PATENT ASSIGNMENT

Electronic Version v1.1
Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	Patent Security Agreement

CONVEYING PARTY DATA

Name	Execution Date
Siimpel Corporation	11/12/2009

RECEIVING PARTY DATA

Name:	Scale Venture Partners II, L.P., as collateral agent
Street Address:	950 Tower Lane, Suite 700
City:	Foster City
State/Country:	CALIFORNIA
Postal Code:	94404

PROPERTY NUMBERS Total: 88

Property Type	Number
Patent Number:	6516109
Patent Number:	6546182
Patent Number:	6504659
Patent Number:	6621611
Patent Number:	6785031
Patent Number:	6738177
Patent Number:	6661962
Patent Number:	6661955
Patent Number:	6850675
Patent Number:	7266272
Patent Number:	7113688
Patent Number:	6674585
Patent Number:	6934087
Patent Number:	7477842
Patent Number:	7583006

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Patent Number:	7560679
Patent Number:	7565070
Patent Number:	7359130
Application Number:	60552521
Application Number:	11061145
Application Number:	60546100
Application Number:	10982044
Application Number:	60574677
Application Number:	11190307
Application Number:	60679486
Application Number:	11513792
Application Number:	60714086
Application Number:	11361608
Application Number:	60657261
Application Number:	60665882
Application Number:	11263149
PCT Number:	US0607024
Patent Number:	7555210
Patent Number:	7359131
Patent Number:	7515362
Patent Number:	7570882
Patent Number:	7477400
Patent Number:	7495852
Patent Number:	7345827
Patent Number:	7403344
Patent Number:	7545591
Application Number:	11268249
Application Number:	11487908
Application Number:	11219410
Application Number:	60697476
Application Number:	11219137
Application Number:	11442458
Application Number:	11219258
Application Number:	11485812
Application Number:	60713971

Application Number:	12353728
Application Number:	12030704
Application Number:	11365047
Application Number:	11491742
Application Number:	11734700
Application Number:	60791777
Application Number:	11490196
Application Number:	11625204
Application Number:	11565518
Application Number:	11488411
Application Number:	11550119
Application Number:	11549381
Application Number:	11549414
Application Number:	11505660
Application Number:	11735803
Application Number:	11849049
Application Number:	11848996
Application Number:	11676991
Application Number:	60865682
Application Number:	11859513
Application Number:	11972296
Application Number:	11848933
PCT Number:	US0784343
Application Number:	12463234
Application Number:	60865143
Application Number:	60946217
Application Number:	11854806
Application Number:	60909597
Application Number:	61140504
Application Number:	60968706
Application Number:	60968711
Application Number:	60973843
Application Number:	12273785
Application Number:	12273830
Application Number:	12273851

Application Number:	61182292
PCT Number:	US0784301
PCT Number:	US0762506

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	AIG/SIIMPEL (74261.00006)
NAME OF SUBMITTER:	Minette M. Tayco

Total Attachments: 31

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PATENT SECURITY AGREEMENT

This **PATENT SECURITY AGREEMENT** (this "**Agreement**") is entered into as of November 12, 2009 by Siimpel Corporation, a Delaware corporation ("**Grantor**"), in favor of the Scale Venture Partners II, L.P., in its capacity as collateral agent for the Secured Lenders (as defined below) (in such capacity, together with its successors and assigns in such capacity, the "**Secured Party**").

WHEREAS, Grantor has requested that the persons named on the Schedule of Lenders attached hereto (individually and collectively, together with their respective successors and assigns in such capacity, the "**Secured Lenders**" and each a "**Secured Lender**") provide Grantor with certain financial accommodations as evidenced by one or more promissory notes (the "**Notes**") executed and delivered by Grantor to each Secured Lender under that certain Securities Purchase Agreement, dated as of November 12, 2009 among the Grantor, the Secured Party, the Secured Lenders and the other parties thereto (the "**Purchase Agreement**," and together with this Agreement and the Notes, and that certain Security Agreement entered into by the Grantor in favor of the Secured Lenders, dated as of November 12, 2009 (the "**Security Agreement**"), as any of them may be amended, modified or extended from time to time, collectively, the "**Loan Documents**");

WHEREAS, in order to induce the Secured Lenders to provide financial accommodations to Grantor under the Purchase Agreement and to enter into the Loan Documents to which it is a party, Grantor wishes and has agreed to secure its obligations to Secured Party and the Secured Lenders under the Loan Documents by granting to Secured Party, for the benefit of itself and the Secured Lenders, a security interest in the Patent Collateral (as defined below);

NOW, THEREFORE, in consideration of the premises and mutual covenants herein contained and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each Grantor hereby agrees as follows:

1. Defined Terms. All initially capitalized terms used but not otherwise defined herein have the meanings given to them in the Security Agreement or, if not defined therein, in the Purchase Agreement.

2. Grant of Security Interest in Patent Collateral. To secure the prompt and complete payment, observance and performance by Grantor of the indebtedness and other obligations (including attorneys' fees and expenses and any interest, fees, and/or expenses that accrue after the filing or commencement of any proceeding under state or federal bankruptcy or insolvency law) owing by Grantor to the Secured Lenders (or any of them) and/or Secured Party under any of the Loan Documents (the "**Secured Obligations**"), Grantor hereby grants Secured Party, for the benefit of itself and each of the Secured Lenders, a continuing security interest (the "**Security Interest**") in and to all of Grantor's right title and interest in and to the following, whether now owned or hereafter arising or acquired (collectively, the "**Patent Collateral**")

(a) all of its patents and patent applications, including (i) the patents and patent applications listed on Schedule I, (ii) all continuations, divisionals, continuations-in-part, re-examinations, reissues, and renewals thereof and improvements thereon, (iii) all income, royalties, damages and payments now and hereafter due or payable under and with respect thereto, including payments under all licenses entered into in connection therewith and damages and payments for past, present, or future infringements thereof, (iv) the right to sue for past, present, and future infringements thereof, and (v) all of each Grantor's rights corresponding thereto throughout the world (collectively referred to in this Agreement as the "**Patents**") and all patent intellectual property licenses to which it is party (each a "**Patent Intellectual Property License**" and collectively the "**Patent Intellectual Property Licenses**") including those listed on Schedule I; and

(b) all products and proceeds of the foregoing, including any claim by such Grantor against third parties for past, present or future infringement of any Patent or any Patent exclusively licensed under any intellectual property license, including the right to receive damages, or right to receive license fees, royalties, and other compensation under any Patent Intellectual Property License.

