BULKY DOCUMENTS

(Exceeds 300 pages)

Proceeding/Serial No: 3478909

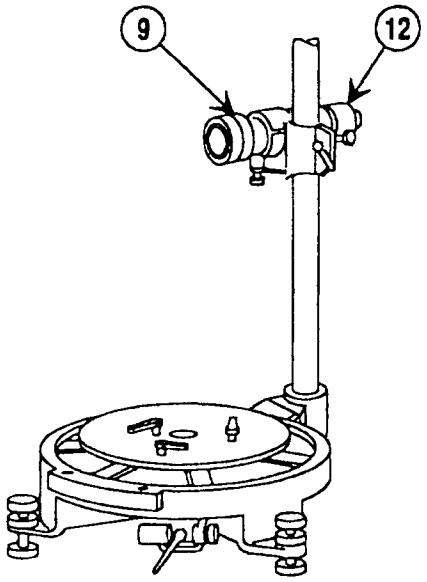
Filed: 02-12-2010

Title: PETITION FOR CANCELLATION

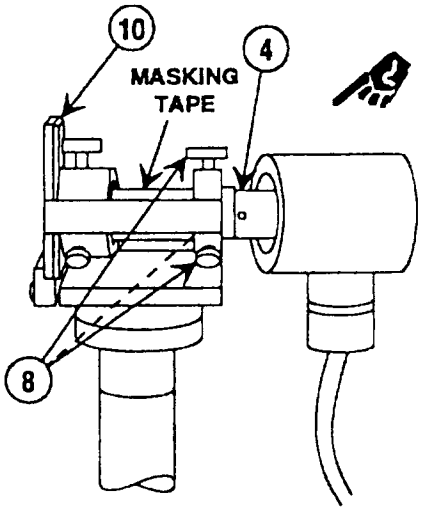
Part 2 of 3

5-8 COLLIMATION AND INSPECTION - CONTINUEDI

COLLIMATION OF AZIMUTH TEST FIXTURE - CONTINUED



I Remove lighted beam splitter (12) from collimator telescope (9).



Note

- Plumb infinity collimator prior to auto collimating.
- Make sure mirror is tightly in place.

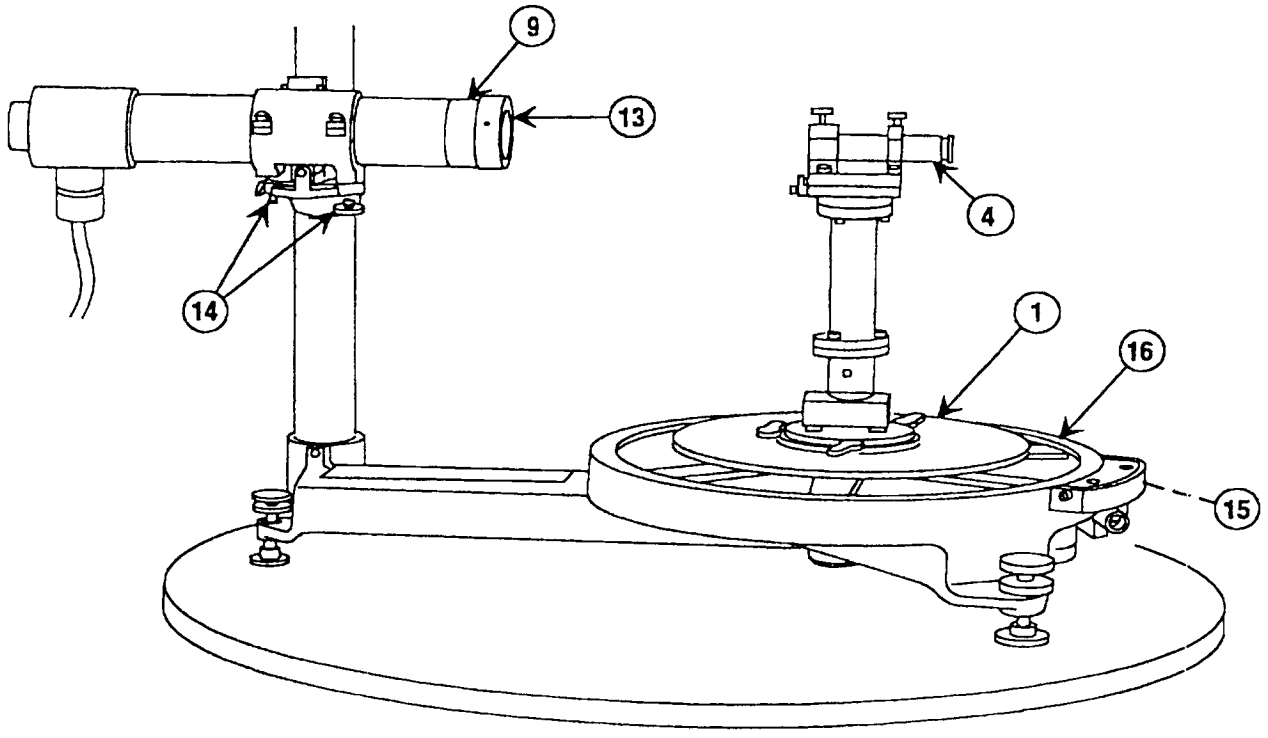
J Auto collimate the infinity collimator (4) by looking through back side of projector collimator.

