2-yl]benzene

[0067] When these materials are adopted as the R, G, and B organic EL elements 160 (160R, 160G, 160B), the emission efficiencies at the present result in element 160G > element 160R > element 160B. In the organic EL element 160, the emission luminance exhibits a dependency on the current (current density). Therefore, it is sufficient to set the element emissive region areas (element sizes) as described above to region 1G < region 1R < region 1B so that each color has the same luminance when the same current is supplied to each display pixel.

[0068] Described next are display pixel formation methods for forming the emissive areas in the display pixels at different optimum sizes for R, G, and B. Existing methods include (i) changing the size of the area of the anodes 161 of the organic EL elements for R, G, and B, (ii) forming the anodes 161 with areas having identical sizes, and then covering the end of anodes 161 with a planarization insulating film 167 that is formed prior to the emissive element layer so as to change the size of the contact area between the anode and the emissive element layer for R, G, and B.

[0069] The method of (i) for forming the display pixels while changing the size of the anode areas will be described first and further with reference to Fig. 7. Fig. 7 represents a mask for forming the anodes 161 of the organic EL elements 160 for R, G, and B.

[0070] A mask 200A is used so that the emissive region areas shown in Fig. 4 realize 1G < 1R < 1B, and openings 201 are formed in accordance with the size of the intended anode. The largest openings shown are the openings 201B for the anodes of the blue EL elements, which have the lowest emission efficiency among the R, G, and B EL elements, and the smallest openings are the openings 201G for the anodes of the green EL elements, which have the highest emission efficiency. The openings having a size between the sizes of openings 201B and 201G are openings 201R for the anodes of the red EL elements, which have an emission efficiency lower than that of the green EL elements and higher than that of the blue EL elements.

[0071] The method of (i) will be described hereinafter in detail with reference to Fig. 6A. The process up until forming the second TFT 40, forming the interlayer insulating film 15 to cover the TFT 40, the power line 53 connected to the drain 43d of the TFT 40, and the planarization insulating film 17 to cover the entire surface of the substrate, forming a contact hole in the region corresponding to the source 43s of the TFT 40 so as to penetrate the planarization insulating film 17 and the interlayer insulating film 15, and forming ITO into a transparent electrode (anode) through sputtering so as to cover the contact hole and the entire surface of the

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planarization insulating film 17, is the same as for the configuration shown in Fig. 2B described above.

[0072] In the present embodiment, after ITO is formed, resist is applied, and using the mask 200A shown in the above-mentioned Fig. 7, exposure and development are performed. The resist pattern then remains only at the positions corresponding to the openings 201R, 201G, and 201 B, and using this resist pattern as an etching mask, the ITO is etched with a predetermined etchant. This causes ITO patterns to be formed at the positions and sizes corresponding to the openings 201R, 201G, and 201B of the mask 200A, resulting in different sizes of the anodes 161 for R, G, and B.

[0073] After the anodes 161 of the organic EL elements are formed at the respective display pixel regions, the above-mentioned organic compound materials, which differ for R, G, and B, are used next to form the emissive element layer 165 for R, G, and B. For the organic EL elements, the materials used in the emissive element layer have a relatively high resistance and the emissive region is limited to the region that is sandwiched between the anode and cathode layers in the emissive element layer. Therefore, the emissive element layer may be the same as the anode formation region or larger than the anode formation region. However, to prevent a short circuit at the anode end between the anode and cathode formed on the emissive element layer, the emissive element layer for R, G, and B in the present embodiment shown in Fig. 6A are set to be larger than the respective anode area so as to cover the anode. Of course, if another countermeasure is adopted so that a short circuit does not occur between the anode and cathode (for example, forming the planarization insulating film 167 as shown in Fig. 6B to be described later), it is not absolutely necessary for the emissive element layer 165 to be larger than the anode.

[0074] If a configuration is employed as described above where the organic EL element for R is ITO, MTDATA, TPD, $BeBq_2$+ZnPr2%, and MgIn, the organic EL element for G is ITO, MTDATA, TPD, $BeBq_2$, and MgIn, and the organic EL element for B is either ITO, MTDATA, TPD, 1AZM-Hex, and MgIn or ITO, MTDATA, TPD, OXD-8, and MgIn, the same materials are used for R, G, and B in the hold transport layers 162, which are composed from the first and second hole transport layers, and when forming the hole transport layers 162, the hole transport layers 162 are formed on the corresponding anodes 161 and the entire surface of the planarization insulating film 17 regardless of distinction of R, G, and B as shown in Fig. 6A.

[0075] Regarding the formation of the emissive layers 163, in the present embodiment as described above, different emissive materials are used for R, G, and B so that the emissive layers 163 for the various colors are formed in sequence by changing the material. A mask 200L, as shown in Fig. 8, is used in the formation of the emissive layers 163 for the various colors. The mask 200L employs a metal, such as tungsten (W), or a material, such as silicon.

[0076] As shown in the same figure, the mask 200L has openings 202 for forming the emissive layers on the substrate of the same color, and the openings 202 are provided so as to overlap with the anodes of the various colors formed using the mask 200A shown in Fig. 7 by shifting the position of the mask 200L. At this time, the area of the emissive layers may be the same as the anodes, or larger than the anodes so as to cover the anodes, and in the present embodiment, as shown in Fig. 6A, is set to be larger than any of the anodes for R, G, and B.

[0077] For example, in the process of sputtering the emissive layers for emitting blue light, the mask 200L is aligned prior to sputtering so that the openings 202 of the mask 200L are positioned at the regions where the emissive layers for blue light are to be formed and in contact over the hole transport layers 162. Thereafter, the island-shaped blue emissive layers are formed corresponding to the openings 202 by sputtering the blue emissive material.

[0078] For the sputtering of the red emissive layers, the mask 200L is shifted horizontally so that the openings 202 in the mask 200L are positioned on the regions where the red emissive layers are to be formed. In the same manner, for the sputtering of the green emissive layers, the openings in the mask 200L are positioned on the regions where the green emissive layers are to be formed. This procedure sequentially forms island-shaped emissive layers having the same area size on the hole transport layers 162 with different materials for R, G, and B. This enables the emissive layers 163 to be formed for the various colors.

[0079] After formation of the emissive layers 163, for the EL element 160 requiring the electron transport layers 164, an electron transport material is sputtered on the emissive layers 163 and the hole transport layers 162 to form the electron transport layers 164.

[0080] The cathodes 166 are formed from the accumulation of a magnesium indium alloy or the like through sputtering so as to cover the emissive element layer obtained from the above-mentioned process. Thus, this yields a display apparatus employing organic EL elements having anodes of different area sizes for R, G, and B and having element emissive areas of the desired sizes for R, G, and B.

[0081] The method of (ii) for forming anodes of identical area sizes and forming different sizes of the contact areas between anodes and emissive element layers with the planarization insulating film formed between the anodes and emissive layers will be described next.

[0082] As shown in Fig. 6B, to prevent the emissive element layer 165 provided on the anode 161 from disconnecting due to the step of the anode 161, it is preferable for the planarization insulating film 167 to cover the peripheral part of the anode 161. In the case of an EL element having this configuration, the region actually

emitting light, namely, the emissive area, is in contact with the emissive element layer 165 and the anode 161, and the peripheral part of the anode 161 covered by the planarization insulating film 167 is actually an area not emitting light.

[0083] Therefore, by varying for each color only the area of the peripheral part of the anode 161 covered by the planarization insulating film 167, the emissive area of the display pixel of each color can be varied.

[0084] Varying the emissive area of the display pixel of each color in this manner serves to extend the life of the EL elements.

[0085] In the above-mentioned embodiment, when the emission efficiency is green > red > blue, an example was described where the emissive area of the display pixels was green < red < blue so that the size of the emissive area for the various colors differed in this order. However, an embodiment need not be limited to this example. For example, with the emission efficiency at the same green > red > blue, the emissive areas may be set to green ≅ red < blue or to green < red ≅ blue.

[0086] In the organic EL element, which exhibits a tendency toward accelerated deterioration at higher currents as described in the foregoing, when the lights of the various colors are emitted at the same luminance by supplying a larger current to the EL element emissive layers of the display pixels having a low emission efficiency than to the emissive layers for the other color, it is possible to prevent a shortcoming in which the elements having a low emission efficiency selectively deteriorate. As a result, the life for the overall display apparatus can be extended.

[0087] The following is given as an example of an area ratio. For example, when the supply currents are identical in the case where the luminance ratio of the green, red, and blue lights that are emitted is 1:1:1, the emission efficiency ratio becomes 10:3.8:1.8. The ratio of emissive areas of the colors required to achieve a luminance of "1" among all the colors is set to 1/10:1/3.8:1/1.8 = 1:2.6:5.6.

[0088] Setting the emissive area ratio in this manner enables the R, G, and B lights to be emitted at the same luminance without a large current being supplied only to the blue EL elements, which have the lowest emission efficiency, thus enabling the life of the emissive layers to be extended.

[0089] Another example of the area ratio will be described next. This example takes into consideration the prevention of deterioration of the organic EL elements of a color for which the emission efficiency is low and the control of white balance in a full-color display.

[0090] When a color display is performed using the self-emissive organic EL elements for display pixels, white is displayed by adding the emitted light from the organic EL elements of the colors R, G, and B.

[0091] When the target white is expressed as chromaticity coordinates (x,y: 0.31, 0, 32) of a reference white light source (C light source) of the NTSC format, and when the chromaticity of the R, G, and B colors of light emitted by the respective organic EL elements is expressed by the coordinates shown at the top of fig 9, the luminance required for R, G, and B to achieve a white luminance of 100% is set, for example, at 25%: 46%:29%. Expressed as a luminance ratio, this becomes R:G:B = 0.54:1:0.63.

[0092] Furthermore, when the emission efficiency ratio of the various colors of the organic EL elements is 10:3.8:1.8 for green, red, and blue as described above, the emissive area ratio becomes G:R:B = 1/10:0.54/3.8:0.63/1.8 = 1:14.2:35 to achieve a G, R, and B luminance ratio of G:R:B = 1:0.54:0.63.

[0093] In this manner, when the chromaticity of R, G, and B and the chromaticity of the target white, as well as the emission efficiency of the various colors are taken into consideration and the emissive layers for R, G, and B are set, for example, so that the area ratio of the emissive regions assumes the above-mentioned values, a white luminance of 100% can be achieved with the same amount of current supplied to the organic EL elements of the various display pixels.

[0094] Therefore, in an EL display apparatus in which the area ratio has been determined by this method, the luminance balance of the various colors is adjusted by the emissive areas so that control of the white balance is extremely simple and the need for supplying large currents only to the EL elements of a particular color is obviated, thereby enabling the service life of the overall display apparatus to be extended.

[0095] If the materials to be used are different, the chromaticity coordinate values of the R, G, and B lights emitted from the organic EL elements are also different. The luminance ratio of R to G to B also changes accordingly, and the emission efficiency values also change. The emissive area ratio is determined accordingly and is therefore not limited to the values given above.

[0096] Furthermore, in the present invention, when the same current is respectively supplied to the R, G, and B organic EL elements, the configuration is not limited to having the emissive areas of the elements set so that 100% white is always achieved. For example, taking into further consideration the characteristics of the driver circuit (not shown) for driving the display pixels, the emissive areas of the R, G, and B organic EL elements can be set so as to simplify the control of the white balance for the overall apparatus and to prevent selective loading on the elements with a low emission efficiency.

[0097] Furthermore, in the above-mentioned embodiment, although the organic EL display apparatus was described as an example, the present invention is not limited to organic EL display apparatuses. Instead using the organic EL elements as the emissive elements, an inorganic EL display apparatus using inorganic EL elements or a vacuum fluorescent display (VFD) comprising a fluorescent layer as the emissive layer between two electrodes yields a similar effect as the organic EL

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display apparatus.

[0098] The emissive area of a display pixel in the present invention refers to the area of the region at which the emissive element of the display pixel actually emits light.

[0099] Namely, as shown in Fig. 6B, when the planarization insulating film, provided to prevent the emissive layer from creating a step and short circuiting with the cathode caused by the step from the thickness of the anode, covers the periphery of the anode, the anode and emissive element layer are in direct contact and form the area of the region actually emitting light.

[0100] Furthermore, although an example was given for the present embodiment in which the display pixels were arranged in 4 rows by 7 columns, the present invention is not limited to such a size and is applicable to an arbitrary number of display pixels, such as VGA (640x480), SVGA (800x600), XGA (1024x768), and SXGA (1280x1024).

[0101] Furthermore, although the display pixels assumed the form of a square in the example (Fig. 4), the present invention is not limited to such a form, and is applicable to a rectangular shape or an "L" shape, or any shape that does not hinder the emission of light from the emissive layer.

[0102] Furthermore, although the arrangement of the display pixels of various colors in the embodiment was shown in a stripe layout, the same effect is also obtained in a delta layout and a diagonal layout. Still furthermore, although the TFTs were shown in a so-called bottom gate configuration, the present invention is also applicable to TFTs in a so-called top gate configuration.

[0103] While there has been described what are at present considered to be preferred embodiments of the invention, it will be understood that various modifications may be made thereto, and it is intended that the appended claims cover all such modifications as fall within the true spirit and scope of the invention.

Claims

1. A color display device, in which a display pixel having an emissive element is disposed for every color, wherein the emissive area of the display pixel of any one color, among the display pixels of various colors, is different in size from the emissive area of the display pixel of another color.

2. A color display device according to claim 1 wherein the emissive area of said display pixel is set in accordance with the emission efficiency of said emissive element disposed at said display pixel.

3. A color display device according to claim 2 wherein the emissive area of a display pixel of said various colors is respectively set larger for lower emission efficiency of said emissive element disposed at said display pixel.

4. A color display device according to claim 1 wherein the emissive area of a display pixel of one color is set larger than the emissive area of a display pixel of another color having emissive element with emission efficiency higher than the emissive element disposed at the display pixel of said one color.

5. A color display device according to claim 1 wherein the emissive area of the display pixel having the emissive element of a color with the highest emission efficiency, among emissive elements respectively emitting different colors of light for color display, is set smaller than the emissive area of the display pixel having the emissive element of another color.

6. A color display device according to claim 1 wherein the emissive area of a display pixel of one color is set smaller than the emissive area of a display pixel of another color having emissive element with emission efficiency lower than the emissive element disposed at the display pixel of said one color.

7. A color display device according to claim 1 wherein the emissive area of the display pixel having the emissive element of a color with the lowest emission efficiency, among emissive elements respectively emitting different colors of light for color display, is set larger than the emissive area of the display pixel having the emissive element of another color.

8. A color display device according to claim 1 wherein the display pixel with the smallest emissive area is the display pixel comprising the emissive element for emitting green light, among colors red, green, and blue.

9. A color display device according to claim 1 wherein the display pixel with the largest emission area is:

   the display pixel comprising the emissive element for emitting either red or blue light, among colors red, green, and blue; or
   the display pixel comprising the emissive element for emitting red light and the display pixel comprising the emissive element for emitting blue light.

10. A color display device according to claim 1 wherein said emissive element is an electroluminescence element having an emissive layer between a first electrode and a second electrode.

11. A color display device, in which a display pixel having an emissive element is disposed for every color,

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TESLA, INC.

wherein the emissive area of said display pixel is set for every color in accordance with:

the emission efficiency of said emissive element disposed at said display pixel;
the chromaticity of each color emitted by respective emissive element; and
the chromaticity of target display white of the display device.

12. A color display device according to claim 11 wherein the emissive area of the display pixel of any one color, among the display pixel of various colors, is different in size from the emissive area of the display pixel of another color.

13. A color display device having display pixel for red, for green, and for blue, respectively having emissive element wherein the emissive area of said display pixel for red, for green, and for blue is set on the basis of:

the emission efficiency of the emissive element of each display pixel; and
a luminance ratio of red to green to blue in accordance with each chromaticity of red, green, and blue emitted by respective emissive element of the display pixel, and with the chromaticity of target display white of the display device.

14. A color display device according to claim 13 wherein the emissive area of the display pixel of any one color among said display pixel for red, for green, and for blue is different in size from the emissive area of the display pixel of another color.

15. A color display device as in any one of claims 1-14 wherein said emissive element is an organic electroluminescence element comprising the emissive layer using an organic compound between first electrode and second electrode.

16. A color display device according to claim 15 wherein the emissive area of said display pixel is set by smaller one of direct contact areas between an emissive element layer including said emissive layer of said organic electroluminescence element and said first electrode, and between said emissive element layer and said second electrode.

17. A color display device as in any one of claims 1-14 wherein:

said emissive element is an organic electroluminescence element composed by forming in sequence a first electrode, an emissive element layer including at least an emissive layer using an organic compound, and a second electrode;
the element is separated by an insulating film between layers of said first electrode and said emissive element layer in the proximity of edge of said first electrode; and
the emissive area of each display pixel in the organic electroluminescence element of the display pixel is set in accordance with the area of said insulating film covering the edge of said first electrode.

18. A color display device according to claim 17 wherein said insulating film, in the proximity of the edge of said first electrode, is decreased thickness toward the center of said first electrode.

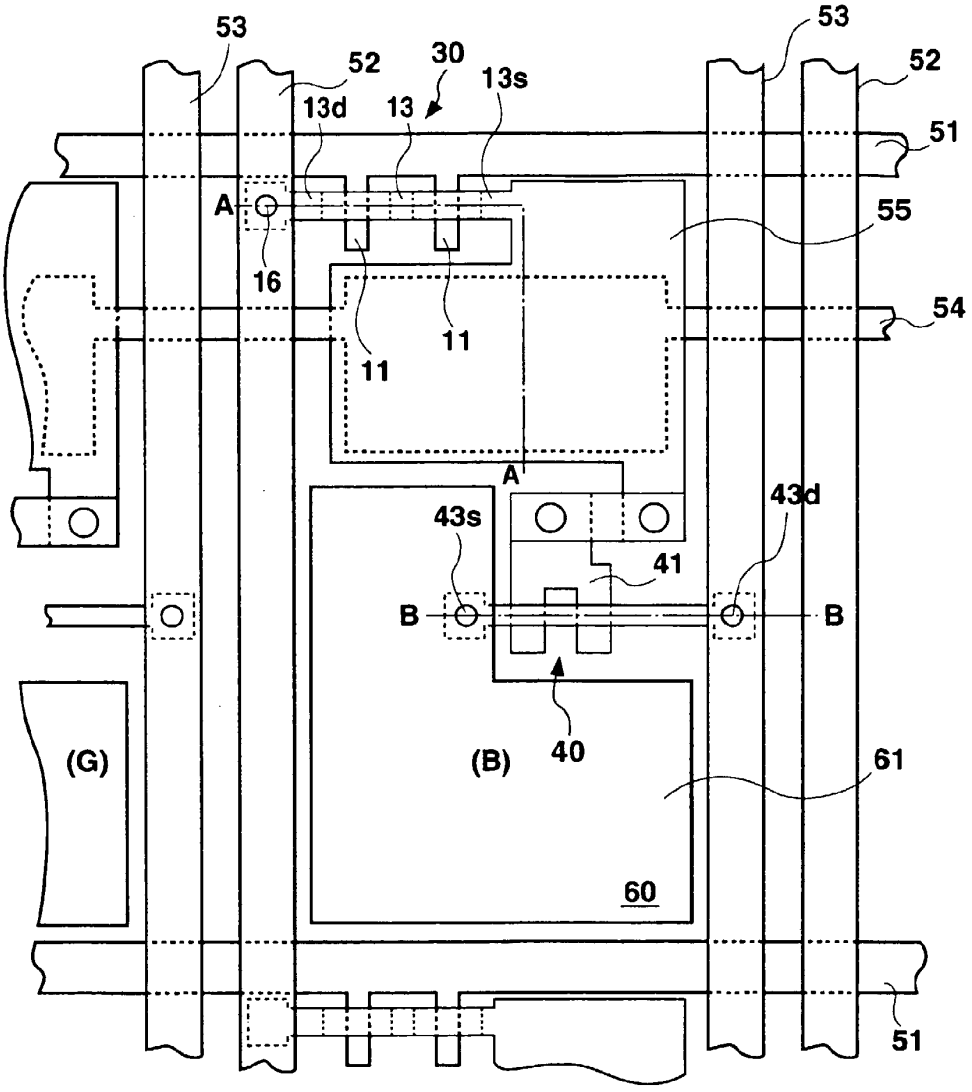

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Fig. 1

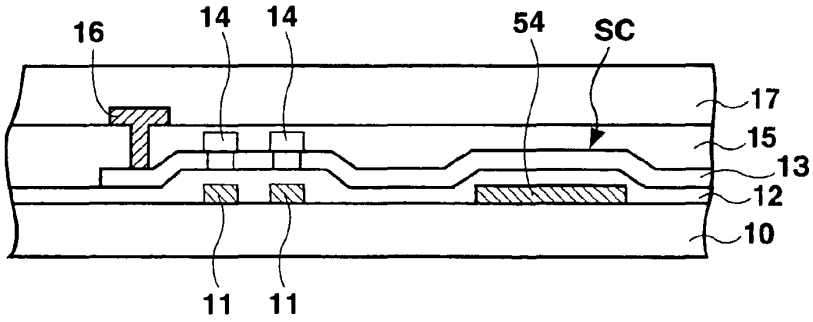

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Fig. 2A

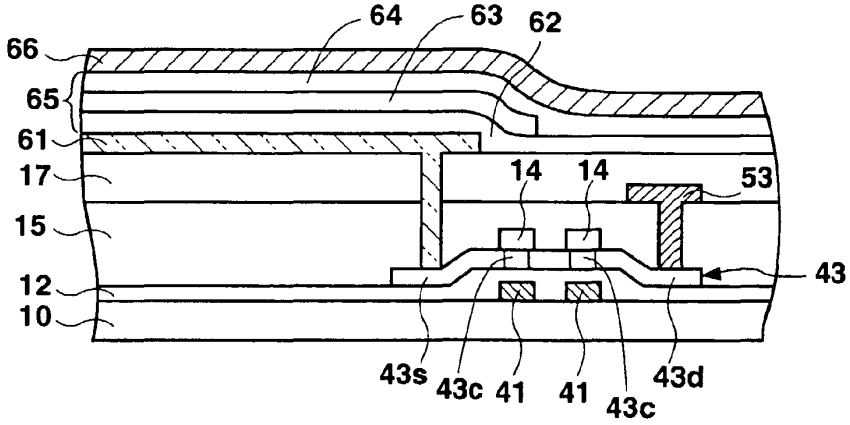

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Fig. 2B

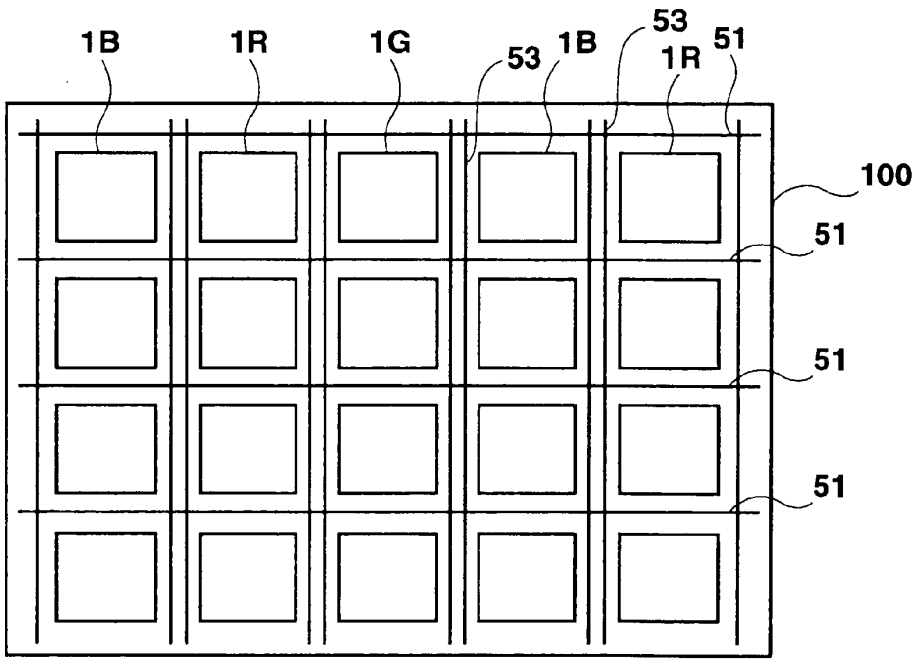


Fig. 3

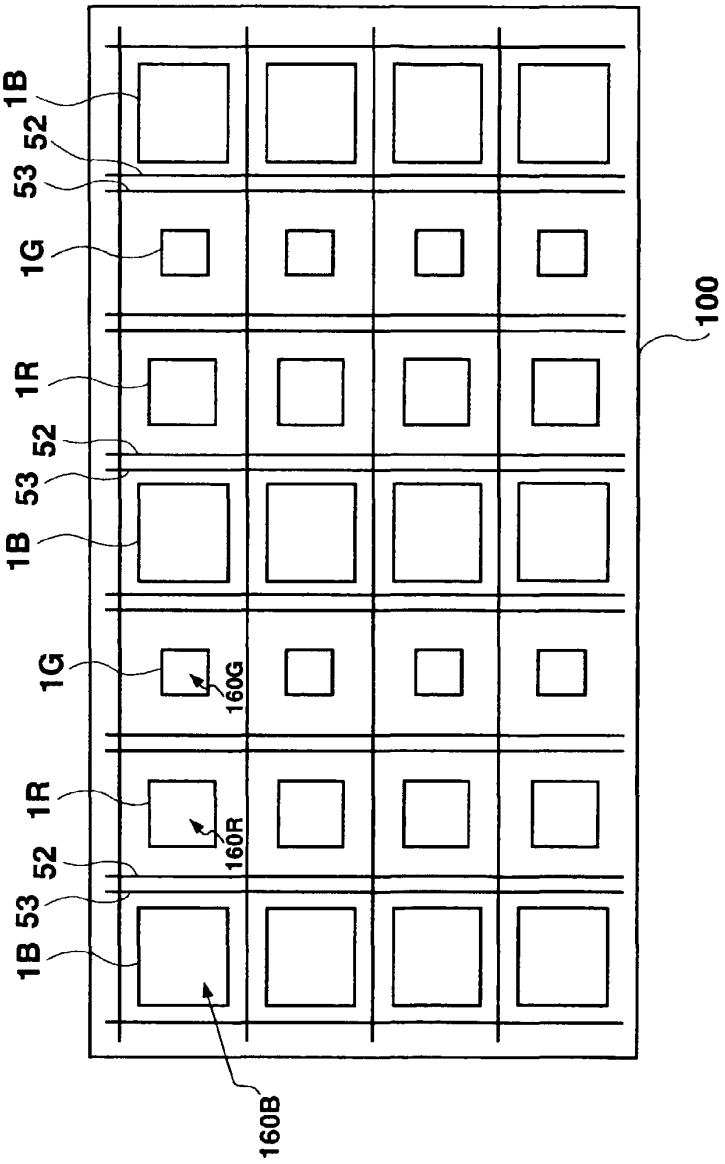


Fig. 4

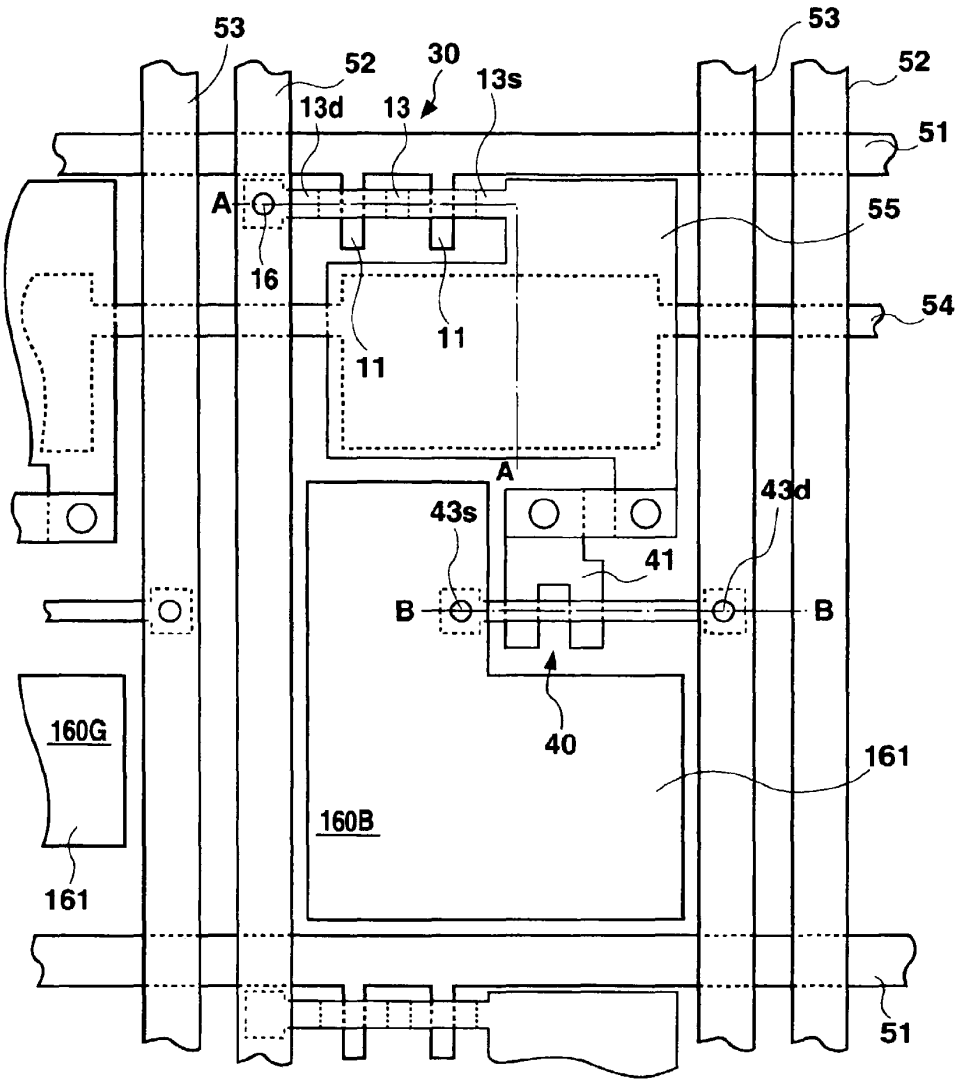

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Fig. 5

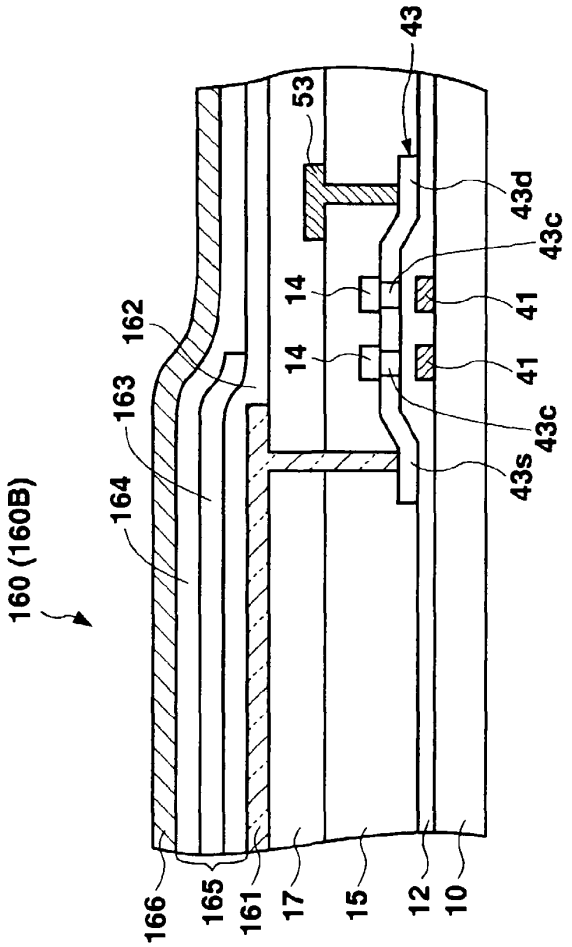

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Fig. 6A

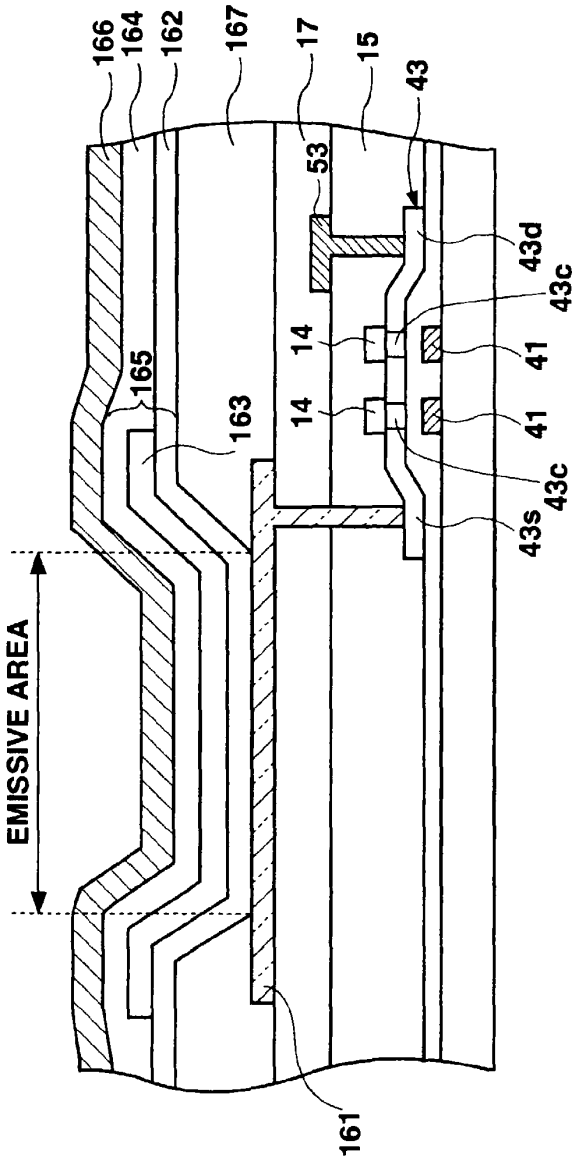

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EMISSIVE AREA
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Fig. 6B

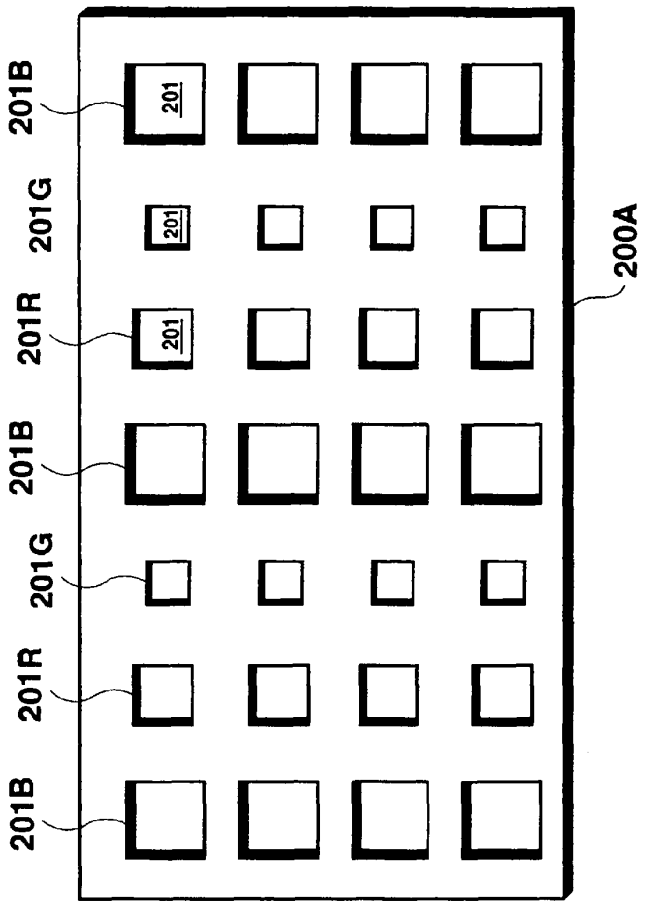


Fig. 7

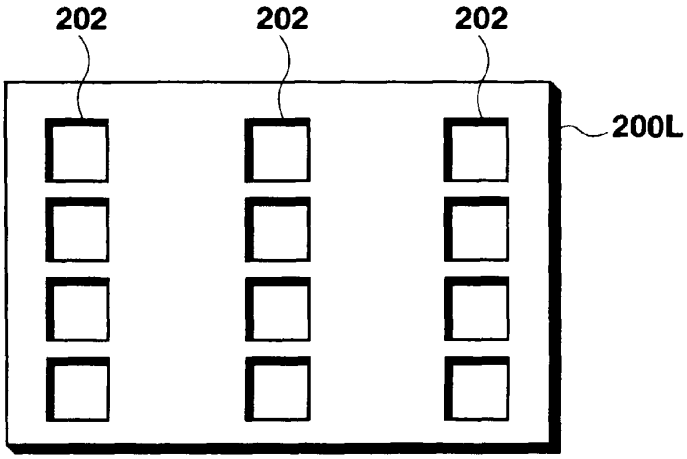


Fig. 8

	R		G		B		W	
CHROMATICITY COORDINATE	x	y	x	y	x	y	x	y
	0.65	0.34	0.30	0.63	0.17	0.17	0.31	0.32
LUMINANCE PERCENTAGE (WITH W AT 100%)	25(%)		46(%)		29(%)		100(%)	
LUMINANCE RATIO (G)	0.54		1		0.63		–	

Fig. 9

Electronic Acknowledgement Receipt

EFS ID:	7263935
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	23-MAR-2010
Filing Date:	19-APR-2007
Time Stamp:	12:43:16
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		SuppIDS.pdf	124598 c6d5deb20af76aaf6088f81b1486a0a57e0e8e87	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Filed (SB/08)	3	3
	NPL Documents	4	9

Warnings:					
Information:					
2	Foreign Reference	EP1032045.pdf	965591 68896579bc88aafa4552df580dc4186d34918177	no	20
Warnings:					
Information:					
		Total Files Size (in bytes):	1090189		

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New Applications Under 35 U.S.C. 111
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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.

Atty. Dkt. No. 088245-6123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(c), before the mailing date of any of a final action under 37 CFR §1.113, a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English. The listed references were cited during the prosecution of the related European Application 05793927.4.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

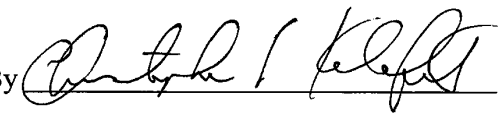
STATEMENT

The undersigned hereby states in accordance with 37 CFR §1.97(e)(1) that each item of information contained in this supplemental information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three (3) months prior to filing of this Statement.

Although Applicant believes that no fee is required, the Commissioner is hereby authorized to charge any additional fees which may be due to Deposit Account No. 19-0741.

Respectfully submitted,

Date March 23, 2010

By 

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123

CONFIRMATION NO. 5189

23524
FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

PUBLICATION NOTICE

OC000000040543986

Title: Simultaneous multiple field of view digital cameras

Publication No.US-2010-0060746-A9
Publication Date:03/11/2010

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: March 10, 2010				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number / Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document / Country Code[3] Number[4] Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		First Office Action for Chinese Application 200580032374.0, notification date 2/5/10.	

Examiner Signature		Date Considered	

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Electronic Acknowledgement Receipt

EFS ID:	7177156
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	10-MAR-2010
Filing Date:	19-APR-2007
Time Stamp:	11:51:40
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.)
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	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Filed (SB/08)	3	3
	NPL Documents	4	13
Warnings:			
Information:			
	Total Files Size (in bytes):	326501	

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National Stage of an International Application under 35 U.S.C. 371
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Atty. Dkt. No. 088245-6123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of a document known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

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RELEVANCE OF EACH DOCUMENT

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STATEMENT

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Although Applicant believes that no fee is required, the Commissioner is hereby authorized to charge any additional fees which may be due to Deposit Account No. 19-0741.

Respectfully submitted,

Date March 10, 2010

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

PTO/SB/08 (09-06)
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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: February 16, 2010				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number / Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

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Examiner Initials*	Cite No.[1]	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[6]
		Notice of Allowance for U.S. Application 11/478,242, mailed December 30, 2009.	
		Notice of Allowance for U.S. Application 11/888,546, mailed December 14, 2009.	
		Office Action on U.S. Application 11/810,623 mailed February 4, 2010.	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

Electronic Acknowledgement Receipt	
EFS ID:	7014404
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	16-FEB-2010
Filing Date:	19-APR-2007
Time Stamp:	12:19:17
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		SuppIDS.pdf	50888 f8d0549470ee4fe94eecf4f22f775d7b5a3cfe03	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	3
	Information Disclosure Statement (IDS) Filed (SB/08)	4	4
Warnings:			
Information:			

2		NPLdocs.pdf	366497 e7110e937a2397fe6f35fc254b831e5169d97320	yes	24

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	NPL Documents	1	6
	NPL Documents	7	13
	NPL Documents	14	24
Warnings:			
Information:			
	Total Files Size (in bytes):	417385	

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:	Richard Ian Olsen et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to

antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(c), before the mailing date of any of a final action under 37 CFR §1.113, a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English. The listed documents were cited during the prosecution of related U.S. Applications 11/478,242, 11/888,546, and 11/810,623.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

STATEMENT

The undersigned hereby states in accordance with 37 CFR §1.97(e)(2) that no item of information contained in this supplemental information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the supplemental 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 supplemental information disclosure statement.

Although Applicant believes that no fee is required, the Commissioner is hereby authorized to charge any additional fees which may be due to Deposit Account No. 19-0741.

Respectfully submitted,

Date February 16, 2010

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123	5189

23524 7590 01/21/2010

FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

EXAMINER	
HANNETT, JAMES M	
ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
01/21/2010	PAPER

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

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

Office Action Summary	Application No.	Applicant(s)	
	11/788,279	OLSEN ET AL.	
	Examiner	Art Unit	
	JAMES M. HANNETT	2622	

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *19 April 2007*.

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

3)☐ 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

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 6-18, 22-24, 28-37* is/are rejected.

7)☒ Claim(s) *3-5,19-21 and 25-27* is/are objected to.

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

Application Papers

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

10)☒ The drawing(s) filed on *19 April 2007* 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).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

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

a)☐ All b)☐ Some * c)☐ None of:

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

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

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

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

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 11/18/2009, 8/17/2009, 2/4/2009, 4/19/2007 has been considered by the examiner.

Claim Rejections - 35 USC § 102

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

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1: Claims 1, 2, 6-18, 22-24 and 28-37 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,691,765 Schieltz et al.

2: As For Claim 1, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 A digital camera comprising: a plurality of channels (25-28), wherein each channel includes an optics component (fiber optics) and an array of photo-detectors (45-48) integrated on a semiconductor substrate, the plurality of channels including a first channel (25) having a first field of view (FOV) and a second channel (26) having a second FOV that is different than the first FOV; and a processing component (74) coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels (25-28), the processing component (74) configured to combine data of a frame from at least one of channels to provide an image having a relatively high resolution (150).