3. Security for Secured Obligations. This Agreement and the Security Interest created hereby secures the payment and performance of the Secured Obligations, whether now existing or arising hereafter. Without limiting the generality of the foregoing, this Agreement secures the payment of all amounts which constitute part of the Secured Obligations and would be owed by Grantors, or any of them, to the Secured Party, the Secured Lenders or any of them, whether or not they are unenforceable or not allowable due to the existence of an Insolvency Proceeding involving the Grantor. For the purposes of this Agreement, "**Insolvency Proceeding**" means any proceeding commenced by or against the Grantor under any provision of the title 11 of the United States Code, as in effect from time to time, or under any other state or federal bankruptcy or insolvency law, assignments for the benefit of creditors, formal or informal moratoria, compositions, extensions generally with creditors, or proceedings seeking reorganization, arrangement, or other similar relief.

4. Security Agreement. The Security Interest granted pursuant to this Agreement is granted in conjunction with the security interests granted to Secured Party, for the benefit of itself and the Secured Lenders, pursuant to the Security Agreement. The Grantor hereby acknowledges and affirms that the rights and remedies of Secured Party with respect to the Security Interest in the Patent Collateral made and granted hereby are more fully set forth in the Security Agreement, the terms and provisions of which are incorporated by reference herein as if fully set forth herein. To the extent there is any inconsistency between this Agreement and the Security Agreement, the Security Agreement shall control.

5. Authorization to Supplement. If the Grantor shall obtain rights to any new patent application or issued patent or become entitled to the benefit of any patent application or patent for any divisional, continuation, continuation-in-part, reissue, or reexamination of any existing patent or patent application, the provisions of this Agreement shall automatically apply thereto. Grantor shall give prompt notice in writing to Secured Party with respect to any such new patent rights. Without limiting Grantor's obligations under this Section, Grantor hereby authorize

Secured Party unilaterally to modify this Agreement by amending Schedule I to include any such new patent rights of Grantor. Notwithstanding the foregoing, no failure to so modify this Agreement or amend Schedule I shall in any way affect, invalidate or detract from Secured Party's continuing security interest in all Collateral, whether or not listed on Schedule I.

6. Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, shall be deemed to be an original, and all of which, when taken together, shall constitute but one and the same Agreement. Delivery of an executed counterpart of this Agreement by facsimile or other electronic method of transmission shall be equally as effective as delivery of an original executed counterpart of this Agreement. Any party delivering an executed counterpart of this Agreement by facsimile or other electronic method of transmission also shall deliver an original executed counterpart of this Agreement but the failure to deliver an original executed counterpart shall not affect the validity, enforceability, and binding effect of this Agreement.

7. Construction. This Agreement is a Loan Document. Unless the context of this Agreement clearly requires otherwise, references to the plural include the singular, references to the singular include the plural, the terms "includes" and "including" are not limiting, and the term "or" has, except where otherwise indicated, the inclusive meaning represented by the phrase "and/or". The words "hereof", "herein", "hereby", "hereunder", and similar terms in this Agreement refer to this Agreement as a whole and not to any particular provision of this Agreement. Section, subsection, clause, schedule, and exhibit references herein are to this Agreement unless otherwise specified. Any reference in this Agreement to any agreement, instrument, or document shall include all alterations, amendments, changes, extensions, modifications, renewals, replacements, substitutions, joinders, and supplements, thereto and thereof, as applicable (subject to any restrictions on such alterations, amendments, changes, extensions, modifications, renewals, replacements, substitutions, joinders, and supplements set forth herein). The words "asset" and "property" shall be construed to have the same meaning and effect and to refer to any and all tangible and intangible assets and properties, including cash, securities, accounts, and contract rights. Any reference herein to the satisfaction, repayment, or payment in full of the Secured Obligations shall mean the repayment in full in cash of all Secured Obligations. Any reference herein to any party shall be construed to include such party's successors and assigns, unless otherwise indicated.

8. **THE VALIDITY OF THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, AND ENFORCEMENT HEREOF, AND THE RIGHTS OF THE PARTIES HERETO WITH RESPECT TO ALL MATTERS ARISING HEREUNDER OR RELATED HERETO SHALL BE DETERMINED UNDER, GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK.**

9. **THE PARTIES AGREE THAT ALL ACTIONS OR PROCEEDINGS ARISING IN CONNECTION WITH THIS AGREEMENT SHALL BE TRIED AND LITIGATED ONLY IN THE STATE AND, TO THE EXTENT PERMITTED BY APPLICABLE LAW, FEDERAL COURTS LOCATED IN THE COUNTY OF NEW YORK, STATE OF NEW YORK; PROVIDED, HOWEVER, THAT ANY SUIT**

SEEKING ENFORCEMENT AGAINST ANY COLLATERAL OR OTHER PROPERTY MAY BE BROUGHT, AT SECURED PARTY'S OPTION, IN THE COURTS OF ANY JURISDICTION WHERE SECURED PARTY ELECTS TO BRING SUCH ACTION OR WHERE SUCH COLLATERAL OR OTHER PROPERTY MAY BE FOUND. SECURED PARTY AND GRANTOR EACH WAIVE, TO THE EXTENT PERMITTED UNDER APPLICABLE LAW, ANY RIGHT EACH MAY HAVE TO ASSERT THE DOCTRINE OF FORUM NON CONVENIENS OR TO OBJECT TO VENUE TO THE EXTENT ANY PROCEEDING IS BROUGHT IN ACCORDANCE WITH THIS SECTION 9.