K Adjust screws (8), on projector collimator and superimpose reticles.

L Remove masking tape (Item 10, Appendix D) and front surface mirror (10).

5-8 COLLIMATION AND INSPECTION - CONTINUED

COLLIMATION OF AZIMUTH TEST FIXTURE - CONTINUED



M If necessary, rotate azimuth test fixture (1) so infinity collimator (4) faces projector collimator (9).

N Raise or lower projector collimator (9) to aline with infinity collimator (4). Set projector collimator objective cell (13) to infinity.

Note

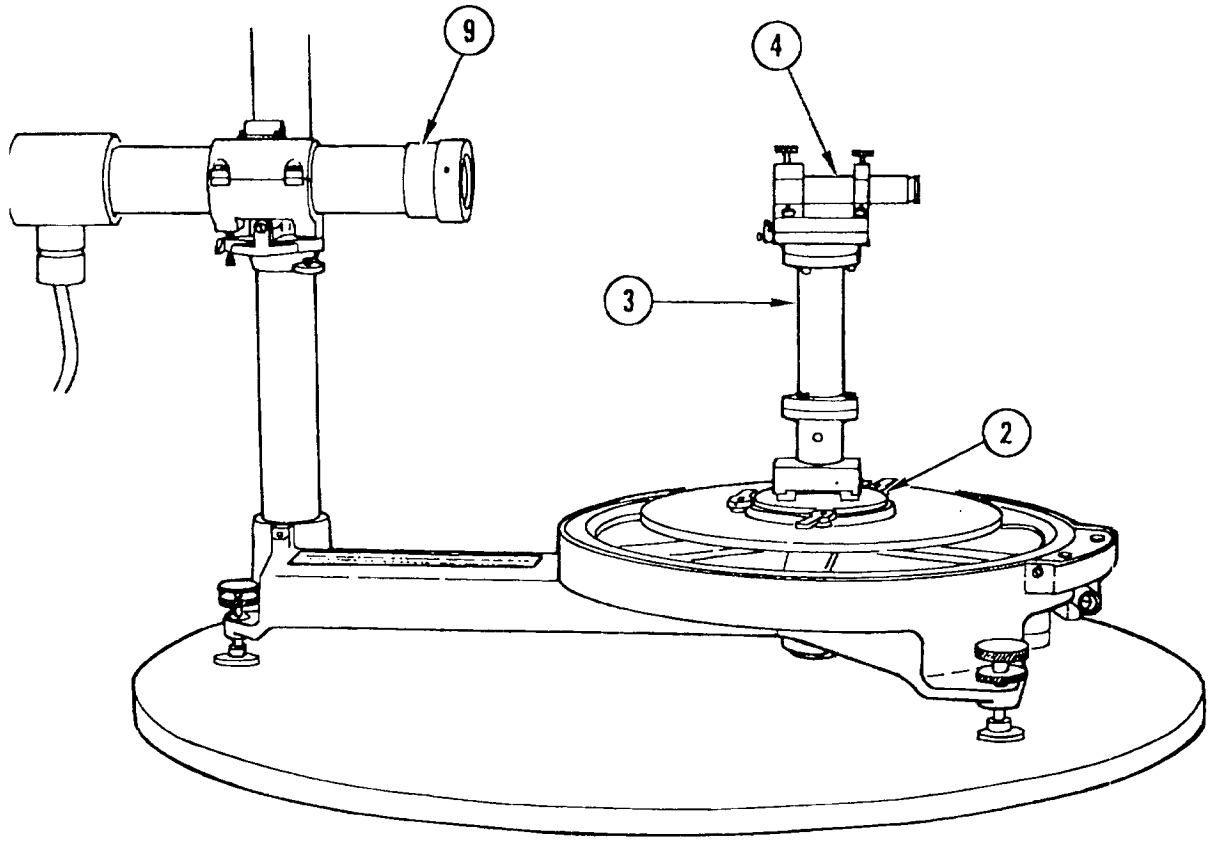
Position the projector collimator (9) so that while sighting through the infinity collimator (4), the field of view is centered on the projector collimator (9).