3: In Regards to Claim 2, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the optics component of the first channel has a first focal length, and the array of photo-detectors of the first channel has a first dimension.

4: In Regards to Claim 6, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the plurality of channels comprises a third channel having a third FOV.

5: As For Claim 7, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the third FOV is different from one or more of the first FOV and the second FOV.

6: In Regards to Claim 8, Schieltz et al Figure 1 Column 3, Lines 11-67 wherein the plurality of channels comprises a fourth channel (28) having a fourth FOV.

7: As For Claim 9, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

8: In Regards to Claim 10, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the processing component is configured to separately and simultaneously control a parameter of the optics component of each channel.

9: As For Claim 11, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the optics component of the first channel includes a different configuration than the optics component of the second channel.

10: In Regards to Claim 12, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 11-67 wherein the optics component includes at least one lens (20).

11: As For Claim 13, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 wherein the optics component includes at least one filter. Schieltz et al teaches that color signals are generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to generate a Cr, Cb and Y signal.

12: In Regards to Claim 14, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 wherein each channel is configured to pass light including a plurality of colors. Schieltz et al teaches that color signals are generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to generate a Cr, Cb and Y signal.

13: As For Claim 15, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 Schieltz et al teaches that color signals are generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to generate a Cr, Cb and Y signal from each sensor. Therefore, the first channel is configured to pass light of a first color and the second channel is configured to pass light of a second color.

14: In Regards to Claim 16, Schieltz et al depicts in Figure 1 and teaches on Column 3, Lines 62-67 and Column 4, Lines 1-3 Schieltz et al teaches that color signals are generated from each of the CCD image sensors. It is inherent that the image sensors include color filters of multiple colors in order to allow the color conversion circuit to

generate a Cr, Cb and Y signal from each sensor. Therefore the plurality of channels are configured to pass light of a first color.

15: As For Claim 17, Claim 17 is rejected for reasons discussed related to Claim 1.

16: In Regards to Claim 18, Claim 18 is rejected for reasons discussed related to Claim 2.

17: In Regards to Claim 22, Claim 22 is rejected for reasons discussed related to Claim 1.

18: As For Claim 23, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising forming the first image sensor and the second image sensor in a semiconductor substrate.

19: In Regards to Claim 24, Claim 24 is rejected for reasons discussed related to Claim 2.

20: In Regards to Claim 28, Claim 28 is rejected for reasons discussed related to Claim 6.

21: As For Claim 29, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising forming the third image sensor in a semiconductor substrate along with the first and the second image sensors.

22: In Regards to Claim 30, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising configuring a fourth optics component (28) relative to a fourth image sensor (48) to form a fourth channel having a fourth FOV, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

23: As For Claim 31, Schieltz et al Figure 1 Column 3, Lines 11-67 comprising forming the fourth image sensor in a semiconductor substrate along with the first, the second and the third image sensors.

24: In Regards to Claim 32, Claim 32 is rejected for reasons discussed related to Claim 10.

25: As For Claim 33, Claim 33 is rejected for reasons discussed related to Claim 11.

26: In Regards to Claim 34, Claim 34 is rejected for reasons discussed related to Claim 14.

27: As For Claim 35, Claim 35 is rejected for reasons discussed related to Claim 15.

28: In Regards to Claim 36, Claim 36 is rejected for reasons discussed related to Claim 1.

29: As For Claim 37, Schieltz et al Figure 1 Column 3, Lines 11-67 A solid-state camera system produced according to the method of claim 36.

Allowable Subject Matter

Claims 3-5, 19-21 and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022 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).

/James M. Hannett/
Primary Examiner
Art Unit 2622

JMH
January 20, 2010

Notice of References Cited	Application/Control No. 11/788,279	Applicant(s)/Patent Under Reexamination OLSEN ET AL.	
	Examiner JAMES M. HANNETT	Art Unit 2622	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,850,479	12-1998	Terry et al.	382/211
*	B	US-2004/0012689	01-2004	Tinnerino et al.	348/218.1
*	C	US-2004/0012688	01-2004	Tinnerino et al.	348/218.1
*	D	US-2002/0024606	02-2002	Yuki et al.	348/302
*	E	US-7,239,345	07-2007	Rogina, Peter	348/218.1
*	F	US-5,691,765	11-1997	Schieltz et al.	348/335
*	G	US-4,323,925	04-1982	Abell et al.	348/340
*	H	US-6,946,647	09-2005	O'Neill et al.	250/227.2
*	I	US-3,609,367	09-1971	Barron, Donald Robert	250/349
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	Art Unit
	JAMES M HANNETT	2622

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

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

CLAIM		DATE								
Final	Original	01/18/2010								
	1	✓								
	2	✓								
	3	O								
	4	O								
	5	O								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
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	26	O								
	27	O								
	28	✓								
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	30	✓								
	31	✓								
	32	✓								
	33	✓								
	34	✓								
	35	✓								
	36	✓								

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	Examiner	**Art Unit**
	JAMES M HANNETT	2622

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/18/2010								
	37	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11788279	OLSEN ET AL.
	Examiner	Art Unit
	JAMES M HANNETT	2622

SEARCHED			
Class	Subclass	Date	Examiner
348	218.1	1/18/2010	JMH

SEARCH NOTES		
Search Notes	Date	Examiner
East Search	1/18/2010	JMH
Inventor Name Search	1/18/2010	JMH

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

	/JAMES M HANNETT/ Primary Examiner.Art Unit 2622

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Date Submitted: February 4, 2009

(use as many sheets as necessary)

Sheet 1 of 4

Complete if Known	
Application Number	11/788,279
Filing Date	4/19/2007
First Named Inventor	Richard Ian Olsen
Art Unit	2622
Examiner Name	Lin Ye
Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,971,065	07-20-1976	Bayer	
		5,694,165	12-02-1997	Yamazaki et al.	
		5,742,659	4-21-1998	Atac et al.	
		5,760,832	6-2-1998	Yamanaka, et al.	
		6,137,535	10-24-2000	Meyers, Mark Marshall	
		6,429,898	6-7-2005	Shoda et al.	
		6,437,335	8-20-2002	Bohn, David D.	
		6,570,613	5-27-2003	Howell	
		6,611,289	8-26-2003	Yu et al.	
		6,617,565	9-9-2003	Wu, Raymond	
		6,714,239	3-30-2004	Guidash	
		6,765,617	7-20-2004	Tangen et al.	
		6,833,873	12-21-2004	Suda	
		6,841,816	1-11-2005	Merrill et al.	
		6,859,299	2-22-2005	Chiao, Jung-Chih	
		6,882,368	4-19-2005	Suda	
		6,882,864	4-19-2005	Miyake	
		6,885,404	4-26-2005	Suda	
		6,885,508	4-26-2005	Yamaguchi et al.	
		6,903,770	6-07-2005	Kobayashi et al.	
		6,952,228	10-4-2005	Yoneda et al.	
		6,960,817	11-1-2005	Ogura et al.	
		7,095,159	8-22-2006	Machida	
		7,095,561	8-22-2006	Mitchell et al.	
		7,115,853	10-3-06	Jiang et al.	
		7,164,113	1-16-2007	Inokuma et al.	
		7,199,348	4-3-2007	Olsen et al.	
		7,214,926	5-8-2007	Gruhlke, et al.	
		7,223,954	5-29-2007	McNulty, Peter C.	
		7,236,306	6-26-2007	Janson, Jr. et al.	
		7,256,944	8-14-2007	Labaziewicz, et al.	
		7,305,180	12-7-2006	Labaziewicz, et al.	
		7,358,483	4-15-2008	Mitsugi et al.	
		7,362,357	4-22-2008	Brown et al.	
		7,379,104	5-27-2008	Hattori et al.	
		7,417,674	8-26-2008	Gruhlke	

Examiner Signature	/James Hannett/	Date Considered	01/18/2010

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Date Submitted: February 4, 2009

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Sheet 2 of 4

Complete if Known	
Application Number	11/788,279
Filing Date	4/19/2007
First Named Inventor	Richard Ian Olsen
Art Unit	2622
Examiner Name	Lin Ye
Attorney Docket Number	088245-6123

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		JP 62-011264	1/1987	Unknown		
		EP 599470	6-1994	Picker International, Inc.		

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Examiner Signature	/James Hannett/	Date Considered	01/18/2010

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Date Submitted: February 4, 2009				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	Lin Ye
Sheet	3	of	4	Attorney Docket Number	088245-6123

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Examiner Signature	/James Hannett/	Date Considered	01/18/2010

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				Art Unit	2622
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Sheet	4	of	4	Attorney Docket Number	088245-6123

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Examiner Signature	/James Hannett/	Date Considered	01/18/2010

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Attorney Docket No. NMOL.P003
Application No. Not Yet Assigned

Atty. Docket No. NMOL.P003 *PATENT*

IN THE UNITED STATES PATENT OFFICE

In Re Patent Application of:	)	
	)	Examiner: Not Yet Assigned
Richard Ian Olsen, et al.	)	Art Unit: Not Yet Assigned
	)	
Application No. Not yet Assigned	)	
	)	
Filed: April 19, 2007	)	
	)	
For: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS	)	
	)	

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

Submission of Information Disclosure Statement

Sir:

Enclosed is a copy of Information Disclosure Citation Form PTO-1449 (Substitute). It is respectfully requested that the cited documents be considered and that the enclosed Information Disclosure Citation Form PTO-1449 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s).

This Information Disclosure Statement is being submitted pursuant to 37 C.F.R. § 1.97(b)(3), and no fee should be due for this submission.

Pursuant to 37 C.F.R. § 1.97(h), the submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed as an admission that the information cited in this statement is material to patentability.

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Authorization to Charge Deposit Account

Please charge our deposit account number 503616 for any fees that may be due for this submission.

Respectfully submitted,
Courtney Staniford & Gregory LLP

Dated: 19 APR 2007

Richard L. Gregory
Reg. No. 42,607

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Substitute Form 1449/PTO	Attorney Docket No.: NICO.P003	Application Number: Not Yet Assigned
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date: April 19, 2007	Art Unit: Not Yet Assigned
	First Named Inventor: Richard Ian Olsen	Examiner Name: Not Yet Assigned

U.S. PATENT DOCUMENTS

Exam. Initial*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (If known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Date Submitted: August 17, 2009				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	2	Attorney Docket Number	088245-6123

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		International Preliminary Report on Patentability for PCT/US2005/030256 issued March 17, 2009.	
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		Office Action for United States Patent Application 11/788,120, mailed May 19, 2009.	
		Notice of Allowance for United States Patent Application 11/888,546, mailed June 3, 2009	

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/JH/		4,894,672	01-16-1990		
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/JH/		Office Action for U.S. Patent Application Number 11/888,582, mailed 9/3/2009.	
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Examiner Signature	/James Hannett/	Date Considered	01/18/2010

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

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	20689	camera and optical near4 fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:15
L2	2520	camera and optical near4 fiber with bundle	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
L3	510	2 and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
L4	269	3 and arrays	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
L5	267	4 and lens	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
L6	228	5 and filter	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:16
L7	14	6 and color adj filter$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:17
L8	2	("20080170293").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:28
L9	188	6 and ccd	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31

L10	141	9 and color	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31
L11	126	10 and pixels	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:31
L12	25370	fiber adj bundle	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:34
L13	529	fiber adj bundle with (CCD or imager or image adj sensor or image-sensor)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
L14	418	13 and lens$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
L15	92	14 and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:35
L16	148	hannett .xa.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
L17	148	hannett .xp.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
L18	296	16 or 17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
L19	9	18 and fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:38
L20	0	("2008/0170293").URPN.	USPAT	OR	OFF	2010/01/18 13:40

L21	16	("3064519" | "3227034" | "3248552" | "3726997" | "3785736" | "4637055" | "4862511" | "5086483" | "5131055" | "5148502" | "5216484").PN. OR ("5850479").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 13:41
L22	1584	camera and optical near4 fiber with guide	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:48
L23	849	22 and (CCD or imager or image adj sensor or image-sensor)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:48
L24	119	23 and color adj filter$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:49
L25	10	("4153333" | "4564760" | "4570063" | "4591714" | "4591715" | "4776667" | "4824194").PN. OR ("5122657").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 13:53
L26	677	(348/262,264,218.1).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:57
L27	0	("26andfiber").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:57
L28	41	26 and fiber	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 13:57
L29	8	(US-20080170293-$ or US-20040012689-$ or US-20040012688-$ or US-20020024606-$).did. or (US-5850479-$ or US-7239345-$ or US-5691765-$ or US-4323925-$).did.	US-PGPUB; USPAT	OR	OFF	2010/01/18 14:05

L30	157	("20020063775" | "3064519" | "3110816" | "3227034" | "3248552" | "3448276" | "3560644" | "3609367" | "3726997" | "3785736" | "4044384" | "4054881" | "4062045" | "4103435" | "4541007" | "4571616" | "4613866" | "4637055" | "4742356" | "4757378" | "4772942" | "4805015" | "4858149" | "4862511" | "4879596" | "4879597" | "4881122" | "4928175" | "4931817" | "4943854" | "4943864" | "4952024" | "4957351" | "4970666" | "4984089" | "5015188" | "5015189" | "5023725" | "5049987" | "5084763" | "5086483" | "5101269" | "5109194" | "5130794" | "5131055" | "5148310" | "5148502" | "5172266" | "5185667" | "5187571" | "5200818" | "5216484" | "5268998" | "5293529" | "5311305" | "5313567" | "5319744" | "5359363" | "5432895" | "5475511" | "5479597" | "5553618" | "5586231" | "5659323" | "5703961" | "5879289" | "6154251" | "6292608" | "6393144" | "6501518" | "6522787" | "6535226" | "6750904").PN. OR ("2002/0024606" | "2004/0012688" | "2004/0012689" | "2008/0170293" | "4323925" | "5691765" | "5850479" | "7239345").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 14:16
L31	39	30 and fiber	US-PGPUB; USPAT; USOCR	OR	OFF	2010/01/18 14:17
L32	11	26 and fiber and focal adj length	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/18 14:23

EAST Search History (Interference)

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1/18/10 2:33:03 PM

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Bib Data Sheet

CONFIRMATION NO. 5189

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/788,279	04/19/2007 RULE	348	2622	088245-6123

APPLICANTS

Richard Ian Olsen, Irvine, CA;
Darryl L. Sato, Irvine, CA;
Feng-Qing Sun, Irvine, CA;
James Gates, Irvine, CA;

**** CONTINUING DATA ***************************

This application is a CIP of 11/212,803 08/25/2005 ABN
and claims benefit of 60/795,946 04/28/2006
and said 11/212,803 08/25/2005
claims benefit of 60/604,854 08/25/2004
and claims benefit of 60/695,946 07/01/2005

**** FOREIGN APPLICATIONS *********************

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 02/19/2009

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☐ no	CA	22	37	4

35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance

Verified and Acknowledged _____ Examiner's Signature Initials

ADDRESS
23524

TITLE

Simultaneous multiple field of view digital cameras

FILING FEE RECEIVED	FEES: Authority has been given in Paper
1090	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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123

CONFIRMATION NO. 5189

23524
FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

PUB REQUEST ACCEPTANCE LETTER

OC00000039083673

Date Mailed: 12/03/2009

NOTICE OF ACCEPTANCE OF PUBLICATION REQUEST

The request for voluntary publication, amended publication, early publication, redacted publication, republication, corrected publication or revised publication has been received for this application. The request, including payment of any necessary fee(s), is in compliance with 37 CFR 1.215, 1.217, 1.219 or 1.221.

The projected publication date is 03/11/2010.

/dterry/

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

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MADISON WI 53701-1497

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DEC 0 3 2009

OFFICE OF PETITIONS

In re Application of
Olsen et al..
Application No. 11/788,279
Filed: April 19, 2007
Attorney Docket No. 088245-6123

DECISION GRANTING PETITION
UNDER 37 CFR 1.78(a)(6)

This is a decision on the petition under 37 CFR 1.78(a)(6), filed October 7, 2009, to accept an unintentionally delayed claim under 35 U.S.C. § 119(e) for the benefit of prior-filed provisional Application No. 60/604,854, filed August 25, 2004 and provisional Application No. 60/695,946, filed July 1, 2005, as set forth in the concurrently filed amendment and Application Data Sheet (ADS).

The petition is **GRANTED**.

A petition under 37 CFR 1.78(a)(6) is only applicable to those applications filed on or after November 29, 2000. Further, the petition is appropriate only after expiration of the period specified in 37 CFR 1.78(a)(5)(ii) and must be filed during the pendency of the nonprovisional application. In addition, the petition must be accompanied by:

> **(1)** the reference required by 35 U.S.C. § 119(e) and 37 CFR 1.78(a)(5)(i) to the prior-filed application, unless previously submitted;
> **(2)** the surcharge set forth in § 1.17(t); and
> **(3)** a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(5)(ii) and the date the claim was filed was unintentional. The Commissioner may require additional information where there is a question whether the delay was unintentional.

Additionally, 37 CFR 1.78(a)(5)(ii) 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 1.78(a)(5)(ii) was unintentional. If the statement contained in the instant petition varies from the language required by 37 CFR 1.78(a)(5)(ii), the statement contained in the instant petition is being construed as the statement required by 37 CFR 1.78(a)(5)(ii) and petitioner must notify the Office if this is **not** a correct interpretation of the statement contained in the instant petition.

The instant nonprovisional application was filed after November 29, 2000, and the claim herein for the benefit of priority to the prior-filed provisional application is submitted after expiration of the period specified by 37 CFR 1.78(a)(5)(ii). Therefore, this is a proper petition under 37 CFR 1.78(a)(6).

A reference to add the prior-filed applications on page one following the first sentence of the specification has been included in a concurrently filed amendment. However, the amendment is not acceptable as drafted since it improperly incorporates by reference

the prior-filed applications. Petitioner's attention is directed to Dart Industries v. Banner, 636 F.2d 684, 207 USPQ 273 (C.A.D.C. 1980), where the court drew a distinction between a permissible 35 U.S.C. § 120 statement and the impermissible introduction of new matter by way of incorporation by reference in a 35 U.S.C. § 120 statement. Application No. 11/212,803 filed August 25, 2005 was referenced in the second sentence of the specification upon filing, and the amendment submitted with the instant petition reference Application Nos. 60/604,854 filed August 25, 2004 and 60/695,946 filed July 1, 2005. Therefore, the incorporation by reference sentence included in the amendment is not proper for Application Nos. 60/604,854 and 60/695,946. However, the Office will accept the priority claims as shown in the application data sheet filed October 7, 2009.

The petition complies with the requirements for a grantable petition under 37 CFR 1.78(a)(6) in that (1) a reference to the above-noted, prior-filed provisional applications has been included in an ADS as provided by 37 CFR 1.78(a)(5)(iii); (2) the surcharge fee required by 37 CFR 1.17(t) has been submitted; and (3) the petition contains a proper statement of unintentional delay. Accordingly, having found that the instant petition for acceptance of an unintentionally delayed claim for the benefit of priority under 35 U.S.C. § 119(e) to the above-noted, prior-filed provisional applications satisfies the conditions of 37 CFR 1.78(a)(6), the petition is granted.

The granting of the petition to accept the delayed benefit claim to the prior-filed applications under 37 CFR 1.78(a)(6) should not be construed as meaning that the instant application is entitled to the benefit of the filing date of the prior-filed applications. In order for the instant application to be entitled to the benefit of the prior-filed applications, all other requirements under 35 U.S.C. §119(e) and 37 CFR 1.78(a)(4) and (a)(5) must be met. Similarly, the fact that the corrected Filing Receipt accompanying this decision on petition includes the prior-filed applications should not be construed as meaning that applicant is entitled to the claim for benefit of priority to the prior-filed applications noted thereon. Accordingly, the examiner will, in due course, consider this benefit claim and determine whether the instant application is entitled to the benefit of the earlier filing date.

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

Any inquiries concerning this decision may be directed to Joan Olszewski at (571) 272-7751. Any other inquiries concerning either the examination procedures or status of the application should be directed to the Technology Center.

This matter is being referred to Technology Center AU 2622 for appropriate action on the ADS submitted October 7, 2009, including consideration by the examiner of the claim under 35 U.S.C. §119(e) for the benefit of priority to prior-filed provisional Application No. 60/604,854 filed August 25, 2004 and provisional Application No. 60/695,946, filed July 1, 2005.

/Liana Walsh/
Liana Walsh
Petitions Examiner
Office of Petitions

ATTACHMENT: Corrected Filing Receipt

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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
11/788,279	04/19/2007	2622	1090	088245-6123	37	4

CONFIRMATION NO. 5189

CORRECTED FILING RECEIPT

23524
FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497



Date Mailed: 12/02/2009

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**

Applicant(s)

Richard Ian Olsen, Irvine, CA;
Darryl L. Sato, Irvine, CA;
Feng-Qing Sun, Irvine, CA;
James Gates, Irvine, CA;

Power of Attorney: The patent practitioners associated with Customer Number 23524

Domestic Priority data as claimed by applicant

This application is a CIP of 11/212,803 08/25/2005 ABN
and claims benefit of 60/795,946 04/28/2006
and said 11/212,803 08/25/2005
claims benefit of 60/604,854 08/25/2004
and claims benefit of 60/695,946 07/01/2005

Foreign Applications

If Required, Foreign Filing License Granted: 02/19/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/788,279**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

Title

Simultaneous multiple field of view digital cameras

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

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OC000000039063607

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Power of Attorney: The patent practitioners associated with Customer Number 23524

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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.

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).

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: November 18, 2009				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	James M. Hannett
Sheet	1	of	1	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2004/0027687	02-12-2004		
		4,894,672	01-16-1990		
		6,834,161	12-21-2004		

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		Office Action for U.S. Patent Application Number 11/825,382, mailed 10/29/2009.	
		Office Action for U.S. Patent Application Number 11/478,242, mailed 9/16/2009.	
		Office Action for U.S. Patent Application Number 11/888,582, mailed 9/3/2009.	
		Office Action for U.S. Patent Application Number 11/788,120, mailed 9/18/2009.	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

Electronic Acknowledgement Receipt	
EFS ID:	6480266
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	18-NOV-2009
Filing Date:	19-APR-2007
Time Stamp:	16:58:38
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		SuppIDS.pdf	48082 8531b9023a8a61833f44bccff8b1611880b027d5	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Filed (SB/08)	3	3

Warnings:					
Information:					
2		NPLdocs.pdf	390619 2045a3e00b230a9feaf4b43c9a184c3ed52e14b2	yes	30

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	NPL Documents	1	11
	NPL Documents	12	18
	NPL Documents	19	23
	NPL Documents	24	30

Warnings:	
Information:	
Total Files Size (in bytes):	438701

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to

antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English. The listed documents were cited during the prosecution of corresponding U.S. Patent Application Numbers 11/825,382, 11/478,242, 11/888,582, and 11/788,120.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required, the Commissioner is hereby authorized to charge any additional fees which may be due to Deposit Account No. 19-0741.

Respectfully submitted,

Date November 18, 2009

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Ian Olsen, et al.

Title: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

Appl. No.: 11/788,279

Filing Date: 04/19/2007

Examiner: James M. Hannett

Art Unit: 2622

Conf. No.: 5189

PETITION UNDER 37 C.F.R. § 1.78(a)(6)

Mail Stop Petitions
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir/Madame:

Pursuant to 37 C.F.R. § 1.78(a)(6), Applicant hereby petitions for acceptance of an unintentionally delayed priority claim under 35 U.S.C. §119(e) for the above-referenced application.

The present application was filed on April 19, 2007 as a continuation-in-part application of U.S. Patent App. No. 11/212,803, which was filed on August 25, 2005. The present application was also filed with a priority claim to U.S. Provisional Patent App. No. 60/795,946 filed on April 28, 2006. During an internal review, it came to our attention that U.S. Patent App. No. 11/212,803 claims priority to two provisional applications (U.S. Provisional Patent Application Nos. 60/604,854 filed August 25, 2004 and 60/695,946 filed July 1, 2005). The present application fails to claim priority to these two provisional applications.

To the best of the undersigned's knowledge, the entire delay between the date the claim for priority was due under 37 C.F.R. § 1.78(a)(5)(ii) and the filing of this petition was unintentional. Applicants respectfully request that the unintentionally delayed priority claim for the present application be accepted.

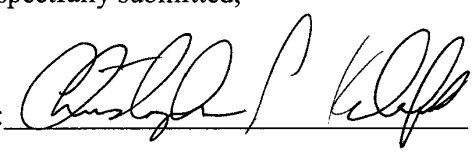
This Petition is accompanied by a preliminary amendment, amending the first paragraph of the present application to claim priority to the two provisional applications. Also submitted herewith is a signed supplemental Application Data Sheet that shows the correct priority claim. Should this petition be granted, Applicant requests that the preliminary amendment and the Supplemental Application Data sheet be entered in the file.

Applicants submit herewith a fee in the amount of $1,410.00 as specified in 37 C.F.R. 1.17(t).

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this response, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date October 7, 2009

By: 

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

Supplemental Application Data Sheet

Application Information

Application number::	11/788,279
Filing Date::	4/19/2007
Application Type::	Continuation-In-Part
Subject Matter::	Utility
Suggested classification::	
Suggested Group Art Unit::	
CD-ROM or CD-R?::	None
Computer Readable Form (CRF)?::	No
Title::	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Attorney Docket Number::	088245-6123
Request for Early Publication?::	No
Request for Non-Publication?::	No
Suggested Drawing Figure::	1
Total Drawing Sheets::	22
Small Entity?::	No
Petition included?::	Yes
Petition Type::	Petition Under 37 C.F.R. § 1.78(a)(6)
Secrecy Order in Parent Appl.?::	No

Applicant Information

Applicant Authority Type::	Inventor
Primary Citizenship Country::	US
Status::	Full Capacity

Given Name::	Richard Ian
Family Name::	Olsen
City of Residence::	Irvine
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	101 Academy Drive, Suite 100
City of mailing address::	Irvine
State or Province of mailing address::	CA
Postal or Zip Code of mailing address::	92617

Applicant Authority Type::	Inventor
Primary Citizenship Country::	US
Status::	Full Capacity
Given Name::	Darryl L.
Family Name::	Sato
City of Residence::	Irvine
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	101 Academy Drive, Suite 100
City of mailing address::	Irvine
State or Province of mailing address::	CA
Postal or Zip Code of mailing address::	92617

Applicant Authority Type::	Inventor
Primary Citizenship Country::	China

Status::	Full Capacity
Given Name::	Feng-Qing
Family Name::	Sun
City of Residence::	Irvine
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	101 Academy Drive, Suite 100
City of mailing address::	Irvine
State or Province of mailing address::	CA
Postal or Zip Code of mailing address::	92617

Applicant Authority Type::	Inventor
Primary Citizenship Country::	US
Status::	Full Capacity
Given Name::	James
Family Name::	Gates
City of Residence::	Irvine
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	101 Academy Drive, Suite 100
City of mailing address::	Irvine
State or Province of mailing address::	CA
Postal or Zip Code of mailing address::	92617

Correspondence Information

Correspondence Customer Number:: 23524

E-Mail address:: PTOMailMadison@foley.com

Representative Information

Representative Customer Number::	23524	

Domestic Priority Information

Application::	**Continuity Type::**	**Parent Application::**	**Parent Filing Date::**
This Application	An application claiming the benefit under 35 USC 119(e)	60/795,946	4/28/2006
This Application	Continuation in part of	11/212,803	8/25/2005
11/212,803	An application claiming the benefit under 35 USC 119(e)	60/604,854	8/25/2004
11/212,803	An application claiming the benefit under 35 USC 119(e)	60/695,946	7/1/2005

Foreign Priority Information

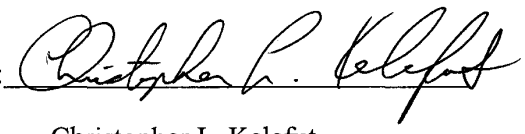
Country::	Application number::	Filing Date::	Priority Claimed::

Assignee Information

Assignee Name::

Respectfully submitted,

Date October 7, 2009

By: 

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

Electronic Patent Application Fee Transmittal

Application Number:	11788279
Filing Date:	19-Apr-2007
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Filer:	Christopher L. Kalafut/Lee Jankoski
Attorney Docket Number:	088245-6123

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Priority accept. unintent. delayed claim	1454	1	1410	1410
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**1410**

Electronic Acknowledgement Receipt

EFS ID:	6218523
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Lee Jankoski
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	07-OCT-2009
Filing Date:	19-APR-2007
Time Stamp:	15:55:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1410
RAM confirmation Number	2298
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1		6123PriorityClaimPrelimAmend10709.pdf	271227 2142c7fe0517dd51949ae8dca010f0f9ce911809	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	2
	Preliminary Amendment	3	5
	Petition for review by the Office of Petitions.	6	7
	Application Data Sheet	8	12

Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	30014 99298530ef8f04eefeb9ba2373521c6ceb7face7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	301241		

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.

Atty. Dkt. No. 088245-6123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

PRELIMINARY AMENDMENT TRANSMITTAL

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

Sir:

Transmitted herewith is a preliminary amendment in the above-identified application.

Enclosed are:

[X] Preliminary Amendment (3 pages)

[X] Petition Under 37 C.F.R. § 1.78(a)(6) (2 pages)

[X] Supplemental Application Data Sheet (5 pages)

The fee of $1,410.00 as specified in 37 C.F.R. 1.17(t) for the Petition Under 37 C.F.R. § 1.78(a)(6) is being paid by credit card via EFS-web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this submission, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Please direct all correspondence to the undersigned attorney or agent indicated below.

Respectfully submitted,

Date October 7, 2009

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen, et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

PRELIMINARY AMENDMENT UNDER 37 CFR 1.115

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

Sir:

Prior to examination of the present Continuing Application, Applicant respectfully requests that the application be amended as follows:

Amendments to the Specification begin on page 2 of this document.

Remarks begin on page 3 of this document.

Please amend the application as follows:

Amendments to the Specification:

Please replace the first paragraph with the following rewritten paragraph:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of United States Patent Application Number 60/795,946, filed April 28, 2006. This application is also a continuation in part application of United States Patent Application Number 11/212,803, filed August 25, 2005. U.S. Patent Application No. 11/212,803 claims priority to U.S. Provisional Patent Application No. 60/604,854 filed August 25, 2004 and to U.S. Provisional Patent Application No. 60/695,946 filed July 1, 2005, all of which are entirely incorporated by reference herein.

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendment. It is respectfully submitted that no new matter has been added to the application.

I. Petition Under 37 C.F.R. § 1.78

Submitted herewith is a petition under 37 C.F.R. § 1.78 to correct an unintentionally delayed priority claim. As indicated in the amendment to the specification above, the present application claims priority to U.S. Provisional Patent App. No. 60/795,946, filed April 28, 2006 and is a continuation-in-part of U.S. Patent Application No. 11/212,803, filed on August 25, 2005, which claims priority to U.S. Provisional Patent App. No. 60/604,854 filed August 25, 2004 and to U.S. Provisional Patent App. No. 60/695,946 filed July 1, 2005. The priority claim is also specified in a supplemental ADS submitted herewith.

II. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable consideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date October 7, 2009

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: August 17, 2009				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	James M. Hannett
Sheet	1	of	2	Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4,385,373	05-24-1983	Howe	
		5,654,752	08-05-1997	Yamazaki	
		6,381,072	04-30-2004	Burger	
		6,727,521	05-16-2002	Merrill et al.	
		7,170,665	01-30-2007	Kaneko et al.	
		7,280,290	10-09-2007	Araki et al.	
		2002/0051071	05-02-2002	Itano et al.	
		2002/0089596	07-11-2002	Suda	
		2002/0122124	09-05-2002	Suda	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]
		International Search Report and Written Opinion for PCT/US2005/30256 mailed July 7, 2008.	
		International Preliminary Report on Patentability for PCT/US2005/030256 issued March 17, 2009.	
		International Search Report and Written Opinion for PCT/US2006/25781 mailed July 22, 2008.	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: August 17, 2009				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	James M. Hannett
Sheet	2	of	2	Attorney Docket Number	088245-6123

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	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[6]
		International Preliminary Report on Patentability for PCT/US2006/025781 issued March 10, 2009.	
		Office Action for United States Patent Application 11/788,120, mailed May 19, 2009.	
		Notice of Allowance for United States Patent Application 11/888,546, mailed June 3, 2009	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

MADI_1986768.1

Electronic Acknowledgement Receipt	
EFS ID:	5897900
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	17-AUG-2009
Filing Date:	19-APR-2007
Time Stamp:	13:09:02
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		ForeignNPLs.pdf	497315 3820f06f05f0883c53c74e1f8827db6825829fd2	yes	20

	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	NPL Documents		1	10	
	NPL Documents		11	11	
	NPL Documents		12	19	
	NPL Documents		20	20	
Warnings:					
Information:					
2		USNPLs.pdf	425894 fa91999440f7eb41ef41f54681547f17a9d5e3b0	yes	16
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	NPL Documents		1	6	
	NPL Documents		7	16	
Warnings:					
Information:					
3		SuppIDS.pdf	129317 d3e20fdfdad267f717423bc9755cb9c5a1cb6ecb	yes	4
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	4	
Warnings:					
Information:					
		Total Files Size (in bytes):	1052526		

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.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/30256

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **H01L 27/00**
(2006.01)

USPC: 250/208.1;257/432;348/336
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 250/208.1; 257/432; 348/265, 336

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2002/0020845 A1 (OGURA et al) 21 Feb 2002 (21.02.2002), Fig. 1, 2A, Paragraphs 0042-0057 "	1-10,12-17,19-23,30-46,48-52,58-62,64-67 --- 11,18,24-29,47,53-57,63
Y	US 6,727,521 B2 (MERRILL et al) 16 May 2002 (16.05.2002), Fig. 1, Paragraphs 0013-0015	11,18,47
Y	US 2002/0067416 A1 (YONEDA et al) 6 June 2002 (06.06.2002), Fig. 7, 23	24-49,53-57,63
A	US 2002/0051071 A1 (ITANO et al) 2 May 2002 (02.05.2002), entire document	1-67
A	US 2002/0089596 A1 (SUDA) 11 July 2002 (11.07.2002), entire documents	1-67

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 June 2008 (07.06.2008)	07 JUL 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Stephen Yam Telephone No. (571)272-2447

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/30256

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/0122124 A1 (SUDA) 5 Sept 2002 (05.09.2002), entire document	1-67
A	US 6,611,289 B1 (YU et al) 26 Aug 2003 (26.08.2003), entire document	1-67

Form PCT/ISA/210 (continuation of second sheet) (April 2005)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
NEIL A. STEINBERG
2665 MARINE WAY, SUITE 1150
MOUNTAIN VIEW, CA 94043

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	07 JUL 2008
Applicant's or agent's file reference 300.001-PCT	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US05/30256	25 August 2005 (25.08.2005)	25 August 2004 (25.08.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC: **H01L 27/00**(2006.01)
USPC: 250/208.1;257/432;348/336

Applicant

NEWPORT IMAGING CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I — Basis of the opinion
- ☐ Box No. II — Priority
- ☐ Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV — Lack of unity of invention
- ☒ Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI — Certain documents cited
- ☒ Box No. VII — Certain defects in the international application
- ☐ Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	07 June 2008 (07.06.2008)	Stephen Yam Telephone No. (571)272-2449

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/30256

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/30256

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-67	YES
	Claims NONE	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-67	NO
Industrial applicability (IA)	Claims 1-67	YES
	Claims NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

Form PCT/ISA/237 (Box No. V) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/30256

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Please See Continuation Sheet

Form PCT/ISA/237 (Box No. VII) (April 2007)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/30256

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:
Claims 1-10,12-17,19-23,30-46,48-52,58-62 and 64-67 lack an inventive step under PCT Article 33(3) as being obvious over Ogura et al. US 2002/0020845 A1.

Regarding Claim 1, Ogura et al. teach (see Fig. 1, 2A) a digital camera comprising: a plurality of arrays (2-5) of photo detectors, including: a first array (2) of photo detectors to sample an intensity of light; and a second array (3) of photo detectors to sample an intensity of light; signal processing circuitry (for performing the compound-eye imaging- see Paragraph 0004, 0005, 0054), coupled to the first and second arrays of photo detectors, to generate a composite image using (i) data which is representative of the intensity of light sampled by the first array of photo detectors, and (ii) data which is representative of the intensity of light sampled by the second array of photo detectors (see Paragraph 0004, 0005); and wherein the first array of photo detectors and the second array of photo detectors are integrated on or in the same semiconductor substrate (see Fig. 2A, Paragraph 0042). Ogura et al. does not disclose the signal processing circuitry integrated on the semiconductor substrate. It is well known in the art to integrate all the electronic semiconductor components on a single semiconductor substrate, to form a single chip to perform all the desired functions. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the signal processing circuitry integrated on the semiconductor substrate, in the digital camera of Ogura et al., to integrate all the components for a unified component in the digital camera.

Regarding Claim 34, Ogura et al. teach (see Fig. 1, 2A) the first lens includes a predetermined optical response to the light of the first wavelength; a second lens disposed in with an optical path of the second array of photo detectors wherein the second lens includes a predetermined optical response to the light of the second wavelength (see Fig. 1).

Regarding Claim 37, Ogura et al. teach a third array (5) of photo detectors to sample the intensity of light of a third wavelength; a third lens (9) disposed in with an optical path of the third array of photo detectors wherein the third lens includes a predetermined optical response to the light of the third wavelength; and and wherein the signal processing circuitry is coupled to the third array of photo detectors and generates a composite image using (i) data which is representative of the intensity of light sampled by the first array of photo detectors, (ii) data which is representative of the intensity of light sampled by the second array of photo detectors, and (ii) data which is representative of the intensity of light sampled by the third array of photo detectors.

Regarding Claim 2, Ogura et al. teach the first array of photo detectors sample an intensity of light of a first wavelength (red); and the second array of photo detectors sample an intensity of light of a second wavelength (green).

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/30256

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

Regarding Claim 3, Ogura et al. teach a third array (5) of photo detectors to sample the intensity of light of a third wavelength (blue), and wherein the signal processing circuitry is coupled to the third array of photo detectors and generates a composite image using (i) data which is representative of the intensity of light sampled by the first array of photo detectors, (ii) data which is representative of the intensity of light sampled by the second array of photo detectors, and (ii) data which is representative of the intensity of light sampled by the third array of photo detectors (see explanation of Claim 1).

Regarding Claims 4 and 39, Ogura et al. teach the first (2), second (3) and third (5) arrays of photo detectors are relatively arranged in a triangular configuration (see Fig. 1).

Regarding Claims 5 and 40, Ogura et al. teach the first array of photo detectors, the second array of photo detectors, the third array of photo detectors, and the signal processing circuitry are integrated on the same semiconductor substrate (see explanation of Claim 1).

Regarding Claims 6 and 41, Ogura et al. teach the first wavelength is associated with a first color, the second wavelength is associated with a second color and the third wavelength is associated with a third color (see Fig. 2A).

Regarding Claims 7 and 42, Ogura et al. teach the first array of photo detectors sample the intensity of light of the first wavelength for a first integration time; the second array of photo detectors sample the intensity of light of the second wavelength for a second integration time; and the third array of photo detectors sample the intensity of light of the third wavelength for a third integration time (since integration is used for capturing an image, the first, second, and third integration times in the claim do not necessarily have to be different).

Regarding Claim 8, Ogura et al. teach the first, second and third arrays of photo detectors are relatively arranged in an isosceles, obtuse, acute or a right triangular configuration (see Fig. 2A).

Regarding Claims 9 and 43, Ogura et al. teach the first wavelength is associated with a first color and the second wavelength is associated with a second color (see Paragraph 0043).

Regarding Claims 10 and 44, Ogura et al. teach the first array of photo detectors sample the intensity of light for a first integration time; and the second array of photo detectors sample the intensity of light for a second integration time (since integration is used for capturing an image, the first, second, and third integration times in the claim do not necessarily have to be different).

Regarding Claim 12, Ogura et al. teach the first array of photo detectors and the second array of photo detectors are disposed in the same image plane (see Fig. 1, 2A).

Regarding Claim 13, Ogura et al. teach (see Fig. 1) a first lens (6) disposed in and associated with an optical path of the first array of photo detectors and a second lens (7) disposed in and associated with an optical path of the second array of photo detectors.

Regarding Claim 14, Ogura et al. teach a substantially uniform color filter sheet disposed in the optical path of the first array of photo detectors (see Paragraph 0052).

Regarding Claims 15, 16, 19, 36, 38, and 48, it is known in the art to combine filter functionality into a lens using a film or materials within the lens and to select an appropriate filter range according to the desired detection spectrum characteristics of the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the lenses as colored with an appropriate optical filter range, in the device of Ogura et al. to integrate the filter and lens functions into a single component.

Regarding Claims 17 and 46, Ogura et al. teach the first array of photo detectors sample an intensity of light of a first wavelength and an intensity of light of a second wavelength; the second array of photo detectors sample an intensity of light of a third wavelength; and the first wavelength is associated with a first color, the second wavelength is associated with a second color and the third wavelength is associated with a third color (see Paragraph 0052).

Regarding Claims 20 and 49, Ogura et al. teach an optical filter (see Paragraph 0052) disposed in and associated with an optical path of the first array of photo detectors, and it is known in the art to select an appropriate filter range according to the desired detection spectrum characteristics of the device.

Regarding Claims 21 and 50, Ogura et al. teach the first array of photo detectors sample the intensity of light of the first wavelength for a first integration time; the first array of photo detectors sample the intensity of light of the second wavelength for a second integration time; and the second array of photo detectors sample the intensity of light of the third wavelength for a third integration time (since integration is used for capturing an image, the first, second, and third integration times in the claim do not necessarily have to be different).

Regarding Claims 22 and 51, Ogura et al. teach (see Paragraph 0004) the signal processing circuitry generates: a first image using data which is representative of the intensity of light sampled by the first array of photo detectors, and a second image using data which is representative of the intensity of light sampled by the second array of photo detectors.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/30256

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

Regarding Claims 23 and 52, Ogura et al. teach (see Paragraph 0004) the signal processing circuitry generates the composite image using the first image and the second image.

Regarding Claims 30-33 and 64-67, it would have been obvious to provide any appropriate surface area for the arrays of photo detectors according to the design of the arrays, depending on the particular sensitivity of the photo detectors, to provide uniform sensitivity for the camera

Regarding Claim 35, Ogura et al. teach the first lens passes light of the first wavelength onto an image plane of the photo detectors of the first array; and the second lens passes light of the second wavelength onto an image plane of the photo detectors of the second array (See Fig. 1).

Regarding Claim 45, Ogura et al. teach a housing (since the device is used within a camera system), wherein the first and second lenses, first and second arrays of photo detectors, and the signal processing circuitry are attached to the housing (since they cannot be suspended as seen in Fig. 1), and wherein the first and second lenses are independently positionable relative to the associated array of photo detectors (see Fig. 1).