10. **TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, SECURED PARTY AND GRANTOR EACH HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT OR ANY OF THE TRANSACTIONS CONTEMPLATED HEREIN, INCLUDING CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW OR STATUTORY CLAIMS. SECURED PARTY AND GRANTOR REPRESENT THAT EACH HAS REVIEWED THIS WAIVER AND EACH KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL. IN THE EVENT OF LITIGATION, A COPY OF THIS AGREEMENT MAY BE FILED AS A WRITTEN CONSENT TO A TRIAL BY THE COURT.**

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IN WITNESS WHEREOF, the parties hereto have caused this Patent Security Agreement to be executed and delivered as of the day and year first above written.

GRANTOR:

SIIMPEL CORPORATION

By: _____

Name: Chee W. Kwan

Title: President and Chief Executive Officer

Address: 400 East Live Oak Avenue
Arcadia, California 91006

phone: (626) 821-0570

fax: (626) 446-7259

email: c.kwan@siimpel.com

SIGNATURE PAGE TO PATENT SECURITY AGREEMENT

SECURED PARTY:

ACCEPTED AND ACKNOWLEDGED BY:

Scale Venture Partners II, L.P.
By: Scale Venture Management II, LLC
Its general partner

By: _____
Name: Robert R. Herb
Title: Member

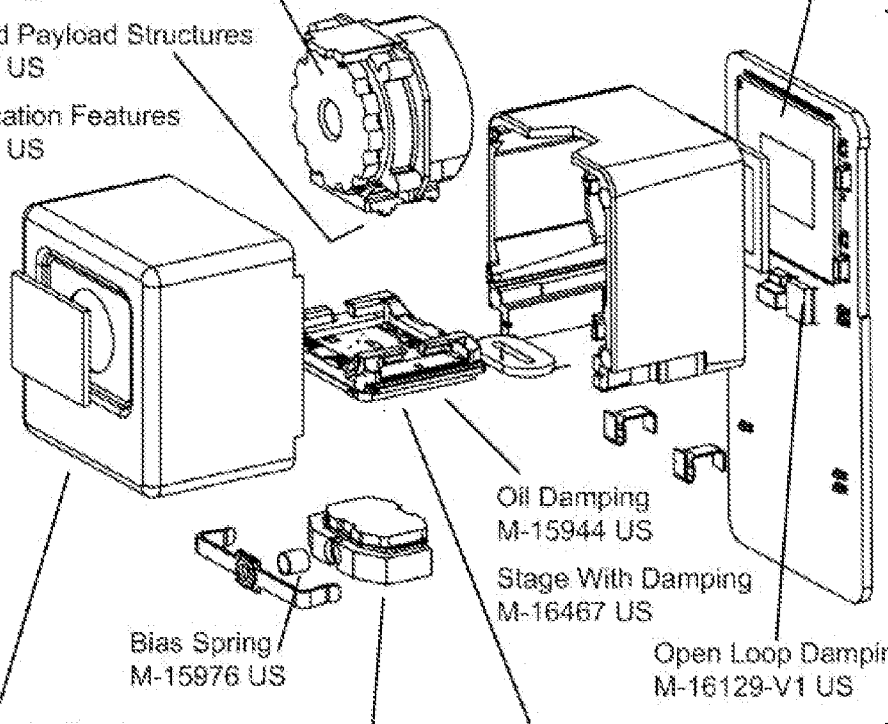
Address: 950 Tower Lane, Suite 700
Foster City, CA 94404
phone: (650) 378-6000
fax: (650) 378-6040
email: rob@scalevp.com

SCHEDULE OF LENDERS

Scale Venture Partners II, L.P.
Western National Life Insurance Company
The Variable Annuity Life Insurance Company
Portage Founders, L.P.
Portage Venture Fund, L.P.
Franklin Weigold
[Additional Secured Parties]

SCHEDULE I
to
PATENT SECURITY AGREEMENT

Siimpel SF95 Autofocus Camera Patent Coverage



Lens Barrel
M-16194 US

Lens Assembly
M-16195 US

Plano Convex Lens
M-16465 US

Miniature Camera Lens System
M-16586 US

Resolution Adjustment
M-15923 US

Optical Element Support Structure
M-11130 US

Lens Mount
M-15913 US

Lens Mount With Centration Adjustment
M-15918 US

Sub-Diffraction Limit Pixels
M-15962-V1 US

Alignment Assemblies
M-11692 US

Base And Payload Structures
M-12486 US

Lens Location Features
M-15914 US

Autofocus Camera
M-15826 US
M-15826 WO
M-15826 TW

Camera Vibrator
M-15912-1P US

Range/Speed
M-15948 US

Hermetically Sealed Camera
M-16464 US

Oil Damping
M-15944 US

Stage With Damping
M-16467 US

Open Loop Damping
M-16129-V1 US

Bias Spring
M-15976 US

Cleaning Molded Items
M-16128 US

Motion Control Stages
M-12486-1P US

Flexure Assemblies
M-12487 US

Snubber With Six DOFs
M-15915 US

Axial Snubbers
M-15916 US

Enhanced DRIE
M-16271 US

Lorentz Actuator
M-15912 US

Low Profile Actuator
M-16146 US

Note: MacPherson Kwok Chen and Heid LLP does not warrant that these patent applications will issue or that the claims of any patent that issues will cover any features of this or any other Siimpel product.