O Lock the azimuth test fixture (1) and height adjustment of projector collimator (9).

P Using tilt adjustment (14) on the projector collimator (9) and the fine adjustment knob (15) on the azimuth scale (16), sight through infinity collimator (4) and superimpose the two reticles.

5-8 COLLIMATION AND INSPECTION — CONTINUED

COLLIMATION OF AZIMUTH TEST FIXTURE — CONTINUED



Q Set projector collimator (9) to approximately 80 meters and recheck that the two retitles remain superimposed.

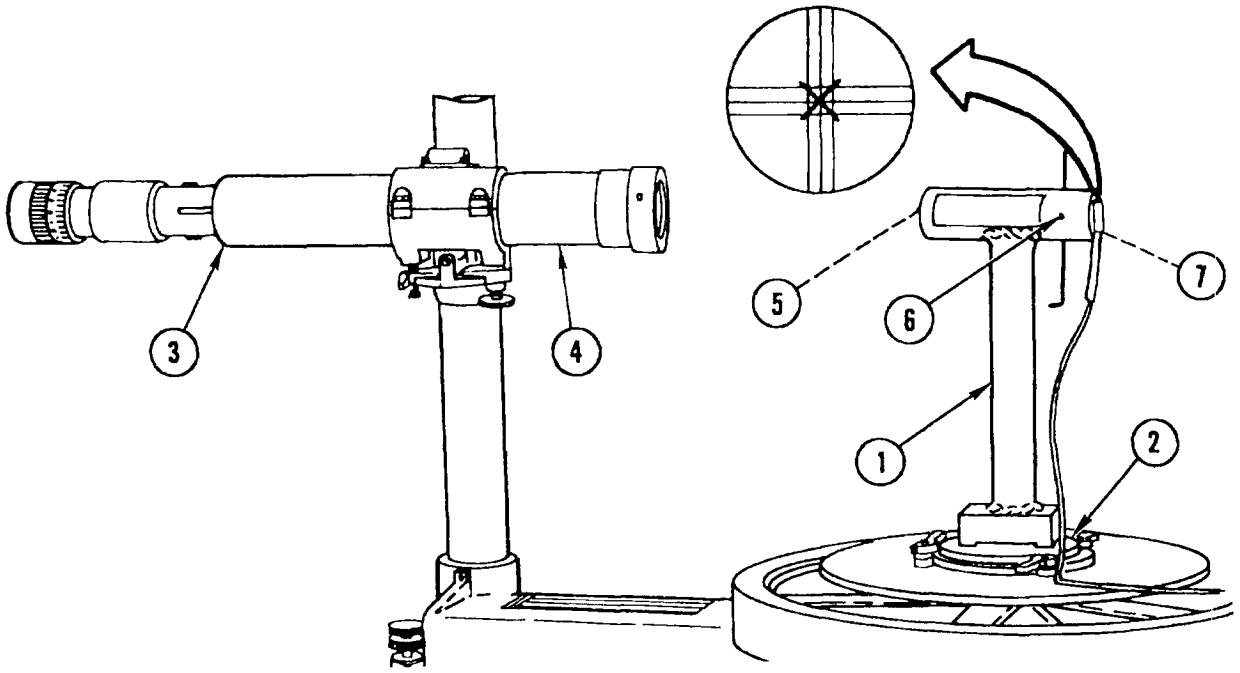
Note

It may be necessary to adjust the objective end of the infinity collimator (4) to eliminate any parallax between the two collimators. If the two retitles do not remain superimposed after elimination of parallax, it will be necessary to reautocollimate the collimation standard (3).

R Remove collimation standard (3) from dovetail adapter (2).