Regarding Claims 58-61, it is known to provide multiple signal processing circuitry, analog signal logic, black level logic, and exposure control circuitry for image sensors in a digital camera system, and it would have been obvious to combine them into the Ogura et al. digital camera to provide the basic functionality of capturing a digital image.

Regarding Claim 62, it is known to fix components in a camera system to a frame of the device, to maintain the configuration and alignment of components in the system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a frame, wherein the first and second arrays of photo detectors, the signal processing circuitry, and the first and second lenses are fixed to the frame, in the camera of Ogura et al., to maintain alignment of the components for capturing an optimal image.

Claims 11, 18, and 47 lack an inventive step under PCT Article 33(3) as being obvious over Ogura et al. US 2002/0020845 A1 in view of in view of Merrill US 6,727,521 B2.

Ogura et al. teaches the device of the parent claims but does not teach different semiconductor depths for each color/wavelength. Merrill teaches (see Fig. 1) using different semiconductor depths for optimal detection of each color/wavelength. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide different semiconductor depths for each color/wavelength as taught by Merrill, in the device of Ogura et al., to improve detection sensitivity at each color/wavelength for a more complete image.

Claims 24-29, 53-57, 63 lack an inventive step under PCT Article 33(3) as being obvious over Ogura et al. US 2002/0020845 A1 in view of Yoneda et al. US 2002/0067416 A1.

Ogura et al. teaches the device of the parent claims but does not teach a memory, timing and logic control, wireless/wired/optical communication circuitry or the components integrated on the same semiconductor substrate. Yoneda et al. teach (see Fig. 7, 23) a similar device with a memory (10), timing and logic control (8), and wireless/wired/optical communication circuitry (13). As previously discussed, it is well known in the art to integrate all the electronic semiconductor components on a single semiconductor substrate, to form a single chip to perform all the desired functions. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a memory, timing and logic control, wireless/wired/optical communication circuitry and the components integrated on the semiconductor substrate, in the digital camera of Ogura et al., to enable full camera functionality for the digital camera and to integrate all the components for a unified component in the digital camera.

Claims 1-67 meet the criteria set out in PCT Article 33(4), and thus meet industrial applicability because the subject matter claimed can be made or used in industry.

Continuation of Section VII. Certain defects:
The description is objected to as containing the following defect(s) under PCT Rule 66.2(a)(iii) in the form or contents thereof:

In the "Brief Description of the Drawings" section, the following figures do not have a description: Figures 10I-10N, 50G-50H, 54G-54H, 57G-57H, 78O-78Q, 81D, 83D-83E, 97D, 98A-98B, and 110G-110H.
The following figures are not described in the "Detailed Description" section: Figures 17I-17K, 33K, and 127-138.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/30256

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

Page 30: "Figures 87A-8B" should read "Figures 87A-87B"
Page 30: Reference is made to Figure 90B, which does not appear in the Drawings.
Page 51: "370A" should read "330A"
Page 53: "10I" should read "10G"
Page 57, line 14: "476" should read "474"
Page 57: "pixel pixels" should read "pixel"
Page 60: "to in order" should read "in order"
Page 63: "circles XX" should read "circles 502"
Page 67: "support320" should read "support 320"
Page 69: "630A-630D" should read "600A-600D"
Page 74: "support 520" should read "support 320"
Page 74: "circuit board 732" should read "circuit board 720"
Page 75, line 3-7 is identical to lines 12-16 and should be deleted.
Page 80: "330S" should read "330D"
Page 81: "supports 32" should read "supports 320"
Page 81: "Figures 41B-41D" should read "Figures 41B, 41D, and 41C"
Page 81: "456A-456C, 458A-458C, shown in Figures 15B-15D" should read "458A-458C, 456A-456C, shown in Figures 15B, 15E, and 15D"
Page 81 contains duplicate paragraph starting with "In that regard, Figures 42-44...".
Page 82: "Figure 41C" should read "Figure 41D"
Page 83: "Figure 41D" should read "Figure 41C"
Page 86: "pads on the circuit board 732" should read "pads 732 on the circuit board 720"
Page 86: "pads on the image device 792" should read "pads 742 on the image device 520" and "pads on the second device 794" should read "pads 794 on the second device 780"
Page 87: "apertures 804" should read "apertures 804A-804D"
Page 87: "spacer 500" should read "spacer 800"
Page 96 makes reference to a "Figure", but no number is given.
Page 99: "Figure 78R" should read "Figure 78Q"
Page 101: "Bayer patter" should read "Bayer pattern"
Page 102: The heading "Four Camera Channels" should appear on a separate line.
Page 102: "In some embodiments," should read "In some embodiments (see for example Figure 8),"
Page 117: "four support portions" should read "three support portions"
Page 117: "Support portion 600D...310D" should be deleted.
Page 127: "support portions 600A-600D" should read "support portions 600A-600C"
Page 119: "330D" should read "330C" and "310D" should read "310C"
Page 119, line 21: "616D" should read "616C" and "600D" should read "600C"
Page 120: "Figures 89A" should read "Figure 99A"
Page 126: "Figures 103B-103E" should read "Figures 103C-103E"
Page 135, line 10: "109D" should read "109E"
Pages 168-169: the first mention of "115R" should read "115T", "115P" should read "115U", "115Q" should read "115V", and the second mention of "115R" should read "115X"
Page 173: "Figures 121A-121B" should read "Figures 121-122"

Claims 26, 29, 50, 57, and 63 are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof:

Claim 26, line 1: "logic that to provide" should read "logic to provide"
Claim 29, line 1 recites the limitation "the communication circuitry," which lacks antecedent basis when dependent on claim 24. The claim should be dependent on claim 27 or 28.
Claim 50, line 4: "the third wavelength" should read "the second wavelength"
Claim 57, line 1 recites the limitation "the communication circuitry," which lacks antecedent basis when dependent on claim 53. The claim should be dependent on claim 55 or 56.
Claim 63, line 1: "logic that to provide" should read "logic to provide"

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference 300.001-PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2005/030256	International filing date *(day/month/year)* 25 August 2005 (25.08.2005)	Priority date *(day/month/year)* 25 August 2004 (25.08.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant NEWPORT IMAGING CORPORATION		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☒	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 17 March 2009 (17.03.2009)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Masashi Honda
Facsimile No. +41 22 338 82 70	e-mail: pt08.pct@wipo.int

Form PCT/IB/373 (January 2004)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/25781

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **H04N 5/247**(2006.01),**5/228**(2006.01),**5/225**(2006.01),**9/09**(2006.01),**9/097**(2006.01)

USPC: 348/208.99,208.4,208.7,208.8,208.11,262,264,265
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 348/208.99,208.4,208.7,208.8,208.11,262,264,265

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
East Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,654,752 A (YAMAZAKI) 5 August 1997 (05.08.1997)	1-63
Y	US 2005/0128509 A1 (TOKKENEN et al) 16 June 2005 (16.6.2005), column 2, lines 1-60.	1-63
T	US 7,123,298 B2 (SCHROEDER et al) 17 October 2006 (17.10.2006)	1-63
Y	US 2003/0086013 A1 (ARATANI) 8 May 2003 (08.05.2003), column 3, lines 1-60.	1-63
Y	US 2002/0113888 A1 (SONDA et al) 22 August 2002 (22.08.2002), column 3, lines 9-62.	1-63
Y	US 6,381,072 B1 (BURGER) 30 April 2002 (30.04.2002), column 3, lines 60-67 and column 4, lines 1-21.	1-63
Y	US 2004/0017620 A1 (KANEKO et al) 29 January 2004 (29.01.2004), column 7, Lines 1-60.	1-63

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 June 2008 (19.06.2008)	22 JUL 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer /James Hannett/ Telephone No. 571-272-7309

Form PCT/ISA/210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/25781

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,385,373 (HOWE) 24 May 1983 (24.05.1983), column 1, lines 1-30.	1-63
T	US 7,280,290 B2 (ARAKI et al) 9 October 2007 (09.10.2007).	1-63

Form PCT/ISA/210 (continuation of second sheet) (April 2007)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
NEIL A. STEINBERG
2665 MARINE WAY, SUITE 1150
MOUNTAIN VIEW, CA 94043

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

	Date of mailing (*day/month/year*) 22 JUL 2008
Applicant's or agent's file reference 300.002-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date (*day/month/year*)	Priority date (*day/month/year*)
PCT/US06/25781	29 June 2006 (29.06.2006)	01 July 2005 (01.07.2005)

International Patent Classification (IPC) or both national classification and IPC

IPC: **H04N 5/247**(2006.01),**5/228**(2006.01),**5/225**(2006.01),**9/09**(2006.01),**9/097**(2006.01)
USPC: 348/208.99,208.4,208.7,208.8,208.11,262,264,265

Applicant

NEWPORT IMAGING CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I — Basis of the opinion
- ☐ Box No. II — Priority
- ☐ Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV — Lack of unity of invention
- ☒ Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI — Certain documents cited
- ☒ Box No. VII — Certain defects in the international application
- ☐ Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	19 June 2008 (19.06.2008)	/James Hannett/ Telephone No. 703-308-6789

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/25781

Box No. 1 Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/25781

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims NONE	YES
	Claims 1-63	NO
Inventive step (IS)	Claims None	YES
	Claims 1-63	NO
Industrial applicability (IA)	Claims 1-63	YES
	Claims NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/25781

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claims 55 and 56 are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof:
Claims 55 and 56 are duplicated and have different subject matter, the claim numbering is incorrect.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/25781

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:
Claims 1-63 are an inventive step under PCT Article 33(3) as being obvious over US 2005/0128509 A1 Tokkonen et al in view of USPN 7,123,298 B2 Schroeder et al. in view of US 2004/0017620 A1 Kaneko et al.

In regards to Claims 1-63, Tokkonen et al. discloses a digital camera comprising a plurality of arrays of photo detectors, including: two separate CCD or CMOS sensor arrays (234,236) that are responsive the amount of light incident on them, reading on the claimed "first array of photo detectors" and "second array of photo detectors to sample an intensity of light" (Figure 2B, paragraphs 19-20); a lens assembly (200) with lenses (210, 212) disposed in front of sensors (234,236) to focus an image on the sensors, reading on the claimed "first lens disposed in and associated with an optical path of the first array" and "second lens.., with.., the second array" (paragraph 19); a color filter arrangement (206) with color filters (226,228) disposed in front of sensors (234,236) to allow only a single color to reach each of the sensor, reading on the claimed "first array.., sample an intensity of light of a first wavelength," "second array.., sample.., a second wavelength," and "a substantially uniform color filter sheet disposed in the optical path of the first array" (paragraphs 19, 23); and a signal processor that produces two sub-images from the signals of the sensors (234,236) and combines them into a final image, reading on the claimed "signal processing circuitry, coupled to the first and second arrays of photo detectors, to generate a composite image using (i) data.., of the intensity.., sampled by the first array .... and (ii) data.., of the intensity.., sampled by the second array" (paragraph 28). However, Tokkonen et al, does not disclose that the first and second arrays and the signal processing circuitry are integrated in the same semiconductor substrate, with the image.

In the same field of endeavor, Schroeder et al. teaches a color image sensor (100) with three light sensor regions (131-133) fabricated on the same silicon substrate, and an auxiliary circuit (128), including signal processing circuits, that occupies a portion of the substrate outside of the sensor regions, reading on the claimed "first array.., second array.., and the signal processing circuitry are integrated on or in the same semiconductor substrate" (figure 2; column 4, lines 53-62; column 8, lines 15-21 ; column 10, lines 39-41). The color image sensor (100) also comprises color filters (141- 143), which only transmit a single color of light and filter out other colors, supported by lenses (101-103), which focus an image on a respective sensor region, and the color filters may be located on a surface of the respective lens, thereby integrated the color
filter into the lens, reading on the claimed "first lens passes light of a first wavelength and filters light of a second wavelength," "first lens disposed in an optical path of the first array of photo detectors wherein the first lens includes a predetermined optical response to the light of the first wavelength," and "second lens.., includes a predetermined optical response to the light of the second wavelength" (column 5, lines 42-66). Schroeder et al. teaches by integrating the components into a single substrate and integrating the filter and lens

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

reduces the number of components and decrease the size of the image sensor.

Tokkonen et al in view of Schroeder et al teaches the use of an imaging system that has multiple image sensors on a single chip and have lens systems including filters etc, over each of the individual sensors wherein the light paths from the different lens systems are designed to not allow light to pass to the other image sensor regions. However, Tokkonen et al in view of Schroeder et al only teaches the use of stationary lens arrays that do not move and does not teach using lens systems actuated by MEMS in order to allow the lens systems to move in a parallel, perpendicular, oblique and angular fashion.

Kaneko et al depicts in Figures 1 and 14 and teaches on Paragraphs [0004, 0101, 0123-0129] a compact lens system that is connected to the front of an image capture device to allow the lens to me moved in all directions to allow the lens to compensate for changes in temperature, humidity and camera shake. Kaneko et al teaches that the lens system will receive a signal from a controller to change the position of the lens based on data sensed from several different sensors. Kaneko et al teaches that it is advantageous to use this lens system instead of a stationary lens system because it provides the lens system and camera with the ability to compensate for camera shake, temperature and humidity fluctuations and therefore, improves image quality.

Therefore, the claims lack the inventive step.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference 300.002-PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2006/025781	International filing date *(day/month/year)* 29 June 2006 (29.06.2006)	Priority date *(day/month/year)* 01 July 2005 (01.07.2005)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant NEWPORT IMAGING CORPORATION		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☒	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 10 March 2009 (10.03.2009)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Nora Lindner e-mail: pt11.pct@wipo.int

Form PCT/IB/373 (January 2004)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	James M. Hannett
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

RELEVANCE OF EACH DOCUMENT

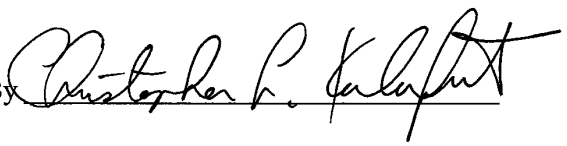
All of the documents are in English. Copies of the International Search Report, Written Opinion and International Preliminary Examination Reports for PCT/US2005/30256 and PCT/US2006/025781, PCT counterparts of U.S. Application 11/212,803, are attached setting forth the portion of each document considered relevant by the examiner. Some of the cited references were previously cited in an Information Disclosure Statement filed on February 4, 2009. A copy of an Office Action issued in related United States Application 11/788,120, is also attached. The listed references were previously cited in an Information Disclosure Statement filed on February 4, 2009. A copy of the Notice of Allowance from a related United States Application 11/888,546 is also attached.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required, the Commissioner is hereby authorized to charge any additional fees which may be due to Deposit Account No. 19-0741.

Respectfully submitted,

Date August 17, 2009

By 

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

Atty. Dkt. No. 088245-6123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	Lin Ye
Art Unit:	2622
Confirmation Number:	5189

NOTIFICATION OF LOSS OF ENTITLEMENT TO SMALL ENTITY STATUS

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

Sir:

Pursuant to 37 C.F.R. §1.27(g)(2), Applicant hereby states that small entity status in the above-identified application is no longer appropriate. Fees paid presently and henceforth will be paid based on large entity status.

Respectfully submitted,

Date August 12, 2009

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

MADI_2012267.1

Electronic Acknowledgement Receipt

EFS ID:	5872520
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Linda Anderson
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	12-AUG-2009
Filing Date:	19-APR-2007
Time Stamp:	13:22:48
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	Miscellaneous Incoming Letter	6123Withdrawalofsmallentity.pdf	24199 0623e94b45fbd425e562dc66c2e6710130d5fb7a	no	1
Warnings:					
Information:					

Total Files Size (in bytes):	24199

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
11/788,279	04/19/2007	2622	1090	088245-6123	37	4

CONFIRMATION NO. 5189

CORRECTED FILING RECEIPT

23524
FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

OC000000034637959

Date Mailed: 02/20/2009

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**

Applicant(s)

Richard Ian Olsen, Irvine, CA;
Darryl L. Sato, Irvine, CA;
Feng-Qing Sun, Irvine, CA;
James Gates, Irvine, CA;

Power of Attorney: The patent practitioners associated with Customer Number 23524

Domestic Priority data as claimed by applicant

This application is a CIP of 11/212,803 08/25/2005 ABN
and claims benefit of 60/795,946 04/28/2006

Foreign Applications

If Required, Foreign Filing License Granted: 02/19/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/788,279**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

Title

Simultaneous multiple field of view digital cameras

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).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard Ian Olsen et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788,279
Filing Date:	4/19/2007
Examiner:	Lin Ye
Art Unit:	2622
Confirmation Number:	5189

REQUEST FOR CORRECTED FILING RECEIPT

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

Attn: Appl. Processing Division, Customer Correction Branch

Sir:

Attached is a copy of the official Filing Receipt received from the PTO in the above-referenced application.

There is an error with respect to the inventors' names. The names should read:

Richard Ian Olsen (Irvine, CA);

Darryl L. Sato (Irvine, CA);

Feng-Qing Sun (Irvine, California);

James Gates (Irvine, California).

The correction is not due to any error by Applicant and, accordingly, no fee is due.

Issuance of a corrected Filing Receipt is respectfully requested.

Respectfully submitted,

Date February 18, 2009

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

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
11/788,279	04/19/2007	2878	1090	NICO.P003	37	4

CONFIRMATION NO. 5189

UPDATED FILING RECEIPT

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
SAN JOSE, CA95157

Date Mailed: 07/31/2007

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 write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

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Richard Ian Olsen, Irvine, CA;
Darryl L. Sato, Irvine, CA;
~~Feng-Qing Sung,~~ Irvine, CA; Feng-Qing Sun
James Gates, Irvine, CA;

Power of Attorney: The patent practitioners associated with Customer Number 53186

Domestic Priority data as claimed by applicant

This application is a CIP of 11/212,803 08/25/2005
and claims benefit of 60/795,946 04/28/2006

Foreign Applications

If Required, Foreign Filing License Granted:

Projected Publication Date: To Be Determined - pending completion of Security Review

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Simultaneous multiple field of view digital cameras

Preliminary Class

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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

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Electronic Acknowledgement Receipt

EFS ID:	4812260
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Carmen McCommon
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	18-FEB-2009
Filing Date:	19-APR-2007
Time Stamp:	14:20:43
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	Request for Corrected Filing Receipt	IV6123requestforcorrectedfilingreceipt.pdf	177544 5d100a5bec7c102b0f15b41fdae0766fa0b07085	no	5

Warnings:	
Information:	

Total Files Size (in bytes):	177544

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:	Richard Ian Olsen et al.
Title:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Appl. No.:	11/788279
Filing Date:	4/19/2007
Examiner:	Lin Ye
Art Unit:	2622
Confirmation Number:	5189

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

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

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of the documents cited by or submitted to the U.S. PTO in parent application Serial No. 11/212,803, filed 8/25/2005. As provided in 37 CFR §1.98(d), copies of the documents are not being provided since they were previously submitted to the United States Patent & Trademark Office in the above-identified parent application. Also cited are documents cited as being relevant during prosecution of the corresponding U.S. Patent Application Serial Numbers 11/322,959, 11/788,122, 11/888,546, 11/788,120, 11/825,382, and 11/888,570.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present

application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 19-0741.

Respectfully submitted,

Date February 4, 2009

By _____

FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4286
Facsimile: (608) 258-4258

Christopher L. Kalafut
Attorney for Applicant
Registration No. 57,946

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Date Submitted: February 4, 2009

(use as many sheets as necessary)

Sheet 1 of 4

Complete if Known	
Application Number	11/788,279
Filing Date	4/19/2007
First Named Inventor	Richard Ian Olsen
Art Unit	2622
Examiner Name	Lin Ye
Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,971,065	07-20-1976	Bayer	
		5,694,165	12-02-1997	Yamazaki et al.	
		5,742,659	4-21-1998	Atac et al.	
		5,760,832	6-2-1998	Yamanaka, et al.	
		6,137,535	10-24-2000	Meyers, Mark Marshall	
		6,429,898	6-7-2005	Shoda et al.	
		6,437,335	8-20-2002	Bohn, David D.	
		6,570,613	5-27-2003	Howell	
		6,611,289	8-26-2003	Yu et al.	
		6,617,565	9-9-2003	Wu, Raymond	
		6,714,239	3-30-2004	Guidash	
		6,765,617	7-20-2004	Tangen et al.	
		6,833,873	12-21-2004	Suda	
		6,841,816	1-11-2005	Merrill et al.	
		6,859,299	2-22-2005	Chiao, Jung-Chih	
		6,882,368	4-19-2005	Suda	
		6,882,864	4-19-2005	Miyake	
		6,885,404	4-26-2005	Suda	
		6,885,508	4-26-2005	Yamaguchi et al.	
		6,903,770	6-07-2005	Kobayashi et al.	
		6,952,228	10-4-2005	Yoneda et al.	
		6,960,817	11-1-2005	Ogura et al.	
		7,095,159	8-22-2006	Machida	
		7,095,561	8-22-2006	Mitchell et al.	
		7,115,853	10-3-06	Jiang et al.	
		7,164,113	1-16-2007	Inokuma et al.	
		7,199,348	4-3-2007	Olsen et al.	
		7,214,926	5-8-2007	Gruhlke, et al.	
		7,223,954	5-29-2007	McNulty, Peter C.	
		7,236,306	6-26-2007	Janson, Jr. et al.	
		7,256,944	8-14-2007	Labaziewicz, et al.	
		7,305,180	12-7-2006	Labaziewicz, et al.	
		7,358,483	4-15-2008	Mitsugi et al.	
		7,362,357	4-22-2008	Brown et al.	
		7,379,104	5-27-2008	Hattori et al.	
		7,417,674	8-26-2008	Gruhlke	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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 (1-800-786-9199) and select option 2.

PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Date Submitted: February 4, 2009

(use as many sheets as necessary)

Sheet 2 of 4

Complete if Known	
Application Number	11/788,279
Filing Date	4/19/2007
First Named Inventor	Richard Ian Olsen
Art Unit	2622
Examiner Name	Lin Ye
Attorney Docket Number	088245-6123

U.S. PATENT DOCUMENTS

		Document Number			
		7,453,510	11-18-2008	Kolehmainen et al.	
		7,460,160	12-2-2008	Hershey et al.	
		2003/0234907	12-25-2003	Kawai	
		2006/0187322	8-24-2006	Janson, Jr. et al.	
		2004/0183918	9-23-2004	Squilla et al.	
		2003/0160886	8-28-2003	Misawa et al.	
		2005/0160112	7-21-2005	Makela et al.	
		2005/0134712	6-23-2005	Gruhlke, et al.	
		2005/0128509	6-16-2005	Tokkonen et al.	
		2006/0125936	6-15-2006	Gruhlke, et al.	
		2002/0113888	8-22-2002	Sonoda et al.	
		2006/0108505	5-25-2006	Gruhlke et al.	
		2006/0087572	4-27-2006	Schroeder	
		2003/0086013	5-8-2003	Aratani, Michiharu	
		2003/0020814	1-30-2003	Ono, Shuji	
		2007/0002159	1-4-2007	Olsen et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		JP 62-011264	1/1987	Unknown		
		EP 599470	6-1994	Picker International, Inc.		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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[6]

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449/PTO				*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
				Filing Date	4/19/2007
Date Submitted: February 4, 2009				**First Named Inventor**	Richard Ian Olsen
				Art Unit	2622
(use as many sheets as necessary)				Examiner Name	Lin Ye
Sheet	3	of	4	Attorney Docket Number	088245-6123

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	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[6]
		DUPARRE et al., "Theoretical analysis of an artificial superposition compound eye for application in ultra flat digital image acquisition devices," Proceedings of SPIE, Vol. 5249, 2004, pp. 408-418.	
		DUPARRE et al., "Ultra-Thin Camera Based on Artificial Apposition Compound Eyes," Proc. 10th Microoptics Conference MOC '04, Jena, 2004, Paper E-2 (2 pages).	
		DUPARRÉ et al., "Artificial apposition compound eye fabricated by micro-optics technology," Applied Optics, Vol. 43, No. 22, August 2004, pp. 4303-4310.	
		DUPARRE et al., "Artificial compound eyes—different concepts and their application to ultra flat image acquisition sensors," Proceeding so SPIE, Vol. 5346 (SPIE, Bellingham, WA, 2004), pp. 89-100.	
		DUPARRE et al., "Microoptical telescope compound eye," Optics Express, Vol.13, No. 3, February 2005, pp. 889-903.	
		Kitamura et al., "Reconstruction of a high-resolution image on a compound-eye image-capturing system," Applied Optics, Vol. 43, No. 8, March 2004, pp. 1719-1727.	
		Miki et al., "A Study of Multi-Stack Silicon-Directed Wafer Bonding for MEMS Manufacturing," 2002., IEEE, pp. 407-410.	
		MIYATAKE et al., "Thin observation module by bound optics (TOMBO) with color filters," SPEI and IS&T, Vol. 5301, 2004, pp. 7-12.	
		NORVELL, ROBIN, Shellcase Debuts Ultra-Thin Miniaturization for Optics, July 8, 2005, (1 page).	
		SHOGENJI et al., "Bimodal fingerprint capturing system based on compound-eye imaging module," Applied Optics, Vol. 43, No. 6, February 2004, pp. 1355-1359.	
		SHOGENJI et al., "Multispectral imaging using compact compound optics," Optics Express, Vol. 12, No. 8., April 2004, pp. 1643-1655.	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, 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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Substitute for form 1449/PTO				***Complete if Known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/788,279
Date Submitted: February 4, 2009				**Filing Date**	4/19/2007
				First Named Inventor	Richard Ian Olsen
(use as many sheets as necessary)				Art Unit	2622
				Examiner Name	Lin Ye
Sheet	4	of	4	Attorney Docket Number	088245-6123

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	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[6]
		STAGER et al., "Replicated Micro-Optics for Automotive Applications," SPIE European Workshop on Photonics in the Automobile, Geneva, 2004, (8 pages).	
		TANIDA et al., "Compact image capturing system based on compound imaging and digital reconstruction," Proceedings of SPIE, Vol. 4455, 2001, pp. 34-41.	
		TANIDA, "Color imaging with an integrated compound imaging system," Optics Express, Vol. 11, No. 18, September 2003, pp. 2109-2117.	
		VÖLKEL et al., "Miniaturization of Imaging Systems," mstnews, February 2003, pp. 36-38.	
		VOLKEL et al., "Miniaturized imaging systems," Elsevier Science B.V., Microelectronic Engineering 67-68 (2003), pp. 461-472.	
		WOOD et al., "Resolution Improvement for Compound Eye Images Through Lens Diversity," IEEE, Signal Processing Society, DSP/SPE Workshop, August 2, 2004 (5 pages).	

Examiner Signature		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's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.
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Electronic Acknowledgement Receipt	
EFS ID:	4734238
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	23524
Filer:	Christopher L. Kalafut/Carmen McCommon
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	088245-6123
Receipt Date:	04-FEB-2009
Filing Date:	19-APR-2007
Time Stamp:	15:56:05
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		IV6123sidsandsb08.pdf	360560 154a7aab00bc3d0f86d70c67173f51c0cefc a5bc	yes	6

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Information Disclosure Statement Letter	1	2
	Information Disclosure Statement (IDS) Filed (SB/08)	3	6
Warnings:			
Information:			
	Total Files Size (in bytes):	360560	

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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
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/788,279	04/19/2007	Richard Ian Olsen	088245-6123

CONFIRMATION NO. 5189

23524
FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

POA ACCEPTANCE LETTER

OC000000034003453

Date Mailed: 01/14/2009

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/07/2009.

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.

/llam/

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/788,279	04/19/2007	Richard Ian Olsen	NICO.P003

CONFIRMATION NO. 5189

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
SAN JOSE, CA 95157

POWER OF ATTORNEY NOTICE

OC000000034003382

Date Mailed: 01/14/2009

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/07/2009.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/llam/

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

PTO/SB/80 (01-0
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

[X] Practitioners associated with the Customer Number: **23524**

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

[X] The address associated with Customer Number: **23524**

OR

[ ] Firm or Individual Name

Address					
City		State		Zip	
Country		Telephone		Email	

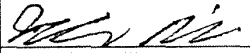
Assignee Name and Address:

PROTARIUS FILO AG, L.L.C.
160 Greentree Drive, Suite 101
Dover, DE 19904
USA

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	12/26/08
Name	Jeremiah Miller	Telephone	
Title	Authorized Person for Protarius Filo AG, L.L.C.		

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 (an 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 minute 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 FORI TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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MADI_1764079.1

Electronic Acknowledgement Receipt

EFS ID:	4567102
Application Number:	11788279
International Application Number:	
Confirmation Number:	5189
Title of Invention:	Simultaneous multiple field of view digital cameras
First Named Inventor/Applicant Name:	Richard Ian Olsen
Customer Number:	53186
Filer:	Christopher L. Kalafut/Bill Morris
Filer Authorized By:	Christopher L. Kalafut
Attorney Docket Number:	NICO.P003
Receipt Date:	07-JAN-2009
Filing Date:	19-APR-2007
Time Stamp:	15:30:19
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		PowerofAttorney6123.pdf	75437 72adcba49849e0dcbddb2706d0ed7da5a5367454	yes	2

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Assignee showing of ownership per 37 CFR 3.73(b).	1	1
	Power of Attorney	2	2
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National Stage of an International Application under 35 U.S.C. 371
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New International Application Filed with the USPTO as a Receiving Office
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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner:	OLSEN, Richard Ian et al.	Confirmation No. 5189	
Application No.:	11/788,279	Filed:	4/19/2007
Patent No.:		Issue Date:	
Docket Number:	088245-6123		
Entitled:	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS		

PROTARIUS FILO AG, L.L.C. (Name of Assignee)

LLC (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title, and interest
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in the patent application/patent identified above by virtue of either:

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OR

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

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The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Christopher L. Kalafut — Signature

01/05/09 — Date

Christopher L. Kalafut (Reg. No. 57,946) — Printed or Typed Name

(608) 258-4286 — Telephone Number

Attorney for Applicant — Title

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/788,279	04/19/2007	Richard Ian Olsen	NICO.P003

CONFIRMATION NO. 5189

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
SAN JOSE, CA 95157

PUBLICATION NOTICE

OC000000031164961

Date Mailed: 07/24/2008

Title: Simultaneous multiple field of view digital cameras

Publication No.US-2008-0174670-A1
Publication Date:07/24/2008

NOTICE OF PUBLICATION OF APPLICATION

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

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APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/788,279	04/19/2007	Richard Ian Olsen	NICO.P003

CONFIRMATION NO. 5189

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
SAN JOSE, CA95157

Date Mailed. 04/17/2008

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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
11/788,279	04/19/2007	2878	1090	NICO.P003	37	4

CONFIRMATION NO. 5189

UPDATED FILING RECEIPT

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
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Date Mailed: 07/31/2007

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 write to the Office of Initial Patent Examination's Filing Receipt Corrections. 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**

Applicant(s)

Richard Ian Olsen, Irvine, CA;
Darryl L. Sato, Irvine, CA;
Feng-Qing Sung, Irvine, CA;
James Gates, Irvine, CA;

Power of Attorney: The patent practitioners associated with Customer Number 53186

Domestic Priority data as claimed by applicant

This application is a CIP of 11/212,803 08/25/2005
and claims benefit of 60/795,946 04/28/2006

Foreign Applications

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Projected Publication Date: To Be Determined - pending completion of Security Review

Non-Publication Request: No

Early Publication Request: No

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Preliminary Class

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).

OIPE IAP20
JUL 18 2007
PTO/SB/33 (07-06)

07-20-07

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	ATTORNEY DOCKET NUMBER
11/788,279	04/19/2007	Richard Ian Olsen	NICO.P003

CONFIRMATION NO. 5189

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
SAN JOSE, CA 95157

FORMALITIES LETTER

Date Mailed: 05/16/2007

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

07/23/2007 SFELEKE1 00000002 11788279

01 FC:2051 65.00 OP

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 and pay any fees required 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 oath or declaration is missing. *A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

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

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$65** for a small entity

- **$65** Surcharge.

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.

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199
PART 2 - COPY TO BE RETURNED WITH RESPONSE



OIPE IAP20 JUL 18 2007 PATENT & TRADEMARK OFFICE

Atty. Docket No NICO.P003 *PATENT*

IN THE UNITED STATES PATENT OFFICE

In Re Patent Application of:	Examiner: Not Yet Assigned
First Named Inventor: Richard Ian Olsen	Art Unit: 2878
Application No. 11/788,279	
Filed: April 19, 2007	
For: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS	

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

RESPONSE TO NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

Sir:

In response to a Notice to File Missing Parts of Nonprovisional Application mailed May 16, 2007 in connection with the above-referenced patent application, Applicants submit herewith:

1. a copy of the Notice to file missing parts;
2. a declaration in compliance with 37 CFR § 1.36;
3. a petition for one months extension of time under 37 CFR § 1.136(a);
4. a credit card authorization in the amount of $125.00 for the late declaration surcharge and one month extension of time fee;
5. preliminary amendment, including replacement drawings (22 sheets);
6. response letter to notice of missing parts;
7. certificate of mailing by Express Mail.

Respectfully Submitted,
Courtney Staniford & Gregory & LLP

Date July 18, 2007

Richard L. Gregory, Jr.
Reg. No. 42,607



EXPRESS MAIL CERTIFICATE OF MAILING

Express Mail" mailing label number: EV 708 402 375 US
Date of Deposit: July 18, 2007
I hereby certify that I am causing the paper(s) and/or fee(s) indicated below to be deposited with the United States Postal Service "Express Mail Post Office to Addressee" service on the date indicated above and that the paper(s) and/or fee(s) have been addressed to the Mail Stop Patent Application, Commissioner for Patents, Alexandria, VA 22313-1450.

Jerry Donnard
(Typed or printed name of person mailing paper(s) or fee(s))

(Signature of person mailing paper or fee)

7.18.2007
(Date signed)

Serial/Patent No.: 11/788,279 Filing/Issue Date: April 19, 2007 Client: Newport Imaging Corp.
Title: Simultaneous Multiple Field of View Digital Cameras

Atty. Docket No.: NICO.P003 Date Mailed: July 18, 2007

The following has been received in the U.S. Patent & Trademark Office on the date stamped hereon:

☐ Amendment/Response (pgs.)	☑ Petition for Extension of Time (1 month)
☐ Preliminary Amendment (pgs.)	☐ Information Disclosure Statement & PTO/SB/08A
☐ Application - Utility (pgs.)	☐ Issue Fee Transmittal
☐ Application - Rule 1.53(b) Contin. (pgs.)	☑ Submission of Preliminary Amendment
☐ Application - Rule 1.53(b) Divis. (pgs.)	☐ Notice of Appeal
☐ Application - Rule 1.53(b) CIP (pgs.)	☐ Appeal Brief (pgs. in triplicate)
☐ Application - Rule 1.53(d) CPA (pgs.)	☐ Reply Brief
☐ Application - PCT (pgs.)	☑ Response to Notice of Missing Parts
☐ Application - Provisional (pgs.)	☐ Utility Patent Application Transmittal
☑ Drawings (Replacement, 22 sheets)	☐ Fee Transmittal (in duplicate)
☑ Declaration & Power of Attorney (3 pgs.)	☑ Itemized Postcard
☐ Assignment & Cover Sheet (pgs.)	☑ Express Mail Certificate of Mailing
☐ Power of Attorney by Assignee (pgs.)	☑ Express Mail No. **EV 708 402 375 US**
☐ Nonpublication Request (35 USC 122(b))	☑ Authorization to Charge Credit Card Amt $125.00

☑ Other Copy of Notice to File Missing Parts of Nonprovisional Application

OIPE IAP20 JUL 18 2007 PATENT & TRADEMARK OFFICE

PTO/SB/22 (04-07)
Approved for use through 09/30/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARMENT OF COMMERCE
Under the paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless if displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) **FY 2006** *(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)*	Docket Number (Optional) NICO.P003
Application Number 11/788,279	Filed April 19, 2007
For Simultaneous Multiple Field of View Digital Cameras	
Art Unit 2878	Examiner

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	
☑	One month (37 CFR 1.17(a)(1))	$120	$60	$ 60
☐	Two months (37 CFR 1.17(a)(2))	$450	$225	$
☐	Three months (37 CFR 1.17(a)(3))	$1020	$510	$
☐	Four months (37 CFR 1.17(a)(4))	$1590	$795	$
☐	Five months (37 CFR 1.17(a)(5))	$2160	$1080	$

☑ Applicant claims small entity status. See 37 CFR 1.27.

☐ A check in the amount of the fee is enclosed.

☑ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number _____. I have enclosed a duplicate copy of this sheet.

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.

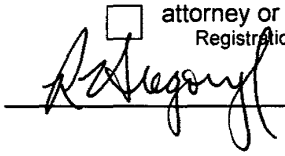
I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration Number 42,607

☐ attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____



Signature — July 18, 2007 (Date)

Richard L. Gregory, Jr. (Typed or printed name) — 408-342-1900 (Telephone Number)

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☑ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(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.**

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

07/23/2007 SFELEKE1 00000002 11788279 60.00 OP
02 FC:2251



DECLARATION AND POWER OF ATTORNEY
(Docket No. NICO.P003)

As a below-named inventor, I hereby declare that:

My residence, mailing address, and citizenship are as stated below next to my name.

I believe I am an original, first and joint inventor of the inventions described and claimed in the specification filed:

_____ HEREWITH,
__X__ on April 19, 2007, Application Number 11/788,279,
and entitled:

SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

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

I acknowledge the duty to disclose information that is material to the examination of this application in accordance with 37 CFR § 1.56.

I hereby appoint the **registered patent practitioners associated with Customer Number 53186** with full power of substitution and revocation, to prosecute this application and transact all business in the U.S. Patent and Trademark Office connected therewith. The current mailing address and telephone and facsimile numbers are:

P.O. Box 9686
San Jose, California 95157

Tel: (408) 342-1900
Fax: (408) 342-1909

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Inventor: Richard Ian OLSEN
Address: 101 Academy Drive, Suite 100
Irvine, CA 92617

Citizenship: US

Date: 6.07.07

Richard Ian OLSEN

Inventor: Darryl L. SATO
Address: 101 Academy Drive, Suite 100
Irvine, CA 92617

Citizenship: US

Date: 6/7/07

Darryl L. SATO

Inventor: Feng-Qing SUN
Address: 101 Academy Drive, Suite 100
Irvine, CA 92617

Citizenship: CN

Date: 6/8/07

Feng-Qing SUN

Inventor: James GATES
Address: 101 Academy Drive, Suite 100
Irvine, CA 92617

Citizenship: US

Date: 7 June, 2007

James Gates

James GATES

OIPE IAP20 JUL 18 2007 PATENT & TRADEMARK OFFICE

Attorney Docket No. NICO.P003 Patent

Transmittal of Preliminary Amendment

Certification Under 37 C.F.R. §1.10 (if applicable)

EV 708 402 375 US "Express Mail" Label Number

July 18, 2007 Date of Deposit

I hereby certify that this application, and any other documents referred to as enclosed herein are being deposited in an envelope with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and addressed to the Mail Stop Amendment, Commissioner for Patents, PO Box 1450, Alexandria, VA. 22313-1450

Jerry Donnard (Print Name of Person Mailing Application)

(Signature of Person Mailing Application)

IN THE UNITED STATES PATENT OFFICE

In Re Patent Application of:	)	
	)	
Richard Ian Olsen, et al.	)	Examiner: Not assigned
	)	
Application No. 11/788,279	)	Art Unit: 2878
	)	
Filed: April 19, 2007	)	
	)	
For: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS	)	

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

PRELIMINARY AMENDMENT

Sir:

Please enter the following amendments before examination of this application.

IN THE DRAWINGS

Please amend the drawings as follows.

Please replace sheets 1-22 of the drawings with the replacement sheets enclosed herewith.

REMARKS

Applicants respectfully request entry of the foregoing amendments before examination of the application. Applicants state that no new matter is added by the replacement drawings.

Authorization to Charge Deposit Account

The Commissioner is authorized to charge any additional fees which may be required in connection with this Preliminary Amendment, including petition fees and extension of time fees, to Deposit Account Number 503616 (Attorney Docket Number NICO.P003).