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
1	Lens Arrays and Methods of Making the Lens Arrays	09/845,894	M-9921 US	Filed: 4/30/01 Claims priority to provisional application 60/226,305, filed 8/21/00. ABANDONED	A lens array formed from lenses arranged in a substrate using micro-machining techniques.	
2	Low Insertion Loss Non-Blocking Optical Switch	U.S. 6,516,109	M-9918 US	ISSUED: 2/4/03 Filed: 5/11/01 Claims priority to provisional application 60/207,435, filed 5/30/00.	An optical switch formed with moveable mirrors that steer input light to desired outputs.	Roman C. Guiterrez Tony K. Tang
3	Angled Fiber Termination and Methods of Making the Same	U.S. 6,546,182	M-11564 US	ISSUED: 4/8/03 Filed: 5/15/01	An optical fiber support assembly has a substrate with a hole to receive a tip of a an angled fiber.	Robert J. Calvet Roman C. Gutierrez Stephen E. Vargo
4	High Density Fiber Terminator/Connector	U.S. 6,595,698	M-9920 US M-9920-1C US	ISSUED: 7/22/03 Filed: 5/15/01 Claims priority to provisional application 60/211,192, filed 6/13/00. Filed: 5/29/03 ABANDONED	Fiber terminator/connector made by etching holes in a silicon substrate and placing a fiber in at least one hole.	Roman C. Gutierrez Tony K. Tang

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
5	Slipface Lens	U.S. 6,504,659	M-11506 US	ISSUED: 1/7/03 Filed: 5/22/01	An optical lens made from two lenses, each having a planar side, with the planar sides facing and offset from each other.	Christopher I. Walker Roman C. Gutierrez
6	Low Insertion Loss Non-Blocking Optical Switch	US01/16600 Foreign Application	M-9918 WO	Filed: 5/22/01 ABANDONED	An optical switch formed with moveable mirrors that steer input light to desired outputs.	Roman C. Guiterrez Tony K. Tang
7	Snap-Down Pivoting Optical Element	U.S. 6,621,611 U.S. 6,785,031	M-9919 US M-9919-1D US	ISSUED: 9/16/03 ISSUED: 8/31/04 Claims priority to provisional application 60/208,050, filed 5/31/00	A pivotable optical element that may be fully deflected in a plurality of positions against linear segments.	Roman C. Gutierrez Tony K. Tang
8	Snap-Down Pivoting Optical Element	US01/17736 Foreign Application	M-9919 WO	Filed: 5/31/01 ABANDONED	A pivotable optical element that may be fully deflected in a plurality of positions against linear segments.	Roman C. Gutierrez Tony K. Tang
9	High Density Fiber Terminator/Connector	US01/18366 Foreign Application	M-9920 WO	Filed: 6/6/01 ABANDONED	Fiber terminator/connector made by etching holes in a silicon substrate and placing a fiber in at least one hole.	Roman C. Gutierrez Tony K. Tang
10	Lens Arrays and Methods of Making the Lens Arrays	US01/26244 Foreign Application	M-9921 WO	Filed: 8/21/01 ABANDONED	A lens array formed from lenses arranged in a substrate using micro-machining techniques.	

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
11	Soft Snap-Down Optical Element Using Kinematic Supports	U.S. 6,738,177	M-9922 US	ISSUED: 5/18/04 Filed: 9/5/01	An optical element is snapped down to a position defined by its contact with a plurality of kinematic supports or on electrodes on a platform.	Roman C. Gutierrez Tony K. Tang Cathleen Jones Robert J. Calvet
12	Optical Element Support Structure and Methods of Using and Making the Same	U.S. 6,661,962	M-11130 US	ISSUED: 12/09/03 Filed: 11/15/01	An optical element support structure is formed using flexures attached to jaws.	Robert J. Calvet
13	Soft Snap-Down Optical Element Using Kinematic Supports	Foreign Application	M-9922 WO	Filed: 11/30/01 ABANDONED	An optical element is snapped down to a position defined by its contact with a plurality of kinematic supports or on electrodes on a platform.	Roman C. Gutierrez Tony K. Tang Cathleen Jones Robert J. Calvet
14	Mirror Articulation Gimbal		M-11536 US	Not yet filed ABANDONED	Mirror articulation gimbal.	
15	Kinematic and Non-Kinematic Passive Alignment Assemblies and Methods of Making the Same	U.S. 6,661,955	M-11692 US	ISSUED: 12/9/04 Filed: 02/04/02	Alignment assemblies used to align at least one optical element have kinematic, pseudo-kinematic, redundant or degenerate support structures.	Robert J. Calvet Roman C. Gutierrez Tony K. Tang
16	Optical Amplifier		M-12374 US	Not yet filed ABANDONED	A free-space optical amplifier has a host medium made of a doped or undoped material.	

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
17	Base, Payload, and Connecting Structure and Methods of Making the Same Motion Control Stages and Method of Making the Same	U.S. 6,850,675 U.S. 7,266,272 U.S. 7,113,688	M-12486 US M-12486-1P US M-12486-2C US	ISSUED: 2/1/05 Filed: 02/04/02 ISSUED: 9/4/07 Filed: 1/21/05 ISSUED: 9/26/06 Filed: 1/18/05	Kinematic and non-kinematic, micro-machined optical element passive alignment assemblies having a base, a payload, and a connecting structure in between. Flexures are designed to provide linear motion over a range that is comparable with the characteristic size of the flexure. An actuator can be integrated into the stage.	Robert J. Calvet Roman C. Gutierrez Tony K. Tang Robert J. Calvet and Roman C. Gutierrez
18	Flexure Assemblies and Methods of Making the Same	U.S. 6,674,585	M-12487 US	ISSUED: 1/6/05 Filed: 02/04/02	Micro-machined flexure assemblies for connecting a base and a payload and/or isolating physical or thermal strains.	Robert J. Calvet Roman C. Gutierrez Tony K. Tang
19	Snap-down virtual pivot optical element			Not yet filed	An optical element is snapped down to a position defined by its contact with a plurality of kinematic supports or on electrodes on a platform.	