5-8 COLLIMATION AND INSPECTION — CONTINUED

COLLIMATION OF ALINEMENT DEVICE



W A R N I N G

The cap assembly contains tritium gas (H_3). A radiation hazard will exist if light source is broken. Follow radiation hazard procedures on warning page.

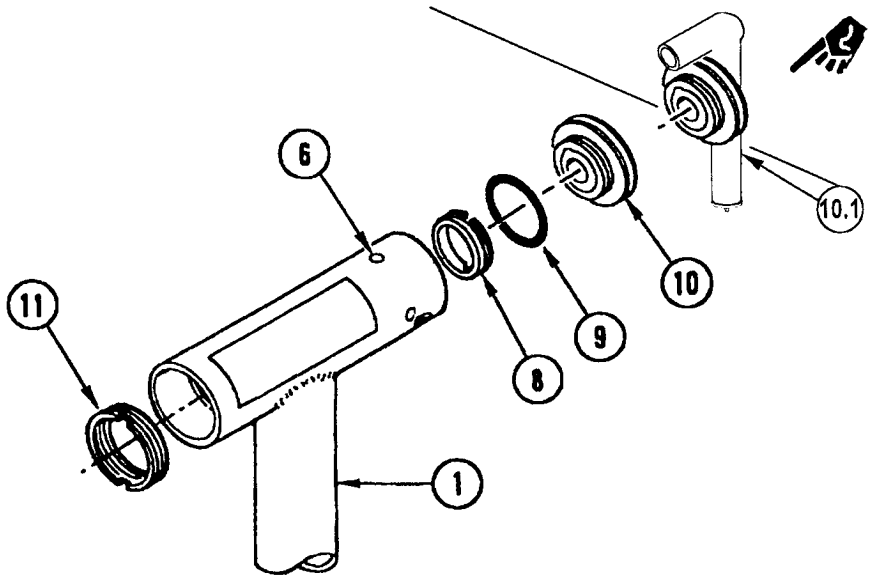
A Install alinement device (1) on dovetail adapter (2).

B While looking through the dioptometer (3), at the back of the projector collimator (4), adjust the objective cell (5), in or out, to remove parallax.

C While looking through the backside of projector collimator (4), adjust four set screws(6) until the alinement device reticle (7) becomes superimposed with the projector collimator reticle.

5-8. COLLIMATION AND INSPECTION – CONTINUED

COLLIMATION OF ALINEMENT DEVICE – CONTINUED



D Install retaining ring (8) and spot seal in two places with sealing compound (Item 8, Appendix D).