Respectfully submitted,
Courtney Staniford & Gregory & LLP

Date: July 18, 2007

Richard L. Gregory, Jr.
Reg. No. 42,607

Customer Number 53186
P.O. Box 9686
San Jose, CA 95157
Tel: 408-342-1900
Fax: 408-342-1909

OIPE IAP20
JUL 18 2007
PATENT & TRADEMARK OFFICE

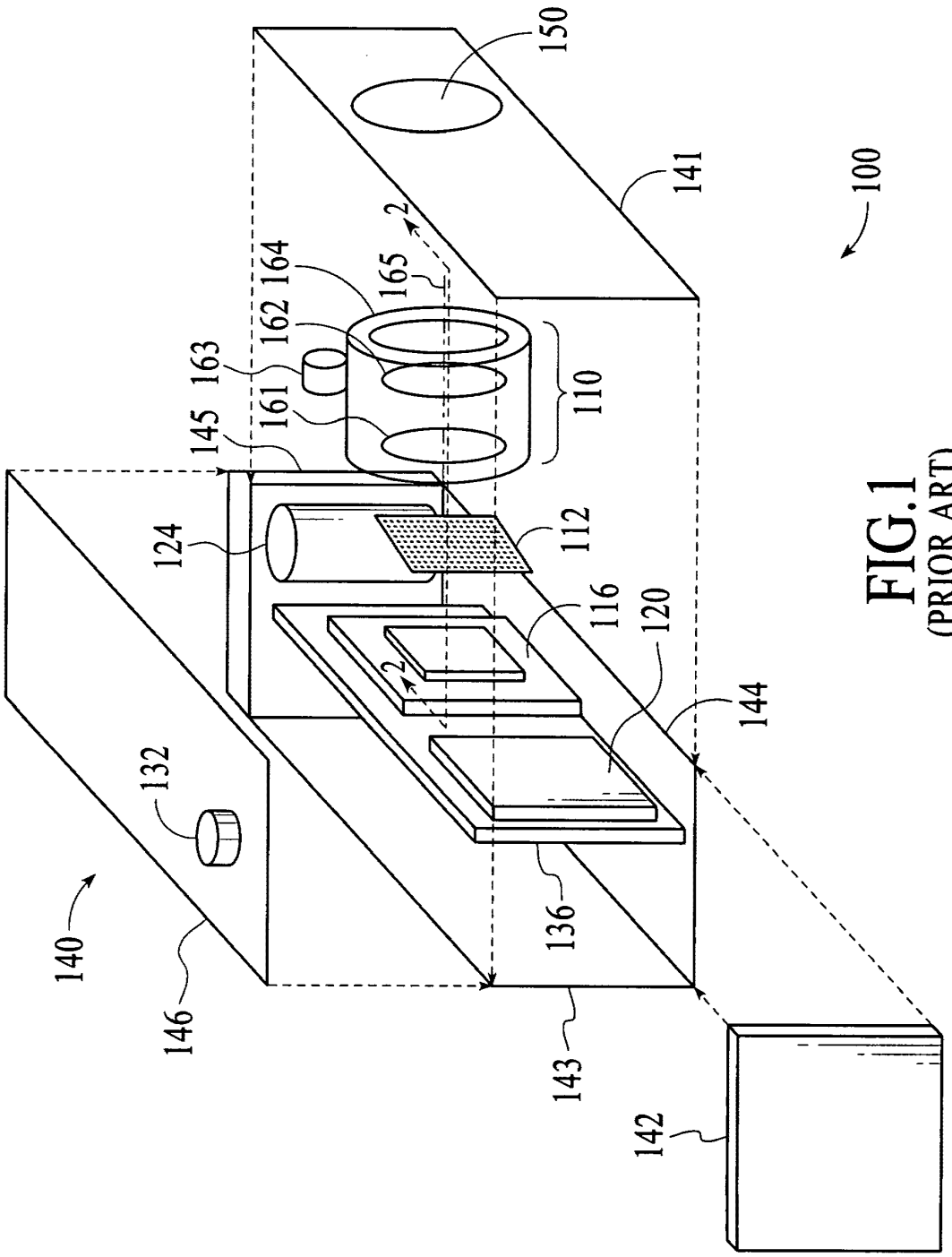


FIG.1
(PRIOR ART)

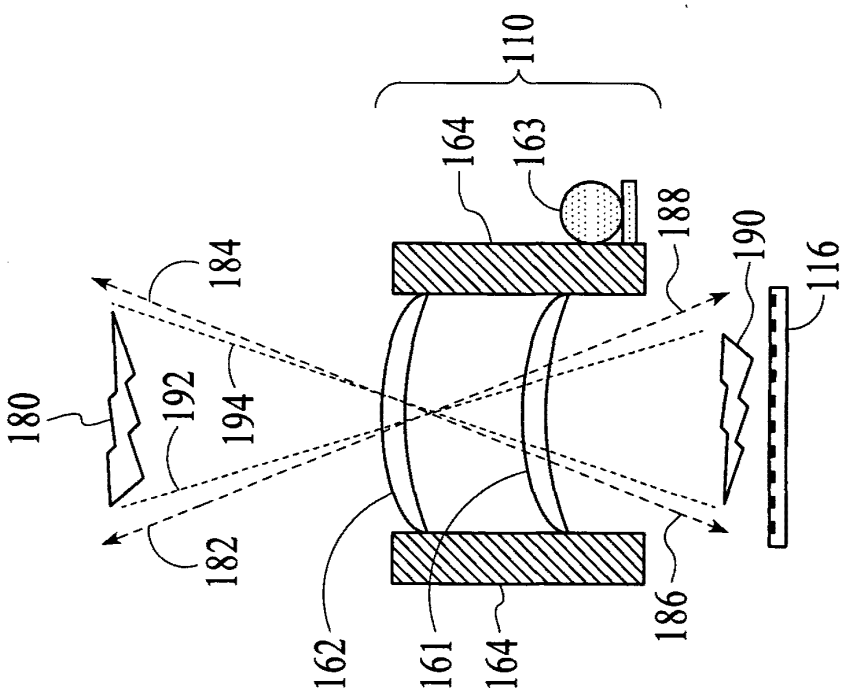


FIG.2B
(PRIOR ART)

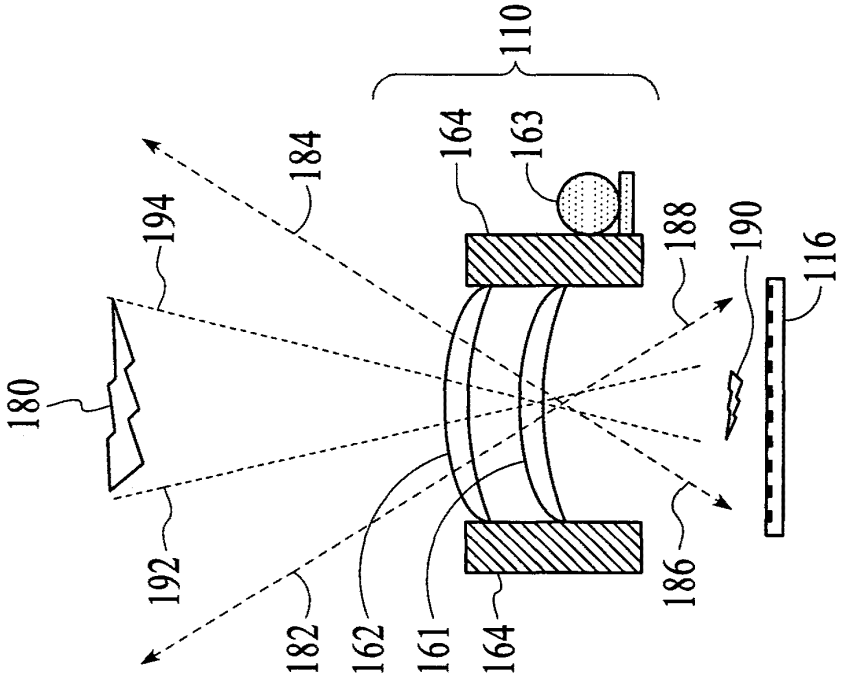


FIG.2A
(PRIOR ART)

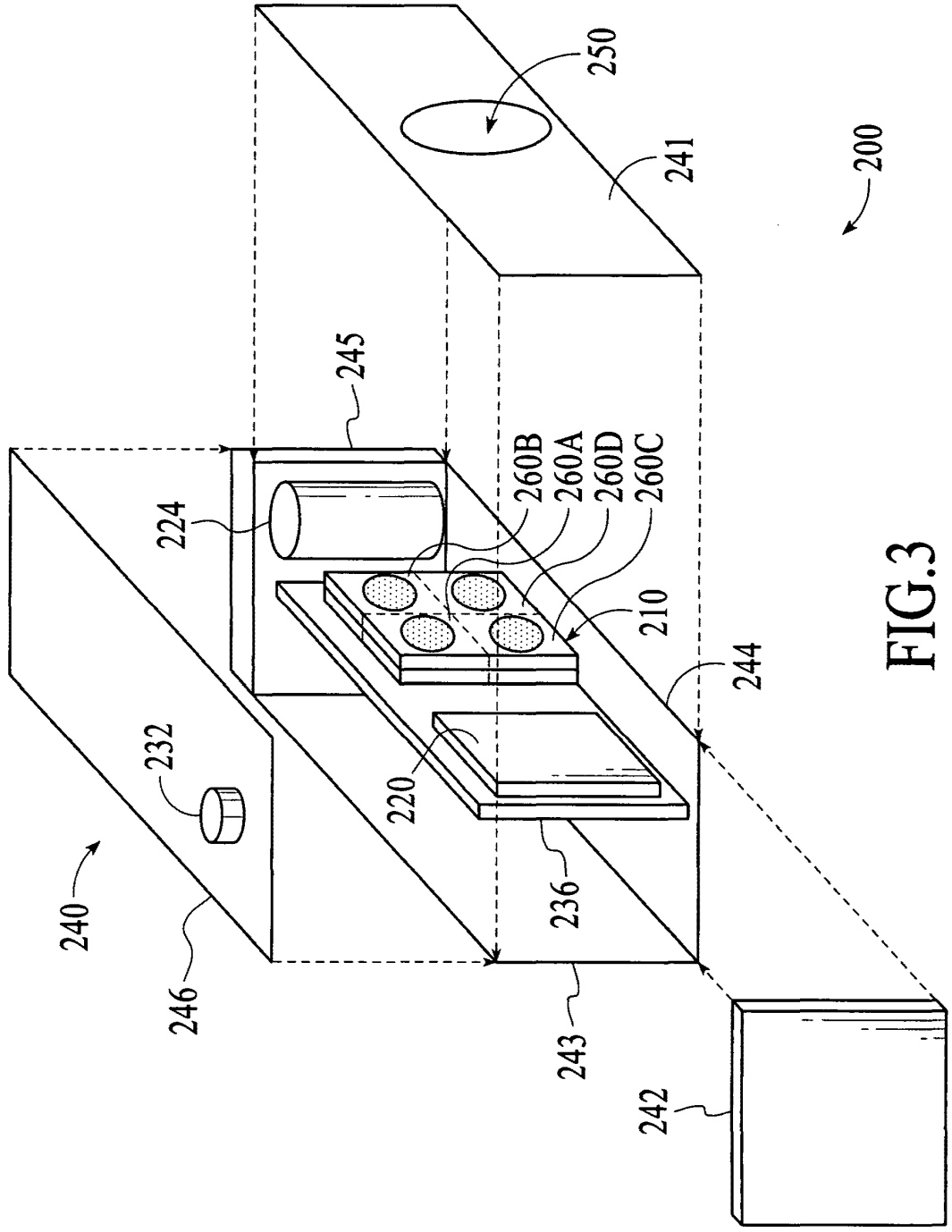

250
241
200
245
260B
260A
260D
260C
224
210
244
232
220
240
236
246
243
242

FIG.3

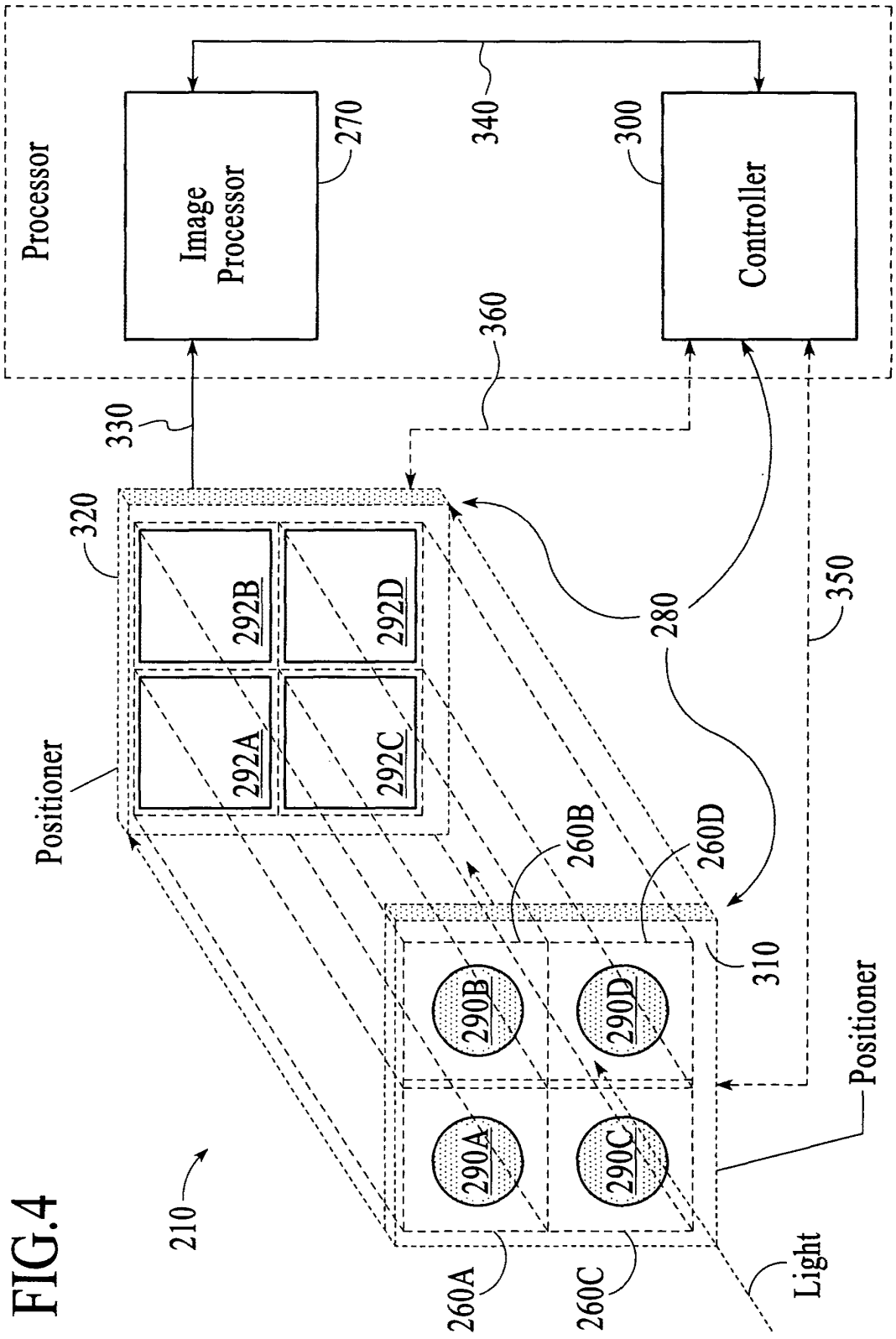

Processor
Image Processor
270
340
300
Controller
360
330
320
292B
292D
292A
292C
280
350
Positioner
260B
260D
310
290B
290D
290A
290C
Positioner
210
260A
260C
Light

FIG.4

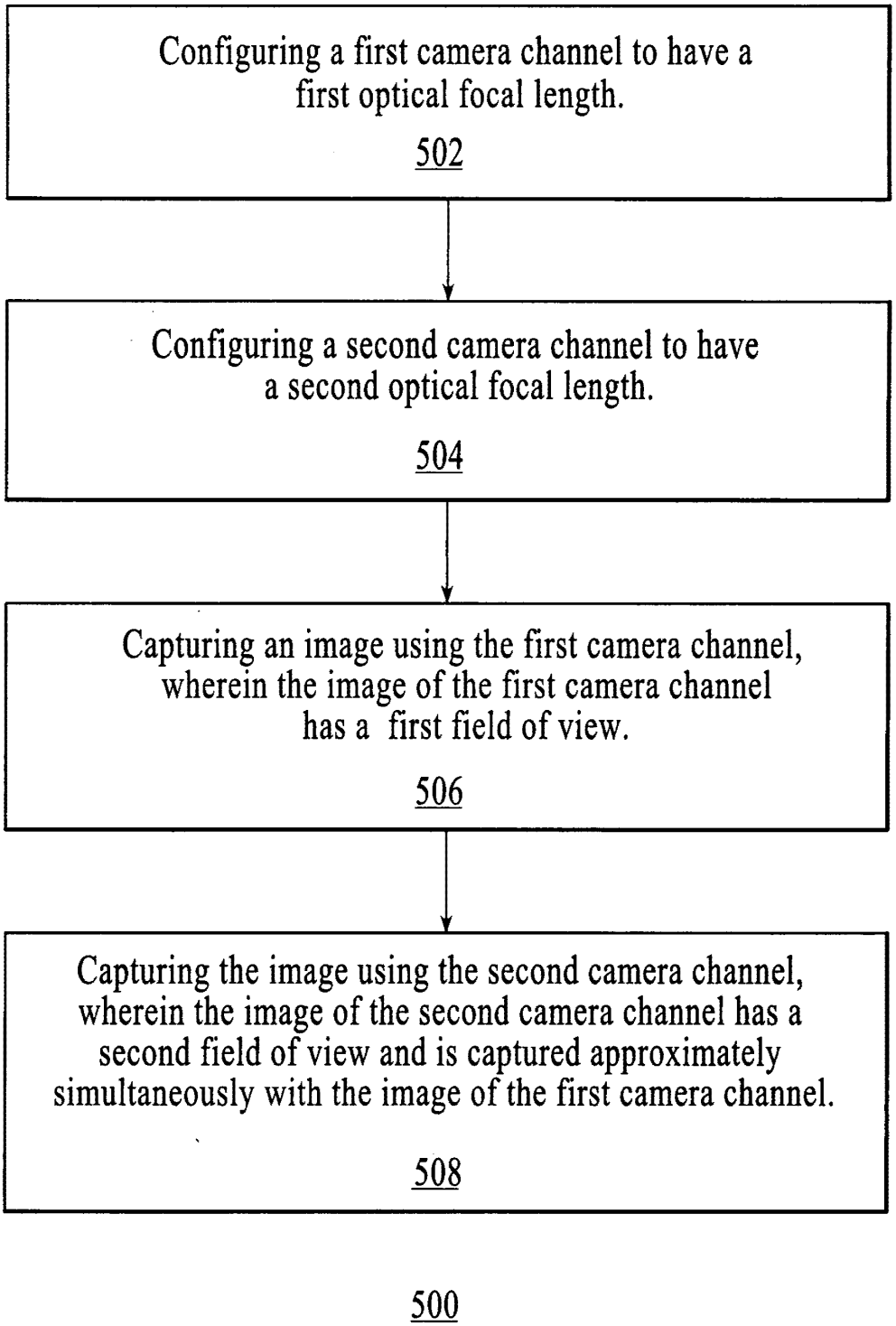

Configuring a first camera channel to have a first optical focal length.
502
Configuring a second camera channel to have a second optical focal length.
504
Capturing an image using the first camera channel, wherein the image of the first camera channel has a first field of view.
506
Capturing the image using the second camera channel, wherein the image of the second camera channel has a second field of view and is captured approximately simultaneously with the image of the first camera channel.
508
500

FIG.5

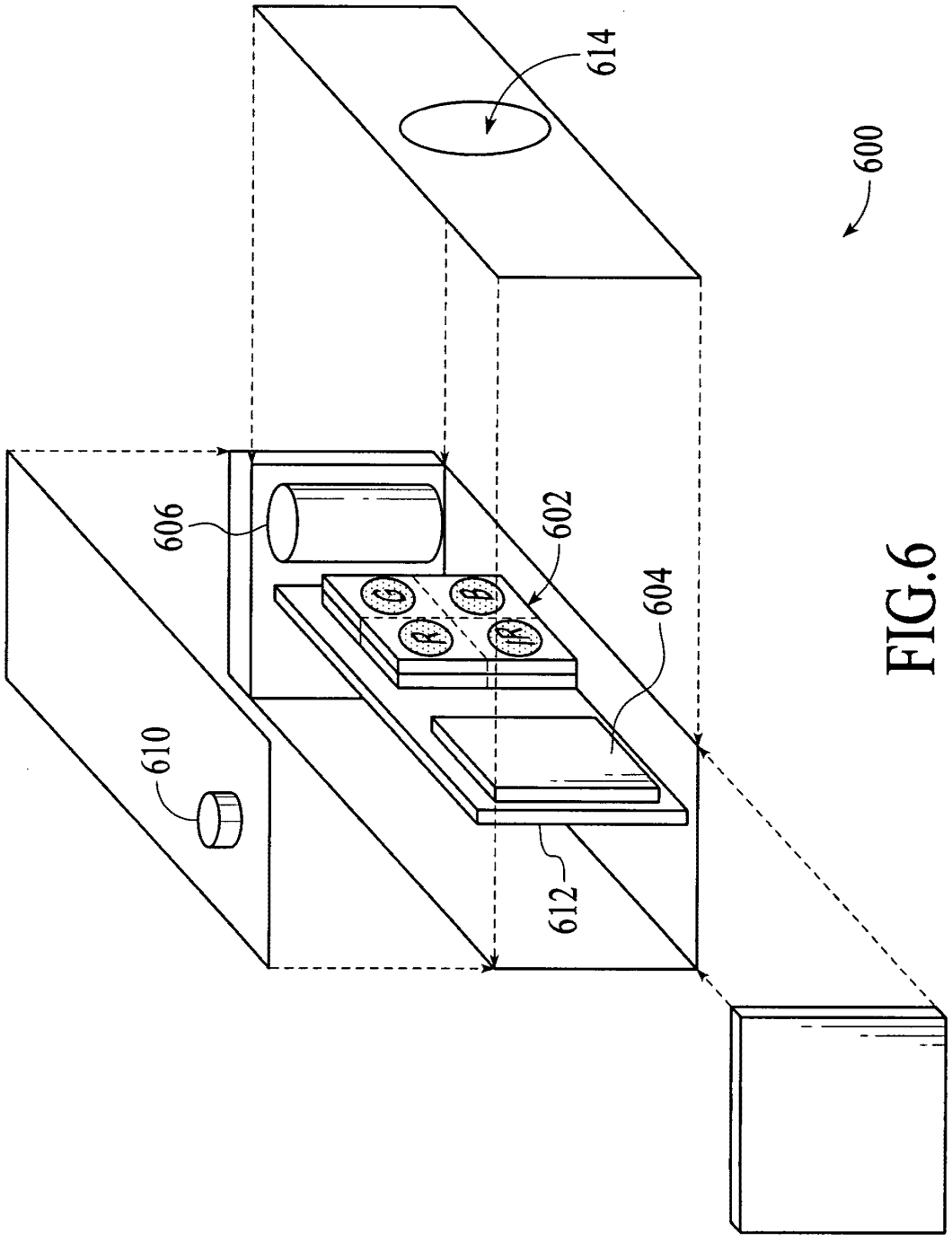


FIG.6

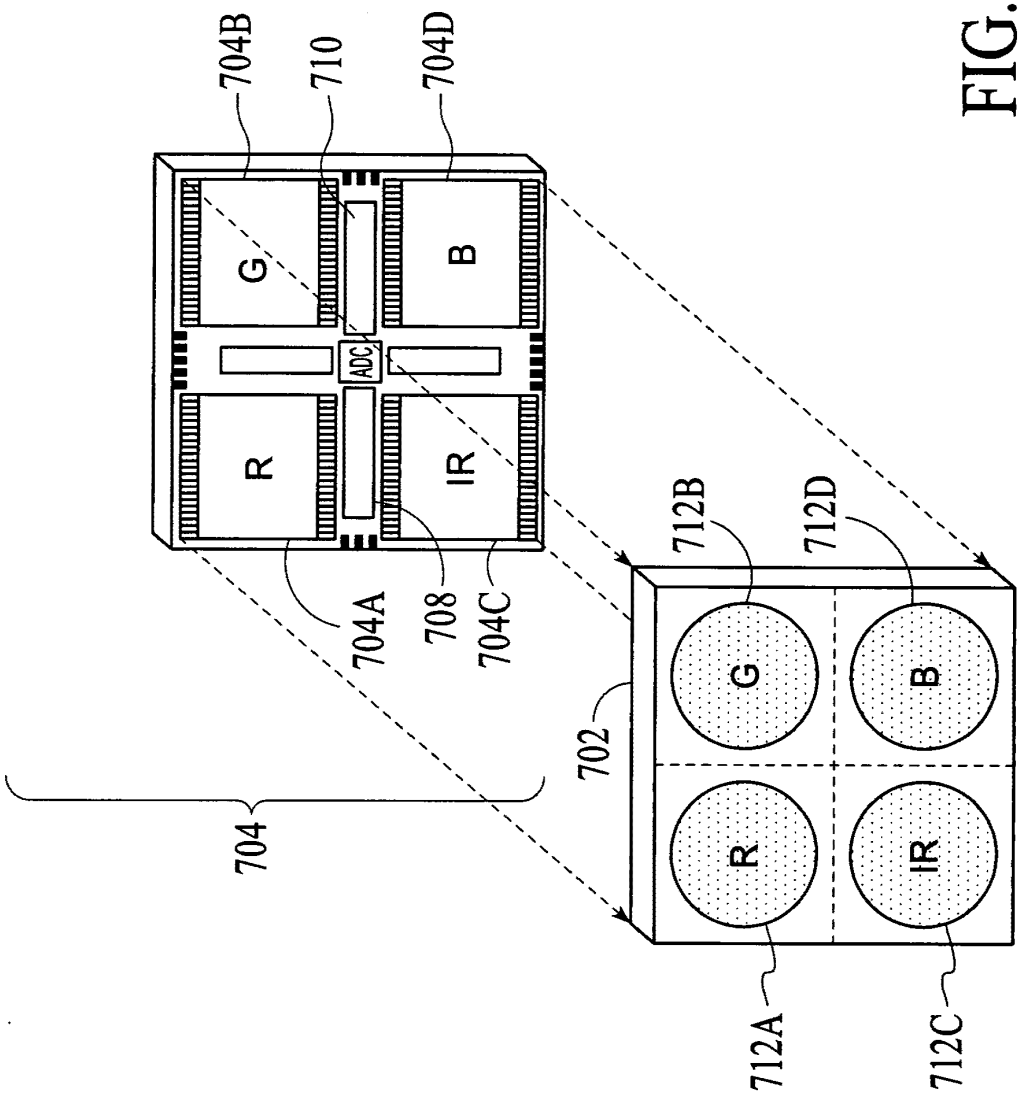

704B
710
704D
G
B
ADC
R
IR
704A
708
704C
712B
712D
702
704
G
B
R
IR
712A
712C

FIG.7

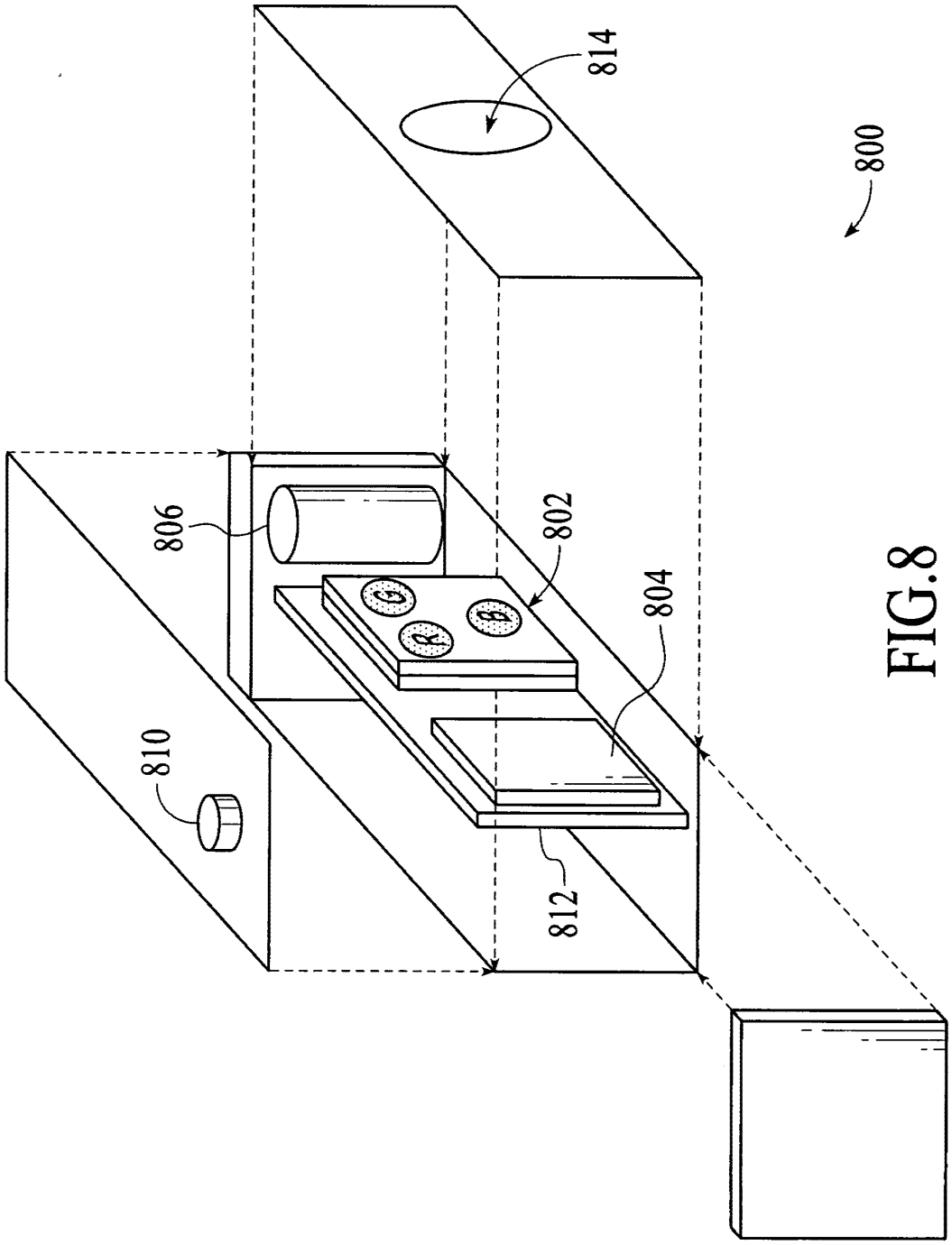


FIG.8

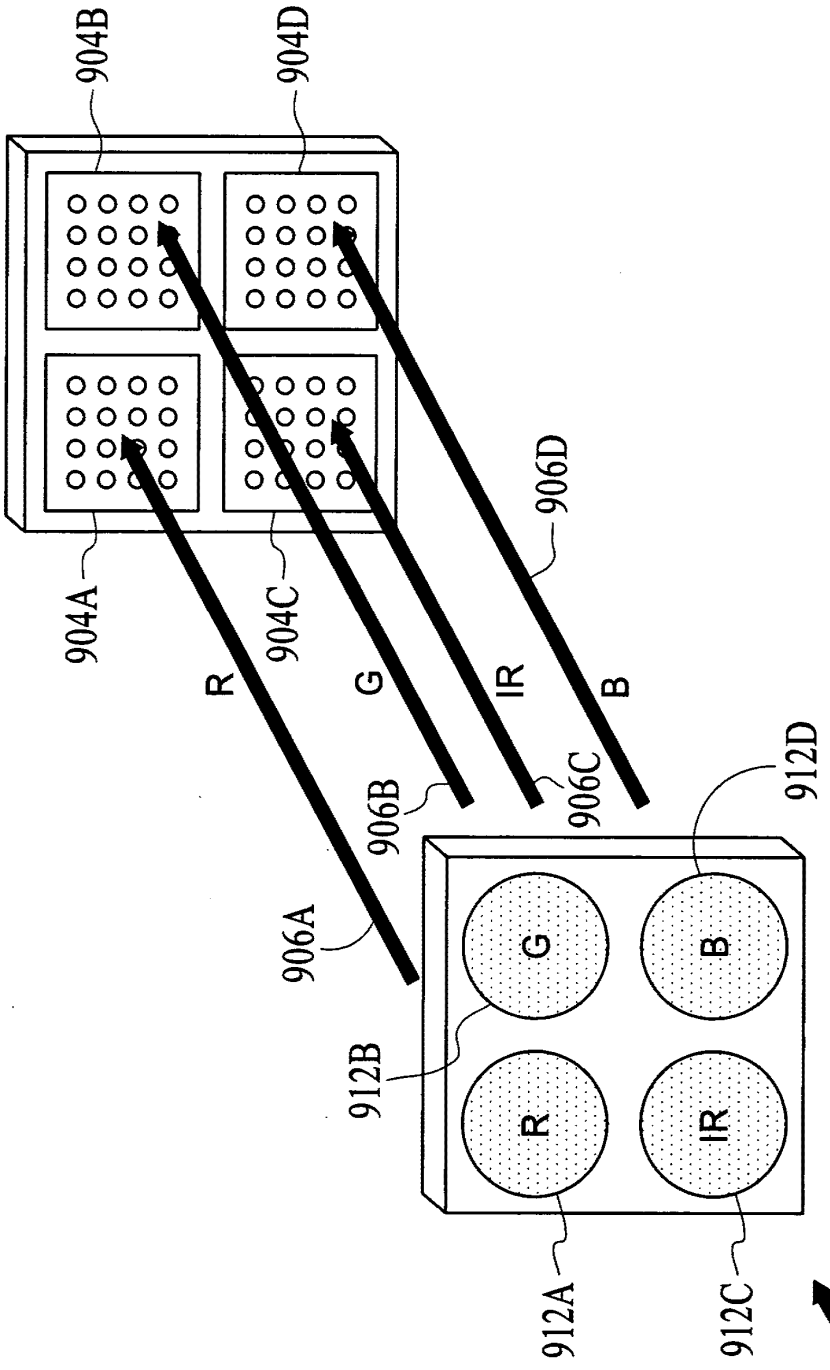
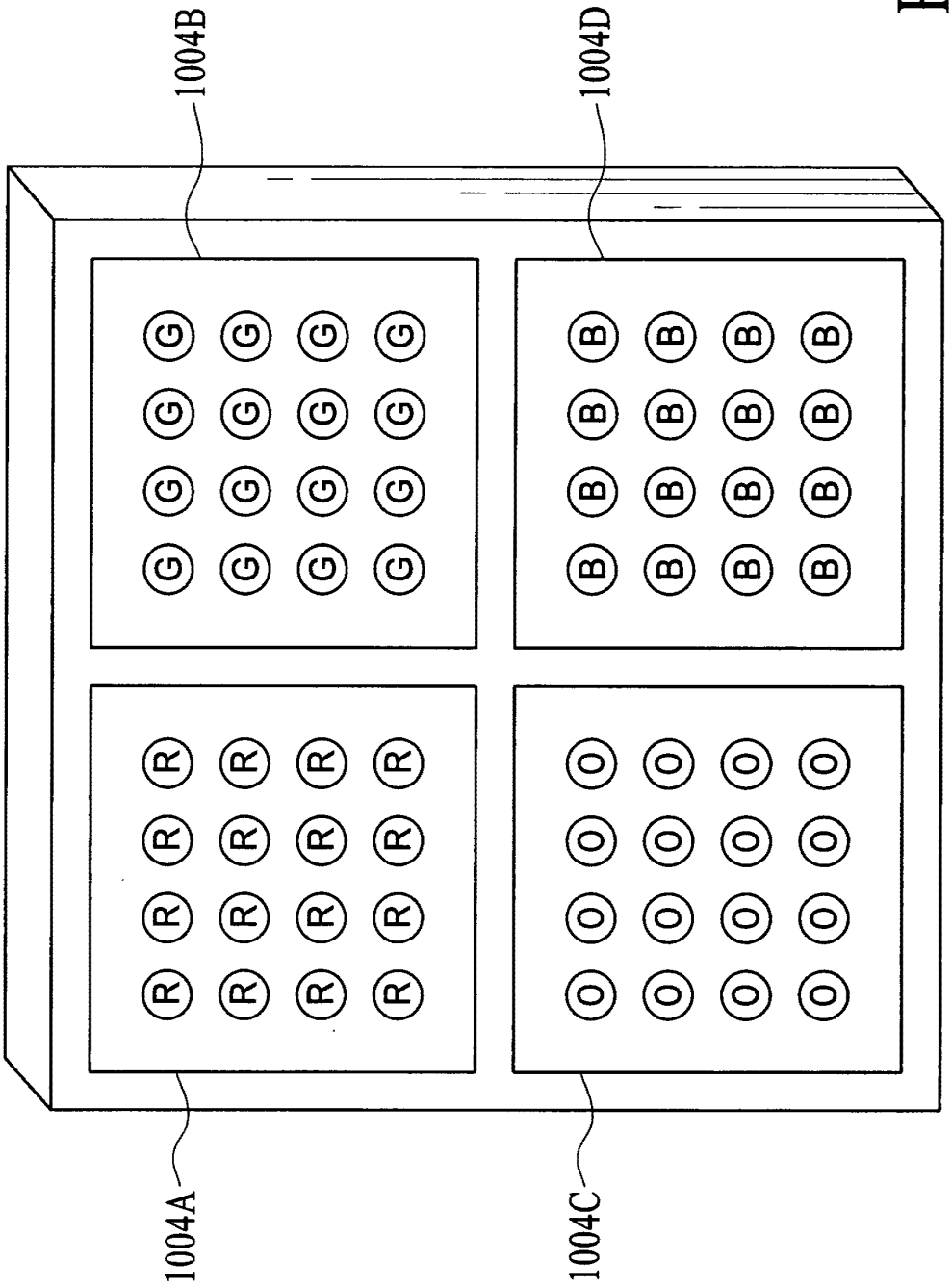

904B
904D
904A
904C
906D
R
G
IR
B
906B
906C
912D
906A
912B
G
B
R
IR
912A
912C
906

FIG.9

FIG.10



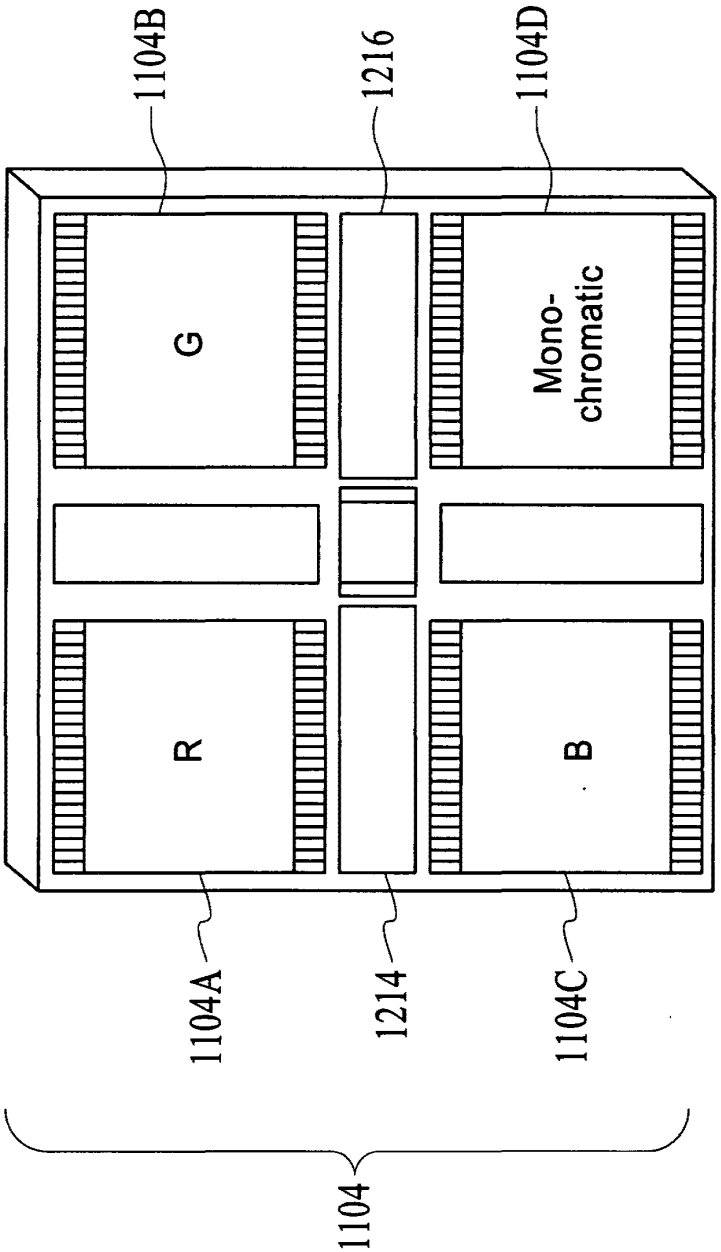


FIG.11

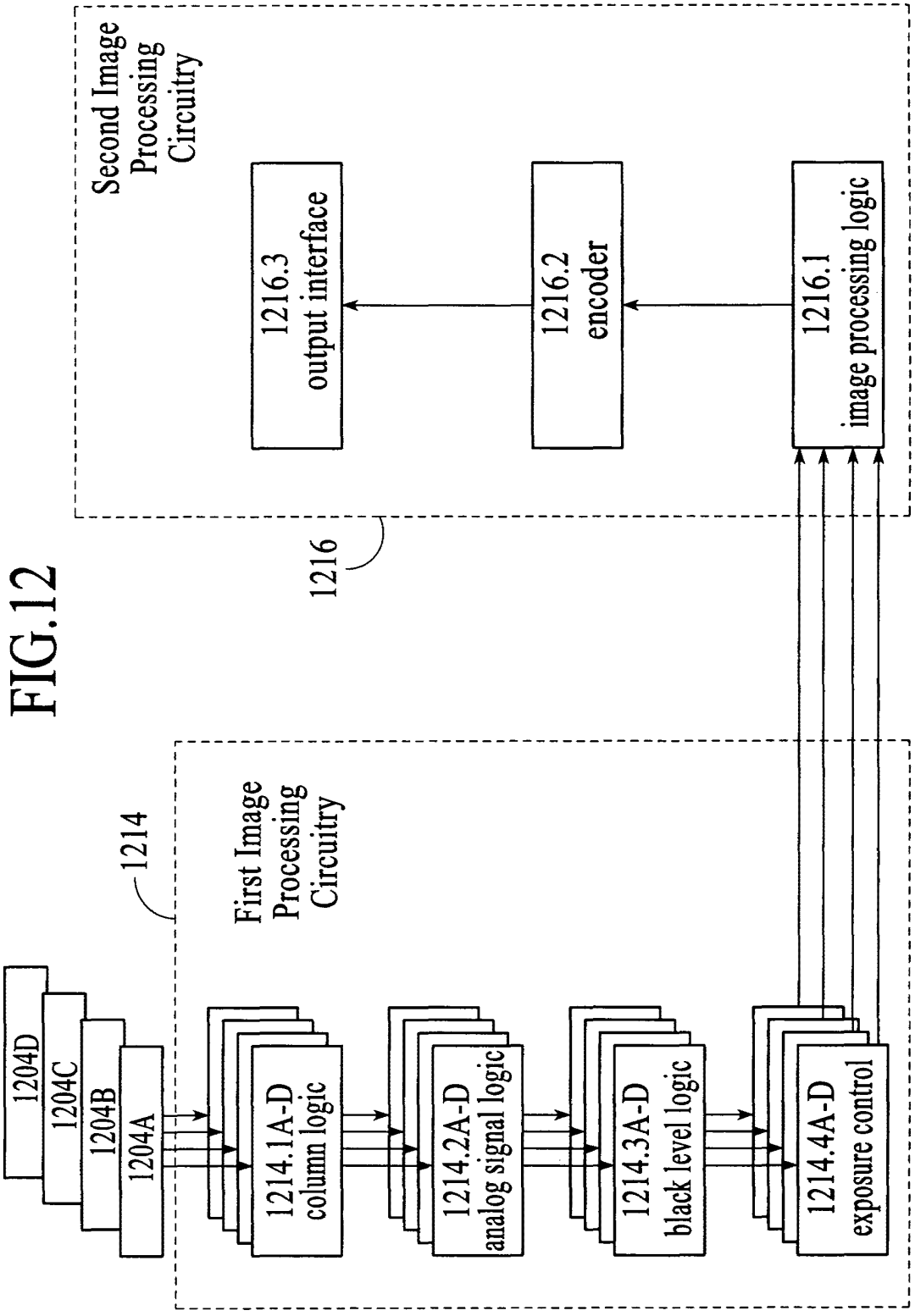

Second Image Processing Circuitry
1216.3 output interface
1216.2 encoder
1216.1 image processing logic
1216
1214
First Image Processing Circuitry
1204D
1204C
1204B
1204A
1214.1A-D column logic
1214.2A-D analog signal logic
1214.3A-D black level logic
1214.4A-D exposure control