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
20	Fiber optic collimator and collimator array	US 6,934,087	M-15571 US M-15571-V1 US	ISSUED: 8/23/05 Filed: 09/25/02	A plano-convex lens is moved in reference to a fiber to adjust angle precisely in a single collimator or a collimator array.	Roman C. Gutierrez Thomas R. Van Zandt Christopher I. Walker Edouard G.H. Schmidtlin Robert J. Calvet
21	Through etch detection for Deep Reactive Ion Etching	60/461,790		Filed: 4/9/03 ABANDONED	Fluorescent material and a camera are used to see through holes etched in a wafer.	
22	Pressure Sensor			Filed: 11/5/03 ABANDONED	A pressure sensor uses variations in acceleration to eliminate needing a power supply.	
23	Miniature Camera	U.S. 7,477,842 60/552,521	M-15490 US	ISSUED: 1/13/09 Filed: 3/11/05 Provisional Filed: 3/12/04	A miniature camera comprising a fixed lens, a movable lens, a miniature stage to move said movable lens, and an imaging sensor. In some cases, the imaging sensor is moved by a miniature stage. The camera is able to achieve autofocus, optical zoom, and image stabilization. This patent will most likely be split into three divisional applications.	Roman C. Gutierrez
24	Centipede Actuator Motion Stage	11/061,145 60/546,100	M-15585 US M-15585-V1 US	Filed: 2/18/05 Filed: 2/18/04	A motion stage comprising a baseplate with at least one movable element, a movable mount placed a small distance from the movable element, and an actuation means to push the moveable element against the movable mount such that the movable mount changes position with respect to said baseplate.	Roman C. Gutierrez

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
25	MEMS Inertial Sensor	10/982,044 60/574,677	M-15437 US M-15437-V1 US	Filed: 11/5/04 Filed: 5/26/04	An inertial sensor comprising a mass suspended by at least one spring, wherein said spring substantially affects the two resonances of the inertial sensor in the same manner. The inertial sensor may be used for image stabilization.	Roman C. Gutierrez, Tony K. Tang
26	MEMS Digital Linear Actuator	U.S. 7,583,006 11/190,307	M-15492 US	ISSUED: 9/1/2009 Filed: 7/26/05	A motion stage comprising a baseplate with an array of electrodes, a movable mount placed a small distance from the baseplate with a corresponding array of electrodes. Said electrodes are actuated in a digital fashion to move said movable mount with respect to said baseplate.	Robert J. Calvet, Roman C. Gutierrez, Darrel Harrington, Tony K. Tang
27	Compact Auto-Focus	N/A	M-15493 US	Subject matter incorporated into M-15923	An optical design for an autofocus camera comprises three spherical lenses and a single aspheric lens. Only the aspheric lens is moved to provide focus.	Jing Xu Roman C. Gutierrez Robert J. Calvet
28	Resolution Adjustment Lens System	N/A		Subject matter incorporated into M-15923	A “fixed” lens in a camera is adjusted to compensate for lens manufacturing and assembly errors to optimize the resolution for at least two positions of a “movable” lens.	
29	Microzoom optical design			Not yet filed	An optical design for a zoom comprises one stationary lens group and two movable lens groups.	
30	Wafer level encapsulation			Not yet filed	A MEMS element is fabricated into a “cap” wafer. Said “cap” wafer is integrated with a baseplate wafer to simultaneously provide an electrical connection, a mechanical connection, and a hermetic encapsulation.	
31	Miniature LIDAR			Not yet filed	A coherent LIDAR is miniaturized by using fiber optic components, a MEMS scanner, and a tunable laser.	

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
32	3D camera	U.S. 7,560,679 60/679,486	M-15494 US M-15494-V1 US	ISSUED: 7/14/09 Filed: 5/2/06 Filed: 5/10/05	A coherent LIDAR is integrated with an imaging camera using a CMOS imager and a tunable laser. This enables a digital camera to capture color, intensity, and position for every pixel.	Roman C. Gutierrez
33	Two-axis stage			Not yet filed	A stage with motion along two axes uses flexures and electrostatic actuation. The stage may be used to move an imager for image stabilization.	
34	MEMS shutter and variable iris		M-15947 US	Not yet filed	A two-axis MEMS stage is combined with two micro-lens arrays to produce a very fast variable iris and shutter.	
35	Cellular Telephone with Projector	11/513,792 60/714,086	M-15978 US M-15978-V1 US	Filed: 8/31/06 Filed: 9/2/05	A miniature projector comprising a fixed lens, a movable lens, a miniature stage to move said movable lens, a spatial modulator or scanner, and a light source. The projector is able to achieve focus, optical zoom, and image stabilization.	Roman C. Gutierrez
36	Autofocus camera	11/361,608 60/657,261 PCT/US2006/007024 95106613	M-15826 US M-15826-V1 US M-15826 WO M-15826 TW	Filed: 2/24/06 Filed: 2/28/05 Filed: 2/27/06 Filed: 2/27/06	An autofocus camera comprises a MEMS stage and a bulk actuator to move a lens group.	Roman C. Gutierrez, Robert J. Calvet, Darrel Harrington, Giuqin Wang, Jayaraj Kumaraswamy

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
37	Camera used as a vibrator	60/665,882	M-15872-V1 US	Filed: 3/28/05 Combined with M-15912-1P US	A camera with a moving element is also used for mechanical vibration.	Roman C. Gutierrez
38	Lorentz actuator for miniature camera Telephone vibrator	11/263,149 U.S. 7,565,070	M-15912 US M-15912-1P US	Filed: 10/31/05 ISSUED: 7/21/09 Filed: 3/28/06	An electromagnetic actuator comprises symmetrically disposed coils and magnets.	Darrel Harrington Giuquin Wang Roman C. Gutierrez Robert J. Calvet Roman C. Gutierrez
39	Lens mount for miniature camera	N/A	M-15913 US	Closed	A lens mount is provided with kinematic alignment features.	
40	Lens mount and alignment method	U.S. 7,359,130	M-15914 US	ISSUED: 4/15/2008 Filed: 2/28/06 Priority M-12486-1P US 60/657,261 Filed: 2/28/05	A lens is positioned	Roman C. Gutierrez
41	Camera snubber assembly	11/268,249	M-15915 US	Filed: 11/8/05 Priority M-15826-V1 US 60/657,261 Filed: 2/28/05	A motion limiting system comprises surfaces placed in close proximity to a moving element.	Robert J. Calvet

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
42	Axial snubbers for camera	U.S. 7,555,210	M-15916 US	ISSUED: 6/30/09 Filed: 11/8/05 Priority M-15826-V1 US 60/657,261 Filed: 2/28/05	A moving element inside of a camera comprises shock absorbing elements to reduce the impact along the motion direction.	Robert J. Calvet
43	Elongated camera system for cellular phones	11/209,012	M-15917 US	Filed: 8/22/05 ABANDONED	A cell phone camera contains a turning mirror to enable fitting inside a thin camera.	Roman C. Gutierrez Tony K. Tang
44	Lens mount with centration adjustment Lens positioning systems and method	11/487,908 U.S. 7,359,131 U.S. 7,515,362	M-15918 US M-15918-1C US M-15918-1C-1D US	Filed: 7/17/06 Abandoned ISSUED: 4/15/08 Filed: 8/28/06 ISSUED: 4/7/09 Filed: 8/30/07	A lens mount contains a system for adjusting its position either dynamically or statically.	Roman C. Guiterrez Robert J. Calvet
45	Vertically stacked stages for miniature camera		M-15919 US	Not yet filed	A long travel stage comprising two shorter travel stages mounted one on top of the other.	