FIG.12

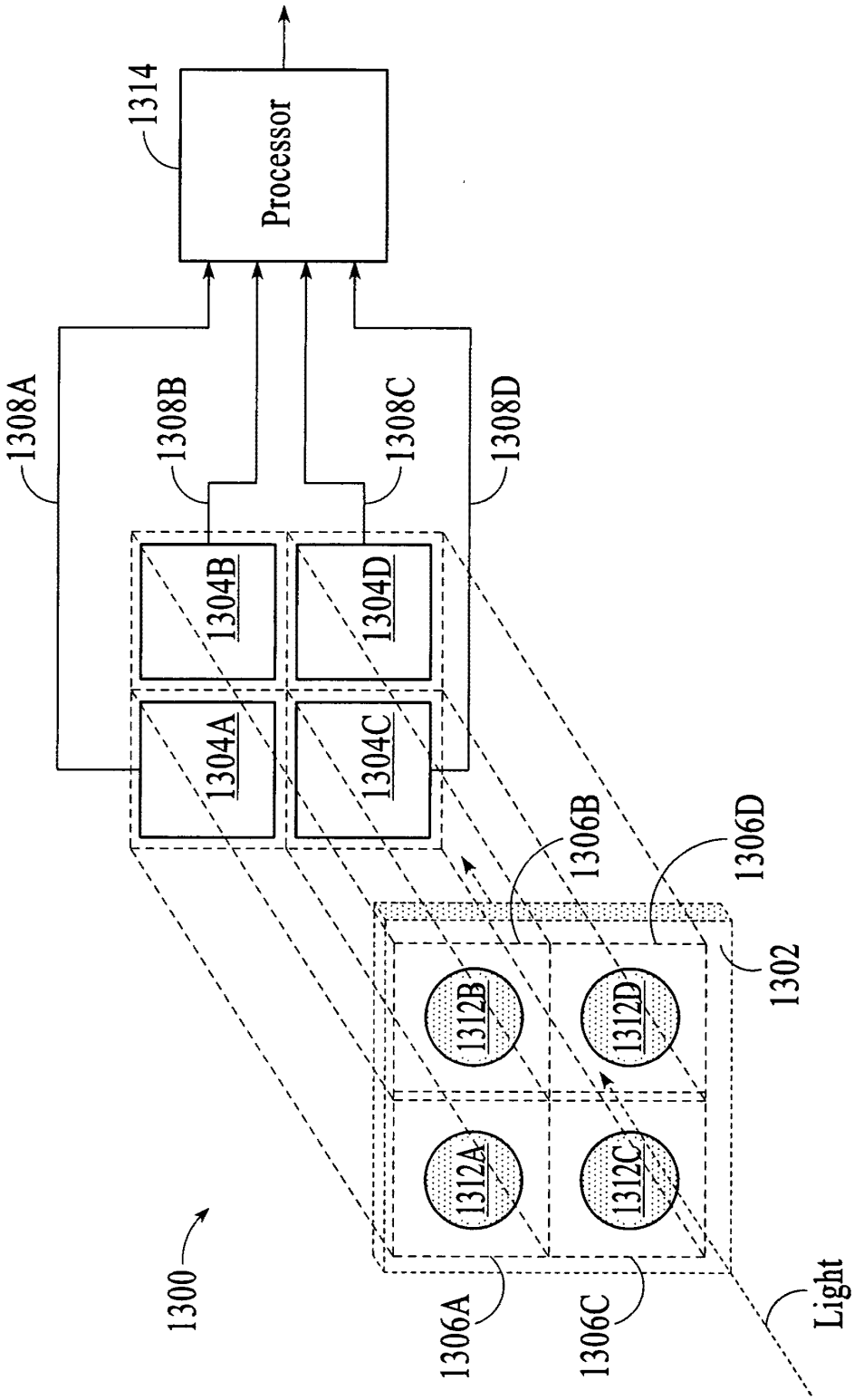

1314
Processor
1308A
1308B
1308C
1308D
1304A
1304B
1304C
1304D
1306A
1306B
1306C
1306D
1302
1312A
1312B
1312C
1312D
1300
Light

FIG.13

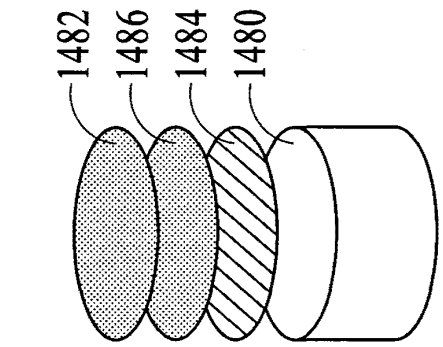


FIG.14B

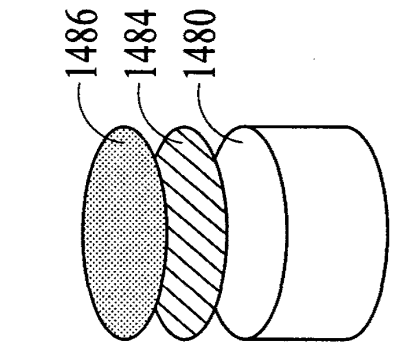


FIG.14D

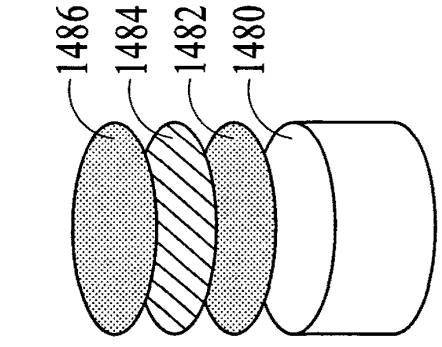


FIG.14A

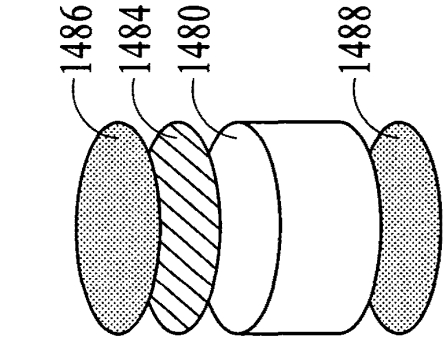


FIG.14C

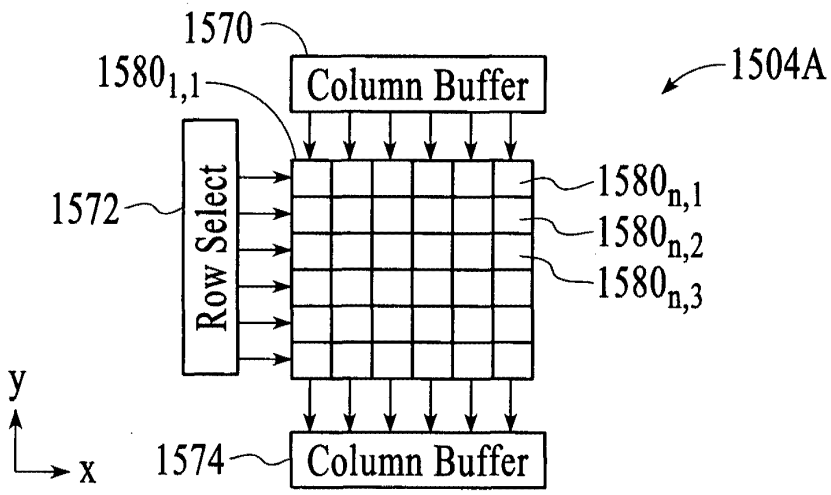


FIG.15A

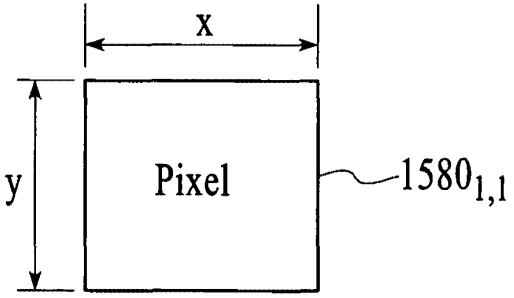


FIG.15B

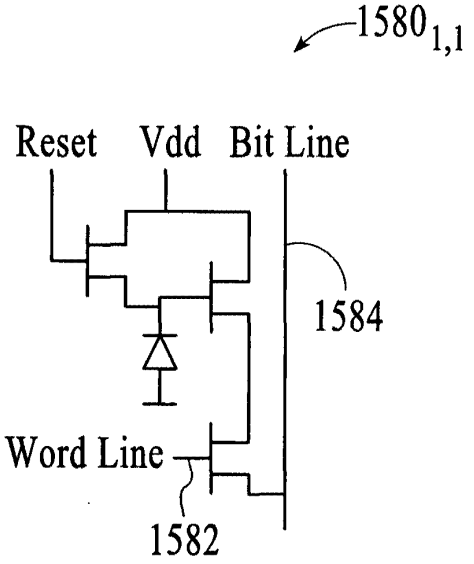


FIG.15C

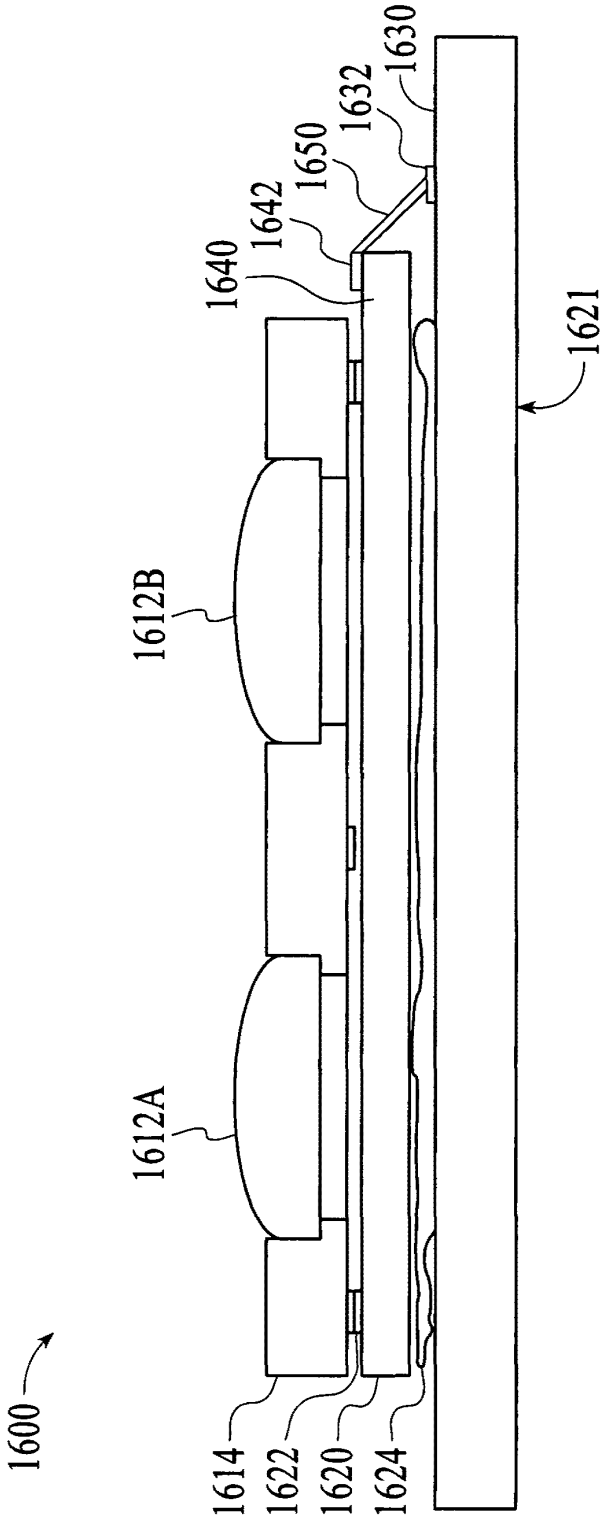

1600
1614
1622
1620
1624
1612A
1612B
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1642
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1621

FIG.16

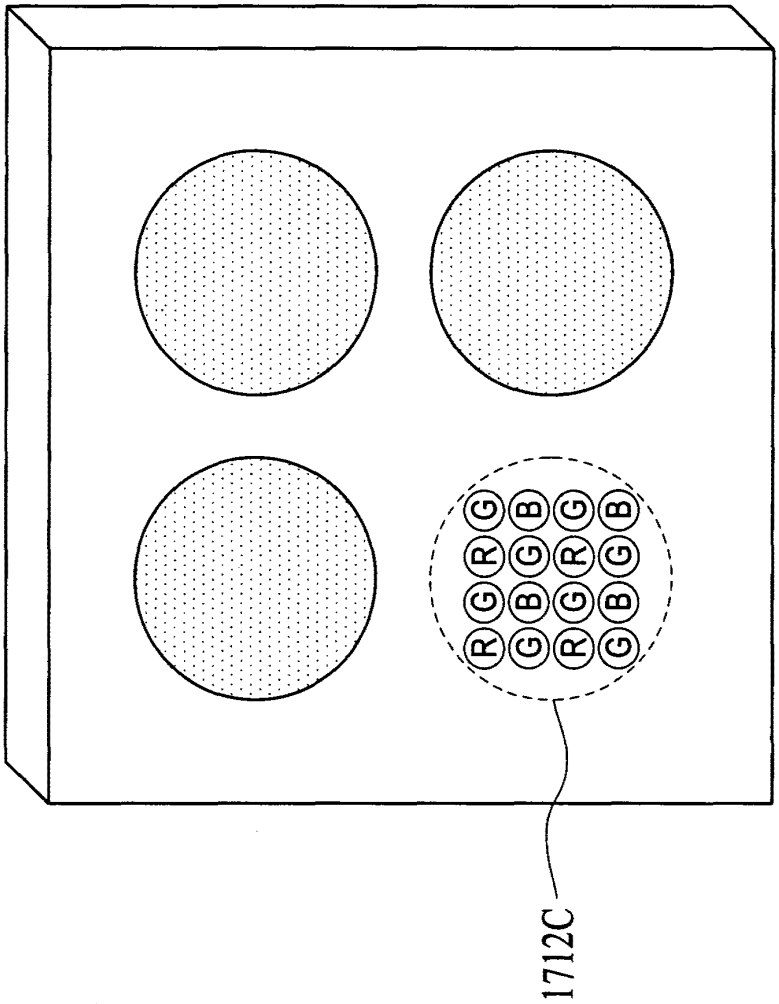


FIG.17

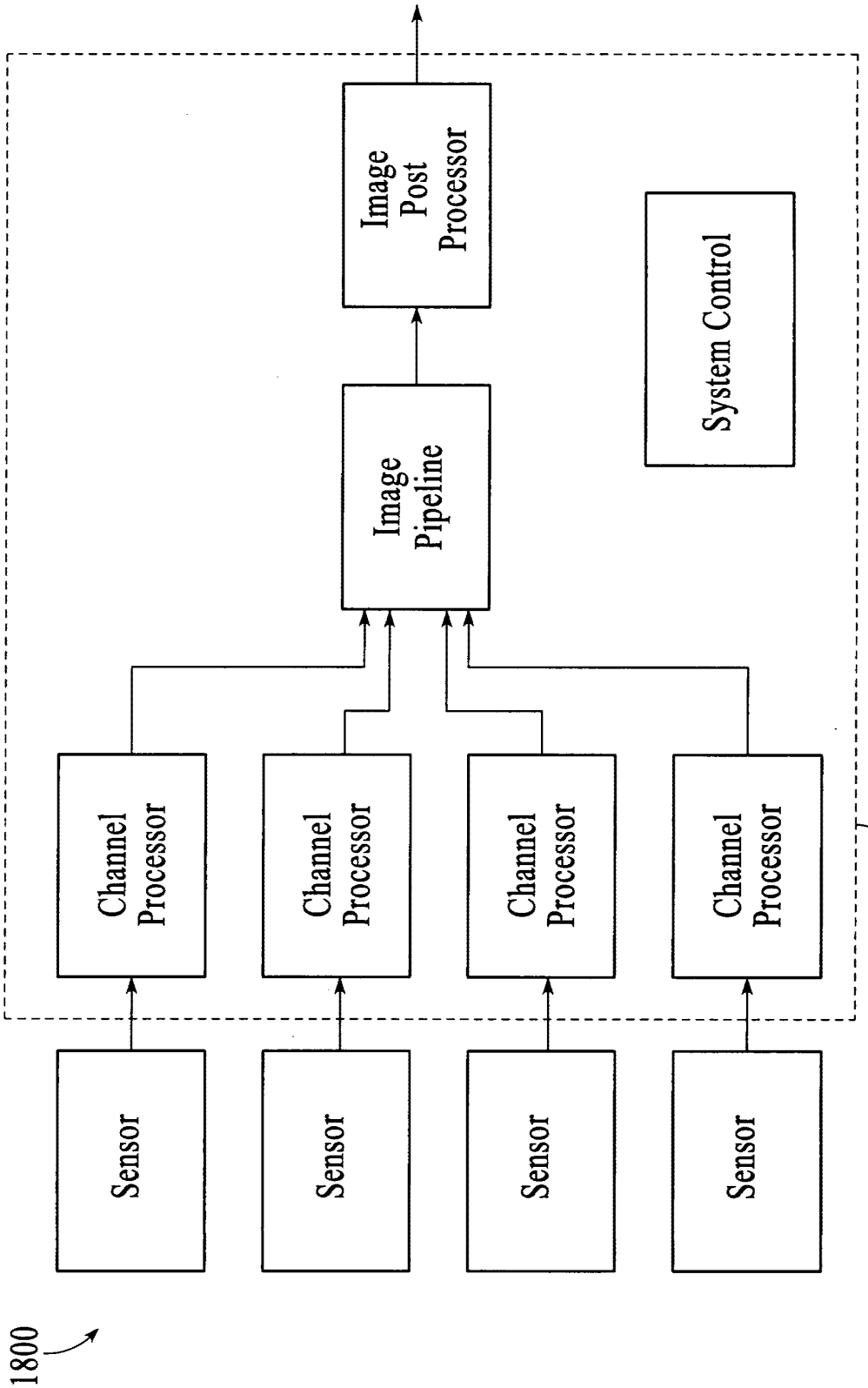

1800
Sensor
Sensor
Sensor
Sensor
Channel Processor
Channel Processor
Channel Processor
Channel Processor
1802
Image Pipeline
Image Post Processor
System Control

FIG.18A

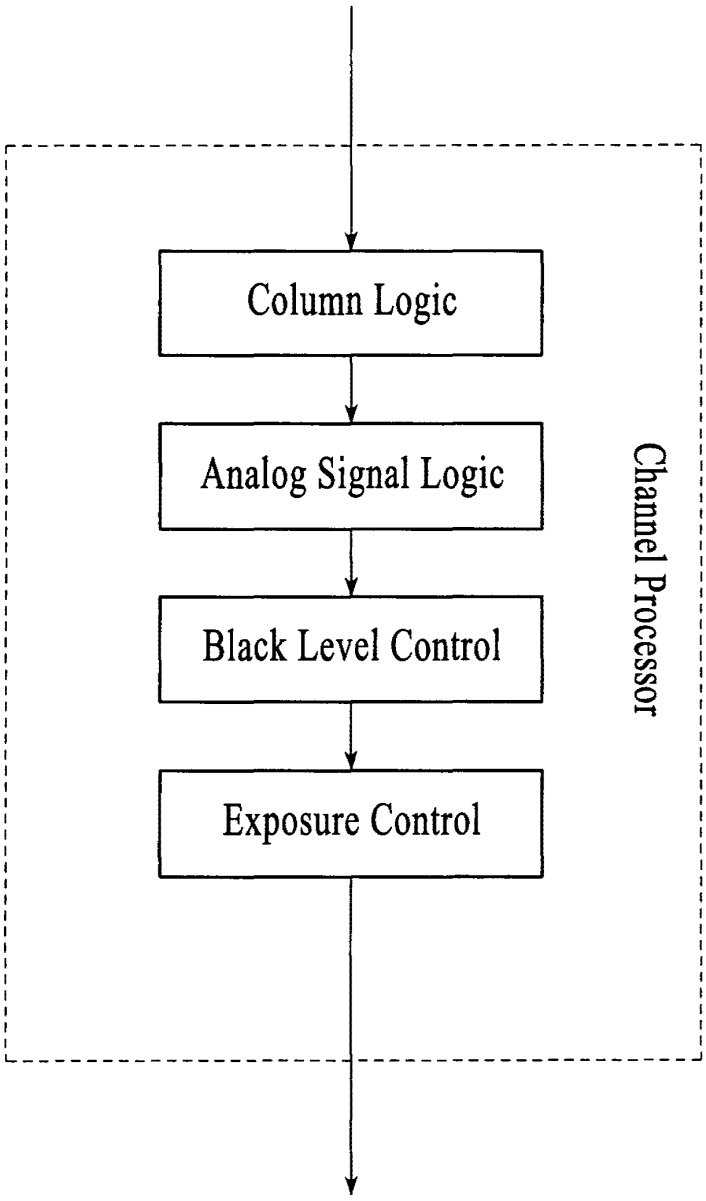

Column Logic
Analog Signal Logic
Black Level Control
Exposure Control
Channel Processor

FIG.18B

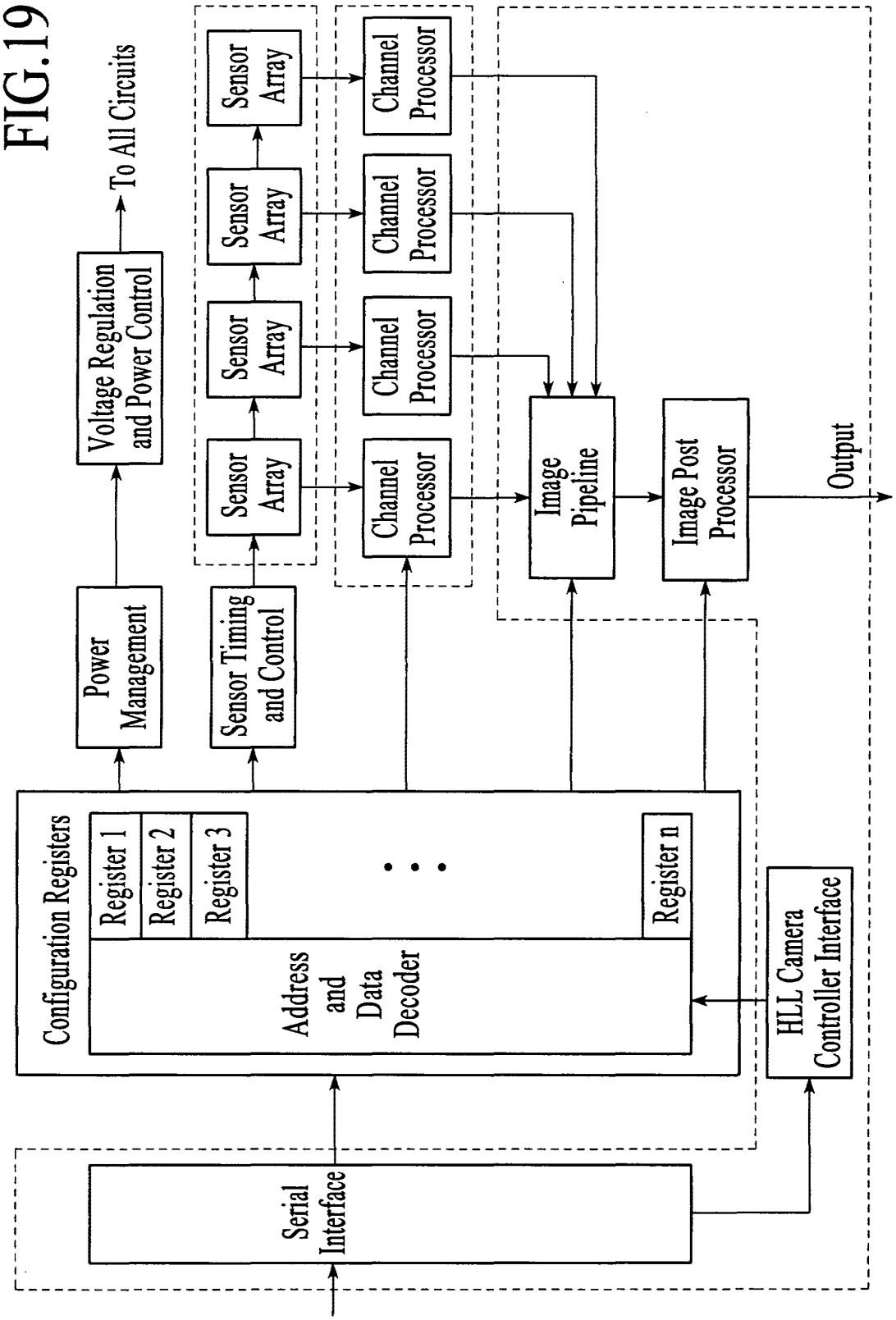
Color Plane Integrator
Image Adjustor
Auto Focus, Zoom, Windowing, Pixel Binning and Camera Functions
Image Pipeline

FIG.18C

Encoder
(e.g., MPEG, JPEG)
Output Interface
(e.g., USB)
Image Post
Processor

FIG.18D

FIG.19


Serial Interface
HLL Camera Controller Interface
Configuration Registers
Register 1
Register 2
Register 3
Register n
Address and Data Decoder
Power Management
Voltage Regulation and Power Control
To All Circuits
Sensor Timing and Control
Sensor Array
Sensor Array
Sensor Array
Sensor Array
Channel Processor
Channel Processor
Channel Processor
Channel Processor
Image Pipeline
Image Post Processor
Output

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
11/788,279	04/19/2007	2878	1025	NICO.P003	37	4

CONFIRMATION NO. 5189

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
SAN JOSE, CA95157

FILING RECEIPT

Date Mailed: 05/16/2007

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. 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 mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. 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 (if appropriate).**

Applicant(s)

Richard Ian Olsen, Residence Not Provided;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CIP of 11/212,803 08/25/2005
and claims benefit of 60/795,946 04/28/2006

Foreign Applications

If Required, Foreign Filing License Granted:

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Simultaneous multiple field of view digital cameras

Preliminary Class

250

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.

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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

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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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/788,279	04/19/2007	Richard Ian Olsen	NICO.P003

CONFIRMATION NO. 5189
FORMALITIES LETTER

53186
COURTNEY STANIFORD & GREGORY LLP
P.O. BOX 9686
SAN JOSE, CA 95157

Date Mailed: 05/16/2007

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 and pay any fees required 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 oath or declaration is missing. *A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

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

• To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$65** for a small entity

- **$65** Surcharge.

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.

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199
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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
11/788,279	04/19/2007	2878	1025	NICO.P003	37	4

CONFIRMATION NO. 5189

53186
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P.O. BOX 9686
SAN JOSE, CA95157

FILING RECEIPT

Date Mailed: 05/15/2007

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Applicant(s)

Richard Ian Olsen, Residence Not Provided;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CIP of 11/212,803 08/25/2005
and claims benefit of 60/795,946 04/28/2006

Foreign Applications

If Required, Foreign Filing License Granted:

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Simultaneous multiple field of view digital cameras

Preliminary Class

250

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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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18351 U.S. PTO

041907

U.S. PTO
11/788279
04/19/2007

PTO/SB/05 (04-05)
Approved for use through 07/31/2006. 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.

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	NICO.P003
First Inventor	Richard Ian Olsen
Title	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Express Mail Label No.	EV 708 402 914 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ **Fee Transmittal Form** (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. ☑ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☑ **Specification** [*Total Pages* 45]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☑ **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 22]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(S)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. – c. are required)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents**
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☐ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☑ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☑ **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☑ Other: Credit Card Payment Form 2038

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☑ Continuation-in-part (CIP) of prior application No.: 11/212,803

Prior application information: *Examiner* _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 53186 ***OR*** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone	(408) 342-1900	Email	rgregory@csgip.com

Signature		Date	April 19, 2007
Name (Print/Type)	Richard L. Gregory	Registration No. (Attorney/Agent)	42,607

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

18351 U.S. PTO

04100?

PTO/SB/17 (02-07)
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2007

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 1025.00

Complete if Known	
Application Number	Not yet Assigned
Filing Date	April 19, 2007
First Named Inventor	Richard Olsen
Examiner Name	
Art Unit	
Attorney Docket No.	NICO.P003

METHOD OF PAYMENT (check all that apply)

☐ Check ☑ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 503616 Deposit Account Name: Courtney Staniford et al.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☑ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	500.00
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims		Extra Claims	Fee ($)		Fee Paid ($)
37	- 20 or HP =	17	x 25	=	425

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims		Extra Claims	Fee ($)		Fee Paid ($)
4	- 3 or HP =	1	x 100	=	100

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 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).

Total Sheets		Extra Sheets		Number of each additional 50 or fraction thereof		Fee ($)		Fee Paid ($)
	- 100 =		/ 50 =		(round **up** to a whole number) x		=	

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge):	

SUBMITTED BY

Signature	Richard L. Gregory	Registration No. (Attorney/Agent) 42,607	Telephone (408) 342-1900
Name (Print/Type)	Richard L. Gregory		Date April 19, 2007

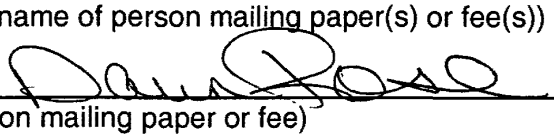
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Dawn Rose
(Typed or printed name of person mailing paper(s) or fee(s))



(Signature of person mailing paper or fee)

April 19, 2007
(Date signed)

Serial/Patent No.: Not Yet Assigned Filing/Issue Date: April 19, 2007
Title: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

Atty. Docket No.: NICO.P003 Date Mailed April 19, 2007

The following has been received in the U.S. Patent & Trademark Office on the date stamped hereon:

☐ Amendment/Response (pgs.)	☐ Petition for Extension of Time (month(s))
☐ Preliminary Amendment (pgs.)	☑ Information Disclosure Statement & 1449/PTO
☐ Application - Utility (pgs.)	☐ Issue Fee Transmittal
☐ Application - Rule 1.53(b) Contin. (pgs.)	☐ Submission of Formal Drawings
☐ Application - Rule 1.53(b) Divis. (pgs.)	☐ Notice of Appeal
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☐ Assignment & Cover Sheet (pgs.)	☑ Certificate of Mailing under 37 C.F.R. 1.10
☐ Power of Attorney (PTO/SB/81)	☑ Express Mail No. EV 708 402 914 US
☐ Nonpublication Request (35 USC 122(b))	☑ Credit Card Authorization Form
☐ Other	

18351 U.S. PTO

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11/788279
04/19/2007

PTO/SB/05 (04-05)
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U.S. Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	NICO.P003
First Inventor	Richard Ian Olsen
Title	SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS
Express Mail Label No.	EV 708 402 914 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ **Fee Transmittal Form** (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. ☑ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☑ **Specification** [*Total Pages* 45]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☑ **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 22]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(S)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. – c. are required)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents**
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☐ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☑ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☑ **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☑ Other: Credit Card Payment Form 2038

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☑ Continuation-in-part (CIP) of prior application No.: 11/212,803

Prior application information: *Examiner* _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 53186 *OR* ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone	(408) 342-1900	Email	rgregory@csgip.com

Signature	R. Gregory	Date	April 19, 2007
Name (Print/Type)	Richard L. Gregory	Registration No. (Attorney/Agent)	42,607

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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18351 U.S. PTO

04100?

PTO/SB/17 (02-07)
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2007

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 1025.00

Complete if Known	
Application Number	Not yet Assigned
Filing Date	April 19, 2007
First Named Inventor	Richard Olsen
Examiner Name	
Art Unit	
Attorney Docket No.	NICO.P003

METHOD OF PAYMENT (check all that apply)

☐ Check ☑ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 503616 Deposit Account Name: Courtney Staniford et al.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☑ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	500.00
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims		Extra Claims	Fee ($)		Fee Paid ($)
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Multiple Dependent Claims	
Fee ($)	Fee Paid ($)

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4. OTHER FEE(S)

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Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge):	

SUBMITTED BY

Signature	Richard L. Gregory	Registration No. (Attorney/Agent) 42,607	Telephone (408) 342-1900
Name (Print/Type)	Richard L. Gregory		Date April 19, 2007

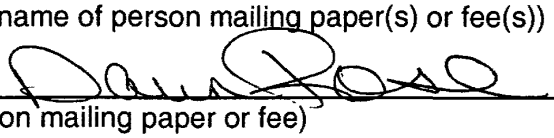
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Dawn Rose
(Typed or printed name of person mailing paper(s) or fee(s))



(Signature of person mailing paper or fee)

April 19, 2007
(Date signed)

Serial/Patent No.: Not Yet Assigned Filing/Issue Date: April 19, 2007
Title: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS

Atty. Docket No.: NICO.P003 Date Mailed April 19, 2007

The following has been received in the U.S. Patent & Trademark Office on the date stamped hereon:

☐ Amendment/Response (pgs.)	☐ Petition for Extension of Time (month(s))
☐ Preliminary Amendment (pgs.)	☑ Information Disclosure Statement & 1449/PTO
☐ Application - Utility (pgs.)	☐ Issue Fee Transmittal
☐ Application - Rule 1.53(b) Contin. (pgs.)	☐ Submission of Formal Drawings
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☐ Nonpublication Request (35 USC 122(b))	☑ Credit Card Authorization Form
☐ Other	

Simultaneous Multiple Field of View Digital Cameras

Inventors:
Richard Ian Olsen
Darryl L. Sato
Feng-Qing Sun
James Gates

RELATED APPLICATION

This application claims the benefit of United States Patent Application Number 60/795,946, filed April 28, 2006. This application is a continuation in part application of United States Patent Application Number 11/212,803, filed August 25, 2005.

TECHNICAL FIELD

The following disclosure relates generally to optical devices and more particularly to digital imaging.

BACKGROUND

The recent technology transition from film to electronic media has spurred the rapid growth of the imaging industry. This growth includes new applications in still and video cameras, cell phones, other personal communications devices, surveillance equipment, automotive applications, computers, manufacturing and inspection devices, medical appliances, toys, plus a wide range of other and continuously expanding applications. The lower cost and reduced size of digital cameras, whether as stand-alone products or embedded subsystems, is a primary driver for this growth and market expansion.

Most digital imaging applications are continuously in need of higher performance or better image quality, more and/or better features, smaller size and/or lower cost. These market needs can often be in conflict as, for example, higher performance often requires larger size, improved features can require higher cost as well as a larger size, and conversely, reduced cost and/or size can come at a penalty in performance and/or features. As an example, consumers look for higher quality images from their cell

phones, but are unwilling to accept the size or cost associated with putting stand-alone digital camera quality into their pocket sized phones.

One obstacle in the challenge to deliver higher image quality is the lens system of digital cameras. The ability to image with different fields of view (zoom in and out) is a highly desired feature. Zoom, as performed by the lens system, is known as "optical zoom". This desirable "zoom lens" feature adds additional components, size and cost to a lens system. The zoom lens also requires significant power and time to operate. The time to move the optical elements in the zoom lens limits the ability to acquire multiple fields of view in rapid and/or simultaneous fashion.

Digital camera suppliers have one advantage over traditional film providers in the area of zoom capability. Through electronic processing, digital cameras can provide "electronic zoom" which provides the zoom capability by cropping the outer regions of an image and then electronically enlarging the center region to the original size of the image. In a manner similar to traditional enlargements, a degree of resolution is lost when performing this process. Further, since digital cameras capture discrete input to form a picture rather than the ubiquitous process of film, the lost resolution is more pronounced. As such, although "electronic zoom" is a desired feature, it is not a direct substitute for "optical zoom."

Digital photography often requires imaging and subsequent display of different fields of views of the same or nearly the same scene. In some applications it is desirable to capture different fields of view of the same scene at the same time. This is not possible with optical zoom because of the time required to move the optical elements. Electronic zoom can display wide and narrow field of view (FOV) by cropping and enlarging the size of a portion of an image, but the displayed narrow field is often of inferior resolution. Foveal image sensors that use multiple pixels arranged both within and about a central fovea region of the chip can be used to acquire both a wide and narrow field of view. The pixels in the central fovea region have a smaller size than the pixels arranged in peripheral rings about the central region. The foveal image sensor has high resolution only in the narrow field of view. Multiple digital cameras with different fields of view can be integrated into a single camera body and used to acquire images

simultaneously; however a system including multiple digital cameras is large and expensive. Consequently, there is a need for a high-performance solid-state digital camera that is capable of simultaneously acquiring imaging having high resolution using multiple fields of view.

INCORPORATION BY REFERENCE

Each patent, patent application, and/or publication mentioned in this specification is herein incorporated by reference in its entirety to the same extent as if each individual patent, patent application, and/or publication was specifically and individually indicated to be incorporated by reference.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a conventional digital camera.

Figure 2A shows the operation of conventional lens assembly in a retracted mode (also referred to as normal mode or a near focus setting).

Figure 2B shows the operation of conventional lens assembly in an optical zoom mode (sometimes referred to as a far focus setting).

Figure 3 shows a digital camera configured for simultaneous acquisition of multiple fields of view, under an embodiment.

Figure 4 is a digital camera system that includes multiple camera channels, under an embodiment.

Figure 5 is a flow diagram for simultaneous acquisition of multiple fields of view, under an embodiment.

Figure 6 is a block diagram of a digital camera, under an embodiment.

Figure 7 is an exploded view of a digital camera subsystem, under an embodiment.

Figure 8 is a block diagram of a digital camera having a three array/lens configuration, under an embodiment.

Figure 9 is a block diagram of a digital camera subsystem that employs separate arrays on one image sensor, under an embodiment.

Figure 10 is a block diagram of arrays, each of which receives a respective color as passed by a respective lens, under an embodiment.

Figure 11 is a block diagram of processing circuitry of a digital camera subsystem, under an embodiment.

Figure 12 is a block diagram of signal processing circuitry, under an embodiment.

Figure 13 is an exploded perspective view of a digital camera, under an embodiment.

Figures 14A-14D are schematic exploded representations of one embodiment of an optics portion, under an embodiment.

Figures 15A-15C are schematic representations of a sensor array, under an embodiment.

Figure 16 is a schematic cross-sectional view of a digital camera apparatus, under an embodiment.

Figure 17 is a schematic perspective view of a digital camera apparatus having one or more optics portions with the capability to provide color separation, under an embodiment.

Figure 18A is a block diagram of a processor of a digital camera subsystem, under an embodiment.

Figure 18B is a block diagram of a channel processor of a digital camera subsystem, under an embodiment.

Figure 18C is a block diagram of an image pipeline of a digital camera subsystem, under an embodiment.

Figure 18D is a block diagram of an image post processor of a digital camera subsystem, under an embodiment.

Figure 19 is a block diagram of digital camera system, including system control components, under an embodiment.

DETAILED DESCRIPTION

A digital camera system and methods are described below that provide a digital camera in which multiple fields of view (FOV) of an image are simultaneously acquired. The digital camera system includes a digital camera having two or more camera channels each with independent image sensors. The sensor of each camera channel has an active area that includes multiple picture elements (pixels), and image capture includes simultaneous or nearly simultaneous use of the multiple camera channels. Each camera channel and associated optics of that camera channel has a predetermined field of view that can be different from other camera channels of the digital camera system. The digital camera system therefore makes possible the formation of multiple high resolution images in which different fields of view are acquired simultaneously. The digital camera system further includes methods for forming images as described below.

The digital camera system of an embodiment includes a multiple optical system configuration in which a scene is imaged onto multiple image sensors located on the same integrated circuit substrate. Each image sensor operates independently and, when combined with its own optics and electronics, forms a separate camera channel. Each image sensor is located beneath an optical assembly. The optical assembly, including optional mechanical or electromechanical mechanisms, can be processed on the image sensor wafer, applied to the image wafer by a separate wafer transfer, transferred individually by pick and place method, or attached at the die level.

The combination of the focal plane or image sensor size along with the optical focal length associated with each image sensor is chosen to provide a desired field of view. The electrical operation of each camera channel is independent of the other camera channels and multiple fields of view can be acquired simultaneously. The pixel size, array size and image sensor configuration can have approximately the same configuration in each camera channel or be configured so as to be optimized for each field of view. The imager electrical operation can be similar in each camera channel or configured so as to be optimized for each field of view (such as imager frame rate and integration time). The multiple camera channels operate independently, however embodiments provide for sharing of electrical and/or mechanical components in a host digital camera.

The digital camera systems described herein enable visual imaging tasks including search, detection, recognition, and tracking, which may not be easily handled by conventional imaging systems with single optics. For example, the digital camera systems of an embodiment can be used in active vision systems of autonomous or semi-autonomous host systems. These systems range from commercial and industrial applications to surveillance and military applications. The commercial and industrial applications may involve robots, unmanned vehicles, self-navigating cars, automatic assembly and product inspection systems. The surveillance and military applications may involve iris and facial imaging, smart weapons and missile defense systems. The digital camera system of an embodiment improves performance of imaging systems and improves functions of search, detection, recognition and tracking by providing simultaneous high resolution imaging in multiple fields of view with optimum electrical operation (such as independent frame rate and integration time control) in each field of view.

Figure 1 is a block diagram of a conventional digital camera 100. The digital camera 100 includes a lens assembly 110, a color filter array layer 112, an image sensor 116, and an electronic image storage media 120. The digital camera 100 also includes a power supply 124, a peripheral user interface (represented as a shutter button) 132, a circuit board 136 (which supports and electrically interconnects the aforementioned components), a housing 140 (including housing portions 141, 142, 143, 144, 145 and 146) and a shutter assembly (not shown), which controls an aperture 150 and passage of light into the digital camera 100. A mechanical frame 164 is used to couple or connect the various components or parts of the lens assembly 110. The lens assembly 110 includes lenses 161 and 162 and one or more electro-mechanical devices 163 to move the lenses 161 and 162 along a center axis 165. The lenses 161 and 162 may comprise multiple elements arranged together to form an integral optical component. Additional lenses may be included. The electro-mechanical device 163 of the lens assembly 110 and the mechanical frame 164 of the lens assembly 110 can include numerous components and/or complex assemblies.

The optional color filter array layer 112 includes an array of color filters arranged in a Bayer pattern (e.g., a 2x2 matrix of colors with alternating red and green in one row and alternating green and blue in the other row, although other colors may be used). The Bayer pattern (often used in color camera applications) is repeated throughout the color filter array.

The image sensor 116 includes a plurality of identical photo detectors (sometimes referred to as "picture elements" or "pixels") arranged in a matrix. The number of photo detectors is usually in range of hundreds of thousands to millions. The pixel spacing is usually in the range of 2-5 μm for visible light. The lens assembly 110 spans the diagonal of the array.

Each of the color filters in the color filter array 112 is disposed above a respective one of the photo detectors in the image sensor 116, such that each photo detector in the image sensor receives a specific band of visible light (e.g., red, green or blue) and provides a signal indicative of the color intensity of the received visible light. Signal processing circuitry (not shown) receives signals from the photo detectors, processes the received signals, and outputs a color image.

The peripheral user interface 132, which includes the shutter button, may include one or more additional input devices (e.g., for settings, controls and/or input of other information). The user interface 132 can also include one or more output devices (e.g., a display for output of images or other information), and associated electronics.

Figure 2A shows the operation of conventional lens assembly 110 in a retracted mode (also referred to as normal mode or a near focus setting). The lens assembly 110 is shown focused on a distant object (represented as a lightning bolt) 180. A representation of the image sensor 116 is included for reference purposes. A field of view is defined between reference lines 182 and 184. To achieve this field of view 182 and 184, electro-mechanical devices 163 have positioned lenses 161 and 162 relatively close together. The lens assembly 110 passes the field of view through the lenses 161 and 162 and onto the image sensor 116 as indicated by reference lines 186 and 188. An image of the object (indicated at 190) is presented onto the image sensor 116 in the same ratio as the width of the actual image 180 relative to the actual field of view 182 and 184.

Figure 2B shows the operation of conventional lens assembly 110 in an optical zoom mode (sometimes referred to as a far focus setting). In this mode, the electro-mechanical devices 163 of the lens assembly 110 re-position the lens 161 and 162 so as to reduce the field of view 182 and 184 over the same image area, thus making the object 180 appear closer (i.e., larger). One benefit of the lens assembly 110 is that the resolution with the lens assembly 110 in zoom mode is typically equal to the resolution with the lens assembly 110 in retracted mode. One drawback, however, is that the lens assembly 110 can be costly and complex. Moreover, providing a lens with zoom capability results in less light sensitivity and thus increases the F-stop of the lens, thereby making the lens less effective in low light conditions. The other disadvantage of optical zoom is that the two fields-of-view must be acquired sequentially. Further, since the lens must be moved forward and backwards with respect to the image sensor, additional time and power are required. This is an undesirable aspect of digital cameras as it creates long delays in capture response time as well as diminished battery capacity.

A narrow field of view can be displayed from a conventional digital camera without the use of optical zoom. Through electronic processing, digital cameras can provide "electronic zoom" which provides the zoom capability by cropping the outer regions of an image and then electronically enlarging the center region to the original size of the image. In a manner similar to traditional enlargements, a degree of resolution is lost when performing this process. Further, since digital cameras capture discrete input to form a picture rather than the ubiquitous process of film, the lost resolution is more pronounced. As such, although "electronic zoom" is a desired feature, it is not a direct substitute for "optical zoom."

The digital cameras described herein enable imaging that includes simultaneous acquisition of multiple fields of view of an image. **Figure 3** shows a digital camera 200 configured for simultaneous acquisition of multiple fields of view, under an embodiment. The digital camera 200 includes a digital camera subsystem 210, an electronic image storage media 220, a power supply 224, a peripheral user interface (represented as a shutter button) 232, a circuit board 236 that supports and/or electrically couples or interconnects the components, a housing 240 (including housing portions 241, 242, 243,

244, 245 and 246) and a shutter assembly (not shown), which controls an aperture 250 and passage of light into the digital camera 200. The digital camera subsystem (DCS) 210 includes one or more camera channels (e.g., four camera channels 260A-260D) and replaces and/or fulfills one, some or all of the roles fulfilled by the lens assembly 110, the color filter 112 and the image sensor 116 of the digital camera 100 described above. The four camera channels 260A-260D are configured through pixel array size and/or optical focal length to provide a desired field of view for that channel. The four camera channels 260A-260D can be operated simultaneously with independent electrical control of features such as integration time control and frame rate (in video applications) to name a few.

The peripheral user interface 232, which includes the shutter button, can include one or more additional input devices (e.g., for settings, controls and/or input of other information). The peripheral user interface 232 can also include one or more output devices, (e.g., a display for output of images or other information) and associated electronics. The electronic image storage media 220, power supply 224, peripheral user interface 232, circuit board 236, housing 240, shutter assembly (not shown), and aperture 250, may be, for example, similar to the electronic image storage media 120, power supply 124, peripheral user interface 132, circuit board 136, housing 140, shutter assembly (not shown), and aperture 150 of the digital camera 100 described above.

Figure 4 is a digital camera system 210 that includes multiple camera channels, under an embodiment. The digital camera system 210 of this example includes four camera channels 260A-260D but is not limited to four camera channels; alternative embodiments can have any number of camera channels. Each of the camera channels 260A-260D includes an optics component or portion and a sensor component or portion. For example, camera channel 260A includes an optics portion 290A and a sensor portion 292A. Camera channel B includes an optics portion 290B and a sensor portion 292B. Camera channel C includes an optics portion 290C and a sensor portion 292C. Camera channel D includes an optics portion 290D and a sensor portion 292D. The optics portions of the one or more camera channels are collectively referred to herein as an

optics subsystem. The sensor portions of the one or more camera channels are collectively referred to herein as a sensor subsystem.

Each camera channel of the digital camera subsystem 210 of an embodiment provides a different FOV imaging capability relative to at least one other camera channel. For example, in one embodiment, one camera channel (e.g. camera channel 260A) detects a wide field of view (e.g. 40° x 30°), one camera channel (e.g., camera channel 260B) detects a medium field of view (e.g. 20° x 15°), one camera channel (e.g., camera channel 260C) detects a narrow field of view (e.g. 12° x 9°), and one camera channel (e.g., camera channel 260D) detects light in a very narrow field on view (e.g. 5° x 5°).

The digital camera subsystems of one or more alternative embodiments may configure one or more of the camera channels to have different fields of view than those described above. For example, one camera channel (e.g. camera channel 260A) detects a wide field of view (e.g. 50° x 40°), one camera channel (e.g., camera channel 260B) detects a medium field of view (e.g. 30° x 15°), one camera channel (e.g., camera channel 260C) detects a narrow field of view (e.g. 12° x 9°), and one camera channel (e.g., camera channel 260D) detects light in a very narrow field on view (e.g. 5° x 5°).

Other alternative embodiments of the digital camera subsystems configure one or more of the camera channels to have a similar field of view relative to at least one other camera channel and a different field of view relative to at least one other camera channel. For example, in one alternative embodiment, one camera channel (e.g. camera channel 260A) detects a wide field of view (e.g. 40° x 30°), two camera channels (e.g., camera channel 260B and 260C) detect a medium field of view (e.g. 20° x 15°), and one camera channel (e.g., camera channel 260D) detects a narrow field of view (e.g. 12° x 9°).

In digital photography, the FOV (also referred to as angle of view) describes the angular extent of a given scene that is imaged by a camera. The FOV of a camera is a function of parameters that include the focal length of the photographic lens projecting the image and the dimensions of the image sensor. Therefore, the digital cameras of an embodiment can provide a different FOV in each channel by controlling or varying parameters of the focal length of the photographic lens in combination with parameters of the image sensor. For example, the sensor dimensions can be approximately the same for

the sensors of all channels of the camera while the focal length of the optics component varies among the channels. As another example, the focal length of the optics components can be approximately the same in all channels while the sensor dimensions vary among the channels. In yet another embodiment, the focal length of the optics component and the sensor dimensions both vary among the channels.

In the digital camera subsystem 210, the optics portion of each camera channel can be configured similar to and/or different from the optics portion of at least one other camera channel. For example, embodiments of the digital camera subsystem 210 include optics portions that are configured approximately the same while having a different sensor array size (area) between camera channels to provide a different FOV capability. The sensor array area change can be accomplished by changing the number of pixels and/or pixel size of the array. In addition to array area differences between the channels, parameters of the image sensor electrical operation (e.g., integration time, frame rate, etc.) can be configured differently in order to optimize system camera performance in the field of view of one or more specific camera channels.

In other embodiments of the digital camera subsystem 210, the optics portion of one or more camera channels is configured differently, in one or more respects (e.g., focal length, f-number, etc.), from the optics portion of one or more other camera channels. For example, in some embodiments, at least one characteristic (e.g., type of element(s), size, performance, etc.) of one or more of the optics portions is configured to the respective sensor portion and/or to achieve a desired result. For example, if a particular camera channel is dedicated to a particular color (or band of colors) or wavelength (or band of wavelengths) then the optics portion for that camera channel may be configured to transmit only that particular color (or band of colors) or wavelength (or band of wavelengths) to the sensor portion of the particular camera channel. Similarly, if a particular camera channel is dedicated to a particular color (or band of colors) or wavelength (or band of wavelengths) then the optics portion for that camera channel may be configured to filter out one or more other colors or wavelengths.

Likewise, the sensor portion of each camera channel of the digital camera subsystem 210 can be configured similar to and/or different from the sensor portion of at

least one other camera channel. In some embodiments, the sensor portions of each camera channel are similarly configured. In some other embodiments, a configuration of one or more of sensor portions is different, in one or more respects, from one or more of the other sensor portions. For example, in some embodiments, one or more of the characteristics (e.g., type of element(s), size, performance, etc.) of one or more of the sensor portions is configured to the respective optics portion and/or to help achieve a desired result. For example, if a particular camera channel is dedicated to a particular color (or band of colors) or wavelength (or band of wavelengths) then the sensor portion for that camera channel may be configured to have a sensitivity that is higher to that particular color (or band of colors) or wavelength (or band of wavelengths) than other colors or wavelengths and/or to sense only that particular color (or band of colors) or wavelength (or band of wavelengths). Similarly, if a particular camera channel is dedicated to a particular color (or band of colors) or wavelength (or band of wavelengths) then the sensor portion for other camera channels may be configured to have a relatively low sensitivity to that particular color (or band of colors) or wavelength (or band of wavelengths) and/or to not detect that particular color (or band of colors) or wavelength (or band of wavelengths).

The digital camera system 210 of an embodiment includes a processor. The processor includes an image processor component or circuitry (referred to herein as image processor 270) and a controller component or circuitry (referred to herein as controller 300). The controller 300 is part of a positioning system 280. The processor 270 is coupled or connected to the one or more sensor portions (e.g. sensor portions 292A-292D) via one or more communication links, represented by a signal line 330.

The positioning system 280 includes the controller 300 and one or more positioners (e.g., positioners 310 and 320). The controller 300 is coupled or connected to the image processor 270 via one or more communication links 340. The controller 300 is coupled or connected to one or more of the positioners (e.g., positioners 310 and 320) via one or more communication links (e.g. some number of electrical signal lines) 350 and 360.

The positioners (e.g., positioners 310 and 320) are adapted to support and/or position each of the one or more optics portions (e.g., optics portions 290A-290D) of a camera channel above and/or in registration with the sensor portions (e.g., sensor portions 292A-292D0 of the respective camera channels. In an example embodiment the positioner 310 supports and positions the one or more optics portions (e.g. optics portions 290A-290D) at least in part. The positioner 320 supports and positions the one or more sensor portions (e.g. sensor portions 292A-292D) at least in part. One or more of the positioners 310 and 320 can also be configured to provide or help provide relative movement between one or more of the respective optics portions 290A-290D and one or more of the respective sensor portions 292A-292D. Aspects of the positioning system 280 are described in detail in United States Patent Application number 11/478,242, filed June 29, 2006, which application claims the benefit of United States Patent Application number 60/695,946, filed July 1, 2005, both of which are herein incorporated by reference.

During operations involving the digital camera subsystem 210, an optics portion of a first camera channel receives light from within a first field of view and transmits one or more portions of the received light to the corresponding sensor portion. The sensor portion of the first camera channel receives one or more portions of the light transmitted by the optics portion and outputs a signal representative of the received light. The output signal from the sensor portion is coupled to the image processor, which can generate an image or data based at least in part on information of the output signal.

An optics portion of a second camera channel receives light from within a second field of view and transmits one or more portions of the received light to the corresponding sensor portion. The sensor portion of the second camera channel receives one or more portions of the light transmitted by the optics portion and outputs a signal representative of the received light. The output signal from the sensor portion is coupled to the image processor, which can generate an image or data based at least in part on information of the output signal. The operations of the second camera channel are simultaneous or nearly simultaneous with the operations of the first camera channel.

Operations of any additional camera channels are similar to operations of the first and/or second camera channels described above.

The image processor is configured to generate or composite an image based on data from one or more of the camera channels. The image processor of an embodiment is configured to generate a combined image or data based at least in part on the images from the first and second camera channels (and additional camera channels when present), or to independently output camera channel data of each camera channel. The positioning system can control movement of the optics portion (or portions thereof) and/or the sensor portion (or portions thereof) of each camera channel to provide relative positioning with respect to one or operating modes of the digital camera system.

Figure 5 is a flow diagram for simultaneous acquisition of multiple fields of view 500, under an embodiment. The simultaneous acquisition of images having multiple fields of view 500 includes configuring 502 a first camera channel to have a first optical focal length. The acquisition 500 includes configuring 504 a second camera channel to have a second optical focal length that is different from the first optical focal length. An image is captured 506 by the first camera channel, and the image of the first camera channel has a first field of view. Approximately simultaneous with the image capture 506 by the first camera channel, the image is captured 508 by the second camera channel. The image captured by the second camera channel has a second field of view that is different from the first field of view. Optionally, additional camera channels capture the image with the first field of view, the second field of view, or a field of view different from the first and second field of view.

Figures 6-19 illustrate further examples of apparatus and systems in which the imaging module and focusing method embodiments disclosed above can be implemented. **Figure 6** is a block diagram of a digital camera 600, under an embodiment. The digital camera includes a digital camera subsystem 602, a circuit board 612, a peripheral user interface electronics 610 (here represented as a shutter button, but could also include display and/or one or more other output devices, setting controls and/or one or more additional input devices etc), a power supply 606, and electronic image storage media

604. The digital camera 600 may further include a housing and a shutter assembly (not shown), which controls an aperture 614 and passage of light into the digital camera 600.

Figure 7 is an exploded view of the digital camera subsystem 602, under an embodiment. In this embodiment, the digital camera subsystem includes an image sensor 704, an optics frame (also referred to as a frame) 702, and lenses 712A-712D. The frame 702 is used to mount the lenses 712A-712D to the image sensor 704. The image sensor, or imager die 704 generally includes a semiconductor integrated circuit or "chip" having several higher order features including multiple arrays 704A-704D and signal processing circuits 708 and 710. Each of the arrays 704A-704D captures photons and outputs electronic signals. The signal processing circuit 708, in certain embodiments, processes signals for each of the individual arrays 704. The signal processing circuit 710 may combine the output from signal processing 708 into output data (usually in the form of a recombined full color image). Each array and the related signal processing circuitry may be tailored to address a specific band of visible spectrum.

Each of lenses 712A-712D may be tailored for the respective wavelength of the respective array. Lenses are approximately the same size as the underlying array 704, and will differ from one another in size and shape depending upon the dimensions of the underlying array. In alternative embodiments a lens could cover only a portion of an array, and could extend beyond the array. Lenses can comprise any suitable material or materials, including for example, glass and plastic. Lenses can be doped in any suitable manner, such as to impart a color filtering, polarization, or other property. Lenses can be rigid or flexible.

In the example of Figure 7, each lens, array, and signal processing circuit constitutes an image generating subsystem for a band of visible spectrum (e.g., red, blue, green, etc). These individual images are then combined with additional signal processing circuitry within the semiconductor chip to form a full image for output.

Although the digital camera subsystem 704 is depicted in a four array/lens configuration, the digital camera subsystem can be employed in a configuration having any number of arrays/lenses and any combination of shapes of arrays/lenses. **Figure 8** is a block diagram of a digital camera 800 having a three array/lens configuration, under an

embodiment. The digital camera 800 includes a digital camera subsystem 802 that includes three lenses. The digital camera 800 further includes a circuit board 812, a peripheral user interface electronics 810 (here represented as a shutter button, but could also include display and/or one or more other output devices, setting controls and/or one or more additional input devices etc), a power supply 806, and electronic image storage media 804. The digital camera 800 may further include a housing and a shutter assembly (not shown), which controls an aperture 814 and passage of light into the digital camera 800.

Figure 9 is a block diagram of a digital camera subsystem that employs separate arrays, e.g., arrays 904A-904D, on one image sensor, in contrast to the prior art. For example, typical prior art approaches employ a Bayer pattern (or variations thereof), perform operations across the array (a pixel at a time), and integrate each set of four pixels (for example, red/green/blue/green or variation thereof) from the array into a single full color pixel.

Each of the arrays 904 focuses on a specific band of visible spectrum. Each lens only needs to pass a respective color (906A-906D) on to the image sensor. The traditional color filter sheet is eliminated. Each array 904 outputs signals to signal processing circuitry. Signal processing circuitry for each of these arrays is also tailored for each of the bands of visible spectrum. In effect, individual images are created for each of these arrays. Following this process, the individual images are combined or to form one full color or black/white image. By tailoring each array and the associated signal processing circuitry, a higher quality image can be generated than the image resulting from traditional image sensors of like pixel count.

As such, each array may be tuned to be more efficient in capturing and processing the image in that particular color. Individual lenses (912A-D) can be tailored for the array's band of spectrum.

Figure 10 is a block diagram of arrays 1004A-1004D. Each array 1004 receives a respective color as passed by a respective lens. The traditional color filter sheet is eliminated. Each array 1004 outputs signals to signal processing circuitry. Signal processing circuitry for each of these arrays is also tailored for each of the bands of

visible spectrum. In effect, individual images are created for each of these arrays. Following this process, the individual images are combined or to form one full color or black/white image. By tailoring each array and the associated signal processing circuitry, a higher quality image can be generated than the image resulting from traditional image sensors of like pixel count.

Figure 11 is a block diagram of processing circuitry of a digital camera subsystem, under an embodiment. Figure 11 includes an array 1104, including arrays 1104A-1104D, and signal processing circuitry (also referred to as image processing circuitry) 1214 and 1216. Each array outputs signals to signal processing circuitry .

Figure 12 is a block diagram of image processing circuitry 1214 and 1216. Within the image processing circuitry 1214, each array can be processed separately to tailor the processing to the respective bands of spectrum.

Column logic 1214.1A-1214.1D is the portion of the signal processing circuitry that reads the signals from the pixels. For example, the column logic 1214.1A reads signals from the pixels in array 1204A. Column logic 1214.1B reads signals from the pixels in array 1204B. Column logic 1214.1C reads signals from the pixels in array 1204C. Column logic 1214.1D reads signals from the pixels in array 1204D.

Since an array is targeting a specific wavelength, wavelengths, band of wavelength, or band of wavelengths, the column logic may have different integration times for each array enhancing dynamic range and/or color specificity. Signal processing circuitry complexity for each array can be substantially reduced since logic may not have to switch between extreme color shifts.

Analog Signal Logic (ASL) 1214.2A-1214.2D for each array may be color specific. As such, the ASL processes a single color and therefore can be optimized for gain, noise, dynamic range, linearity, etc. Due to color signal separation, dramatic shifts in the logic and settling time are not required as the amplifiers and logic do not change on a pixel by pixel (color to color) basis as in traditional Bayer patterned designs.

Black level control 1214.3A-1214.3D assesses the level of noise within the signal, and filters it out. With each array focused upon a narrower band of visible spectrum than

traditional image sensors, the black level control can be more finely tuned to eliminate noise.

Exposure control 1214.4A-1214.4D measures the overall volume of light being captured by the array and adjusts the capture time for image quality. Traditional cameras must make this determination on a global basis (for all colors). The embodiments describe herein allow for exposure control to occur differently for each array and targeted band of wavelengths.

These processed images are then passed to a second group of signal processing circuitry 1216. First, image processing logic 1216.1 integrates the multiple color planes into a single color image. The image is adjusted for saturation, sharpness, intensity, hue, artifact removal, and defective pixel correction.

In an embodiment, the final two operations include encoding the signal into standard protocols such as MPEG, JPEG, etc. in an encoder 1216.2 before passing the result to a standard output interface 1216.3, such as USB.

Although the signal processing circuitries 1214 and 1216 are shown at specific areas of the image sensor, the signal processing circuitries 1214 and 1216 can be placed anywhere on the chip and subdivided in any fashion. The signal processing circuitries are often placed in multiple locations.

As previously stated, the image sensor 1204 generally includes a semiconductor chip having several higher order features including multiple arrays (1204A–1204D), and signal processing circuitry 1214, in which each array and the related signal processing circuitry is preferably tailored to address a specific band of visible spectrum. As noted above, the image sensor array can be configured using any multiple numbers and shapes of arrays.

The image sensor 1204 can be constructed using any suitable technology, including silicon and germanium technologies. The pixels can be formed in any suitable manner, can be sized and dimensioned as desired, and can be distributed in any desired pattern. Pixels that are distributed without any regular pattern may also be used.

Any range of visible spectrum can be applied to each array depending on the specific interest of the customer. Further, an infrared array could also be employed as one of the array/lens combinations giving low light capabilities to the sensor.

As previously described, arrays 1204A-1204D may be of any size or shape. While some figures referenced herein show the arrays as individual, discrete sections of the image sensor, these arrays may also be touching. There may also be one large array configured such that the array is subdivided into sections, and each section is focused upon one band of spectrum, creating the same effect as separate arrays on the same chip.

Although the well depth of the photo detectors across each individual array 1204 may be the same, the well depth of any given array may be different from that of other arrays of the sensor subsystem. A photo detector includes an area or portion of the photo detector that captures, collects, is responsive to, detects and/or senses the intensity illumination of incident light. In some embodiments, the well depth is the distance from the surface of the photo detector to a doped region.

Selection of an appropriate well depth depends on many factors, including the targeted band of visible spectrum. Since each entire array is likely to be targeted at one band of visible spectrum (e.g., red) the well depth can be configured to capture that wavelength and ignore others (e.g., blue, green). Doping of the semiconductor material in the color specific arrays can further be used to enhance the selectivity of the photon absorption for color-specific wavelengths.

In various embodiments, a digital camera subsystem can have multiple separate arrays on a single image sensor, each with its own lens. The simple geometry of smaller, multiple arrays allows for a smaller lenses (e.g., smaller diameter, thickness and focal length), which allows for reduced stack height in the digital camera.

The lens and frame concept is applicable to traditional image sensors (without the traditional color filter sheet) to gain physical size, cost and performance advantages.

Each array can advantageously be focused on one band of visible and/or detectable spectrum. Among other things, each lens may be tuned for passage of one specific band of wavelength. Since each lens would therefore not need to pass the entire light spectrum, the number of elements may be reduced, for example, to one or two.

Further, due to the focused bandwidth for each lens, each of the lenses may be dyed during the manufacturing process for its respective bandwidth (e.g., red for the array targeting the red band of visible spectrum). Alternatively, a single color filter may be applied across each lens. This process eliminates the traditional color filters (such as the sheet of individual pixel filters) thereby reducing cost, improving signal strength and eliminating the pixel reduction barrier.

The above-described devices can include any suitable number of combinations, including as few as two arrays/lenses, and many more than two arrays/lenses. Examples include: two arrays/lenses configured as red/green and blue; two arrays/lenses configured as red and blue/green; two arrays/lenses configured as red, green, blue; four arrays/lenses configured as red, blue, green, emerald (for color enhancement); four arrays/lenses configured as red, blue, green, infrared (for low light conditions); and eight arrays/lenses configured as double the above configurations for additional pixel count and image quality.

The cameras or camera subsystems described herein are intended to be emblematic of a generic appliance containing the digital camera subsystem. Thus, the description herein should be interpreted as being emblematic of still and video cameras, cell phones, other personal communications devices, surveillance equipment, automotive applications, computers, manufacturing and inspection devices, toys, plus a wide range of other and continuously expanding applications. Of course these alternative interpretations may or may not include the specific components as depicted herein. For example, the circuit board may not be unique to the camera function but rather the digital camera subsystem may be an add-on to an existing circuit board, such as in a cell phone.

Any or all of the methods and/or apparatus disclosed herein may be employed in any type of apparatus or process including, but not limited to still and video cameras, cell phones, other personal communications devices, surveillance equipment, automotive applications, computers, manufacturing and inspection devices, toys, plus a wide range of other and continuously expanding applications.

Although each array and the related signal processing circuitry is can be tailored to address a specific band of visible spectrum, and each lens may be tuned for passage of

that one specific band of wavelength, there is no requirement that each such array and the related signal processing circuitry be tailored to address a specific band of the visible spectrum. Nor is there any requirement that each lens be tuned for passage of a specific band of wavelength or that each of the arrays be located on the same semiconductor device. Indeed, the embodiments described and illustrated herein, including the specific components thereof, need not employ wavelength-specific features. For example, the arrays and/or signal processing circuitry need not be tailored to address a specific wavelength or band of wavelengths.

Figure 13 is an exploded perspective view of a digital camera 1300, under an embodiment. The digital camera apparatus 1300 includes one or more sensor arrays, e.g., four sensor arrays 1304A-1304D, and one or more optics portions, e.g., four optics portions 1312A-1312D. Each of the optics portions 1304A-1304D may include a lens, and may be associated with a respective one of the sensor arrays sensor arrays 1304A-1304D. In some embodiments a support 1302, for example a frame, is provided to support the one or more optics portions 1312A-1312D, at least in part. Each sensor array and the respective optics portion may define an optical channel. For example, an optical channel 1306A may be defined by the optics portion 1312A and the sensor array 1304A. An optical channel 1306B may be defined by the optics portion 1312B and the sensor array 1304B. An optical channel 1306C may be defined by optics portion 1312C and the sensor array 1304C. An optical channel 1306D may be defined by optics portion 1312D and a sensor array 1304D. The optics portions of the one or more optical channels are also collectively referred to as an optics subsystem.

The sensor arrays of the one or more optical channels are collectively referred as a sensor subsystem. The two or more sensor arrays may be integrated in or disposed on a common substrate, referred to as an image device, on separate substrates, or any combination thereof. For example, where the system includes three or more sensor arrays, two or more sensor arrays may be integrated in a first substrate, and one or more other sensor arrays may be integrated in or disposed on a second substrate.

In that regard, the one or more sensor arrays 1304A-1304D, may or may not be disposed on a common substrate. For example, in some embodiments two or more of the

sensor arrays are disposed on a common substrate. In some embodiments, however, one or more of the sensor arrays is not disposed on the same substrate as one or more of the other sensor arrays. The one or more optical channels may or may not be identical to one another.

In some embodiments, one of the optical channels 1306 detects red light, one of the optical channels 1306 detects green light, and one of the optical channels 1306 detects blue light. In some of such embodiments, one of the optical channels 1306 detects infrared light, cyan light, or emerald light. In some other embodiments, one of the optical channels 1306 detects cyan light, one of the optical channels 1306 detects yellow light, one of the optical channels 1306 detects magenta light and one of the optical channels 1306 detects clear light (black and white). Any other wavelength or band of wavelengths (whether visible or invisible) combinations can also be used.

A processor 1314 is coupled to the one or more sensor arrays 1304A-1304D, via one or more communication links, e.g., communication links 1308A-1308D, respectively. A communication link may be any kind of communication link including but not limited to, for example, wired (e.g., conductors, fiber optic cables) or wireless (e.g., acoustic links, electromagnetic links or any combination thereof including but not limited to microwave links, satellite links, infrared links), and combinations thereof, each of which may be public or private, dedicated and/or shared (e.g., a network). A communication link may include for example circuit switching or packet switching or combinations thereof. Other examples of communication links include dedicated point-to-point systems, wired networks, and cellular telephone systems. A communication link may employ any protocol or combination of protocols including but not limited to the Internet Protocol.

The communication link may transmit any type of information. The information may have any form, including, for example, but not limited to, analog and/or digital) e.g., a sequence of binary values, or a bit string). The information may or may not be divided into blocks. If divided into blocks, the amount of information in a block may be predetermined or determined dynamically, and/or may be fixed (e.g., uniform) or variable.

As will be further described hereinafter, the processor may include one or more channel processors, each of which is coupled to a respective one (or more) of the optical channels and generates an image based at least in part on the signal(s) received from the respective optical channel, although this is not required. In some embodiments, one or more of the channel processors is tailored to its respective optical channel, for example, as described herein. For example, when one of the optical channels is dedicated to a specific wavelength or color (or band of wavelengths or colors) the respective channel processor may be adapted or tailored to such wavelength or color (or band of wavelengths or colors). Further, the gain, noise reduction, dynamic range, linearity and/or any other characteristic of the processor, or combinations of such characteristics, may be adapted to improve and/or optimize the processor to such wavelength or color (or band of wavelengths or colors). Tailoring the channel processing to the respective optical channel may facilitate generating an image of a quality that is higher than the quality of images resulting from traditional image sensors of like pixel count. In addition, providing each optical channel with a dedicated channel processor may help to reduce or simplify the amount of logic in the channel processors as the channel processor may not need to accommodate extreme shifts in color or wavelength, e.g., from a color (or band of colors) or wavelength (or band of wavelengths) at one extreme to a color (or band of colors) or wavelength (or band of wavelengths) at another extreme.

In operation, an optics portion of a optical channel receives light from within a field of view and transmits one or more portions of such light, e.g., in the form of an image at an image plane. The sensor array receives one or more portions of the light transmitted by the optics portion and provides one or more output signals indicative thereof. The one or more output signals from the sensor array are supplied to the processor. In some embodiments, the processor generates one or more output signals based, at least in part, on the one or more signals from the sensor array. In some other embodiments, the processor may generate a combined image based, at least in part, on the images from two or more of such optical channels.

Although the processor 1314 is shown separate from the one or more sensor arrays 1304A-1304D, the processor 1314, or portions thereof, may have any

configuration and may be disposed in one or more locations. For example, certain operations of the processor may be distributed to or performed by circuitry that is integrated in or disposed on the same substrate or substrates as one or more of the one or more of the sensor arrays and certain operations of the processor are distributed to or performed by circuitry that is integrated in or disposed on one or more substrates that are different from (whether such one or more different substrates are physically located within the camera or not) the substrates the one or more of the sensor arrays are integrated in or disposed on.

The digital camera apparatus 1300 may or may not include a shutter, a flash and/or a frame to hold the components together.

Figures 14A-14D are schematic exploded representations of one embodiment of an optics portion, such as optic portion 1312A, under an embodiment. In Figure 14A, the optics portion 1312A includes one or more lenses, e.g., a complex aspherical lens module 1480, one or more color coatings, e.g., a color coating 1482, one or more masks, e.g., an auto focus mask 1484, and one or more IR coatings, e.g., an IR coating 1486.

Lenses can comprise any suitable material or materials, including for example, glass and plastic. Lenses can be doped in any suitable manner, such as to impart a color filtering, polarization, or other property. Lenses can be rigid or flexible. In this regard, some embodiments employ a lens (or lenses) having a dye coating, a dye diffused in an optical medium (e.g., a lens or lenses), a substantially uniform color filter and/or any other filtering technique through which light passes to the underlying array.

The color coating 1482 helps the optics portion filter (or substantially attenuate) one or more wavelengths or bands of wavelengths. The auto focus mask 1484 may define one or more interference patterns that help the digital camera apparatus perform one or more auto focus functions. The IR coating 1486 helps the optics portion 1312A filter a wavelength or band of wavelength in the IR portion of the spectrum.

The one or more color coatings, e.g., color coating 1482, one or more masks, e.g., mask 1484, and one or more IR coatings, e.g., IR coating 1486 may have any size, shape and/or configuration.

In some embodiments, as shown in **Figure 14B**, one or more of the one or more color coatings, e.g., the color coating 1482, are disposed at the top of the optics portion. Some embodiments of the optics portion (and/or components thereof) may or may not include the one or more color coatings, one or more masks and one or more IR coatings and may or may not include features in addition thereto or in place thereof.

In some embodiments, as shown in **Figure 14C**, one or more of the one or more color coatings, e.g., the color coating 1482, are replaced by one or more filters 1488 disposed in the optics portion, e.g., disposed below the lens. In other embodiments, as shown in **Figure 14D**, one or more of the color coatings are replaced by one or more dyes diffused in the lens.

The one or more optics portions, e.g., optics portions 1312A-1312D of Figure 13, may or may not be identical to one another. In some embodiments, for example, the optics portions are identical to one another. In some other embodiments, one or more of the optics portions are different, in one or more respects, from one or more of the other optics portions. For example, in some embodiments, one or more of the characteristics (for example, but not limited to, its type of element(s), size, response, and/or performance) of one or more of the optics portions is tailored to the respective sensor array and/or to help achieve a desired result. For example, if a particular optical channel is dedicated to a particular color (or band of colors) or wavelength (or band of wavelengths) then the optics portion for that optical channel may be adapted to transmit only that particular color (or band of colors) or wavelength (or band of wavelengths) to the sensor array of the particular optical channel and/or to filter out one or more other colors or wavelengths. In some of such embodiments, the design of an optical portion is optimized for the respective wavelength or bands of wavelengths to which the respective optical channel is dedicated. It should be understood, however, that any other configurations may also be employed. Each of the one or more optics portions may have any configuration.

In some embodiments, each of the optics portions, e.g., optics portions 1312A-1312D of Figure 13, comprises a single lens element or a stack of lens elements (or lenslets), although, as stated above. For example, in some embodiments, a single lens

element, multiple lens elements and/or compound lenses, with or without one or more filters, prisms and/or masks are employed.

An optical portion can also contain other optical features that are desired for digital camera functionality and/or performance. For example, these features can include electronically tunable filters, polarizers, wavefront coding, spatial filters (masks), and other features not yet anticipated. Some of the features (in addition to the lenses) are electrically operated (such as a tunable filter), or are mechanically movable with MEMs mechanisms.

In some embodiments, one or more photochromic (or photochromatic) materials are employed in one or more of the optical portions. The one or more materials may be incorporated into an optical lens element or as another feature in the optical path, for example, above one or more of the sensor arrays. In some embodiments, photochromatic materials may be incorporated into a cover glass at the camera entrance (common aperture) to all optics (common to all optical channels), or put into the lenses of one or more optical channels, or into one or more of the other optical features included into the optical path of an optics portion over any sensor array.

Figures 15A-15C are schematic representations of one embodiment of a sensor array 1504. The sensor array is similar to one of the sensor arrays 1304A-1304D of Figure 13, foe example. As shown in Figure 15A, the sensor array 1504 is coupled to circuits 1570, 1572, and 1574. The sensor array sensor array 1504 captures light and converts it into one or more signals, such as electrical signals, which are supplied to one or more of the circuits 1570, 1572, and 1574. The sensor array 1504 includes a plurality of sensor elements such as for example, a plurality of identical photo detectors (sometimes referred to as "picture elements" or "pixels"), e.g., pixels $1580_{1,1}$-$1580_{n,m}$. The photo detectors $1580_{1,1}$-$1580_{n,m}$, are arranged in an array, for example a matrix-type array. The number of pixels in the array may be, for example, in a range from hundreds of thousands to millions. The pixels may be arranged for example, in a two-dimensional array configuration, for example, having a plurality of rows and a plurality of columns, e.g., 640x480, 1280x1024, etc. However, the pixels can be sized and dimensioned as desired, and can be distributed in any desired pattern. Pixels that are distributed without

any regular pattern can also used. Referring to Figure 15B, a pixel, for example pixel $1580_{1,1}$, may be viewed as having x and y dimensions, although the photon capturing portion of a pixel may or may not occupy the entire area of the pixel and may or may not have a regular shape. In some embodiments, the sensor elements are disposed in a plane, referred to herein as a sensor plane. The sensor may have orthogonal sensor reference axes, including for example, an x-axis, a y-axis, and a z-axis, and may be configured so as to have the sensor plane parallel to the x-y plane XY and directed toward the optics portion of the optical channel. Each optical channel has a field of view corresponding to an expanse viewable by the sensor array. Each of the sensor elements may be associated with a respective portion of the field of view.

The sensor array may employ any type of technology, for example, but not limited to MOS pixel technologies (e.g., one or more portions of the sensor are implemented in "Metal Oxide Semiconductor" technology), charge coupled device (CCD) pixel technologies, or combination of both. The sensor array may comprise any suitable material or materials, including, but not limited to, silicon, germanium and/or combinations thereof. The sensor elements or pixels may be formed in any suitable manner.

In operation, the sensor array 1504A, is exposed to light on a sequential line per line basis (similar to a scanner, for example) or globally (similar to conventional film camera exposure, for example). After being exposed to light for certain period of time (exposure time), the pixels $1580_{1,1}$-$1580_{n,m}$, are read out, e.g., on a sequential line per line basis.

In some embodiments, circuitry 1570, also referred to as column logic 1570, is used to read the signals from the pixels $1580_{1,1}$-$1580_{n,m}$. Figure 15C is a schematic representation of a pixel circuit. The pixels $1580_{1,1}$-$1580_{n,}$ also referred to as sensor elements, may be accessed one row at a time by asserting one of the word lines 1582, which run horizontally through the sensor array 1504A. A single pixel $1580_{1,1}$ is shown. Data is passed into and/or out of the pixel $1580_{1,1}$ via bit lines (such as bit line 1584) which run vertically through the sensor array 1504A.

The pixels are not limited to the configurations shown in Figures 15A-15C. As stated above, each of the one or more sensor arrays may have any configuration (e.g., size, shape, pixel design).

The sensor arrays 1302A-1302D of Figure 13 may or may not be identical to one another. In some embodiments, for example, the sensor arrays are identical to one another. In some other embodiments, one or more of the sensor arrays are different, in one or more respects, from one or more of the other sensor arrays. For example, in some embodiments, one or more of the characteristics (for example, but not limited to, its type of element(s), size (for example, surface area), and/or performance) of one or more of the sensor arrays is tailored to the respective optics portion and/or to help achieve a desired result.

Figure 16 is a schematic cross-sectional view of a digital camera apparatus 1600 including a printed circuit board 1620 of a digital camera on which the digital camera elements are mounted, under an embodiment. In this embodiment, the one or more optics portions, e.g., optics portions 1612A and 1612B are seated in and/or affixed to a support 1614. The support 1614 (for example a frame) is disposed superjacent a first bond layer 1622, which is disposed superjacent an image device 1620, in or on which sensor portions 1612A-1612D (sensor portions 1612C and 1612D are not shown), are disposed and/or integrated. The image device 1620 is disposed superjacent a second bond layer 1624 which is disposed superjacent the printed circuit board 1621.

The printed circuit board 1621 includes a major outer surface 1630 that defines a mounting region on which the image device 1620 is mounted. The major outer surface 1630 may further define and one or more additional mounting regions (not shown) on which one or more additional devices used in the digital camera may be mounted. One or more pads 1632 are provided on the major outer surface 1630 of the printed circuit board to connect to one or more of the devices mounted thereon.

The image device 1620 includes the one or more sensor arrays (not shown), and one or more electrically conductive layers. In some embodiments, the image device 1620 further includes one, some or all portions of a processor for the digital camera apparatus

1600. The image device 1620 further includes a major outer surface 1640 that defines a mounting region on which the support 1614 is mounted.

The one or more electrically conductive layers may be patterned to define one or more pads 1642 and one or more traces (not shown) that connect the one or more pads to one or more of the one or more sensor arrays. The pads 1642 are disposed, for example, in the vicinity of the perimeter of the image device 1620, for example along one, two, three or four sides of the image device 1620. The one or more conductive layers may comprise, for example, copper, copper foil, and/or any other suitably conductive material(s).

A plurality of electrical conductors 1650 may connect one or more of the pads 1642 on the image device 1620 to one or more of the pads 1632 on the circuit board 1621. The conductors 1650 may be used, for example, to connect one or more circuits on the image device 1620 to one or more circuits on the printed circuit board 1621.

The first and second bond layers 1622 and 1624 may comprise any suitable material(s), including but not limited to adhesive, and may comprise any suitable configuration. The first and second bond layers 1622, 1624 may comprise the same material(s) although this is not required. As used herein, a bond layer may be continuous or discontinuous. For example, a conductive layer may be an etched printed circuit layer. Moreover, a bond layer may or may not be planar or even substantially planar. For example, a conformal bond layer on a non-planar surface will be non-planar.

Figure 17 is a schematic perspective view of a digital camera apparatus having one or more optics portions with the capability to provide color separation in accordance with one embodiment of the present invention. In some of such embodiments, one or more of the optics portions, e.g., optics portion 1712C includes an array of color filters, for example, but not limited to a Bayer patter. In some of such embodiments, one or more of the optics portions, e.g., optics portion 1712C has the capability to provide color separation similar to that which is provided by a color filter array.

In some embodiments, the lens and/or filter of the optical channel may transmit both of such colors or bands of colors, and the optical channel may include one or more mechanisms elsewhere in the optical channel to separate the two colors or two bands of

colors. For example, a color filter array may be disposed between the lens and the sensor array, and/or the optical channel may employ a sensor capable of separating the colors or bands of colors. In some of the latter embodiments, the sensor array may be provided with pixels that have multiband capability, e.g., two or three colors. For example, each pixel may comprise two or three photodiodes, wherein a first photodiode is adapted to detect a first color or first band of colors, a second photodiode is adapted to detect a second color or band of colors and a third photodiode is adapted to detect a third color or band of colors. One way to accomplish this is to provide the photodiodes with different structures and/or characteristics that make them selective, such that the first photodiode has a higher sensitivity to the first color or first band of colors than to the second color or band of colors, and the second photodiode has a higher sensitivity to the second color or second band of colors than to the first color or first band of colors. Alternatively, the photodiodes are disposed at different depths in the pixel, taking advantage of the different penetration and absorption characteristics of the different colors or bands of colors. For example, blue and blue bands of colors penetrate less (and are thus absorbed at a lesser depth) than green and green bands of colors, which in turn penetrate less (and are thus absorbed at a lesser depth) than red and red bands of colors. In some embodiments, such a sensor array is employed, even though the pixels may see only one particular color or band of colors, for example, to in order to adapt such sensor array to the particular color or band of colors.

Figure 18A is a block diagram of a processor 1802 of a digital camera subsystem 1800, under an embodiment. In this embodiment, the processor 1802 includes one or more channel processors, one or more image pipelines, and/or one or more image post processors. Each of the channel processors is coupled to a respective one of the optical channels (not shown) and generates an image based at least in part on the signal(s) received from the respective optical channel. In some embodiments the processor 1802 generates a combined imaged based at least in part on the images from two or more of the optical channels. In some embodiments, one or more of the channel processors are tailored to its respective optical channel, as previously described.

In various embodiments, the gain, noise reduction, dynamic range, linearity and/or any other characteristic of the processor, or combinations of such characteristics, may be adapted to improve and/or optimize the processor to a wavelength or color (or band of wavelengths or colors). Tailoring the channel processing to the respective optical channel makes it possible to generate an image of a quality that is higher than the quality of images resulting from traditional image sensors of like pixel count. In such embodiments, providing each optical channel with a dedicated channel processor helps to reduce or simplify the amount of logic in the channel processors, as the channel processor may not need to accommodate extreme shifts in color or wavelength, e.g., from a color (or band of colors) or wavelength (or band of wavelengths) at one extreme to a color (or band of colors) or wavelength (or band of wavelengths) at another extreme

The images (and/or data which is representative thereof) generated by the channel processors are supplied to the image pipeline, which may combine the images to form a full color or black/white image. The output of the image pipeline is supplied to the post processor, which generates output data in accordance with one or more output formats.

Figure 18B shows one embodiment of a channel processor. In this embodiment, the channel processor includes column logic, analog signal logic, and black level control and exposure control. The column logic is coupled to the sensor and reads the signals from the pixels. Each of the column logic, analog signal logic, black level control and exposure control can be configured for processing as appropriate to the corresponding optical channel configuration (e.g., specific wavelength or color, etc.). For example, the analog signal logic is optimized, if desired, for processing. Therefore, gain, noise, dynamic range and/or linearity, etc., are optimized as appropriate to the corresponding optical channel configuration (e.g., a specific wavelength or color, etc.). As another example, the column logic may employ an integration time or integration times adapted to provide a particular dynamic range as appropriate to the corresponding optical channel.