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
46	Shutter for miniature camera	U.S. 7,570,882 60/657,261 96106434 PCT/2007/062 506 200780010572 .6 07757281.6 2008-556528 7023176/2008	M-15920 US M-15920 TW M-15920 WO M-15920 CN M-15920 EP M-15920 JP M-15920 KR	ISSUED: 8/4/09 Filed : 2/28/06 Filed: 2/28/07 Filed: 2/26/07 Filed: 2/21/07	A one axis MEMS stage contains a slit that is swept in front of an imager to time the exposure of the imager.	Roman C. Gutierrez Robert J. Calvet
47	Guided stage with position sensing		M-15921 US	Not yet filed	A stage comprising guided components and integrated position sensing.	
48	Focus enhancement using MTF boost		M-15922 US	Not yet filed	An algorithm provides for image correction for slight misfocus.	

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
49	Resolution adjustment for miniature camera	11/219,410 60/697,476	M-15923 US M-15923-V1 US	Filed: 9/2/05 Filed: 7/7/05	A "fixed" lens in a camera is adjusted to compensate for lens manufacturing and assembly errors to optimize the resolution for at least two positions of a "movable" lens.	Jing Xu Roman C. Gutierrez Tony K. Tang
50	Oil damping for camera optical assembly	11/219,137	M-15944 US	Filed 9/2/05 Priority M-15826-V1 US 60/257,261 Filed: 2/28/05	Oil is provided in a tight cavity between a moving element and a stationary element so as to provide damping.	Robert J. Calvet
51	Image charge electrostatic actuator		M-15945 US	Not yet filed	An actuator comprising an array of electrodes and an insulator.	
52	Range and Speed Finder	U.S. 7,477,400	M-15948 US	ISSUED: 1/13/09 Filed: 9/2/05	A camera with autofocus is used to determine the distance, velocity, and size of an object.	Roman C. Gutierrez Tony K. Tang
53	Image sensor using single photon jots and processor to create pixels	11/442,458	M-15962 US M-15962-V1 US	Filed: 5/26/06 Filed: 5/27/05 (Assigned to Eric Fossum per separation agreement)	An imager comprises pixels with size below diffraction limit	Eric R. Fossum

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
54	Miniature camera bias spring	11/219,259	M-15976 US	Filed: 9/2/05 Priority M-15826-V1 US 60/257,261 Filed: 2/28/05 ABANDONED	A spring is used inside an autofocus camera to bias at infinity focus without power.	Robert J. Calvet Roman C. Gutierrez Darrel Harrington
55	Method and system for cleaning molded items	11/219,258	M-16128 US	Filed: 9/2/05	Glass filled plastic parts are cleaned using acid to dissolve the glass fill on the surface of the part.	Roman C. Gutierrez Kumaraswamy Jayaraj Robert J. Calvet
56	Electronic damping for stage positioning	11/485,812 60/713,971	M-16129 US M-16129-V1 US	Filed: 7/17/06 Filed: 9/2/05	A digital pulse train is used as an actuation signal to avoid ringing of a moving structure.	Roman C. Gutierrez Roberto J. Rodriguez Pat Leang
57	Guided Stage		M-16130 US	Not yet filed	A silicon micromachined guided stage provides accurate control of position.	
58	Guided Stage with Integral Position Sensing		M-16131 US	Not yet filed Priority M-15826-V1 US 60/657,261 Filed: 2/28/05	A silicon micromachined guided stage has an integrated position sensor.	

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
59	Lorentz actuator with spring contacts		M-16132 US	Not yet filed Priority M-15826-V1 US 60/657,261 Filed: 2/28/05	The coil on a magnetic actuator is moving and electrically contacted through a spring.	
60	Low Profile Actuator		M-16146 US	Not yet filed Priority M-15826-V1 US 60/657,261 Filed: 2/28/05	A thin Lorentz actuator comprises a single coil and two magnets.	
61	Magnetic biasing	N/A	M-16151 US	Not yet filed Closed	A magnet is used to provide a mechanical bias for an autofocus camera.	
62	Zoom Lens Assembly	U.S. 7,495,852 12/353/728	M-16193 US M-16193-1D US	ISSUED: 2/24/09 Filed: 10/31/05 Filed: 1/14/08	A camera with optical zoom is made by moving optical elements in and out of the optical train.	Roman C. Guitierrez

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
63	Lens Barrel	U.S. 7,345,827 12/030,704	M-16194 US M-16194-1D US	ISSUED: 3/18/08 Filed 2/28/06 Priority M-15826-V1 US 60/257,261 Filed: 2/28/05 Priority M-15826 US 11/361,608 Filed 2/24/06 Filed 2/13/08 Parent M-16194 US; Filed: 2/28/06 Priority M-15826-V1 US 60/257,261 Filed: 2/28/05 Priority M-15826 US 11/361,608 Filed 2/24/06	A lens barrel has non uniform diameter to fit into a miniature camera.	Tony K. Tang Roman C. Gutierrez Robert J. Calvet Jing Xu Eric R. Fossum