The digital camera systems of an embodiment provide digital cameras with large effective single-frame dynamic exposure ranges through the use of multiple camera channels, including multiple optics and image sensors. The multiple camera channels are all configured to image the same field of view simultaneously, and each operates

independently under a different integration time. The digital camera can include, for example, a 3x3 assembly of image sensors, perhaps three sensor of each color (e.g., red (R), green (G), and blue (B)) and the integration time of the sensors associated with each color can be varied, for example, each color can have three distinct values (e.g., 0.1 msec, 1 msec, and 10 msec integration time, respectively). The data from all sensors can be digitally combined to provide a much greater dynamic range within one frame of digital camera data. The raw digital camera data could be used by digital signal processing of the scene. The digital data can also be stored and displayed to exhibit low light or bright light characteristics as desired.

Exposure is the total amount of light allowed to fall on a sensor during the process of taking a photograph. Exposure control is control of the total amount of light incident on a sensor during the process of taking a photograph.

In contrast to exposure control, which is used by conventional digital cameras to manage dynamic range, the digital camera systems of an embodiment use integration time control to control the time the electrical signal is integrated on a charge storage device (capacitance) within a sensor (pixel), as described herein. Integration time control, also referred to as "focal plane shutter" control, controls the time the electrical signal is integrated or accumulated by controlling a switch (e.g., charge integration switch) coupled or connected to the sensor or a photo-detection mechanism of a sensor. For example, the charge integration switch is placed in a state to allow charge to accumulate within the sensor for a period of time approximately equal to the integration time corresponding to that sensor; upon completion of the integration period, the switch is placed in a state to transfer the accumulated charge as a photo-signal to a processing component. Digital camera components or circuitry are configured to allow independent control of the charge integration switch associated with each sensor, thereby making possible dynamic range control for each sensor. The integration time control can be executed (depending on readout configuration) according to a number of techniques, for example, rolling mode and/or snap-shot mode to name a few.

The output of the analog signal logic is supplied to the black level control, which determines the level of noise within the signal, and filters out some or all of such noise.

If the sensor coupled to the channel processor is focused upon a narrower band of visible spectrum than traditional image sensors, the black level control can be more finely tuned to eliminate noise.

The output of the black level control is supplied to the exposure control, which measures the overall volume of light being captured by the array and adjusts the capture time for image quality. Traditional cameras must make this determination on a global basis (for all colors). In the camera of an embodiment, however, the exposure control can be specifically adapted to the wavelength (or band of wavelengths) to which the sensor is configured. Each channel processor is thus able to provide a capture time that is specifically adapted to the sensor and/or specific color (or band of colors) targeted, and which may be different than the capture time provided by another channel processor for another optical channel.

Figure 18C is a block diagram of the image pipeline, under an embodiment. In this embodiment, the image pipeline includes two portions. The first portion includes a color plane integrator and an image adjustor. The color plane integrator receives an output from each of the channel processors and integrates the multiple color planes into a single color image. The output of the color plane integrator, which is indicative of the single color image, is supplied to the image adjustor, which adjusts the single color image for saturation, sharpness, intensity and hue. The adjustor also adjusts the image to remove artifacts and any undesired effects related to bad pixels in the one or more color channels. The output of the image adjustor is supplied to the second portion of the pipeline, which provides auto focus, zoom, windowing, pixel binning and camera functions.

Figure 18D is a block diagram of the image post processor, under an embodiment. In this embodiment, the image post processor includes an encoder and an output interface. The encoder receives the output signal from the image pipeline and provides encoding to supply an output signal in accordance with one or more standard protocols (e.g., MPEG and/or JPEG). The output of the encoder is supplied to the output interface, which provides encoding to supply an output signal in accordance with a standard output interface, e.g., universal serial bus (USB) interface.

Figure 19 is a block diagram of digital camera system, including system control components, under an embodiment. The system control portion includes a serial interface, configuration registers, power management, voltage regulation and control, timing and control, a camera control interface and a serial interface, but is not so limited. In some embodiments, the camera interface comprises an interface that processes signals that are in the form of high level language (HLL) instructions. In some embodiments the camera interface comprises an interface that processes control signals that are in the form of low level language (LLL) instructions and/or of any other form now known or later developed. Some embodiments may process both HLL instructions and LLL instructions.

As used herein, the following terms are interpreted as described below, unless the context requires a different interpretation.

"Array" means a group of photodetectors, also know as pixels, which operate in concert to create one image. The array captures photons and converts the data to an electronic signal. The array outputs this raw data to signal processing circuitry that generates the image sensor image output.

"Digital Camera" means a single assembly that receives photons, converts them to electrical signals on a semiconductor device ("image sensor"), and processes those signals into an output that yields a photographic image. The digital camera would included any necessary lenses, image sensor, shutter, flash, signal processing circuitry, memory device, user interface features, power supply and any mechanical structure (e.g. circuit board, housing, etc) to house these components. A digital camera may be a stand-alone product or may be imbedded in other appliances, such as cell phones, computers or the myriad of other imaging platforms now available or to be created in the future, such as those that become feasible as a result of this invention.

"Digital Camera Subsystem" (DCS) means a single assembly that receives photons, converts them to electrical signals on a semiconductor device ("image sensor") and processes those signals into an output that yields a photographic image. The Digital Camera Subsystem includes any necessary lenses, image sensor, signal processing circuitry, shutter, flash and any frame to hold the components as may be required. The

power supply, memory devices and any mechanical structure are not necessarily included.

"Electronic media" means that images are captured, processed and stored electronically as opposed to the use of film.

"Frame" or "thin plate" means the component of the DCS that is used to hold the lenses and mount to the image sensor.

"Image sensor" means the semiconductor device that includes the photon detectors ("pixels"), processing circuitry and output channels. The inputs are the photons and the output is the image data.

"Lens" means a single lens or series of stacked lenses (a column one above the other) that shape light rays above an individual array. When multiple stacks of lenses are employed over different arrays, they are called "lenses."

"Package" means a case or frame that an image sensor (or any semiconductor chip) is mounted in or on, which protects the imager and provides a hermetic seal. "Packageless" refers to those semiconductor chips that can be mounted directly to a circuit board without need of a package.

The terms "Photo-detector" and "pixels" mean an electronic device that senses and captures photons and converts them to electronic signals. These extremely small devices are used in large quantities (hundreds of thousands to millions) in a matrix to capture an image.

"Semiconductor Chip" means a discrete electronic device fabricated on a silicon or similar substrate, which is commonly used in virtually all electronic equipment.

"Signal Processing Circuitry" means the hardware and software within the image sensor that translates the photon input information into electronic signals and ultimately into an image output signal.

Aspects of the digital camera systems and methods described herein may be implemented as functionality programmed into any of a variety of circuitry, including programmable logic devices (PLDs), such as field programmable gate arrays (FPGAs), programmable array logic (PAL) devices, electrically programmable logic and memory devices and standard cell-based devices, as well as application specific integrated circuits

(ASICs). Some other possibilities for implementing aspects of the digital camera systems and methods include: microcontrollers with memory (such as electronically erasable programmable read only memory (EEPROM)), embedded microprocessors, firmware, software, etc. Furthermore, aspects of the digital camera systems and methods may be embodied in microprocessors having software-based circuit emulation, discrete logic (sequential and combinatorial), custom devices, fuzzy (neural) logic, quantum devices, and hybrids of any of the above device types. Of course the underlying device technologies may be provided in a variety of component types, e.g., metal-oxide semiconductor field-effect transistor (MOSFET) technologies like complementary metal-oxide semiconductor (CMOS), bipolar technologies like emitter-coupled logic (ECL), polymer technologies (e.g., silicon-conjugated polymer and metal-conjugated polymer-metal structures), mixed analog and digital, etc.

It should be noted that components of the various systems and methods disclosed herein may be described using computer aided design tools and expressed (or represented), as data and/or instructions embodied in various computer-readable media, in terms of their behavioral, register transfer, logic component, transistor, layout geometries, and/or other characteristics. Computer-readable media in which such formatted data and/or instructions may be embodied include, but are not limited to, non-volatile storage media in various forms (e.g., optical, magnetic or semiconductor storage media) and carrier waves that may be used to transfer such formatted data and/or instructions through wireless, optical, or wired signaling media or any combination thereof.

Examples of transfers of such formatted data and/or instructions by carrier waves include, but are not limited to, transfers (uploads, downloads, e-mail, etc.) over the Internet and/or other computer networks via one or more data transfer protocols (e.g., HTTP, FTP, SMTP, etc.). When received within a computer system via one or more computer-readable media, such data and/or instruction-based expressions of the above described systems and methods may be processed by a processing entity (e.g., one or more processors) within the computer system in conjunction with execution of one or more other computer programs.

Unless the context clearly requires otherwise, throughout the description and the claims, the words "comprise," "comprising," and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in a sense of "including, but not limited to." Words using the singular or plural number also include the plural or singular number respectively. Additionally, the words "herein," "hereunder," "above," "below," and words of similar import refer to this application as a whole and not to any particular portions of this application. When the word "or" is used in reference to a list of two or more items, that word covers all of the following interpretations of the word: any of the items in the list, all of the items in the list and any combination of the items in the list.

The above description of illustrated embodiments of the digital camera systems and methods is not intended to be exhaustive or to limit the digital camera systems and methods to the precise form disclosed. While specific embodiments of, and examples for, the digital camera systems and methods are described herein for illustrative purposes, various equivalent modifications are possible within the scope of the digital camera systems and methods, as those skilled in the relevant art will recognize. The teachings of the digital camera systems and methods provided herein can be applied to other processing systems and methods, not only for the systems and methods described above.

The elements and acts of the various embodiments described above can be combined to provide further embodiments. These and other changes can be made to the digital camera systems and methods in light of the above detailed description.

In general, in the following claims, the terms used should not be construed to limit the digital camera systems and methods to the specific embodiments disclosed in the specification and the claims, but should be construed to include all systems that operate under the claims. Accordingly, the digital camera systems and methods are not limited by the disclosure, but instead the scope of the digital camera systems and methods is to be determined entirely by the claims.

While certain aspects of the digital camera systems and methods are presented below in certain claim forms, the inventors contemplate the various aspects of the digital camera systems and methods in any number of claim forms. Accordingly, the inventors

reserve the right to add additional claims after filing the application to pursue such additional claim forms for other aspects of the digital camera systems and methods.

CLAIMS

What is claimed is:

1. A digital camera comprising:

a plurality of channels, wherein each channel includes an optics component and an array of photo-detectors integrated on a semiconductor substrate, the plurality of channels including a first channel having a first field of view (FOV) and a second channel having a second FOV that is different than the first FOV; and

a processing component coupled to the plurality of channels, the processing component configured to independently control simultaneous data acquisition with each of the plurality of channels, the processing component configured to combine data of a frame from at least one of channels to provide an image having a relatively high resolution.

2. The camera of claim 1, wherein the optics component of the first channel has a first focal length, and the array of photo-detectors of the first channel has a first dimension.

3. The camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal length, and the array of photo-detectors of the second channel has the first dimension.

4. The camera of claim 2, wherein the optics component of the second channel has the first focal length, and the array of photo-detectors of the second channel has a second dimension that is different from the first dimension.

5. The camera of claim 2, wherein the optics component of the second channel has a second focal length that is different from the first focal length, and the array of photo-detectors of the second channel has a second dimension that is different from the first dimension.

6. The camera of claim 1, wherein the plurality of channels comprises a third channel having a third FOV.

7. The camera of claim 6, wherein the third FOV is different from one or more of the first FOV and the second FOV.

8. The camera of claim 6, wherein the plurality of channels comprises a fourth channel having a fourth FOV.

9. The camera of claim 8, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

10. The camera of claim 1, wherein the processing component is configured to separately and simultaneously control a parameter of the optics component of each channel.

11. The camera of claim 1, wherein the optics component of the first channel includes a different configuration than the optics component of the second channel.

12. The camera of claim 1, wherein the optics component includes at least one lens.

13. The camera of claim 1, wherein the optics component includes at least one filter.

14. The camera of claim 1, wherein each channel is configured to pass light including a plurality of colors.

15. The camera of claim 1, wherein the first channel is configured to pass light of a first color and the second channel is configured to pass light of a second color.

16. The camera of claim 1, wherein the plurality of channels are configured to pass light of a first color.

17. A digital camera comprising:

a first channel including a first optics component and a first image sensor integrated in a semiconductor substrate and configured to provide a first field of view;

a second channel including a second optics component and a second image sensor integrated in the semiconductor substrate and configured to provide a second field of view; and

a processing component coupled to the first and second channels and configured to independently control simultaneous data acquisition with each of the plurality of channels during a frame.

18. The camera of claim 17, wherein the first optics component has a first focal length, and the first image sensor has a first pixel count.

19. The camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has the first pixel count.

20. The camera of claim 18, wherein the second optics component has the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

21. The camera of claim 18, wherein the second optics component has a second focal length that is different from the first focal length, and the second image sensor has a second pixel count that is different from the first pixel count.

22. A method comprising:

configuring a first optics component relative to a first image sensor to form a first channel having a first field of view (FOV);

configuring a second optics component relative to a second image sensor to form a second channel having a second FOV different than the first FOV;

independently controlling simultaneous data acquisition with each of the first and second channels during a frame; and

combining data received during the frame from one or more of the first and second channels to provide an image.

23. The method of claim 22, comprising forming the first image sensor and the second image sensor in a semiconductor substrate.

24. The method of claim 22, wherein configuring the first optics component relative to the first image sensor comprises configuring the first optics component with a first focal length and configuring the first image sensor to include a first pixel count.

25. The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different than the first focal length and configuring the second image sensor to include the first pixel count.

26. The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with the first focal length and configuring the second image sensor to include a second pixel count that is different than the first pixel count.

27. The method of claim 24, wherein configuring the second optics component relative to the second image sensor comprises configuring the second optics component with a second focal length that is different from the first focal length and configuring the

second image sensor to include a second pixel count that is different than the first pixel count.

28. The method of claim 22, comprising configuring a third optics component relative to a third image sensor to form a third channel having a third FOV, wherein the third FOV is different from one or more of the first FOV and the second FOV.

29. The method of claim 28, comprising forming the third image sensor in a semiconductor substrate along with the first and the second image sensors.

30. The method of claim 28, comprising configuring a fourth optics component relative to a fourth image sensor to form a fourth channel having a fourth FOV, wherein the fourth FOV is different from one or more of the first FOV, the second FOV and the third FOV.

31. The method of claim 30, comprising forming the fourth image sensor in a semiconductor substrate along with the first, the second and the third image sensors.

32. The method of claim 22, comprising separately and simultaneously controlling a parameter of one or more of the first and the second optics components.

33. The method of claim 22, wherein configuring the first optics component includes configuring the first optics component differently than the second optics component.

34. The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a same color as the second optics component.

35. The method of claim 22, wherein configuring the first optics component includes configuring the first optics component to pass light of a different color than the second optics component.

36. A method comprising:

forming a first image sensor and a second image sensor in a semiconductor substrate;

configuring a first optics component relative to the first image sensor to form a first channel having a first field of view (FOV);

configuring a second optics component relative to the second image sensor to form a second channel having a second FOV different than the first FOV; and

forming a processing component in the semiconductor substrate and configuring the processing component to independently control simultaneous data acquisition by the first and second channels during a frame.

37. A solid-state camera system produced according to the method of claim 36.

ABSTRACT

Digital camera systems and methods are described that provide digital cameras configured to simultaneously acquire image data via multiple channels having different fields of view. The digital cameras include multiple channels coupled to a processing component. Each channel includes an optics component and an array of sensors or photo-detectors integrated on a semiconductor substrate. The channels include a first channel having a first field of view (FOV) and a second channel having a second FOV, and the second FOV is different than the first FOV. The processing component is configured to independently control simultaneous data acquisition with each of the channels, and to combine data from at least one channel during a frame to provide a high resolution image.

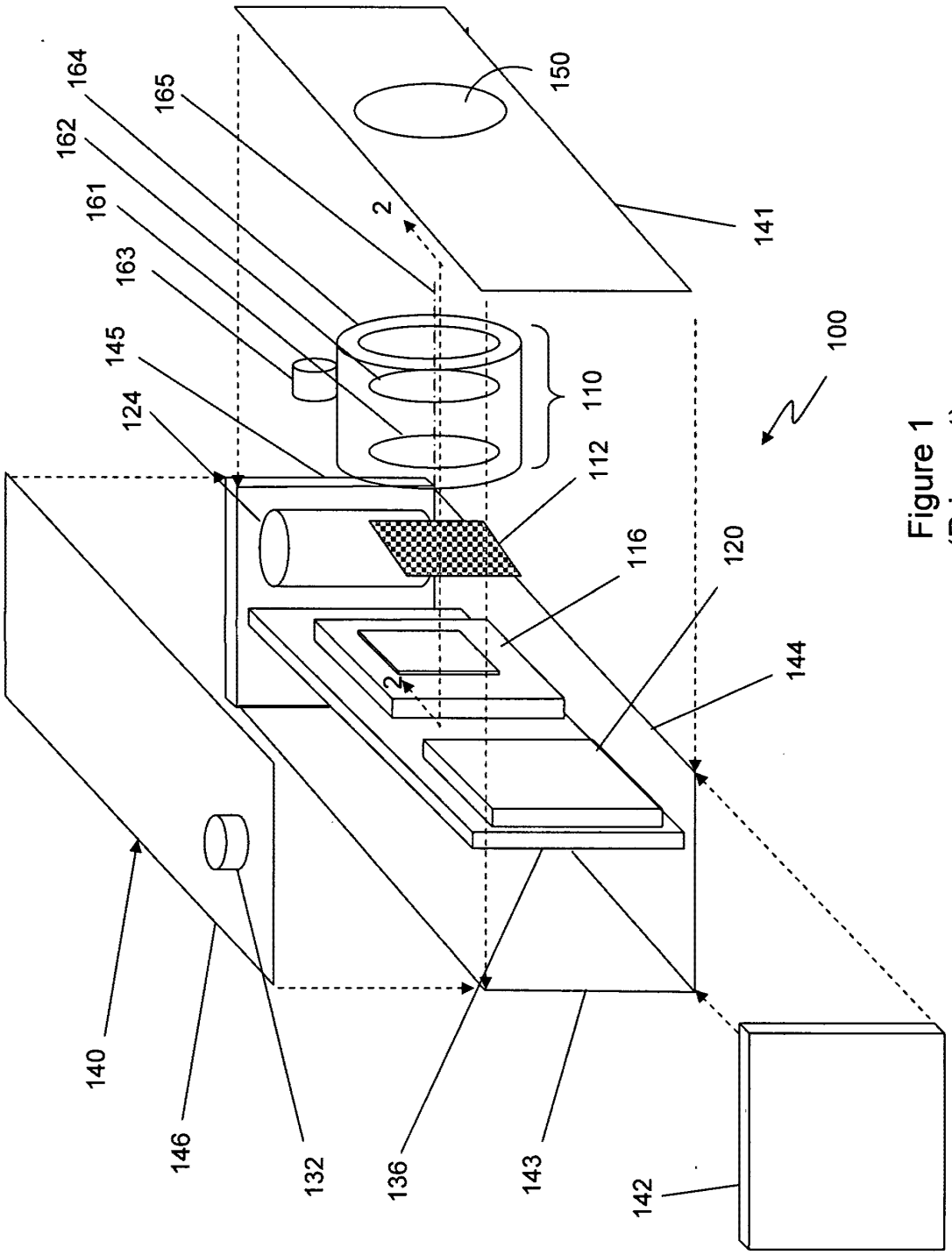


Figure 1
(Prior art)

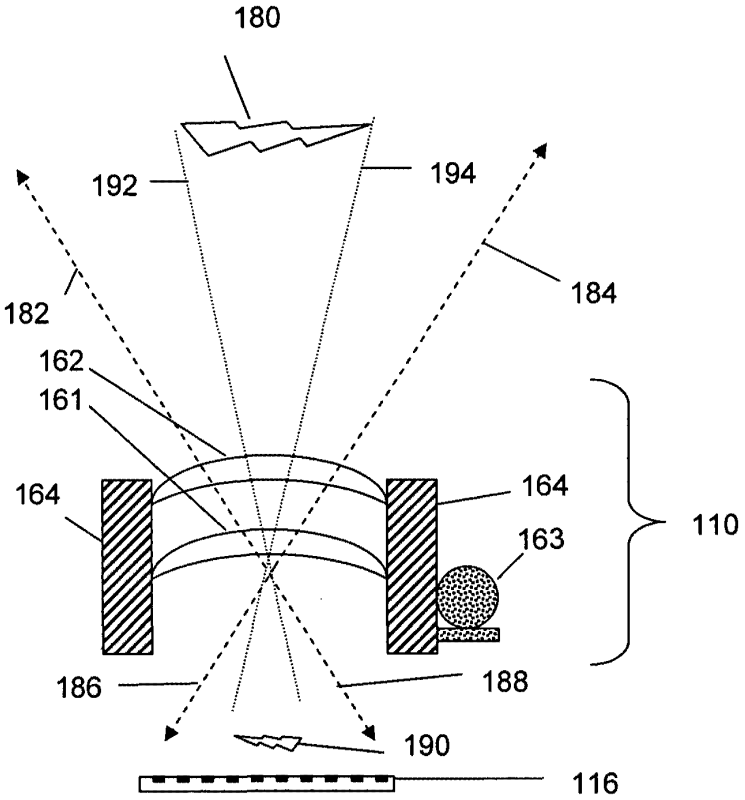


Figure 2A (Prior art)

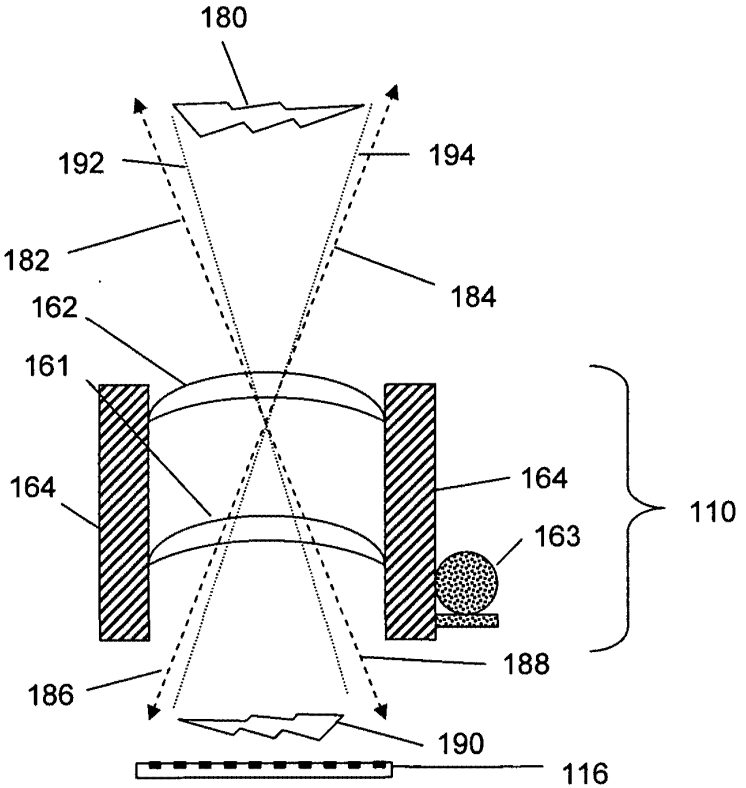


Figure 2B (Prior art)

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TESLA, INC.

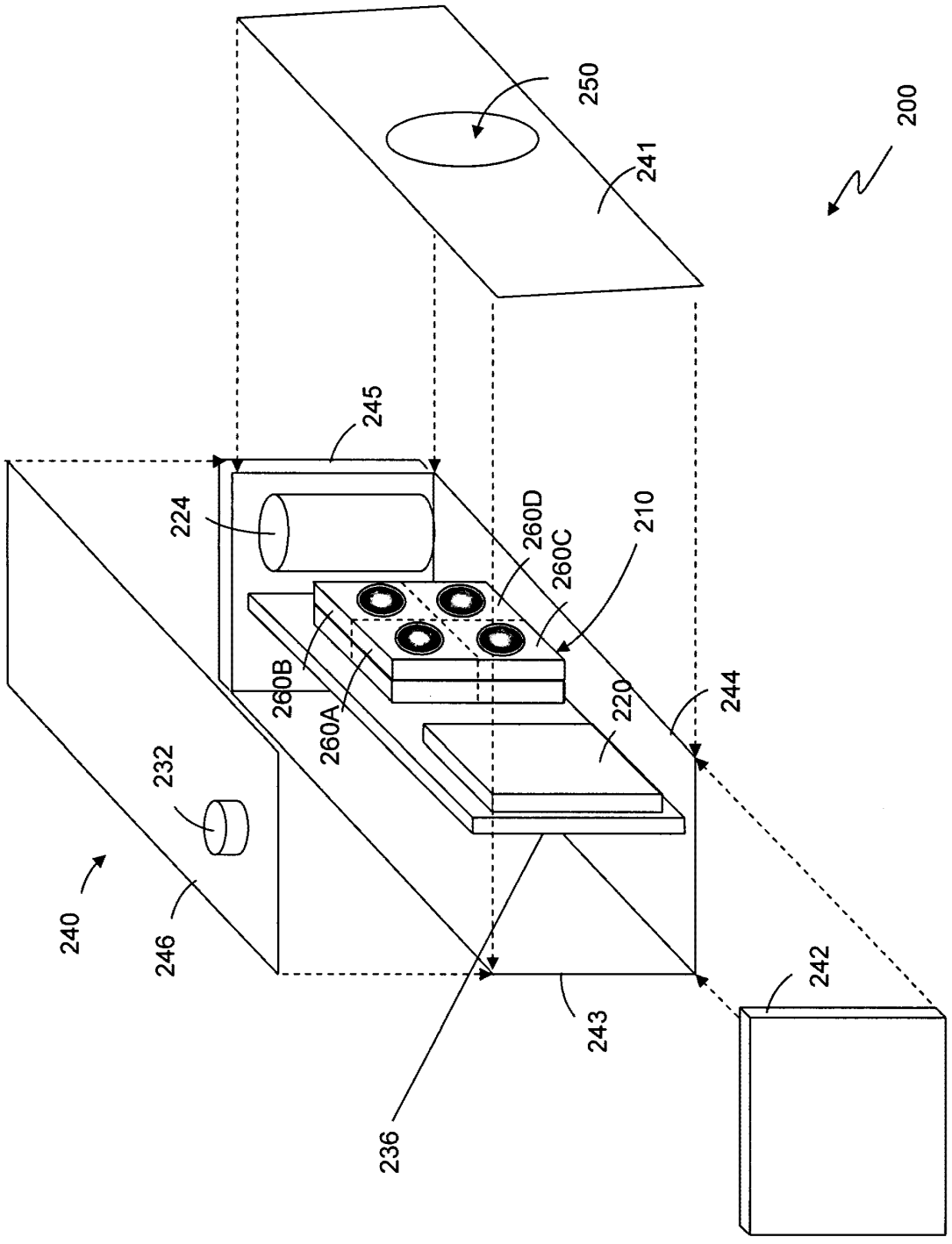

200
250
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224
260D
260C
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260B
260A
220
244
232
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242
243
236

Figure 3

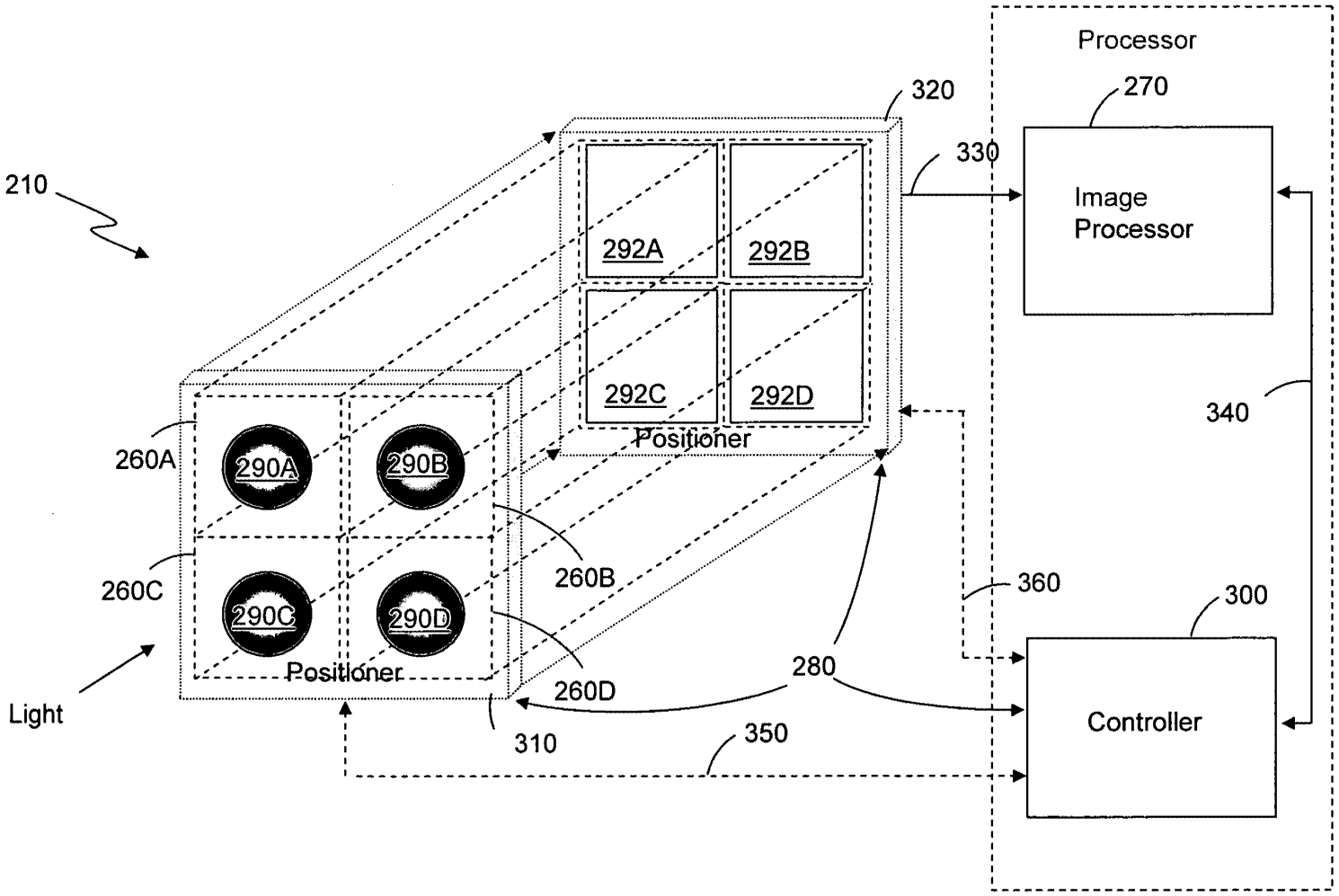


Figure 4

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TESLA, INC.

500

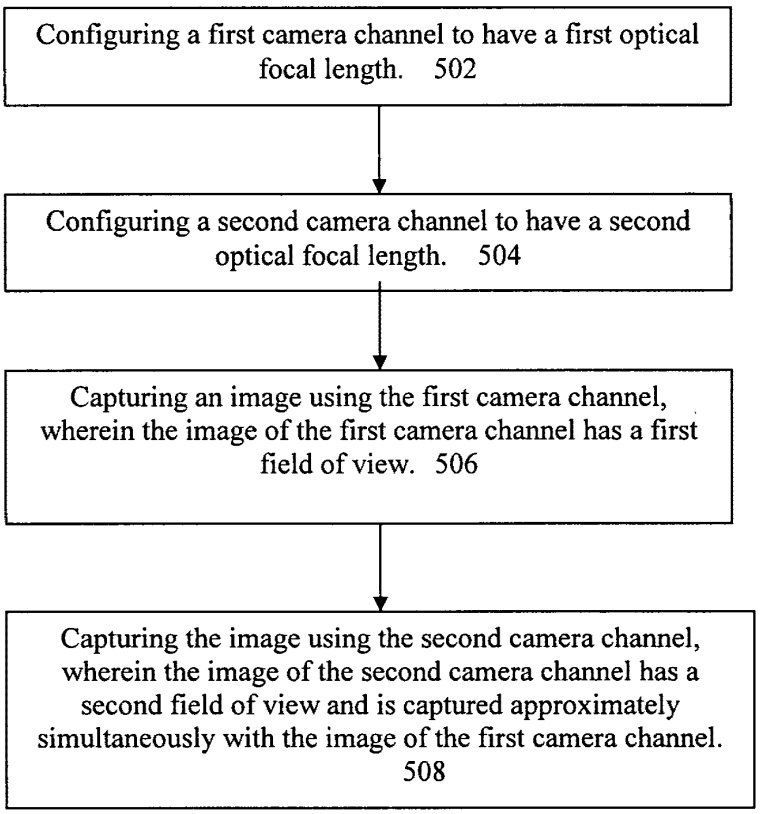

Configuring a first camera channel to have a first optical focal length. 502
Configuring a second camera channel to have a second optical focal length. 504
Capturing an image using the first camera channel, wherein the image of the first camera channel has a first field of view. 506
Capturing the image using the second camera channel, wherein the image of the second camera channel has a second field of view and is captured approximately simultaneously with the image of the first camera channel. 508