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
64	Lens Assembly	US 7,403,344	M-16195 US	ISSUED: 7/22/08 Filed: 10/31/05	An optical design for an autofocus camera comprises three spherical lenses and a single aspheric lens.	Jing Xu Roman C. Gutierrez
65	Enhanced Etch Systems	11/365,047	M-16271 US	Filed: 2/28/06 Priority M-15826-V1 US 60/257,261 Filed: 2/28/05 Priority M-15826 US 11/361,608 Filed 2/24/06	Enhanced methods of deep reactive ion etching are described.	Stephen Vargo Roman C. Gutierrez
66	Infrared metrology	11/491,742	M-16273 US	Filed: 7/24/06 Priority M-16271 US 11/365,047 Filed 2/28/06	An infrared camera is used to sense oxide undercut at a wafer level.	Stephen Vargo Mahmood Samiee Roman C. Gutierrez
67	MEMS Wafer Processing	11/734,700 60/791,777	M-16448 US Combining: M-16448-V1 US & M-16674-V1 US	Filed: 4/12/07 Filed: 4/13/06	SOI wafers are patterned to reduce notching during deep reactive ion etching.	Qiang Zou Shi-Sheng Lee Tony K. Tang
68	Board mounted hermetically sealed optical device enclosure and manufacturing methods therefor	11/490,196	M-16464 US	Filed: 7/20/06	A method for hermetically sealing a cell phone camera is described.	Roman C. Gutierrez

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
69	Optical system with plano convex lens	11/625,204	M-16465 US	Filed: 1/19/07	A plano convex is used in a camera lens barrel to reduce cost and provide IR coating surface.	Jing Xu and Roman Gutierrez
70	Lens barrel assembly	11/565,518 PCT/US07/84343	M-16466 US M-16466WO	Filed: 11/30/06 Priority M-15826 US 11/361,608 Filed: 2/24/06 Filed: 11/9/2007	Silicon stages are used in a barrel to move optical elements and achieve compact functionality.	Tony Tang Jing Xu Roman Gutierrez
71	Stage with built in damping	11/488,411	M-16467 US	Filed 7/18/06	A double resonator is used to couple energy away from the stage and reduce ringing without hysteresis.	Roman C. Gutierrez
72	Triaxial snubber assembly	11/550,119	M-16539 US	Filed: 10/17/06 Priority M-15915 US 11/268,249 Filed: 11/8/05 Priority M-15826-V1 US 60/257,261 Filed: 2/28/05	A silicon stage is snubbed in all degrees of freedom with two plastic snubbers.	Davy Tong Shi-Sheng Lee Jayaraj Kumaraswamy
73	Uniform wall thickness lens barrel	U.S. 7,545,591	M-16540 US	ISSUED: 6/9/2009 Filed: 10/17/06	A lens barrel provides for improved alignment of optics.	Davy Tong Robert J. Calvet

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
74	Hidden autofocus	11/549,381	M-16541 US	Filed: 10/13/06	An AF moves between two positions rapidly to determine what direction to go to improve focus without displaying on viewfinder.	Richard Tsai
75	Camera with multiple focus captures	11/549,414	M-16542 US	Filed: 10/13/06	A series of pictures are taken at different focus positions to allow user to select which one they prefer.	Richard Tsai
76	Miniature camera lens system	11/505,660	M-16586 US	Filed: 8/16/06	A lens design is provided for improved optical performance and lower cost	Jing Xu
77	MEMS with integrated memory cells	11/735,803	M-16669 US	Filed: 4/16/07	Memory is added to a MEMS stage to story information that can be used to optimize performance	Richard Tsai Xiaolei Liu
78	Shutter for autofocus	11/849,049	M-16670 US	Filed: 8/31/07	Method for using shutter during autofocus.	Richard Tsai
79	Video mode hidden autofocus	11/848,996	M-16671 US	Filed: 8/31/07	Autofocus is performed by moving stage between two positions rapidly.	Richard Tsai Xiaolei Liu
80	Auto-focus with lens vibration	11/676,991	M-16672 US	Filed: 2/27/07	Lens vibration is used to improve the dependence of sharpness on lens position.	Richard Tsai Sarah Salemi
81	A wafer level silicon stage stiffness testing process	N/A 60/865,682	M-16674 US (Combined with M-16448 US) M-16674-V1 US	Filed 11/14/06	Stages are partially released at the wafer level so that stiffness testing can be done at the wafer level.	Qiang Zou Shi-Sheng Lee Tony Tang
82	Adaptive autofocus lens positioning	11/859,513 11/972,296	M-16675 US M-16675-1P US	Filed: 9/21/07 Filed: 1/10/08	An adaptive algorithm is used to improve AF performance in the field. A method and system for effecting adaptive autofocusing.	Richard Tsai

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
83	Lens barrel assembly	11/848,933	M-16697 US	Filed: 8/31/07	Features in lens barrel are used to reduce the size.	Jing Xu Roman C. Gutierrez Davy Tong Robert J. Calvet
84	Integrated Lens Barrel	12/463,234 60/865,143 60/946,217 PCT/US07/84301	M-16730 US M-16730-V1 US M-16730-V2 US M-16730-2 WO	Filed: 5/8/09 Filed: 11/9/06 Filed: 6/26/07 Filed: 11/9/07	A lens barrel contains integrated MEMS components to adjust focus, shutter, and perform zoom and image stabilization.	Roman Gutierrez and Robert J. Calvet
85	Impulse actuated mems devices	11/854,806	M-16867 US	Filed: 9/13/07	A new type of MEMS actuator is described that enables a chip-scale MEMS shutter	Roman C. Gutierrez
86	Threadless camlock lens barrel	60/909,597	M-16868-V1 US	Filed: 4/02/07	A threadless barrel is used to reduce the size of the camera.	Roman C. Gutierrez
87	Wafer-scale optics	61/140,504	M-17008-V1 US	Filed: 12/23/08	High precision batch integration, alignment, and assembly of silicon micromechanical and optical components.	Tony K. Tang and Roman Gutierrez
88	MEMS deployment flexures	60/968,706	M-17062-V1 US	Filed: 8/29/07	A flexure system wherein a stage is deployed to a desired position by attachment to a housing.	Robert Calvet Roman C. Gutierrez Xiaolei Liu Ankur Jain
89	Planar flexure system with high pitch stiffness	60/968,711	M-17063-V1 US	Filed: 8/29/07	A flexure system having thin film hinges.	Robert Calvet Ankur Jain Xiaolei Liu

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
90	Wireless control of cellular telephone and/or camera	60/973,843	M-17064-V1 US	Filed: 9/20/07	Taking pictures remotely with a cellular telephone and remotely disabling a cellular telephone.	Roman C. Guiterrez Roberto J. Rodriguez
91	MEMS deployment flexures	12/201,635	M-17062 US	Filed: 8/29/08 Express ABANDONED 11/20/08	MEMS deployment flexures	Robert J. Calvet Roman C. Gutierrez Xiaolei Liu Ankur Jain
92	Planar flexure system with high pitch stiffness	12/201/676	M-17063 US	Filed: 8/29/08 Express ABANDONED 11/20/08	A planar flexure system with high pitch stiffness	Robert J. Calvet Xiaolei Liu Ankur Jain
93	Wireless control of cellular telephone and/or camera	12/210,842	M-17064 US	Filed: 9/15/08 Express ABANDONED 11/20/08	Wireless control of cellular telephone and/or camera	Roberto J. Rodriguez Roman C. Gutierrez
94	Mems deployment flexures	12/273,785	M-17062-1C US (Continuation of M-17062 US)	Filed: 11/19/08	MEMS deployment flexures	Robert J. Calvet Roman C. Gutierrez Xiaolei Liu Ankur Jain
95	Planar flexure system with high pitch stiffness	12/273,830	M-17063-1C US (Continuation of M-17063 US)	Filed: 11/19/08	A planar flexure system with high pitch stiffness	Robert J. Calvet Xiaolei Liu Ankur Jain
96	Wireless control of cellular telephone and/or camera	12/273,851	M-17064-1C US (Continuation of M-17064 US)	Filed: 11/19/08	Wireless control of cellular telephone and/or camera	Roberto J. Rodriguez Roman C. Gutierrez

	Title	Patent Application/ Serial No.	MKCH Docket No.	Filing Status	Brief Description	Inventor(s)
97	Mechanical Isolation of Electrical Contacts	61/182,292	70064.169	Filed: 5/29/09	Mechanical Isolation of Electrical Contacts	Roman Gutierrez

Siimpel SF200 Autofocus Camera Patent Coverage

Note: MacPherson Kwok Chen and Heid LLP does not warrant that these patent applications will issue or that the claims of any patent that issues will cover any features of this or any other Siimpel product.

Flexures
M-12486 US
M-12486-1P US
M-12486-1C US
M-12487 US

MEMS
M-15492 US
M-15585 US

Actuator
M-15912 US

Lens Positioning
M-15918 US

Open Loop Damping
M-16139 US

Stage With Damping
M-16467 US

Motion Control Stages
M-12486-1P US

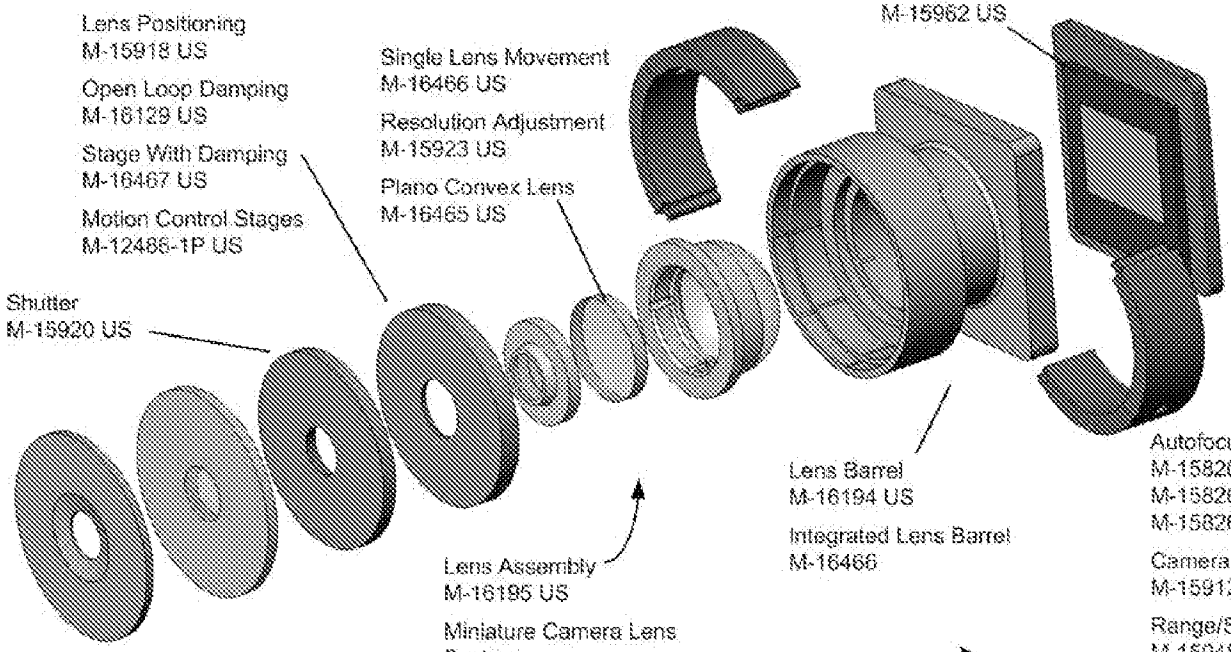
Shutter
M-15920 US

Single Lens Movement
M-16466 US

Resolution Adjustment
M-15923 US

Plano Convex Lens
M-16465 US

Sub-Diffraction Limit Pixels
M-15962 US



Lens Assembly
M-16195 US

Miniature Camera Lens System
M-16586 US

Lens Barrel
M-16194 US

Integrated Lens Barrel
M-16466

Autofocus Camera
M-15826 US
M-15826 US WO
M-15826 US TW

Camera Vibrator
M-15912-V1 US

Range/Speed
M-15948 US

Hermetically Sealed Camera
M-16464 US