Figure 5

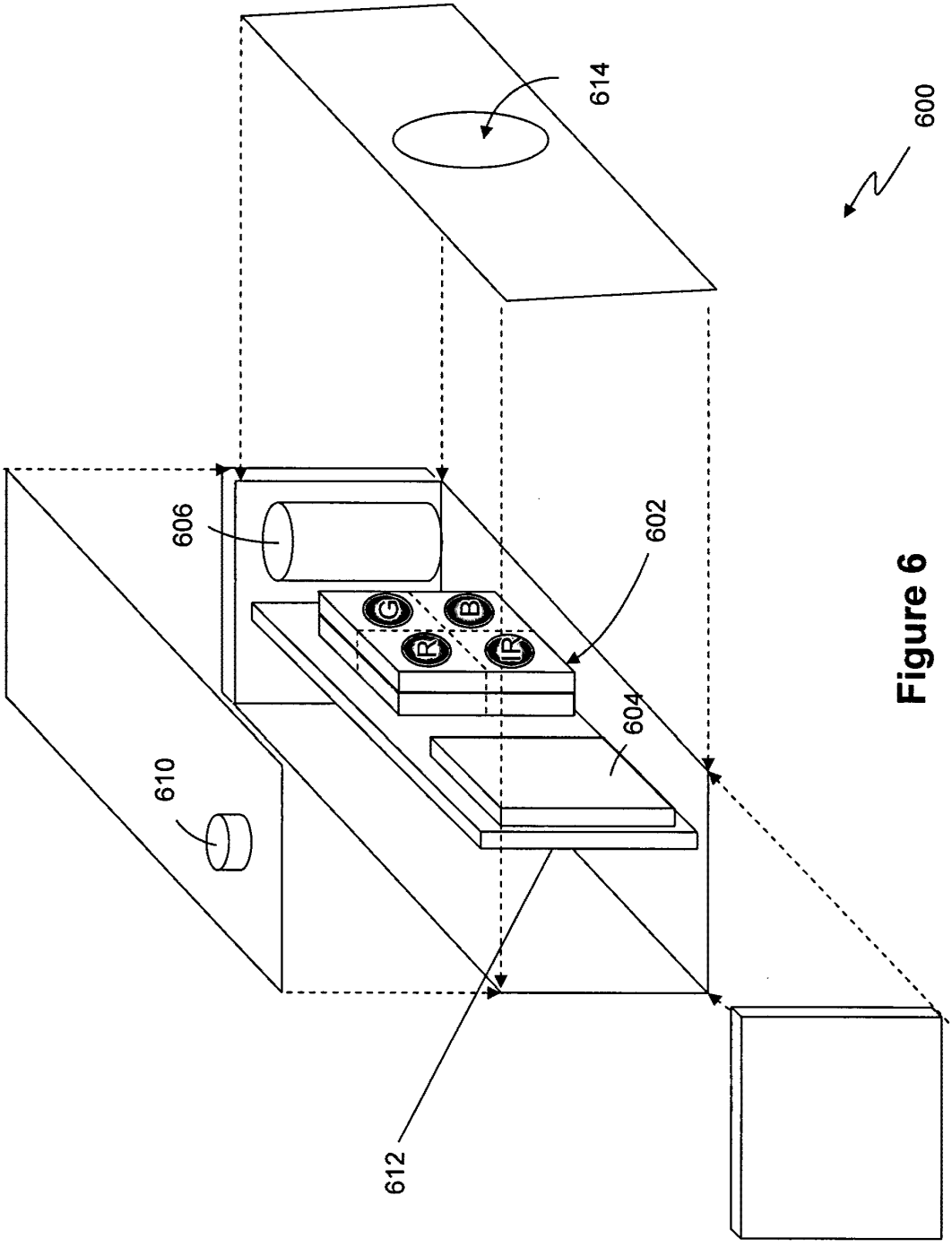


Figure 6

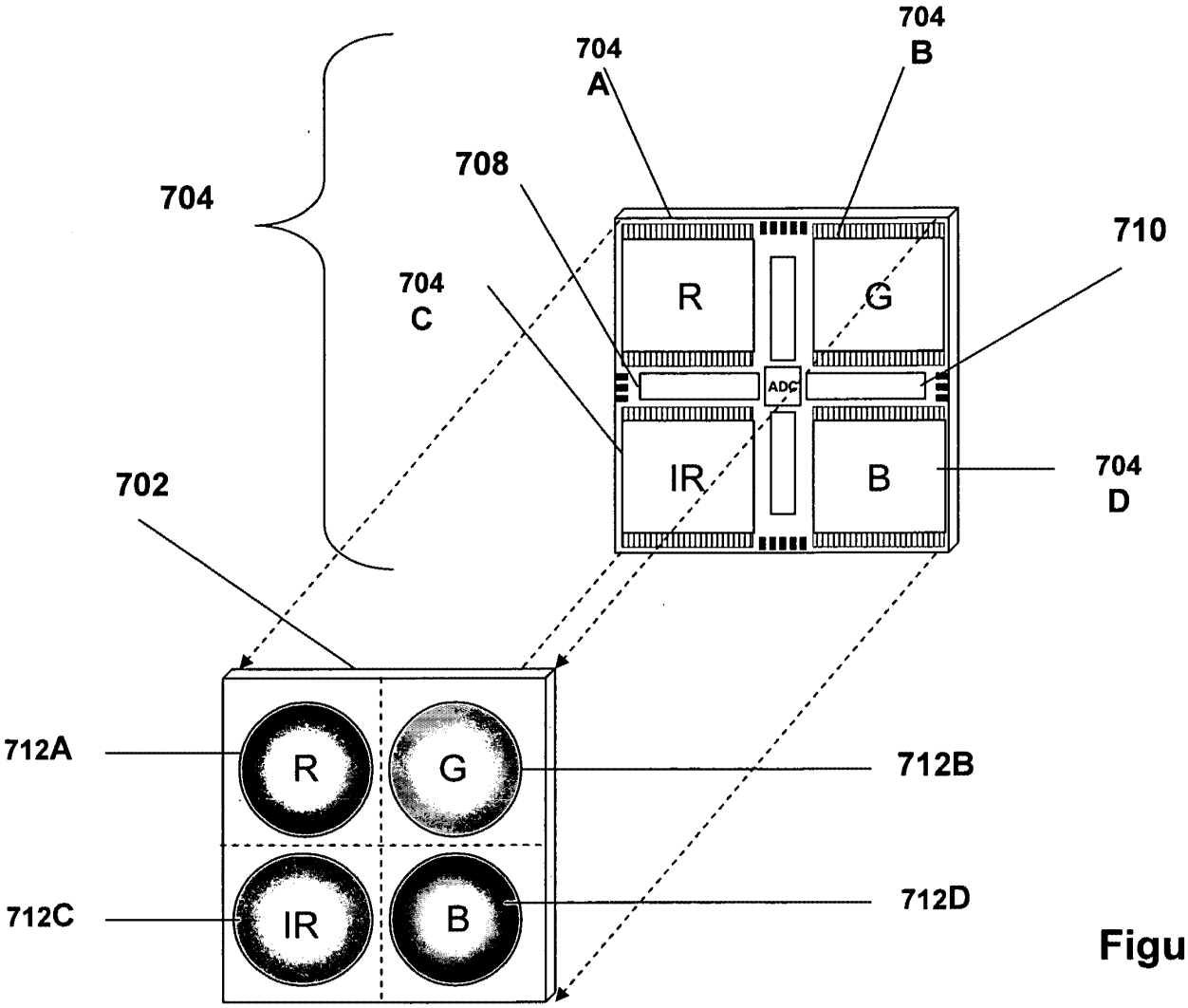

704
704
A
704
B
708
710
704
C
R
G
ADC
IR
B
704
D
702
712A
R
G
712B
712C
IR
B
712D

Figure 7

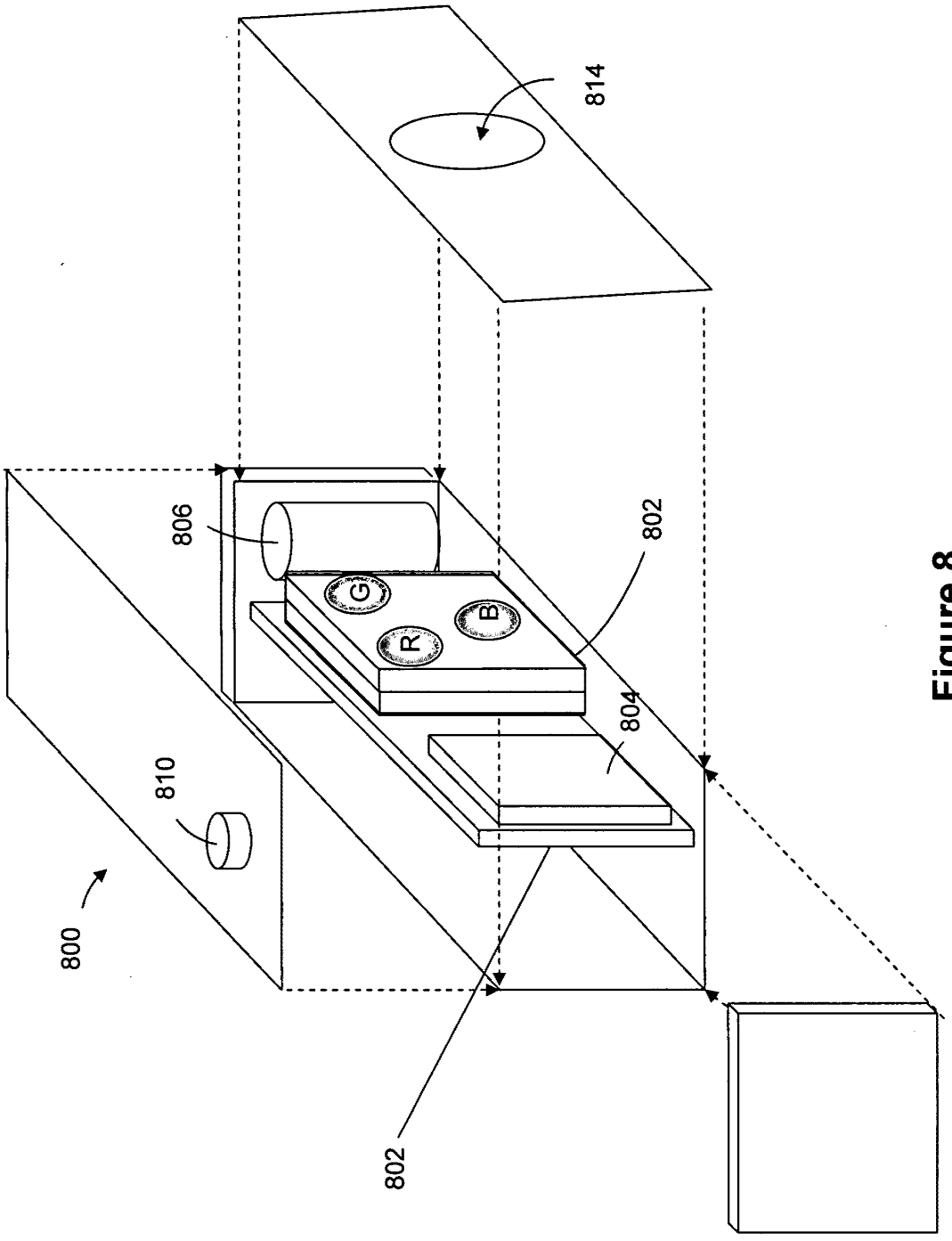


Figure 8

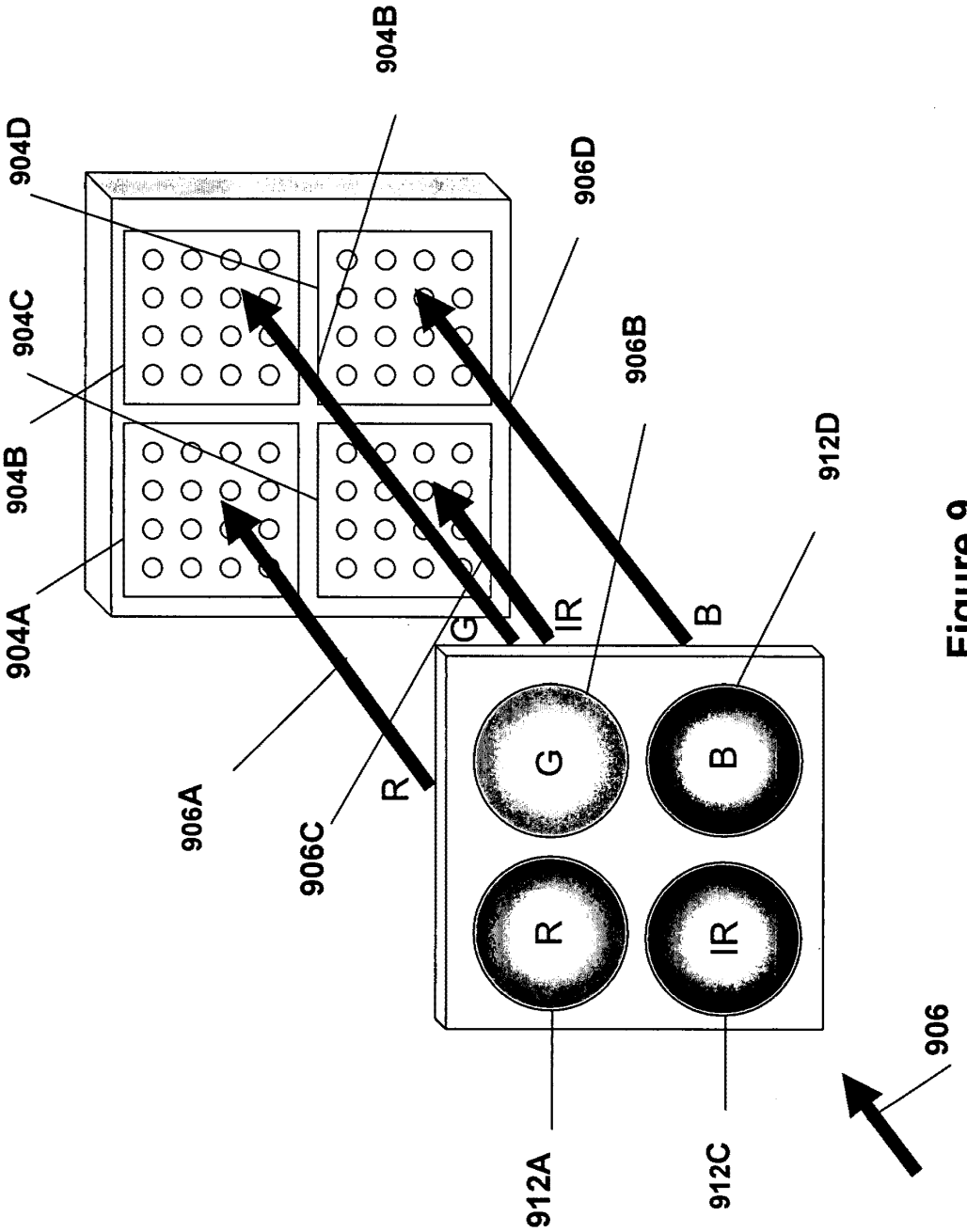

904B
904D
906D
904C
906B
904B
912D
904A
G
IR
B
906A
R
906C
G
B
R
IR
912A
912C
906

Figure 9

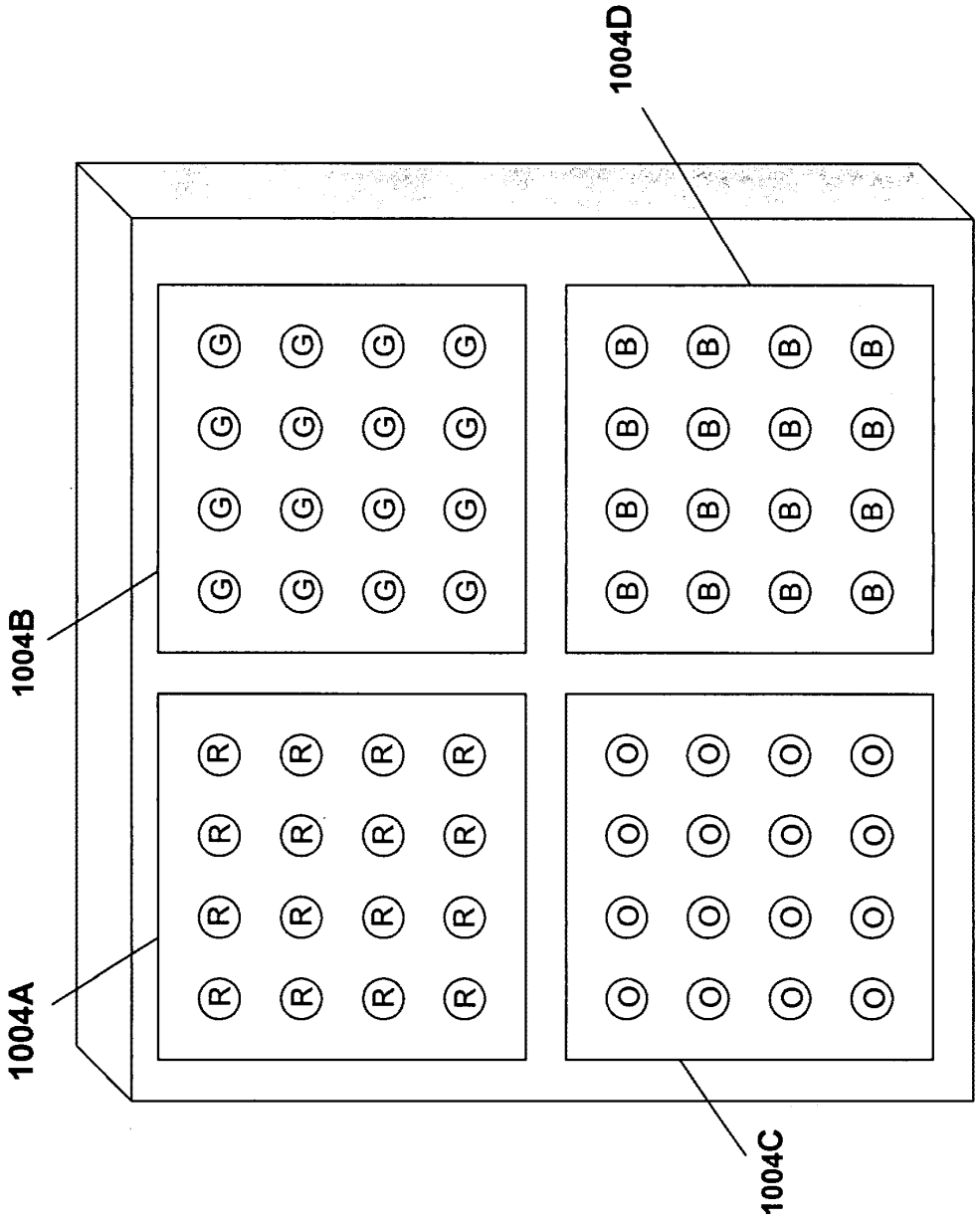


Figure 10

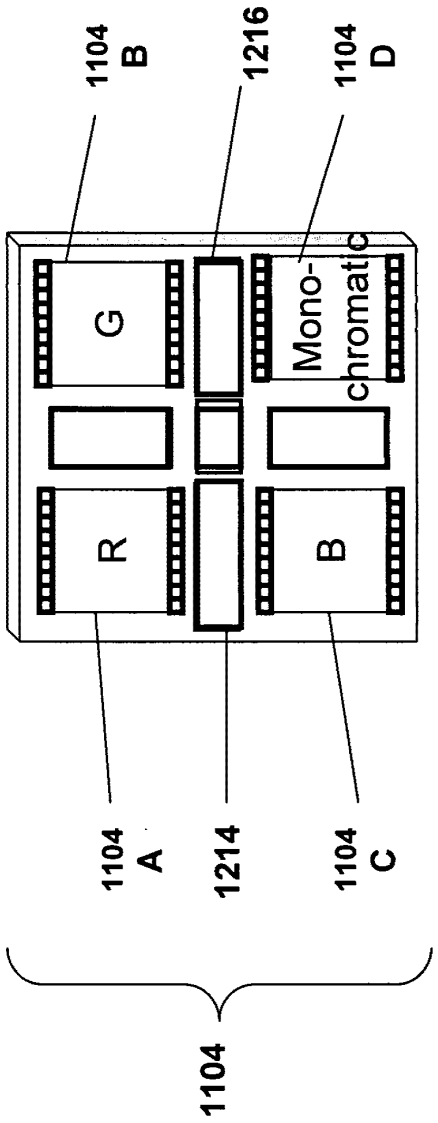


Figure 11

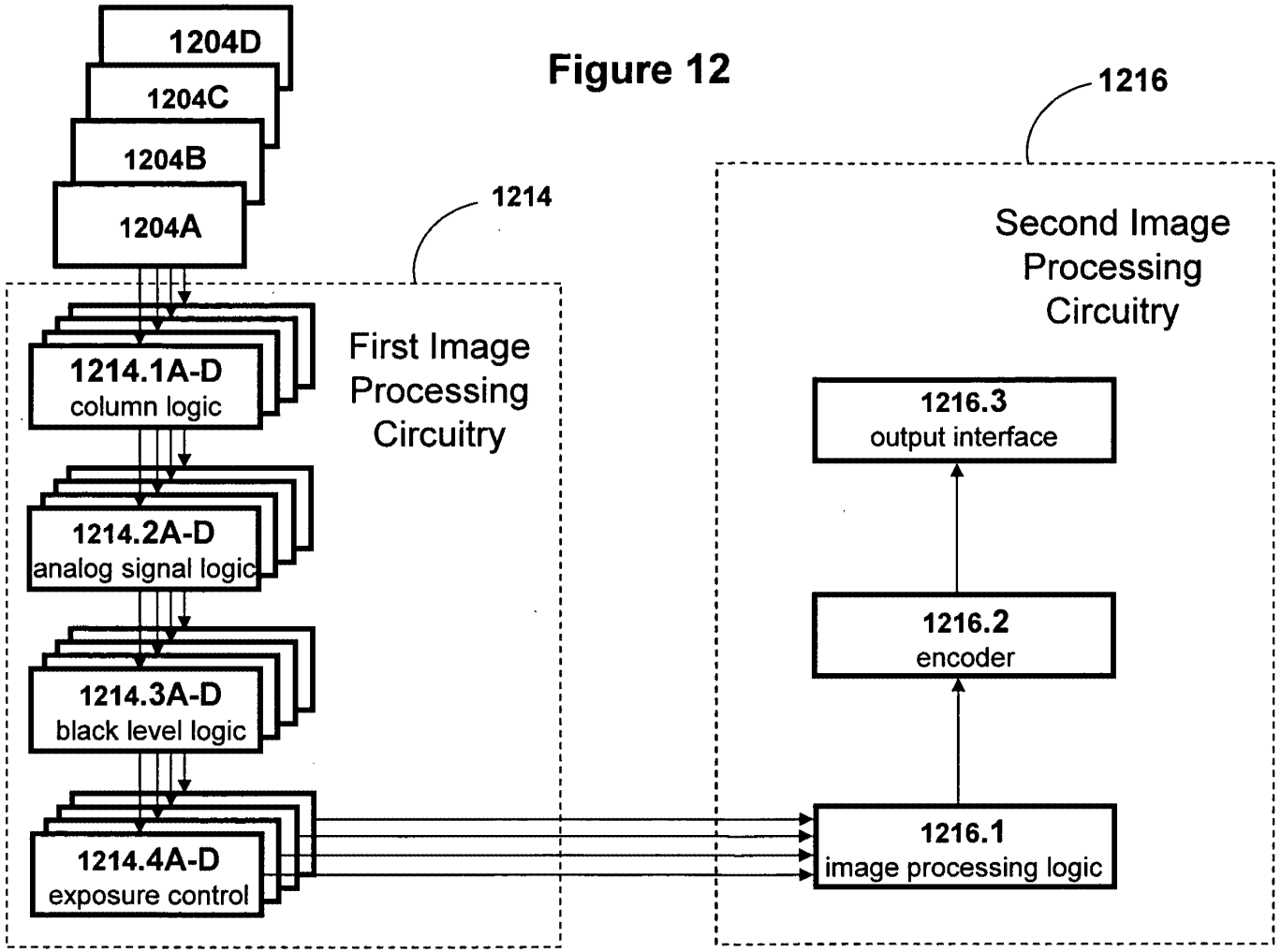


Figure 12

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TESLA, INC.

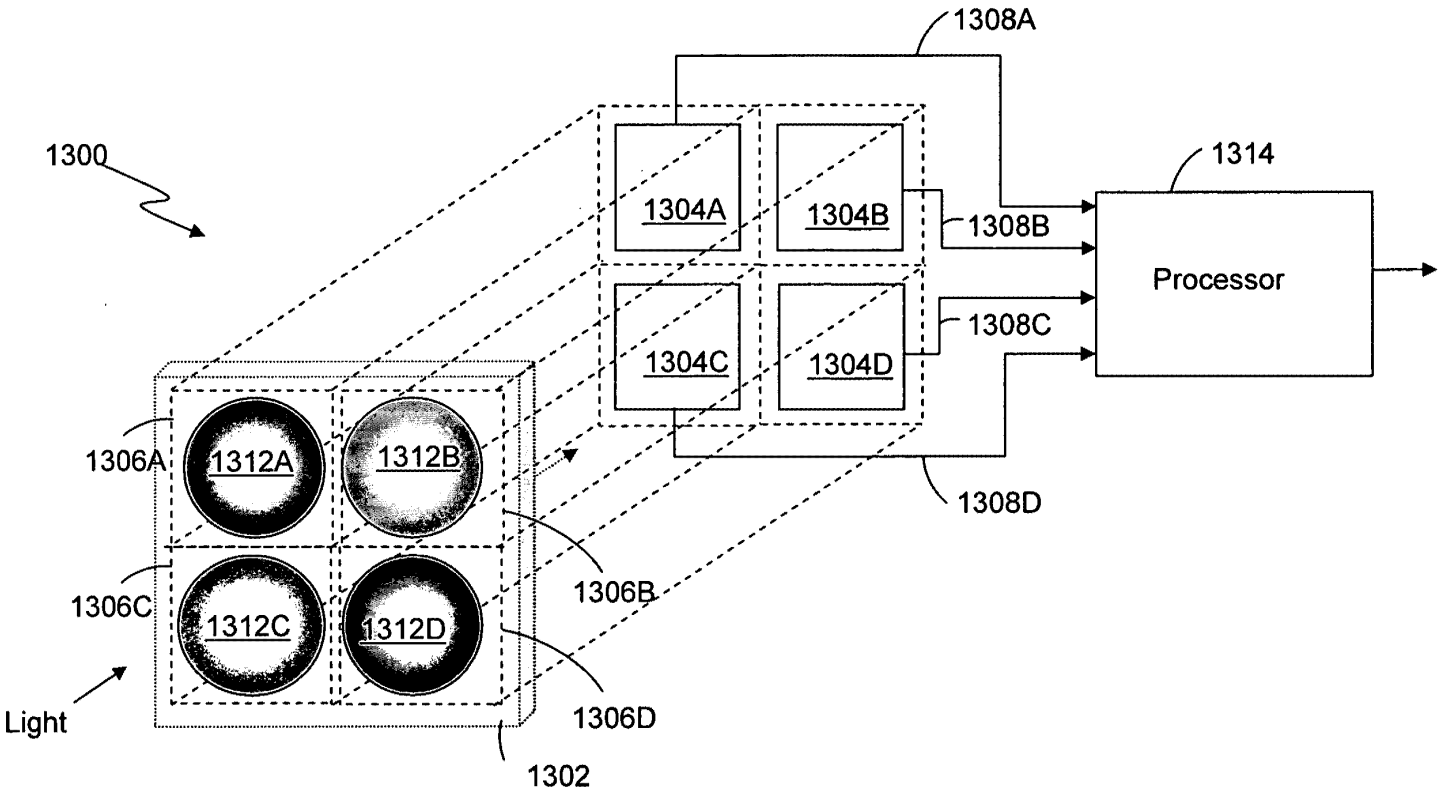

1308A
1300
1314
1304A
1304B
1308B
Processor
1304C
1304D
1308C
1306A
1312A
1312B
1308D
1306B
1306C
1312C
1312D
Light
1306D
1302

Figure 13

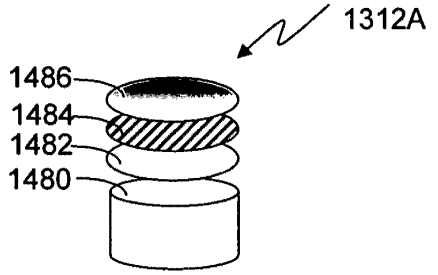


Figure 14A

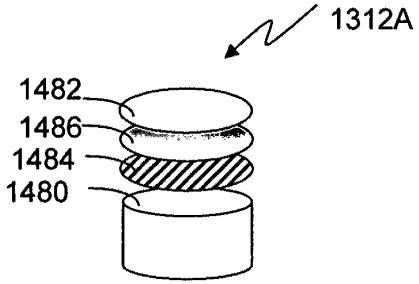


Figure 14B

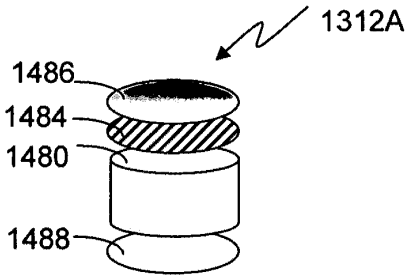


Figure 14C

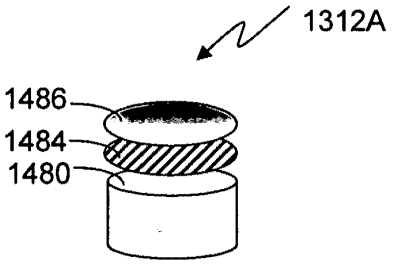


Figure 14D

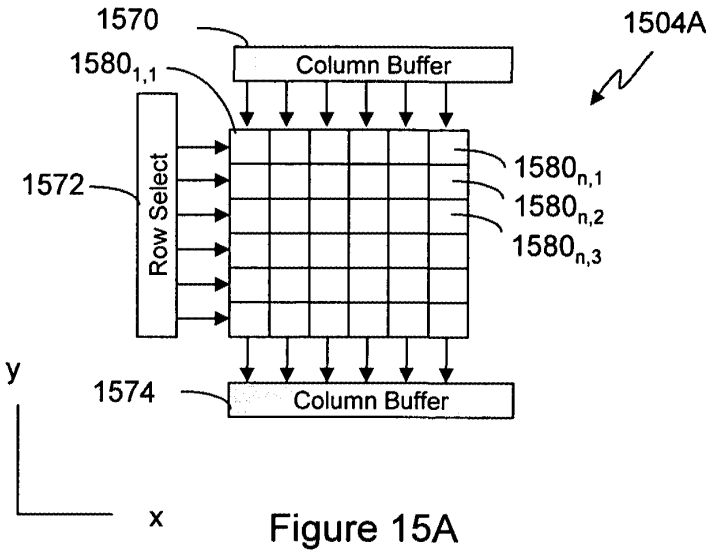


Figure 15A

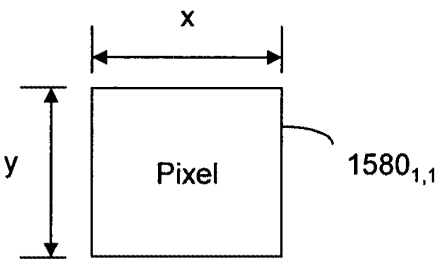


Figure 15B

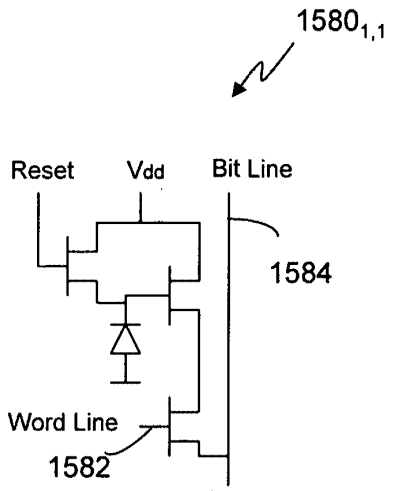


Figure 15C

Ex.1002 / Page 410 of 423
TESLA, INC.

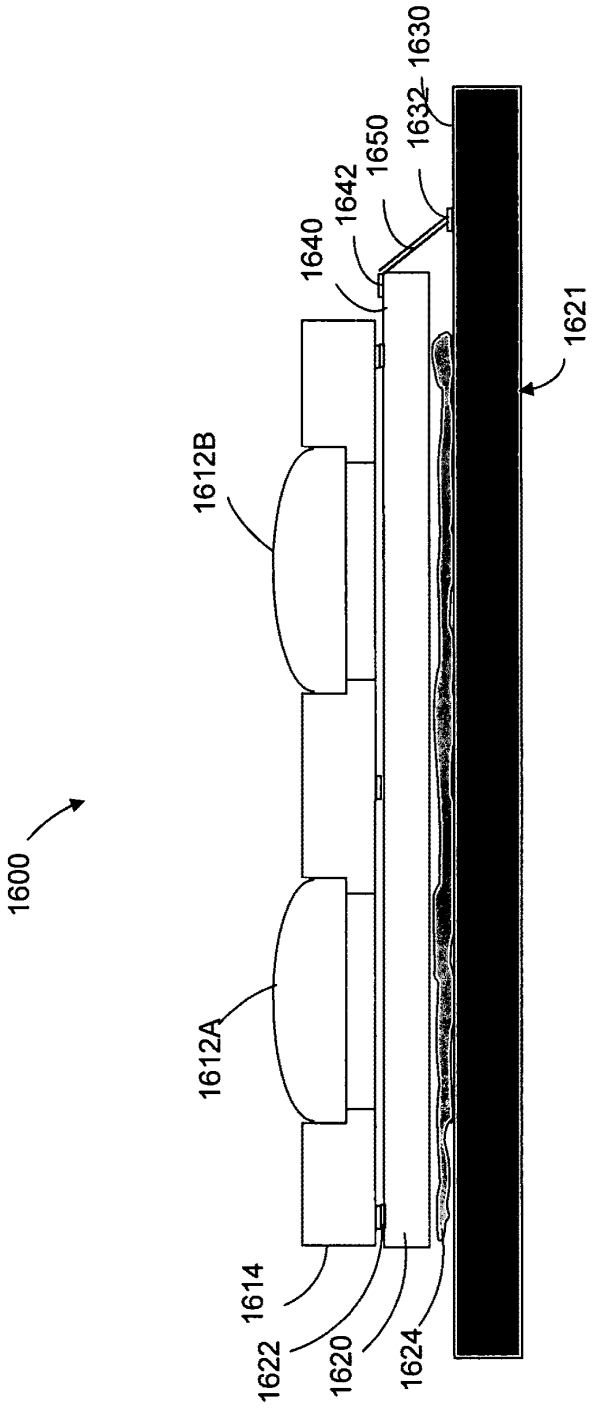

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1612B
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Figure 16

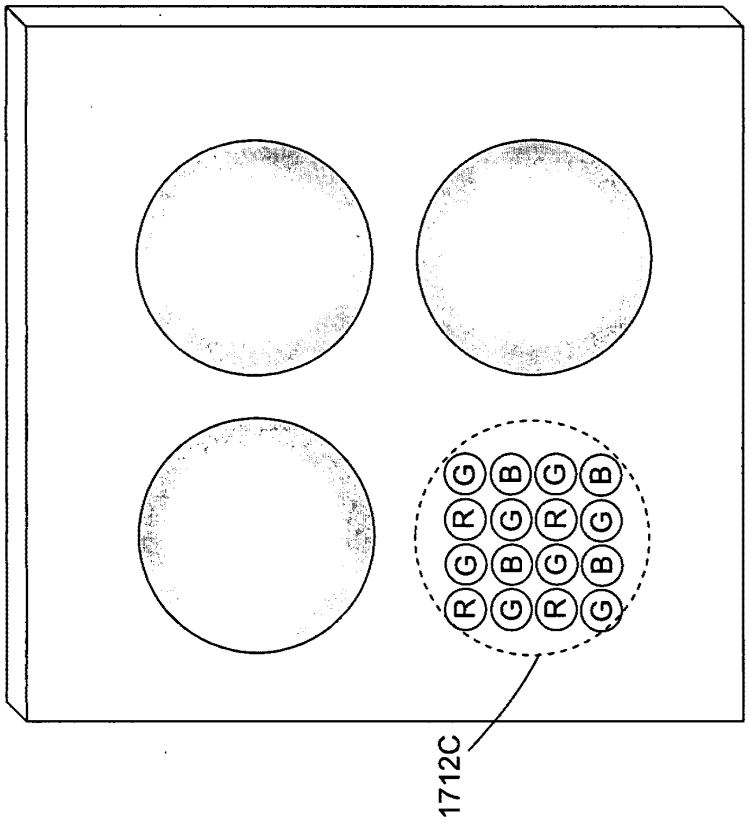


Figure 17

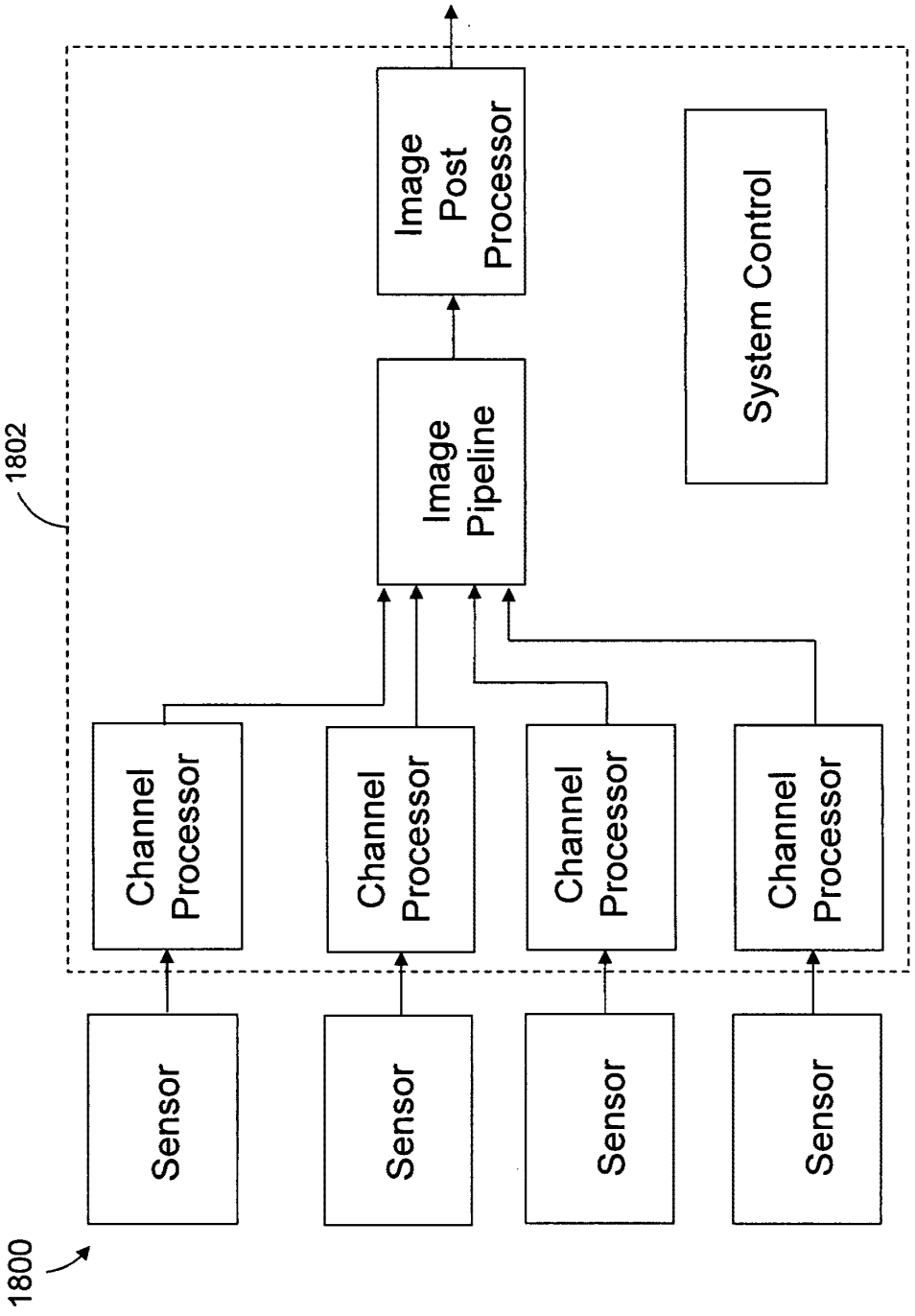

1800
1802
Sensor
Sensor
Sensor
Sensor
Channel Processor
Channel Processor
Channel Processor
Channel Processor
Image Pipeline
Image Post Processor
System Control

Figure 18A

Channel Processor
Column Logic
Analog Signal Logic
Black Level Control
Exposure Control

Figure 18B

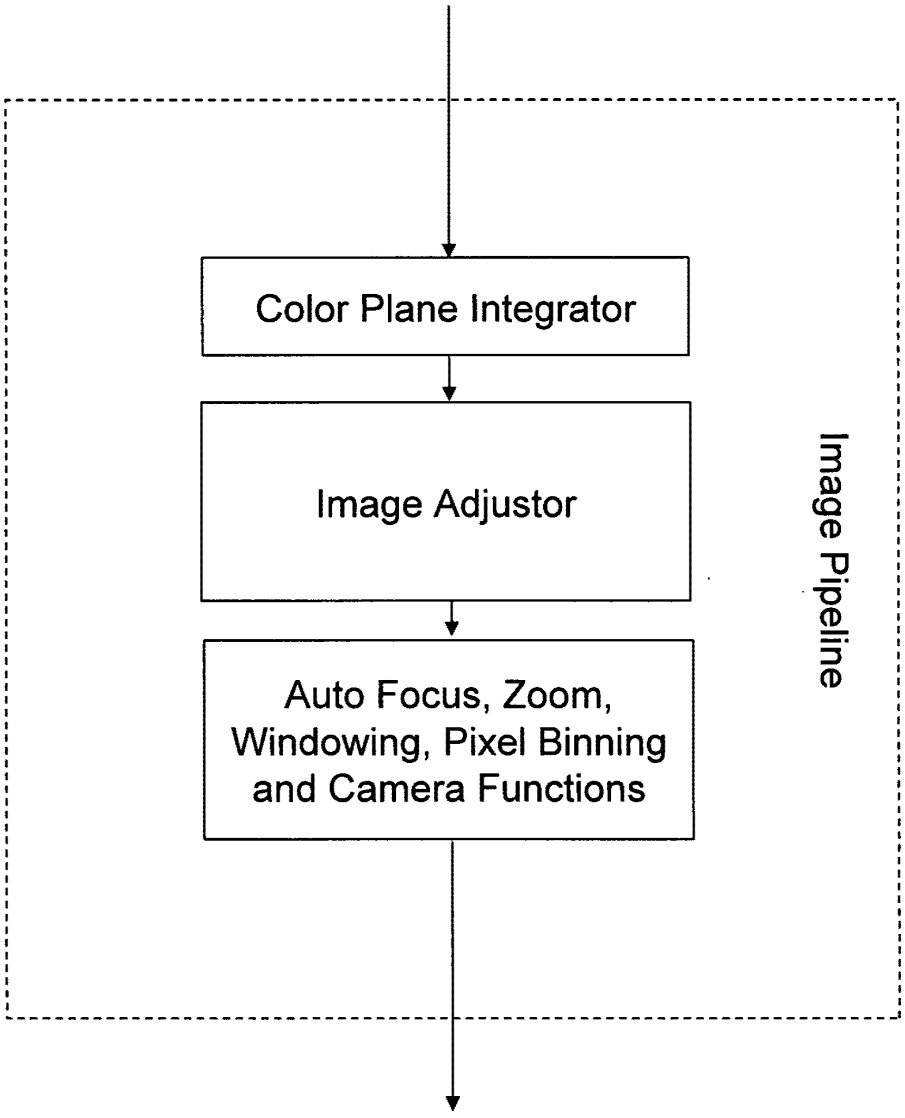

Color Plane Integrator
Image Adjustor
Auto Focus, Zoom, Windowing, Pixel Binning and Camera Functions
Image Pipeline

Figure 18C

Image Post Processor
Encoder (e.g., MPEG, JPEG)
Output Interface (e.g., USB)

Figure 18D

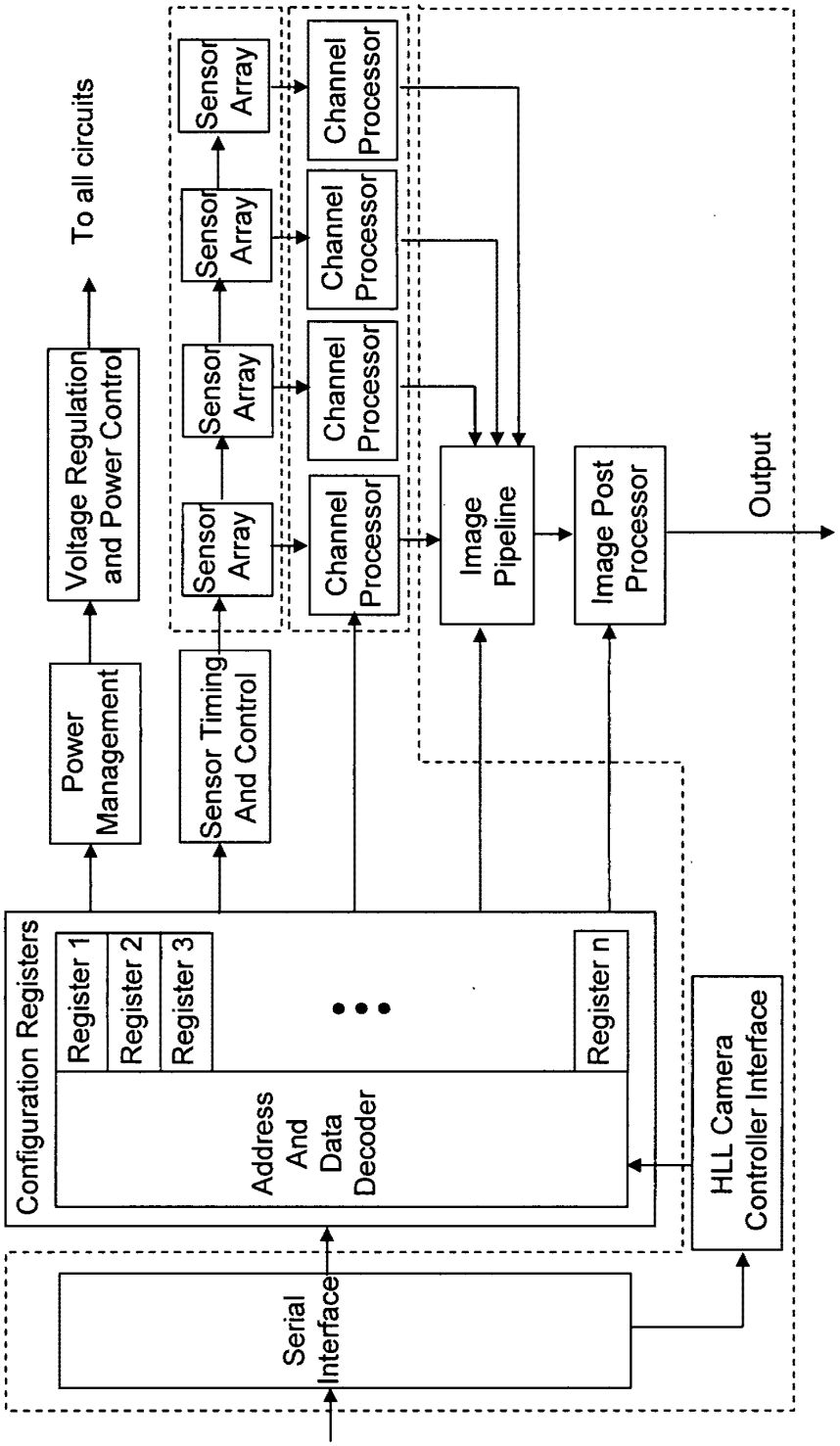

Serial Interface
Configuration Registers
Register 1
Register 2
Register 3
Register n
Address And Data Decoder
HLL Camera Controller Interface
Power Management
Sensor Timing And Control
Voltage Regulation and Power Control
To all circuits
Sensor Array
Sensor Array
Sensor Array
Sensor Array
Channel Processor
Channel Processor
Channel Processor
Channel Processor
Image Pipeline
Image Post Processor
Output

Figure 19

CLAIMS ONLY	SERIAL NO 11/788,270	FILING DATE /
	APPLICANT(S)	

CLAIMS

	AS FILED		AFTER 1ST AMENDMENT		AFTER 2ND AMENDMENT	
	IND	DEP	IND	DEP	IND	DEP
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TOTAL IND.	4					
TOTAL DEP.	33					
TOTAL CLAIMS	37					

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TOTAL IND.						
TOTAL DEP.						
TOTAL CLAIMS						

PTO-2202 (Replication only) (1/03)

PATENT APPLICATION SERIAL NO._____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

04/23/2007 TNGUYEN2 00000016 11788279

01 FC:2011	150.00	OP
02 FC:2111	250.00	OP
03 FC:2311	100.00	OP
04 FC:2201	100.00	OP
05 FC:2202	425.00	OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002- 489-267/69033

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875 Effective December 8, 2004

Application or Docket Number: 11/788,219

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	150.00		N/A	300.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$250		N/A	$500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$100		N/A	$200
TOTAL CLAIMS (37 CFR 1.16(i))	37 minus 20 =	* 17	X$ 25 =	425	OR	X$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1	X100 =	100		X200 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 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))			+180=			+360=	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1025		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$ 25 =		OR	X$50 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
						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$ 25 =		OR	X$50 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
						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 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.

Attorney Docket No. NMOL.P003
Application No. Not Yet Assigned

Atty. Docket No. NMOL.P003 *PATENT*

IN THE UNITED STATES PATENT OFFICE

In Re Patent Application of:	)	
	)	Examiner: Not Yet Assigned
Richard Ian Olsen, et al.	)	Art Unit: Not Yet Assigned
	)	
Application No. Not yet Assigned	)	
	)	
Filed: April 19, 2007	)	
	)	
For: SIMULTANEOUS MULTIPLE FIELD OF VIEW DIGITAL CAMERAS	)	
	)	

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

Submission of Information Disclosure Statement

Sir:

Enclosed is a copy of Information Disclosure Citation Form PTO-1449 (Substitute). It is respectfully requested that the cited documents be considered and that the enclosed Information Disclosure Citation Form PTO-1449 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s).

This Information Disclosure Statement is being submitted pursuant to 37 C.F.R. § 1.97(b)(3), and no fee should be due for this submission.

Pursuant to 37 C.F.R. § 1.97(h), the submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed as an admission that the information cited in this statement is material to patentability.

Attorney Docket No. NMOL.P003
Application No. Not Yet Assigned

Authorization to Charge Deposit Account

Please charge our deposit account number 503616 for any fees that may be due for this submission.

Respectfully submitted,
Courtney Staniford & Gregory LLP

Dated: 19 APR 2007

Richard L. Gregory
Reg. No. 42,607

Substitute Form 1449/PTO	Attorney Docket No.: NICO.P003	Application Number: Not Yet Assigned
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date: April 19, 2007	Art Unit: Not Yet Assigned
	First Named Inventor: Richard Ian Olsen	Examiner Name: Not Yet Assigned

U.S. PATENT DOCUMENTS

Exam. Initial*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (If known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		7,123,298	B2	Schroeder, et al.	10/17/2006	
		5,436,660		Sakamoto	07/25/1995	
		5,005,083		Grage, et al.	04/02/1991	
		5,051,830		von Hoessle	09/24/1991	
		2006-0187312	A1	Labaziewicz, et al.	08/24/2006	
		2006-0187338	A1	May, et al.	08/24/2006	

FOREIGN PATENT DOCUMENTS

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