E Apply sealing compound (Item 8, Appendix D) to the top of four setscrews (6).

F Coat new packing (9) with a light coat of grease (Item 5, Appendix D).

G Install packing (9) and cap assembly (10 or 10.1) on battery pack and spot seal in two places with sealing compound (Item 8, Appendix D).

H Install retaining ring (11) and spot seal in two places with sealing compound (Item 8, Appendix D).

I Remove alinement device (1).

J Purge and charge alinement device (TM 750-116).

Section V. PREEMBARKATION INSPECTION PROCEDURES

5-9 GENERAL

a. The alinement device must be inspected for outward appearance, mechanical condition, and proper operation.

b. The alinement device must approach new equipment standards of operation and appearance. The workmanship and quality must reflect the highest standards obtainable.

5-10 SPECIFIC INSTRUCTIONS

The alinement device must conform to the following specifications for oversea shipment:

a. The lenses and reticle must be free from scratches, pits, and chips, that will affect optical performance.

b. The dovetail lever must operate smoothly.

c. The reticle must be visible and readable at a distance of approximately 18 in. (45.7 cm), when placed in a dark area.

d. General appearance and condition of alinement device.

(1) All parts must be present and free from defects.

(2) Optics shall be free of internal dirt and moisture. Presence of such contamination shall render alinement device rejected.

(3) All plates and decals shall be present and legible.

Alinement devices failing to meet requirements of the above inspections is unsatisfactory for oversea shipment.

APPENDIX A

REFERENCES

A-1 TECHNICAL MANUALS

TM 750-116 ..... General Procedures for Purging and Charging of Fire Control Instruments

TM 750-244-6 ..... Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-Automotive Command)

TM9-1015-234-10 ..... Operator's Maintenance Manual for Howitzer, Light, Towed: 105-mm, M102 (NSN 1015-00-086-8164)

TM9-1015-252-10 ..... Operator's Maintenance Manual for Howitzer, Light, Towed: 105-mm, M119A2 (NSN 1015-01-482-4914)

TM9-1015-234-20&P ..... Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Howitzer, Light, Towed: 105-mm, M102 (NSN 1015-00-086-8164)

TM9-1015-252-20&P ..... Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Howitzer, Light, Towed: 105-mm, M119A2 (NSN 1015-01-482-4914)

TM9-1015-234-34P ..... Direct and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Howitzer, Light, Towed: 105-mm, M102 (NSN 1015-00-086-8164)

TM9-1015-252-34P ..... Direct and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Howitzer, Light, Towed: 105-mm, M119A2 (NSN 1015-01-482-4914)

TM9-1025-211-10 ..... Operator's Manual (crew) for Howitzer, Medium, Towed: 155-mm, M198 (NSN 1025-01-026-6648)

TM9-1025-211-20&P ..... Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Howitzer, Medium, Towed, 155-mm: MI 98 (1 025-01 -026-6648)

TM9-1015 -252-34 ..... Direct and General Support Maintenance Manual for Howitzer, Medium, Towed: 155-mm, M119A2 (NSN 1015-01-482-4914)

TM9-1025 -211-34 ..... Direct and General Support Maintenance Manual for Howitzer, Medium, Towed: 155-mm, M198 (NSN1025-01-026-6648)

TM9-1025-211-34P ..... Direct and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools List) for Howitzer, Medium, Towed: 155-mm, M198 (NSN 1025-01-026-6648)

TM 9-1025-215-10 ..... Operator's Manual For Howitzer, Medium Towed: 155-mm, M777 (NSN 1025-01-445-0991) and Howitzer, Medium Towed: 155-mm, M777A1 (NSN TBD)

TM 9-1025-215-25&P ..... Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Howitzer, Medium, Towed: 155mm, M777 (NSN 1025-01-445-0991) and Howitzer, Medium, Towed: 155mm, M777A1 (NSN TBD)

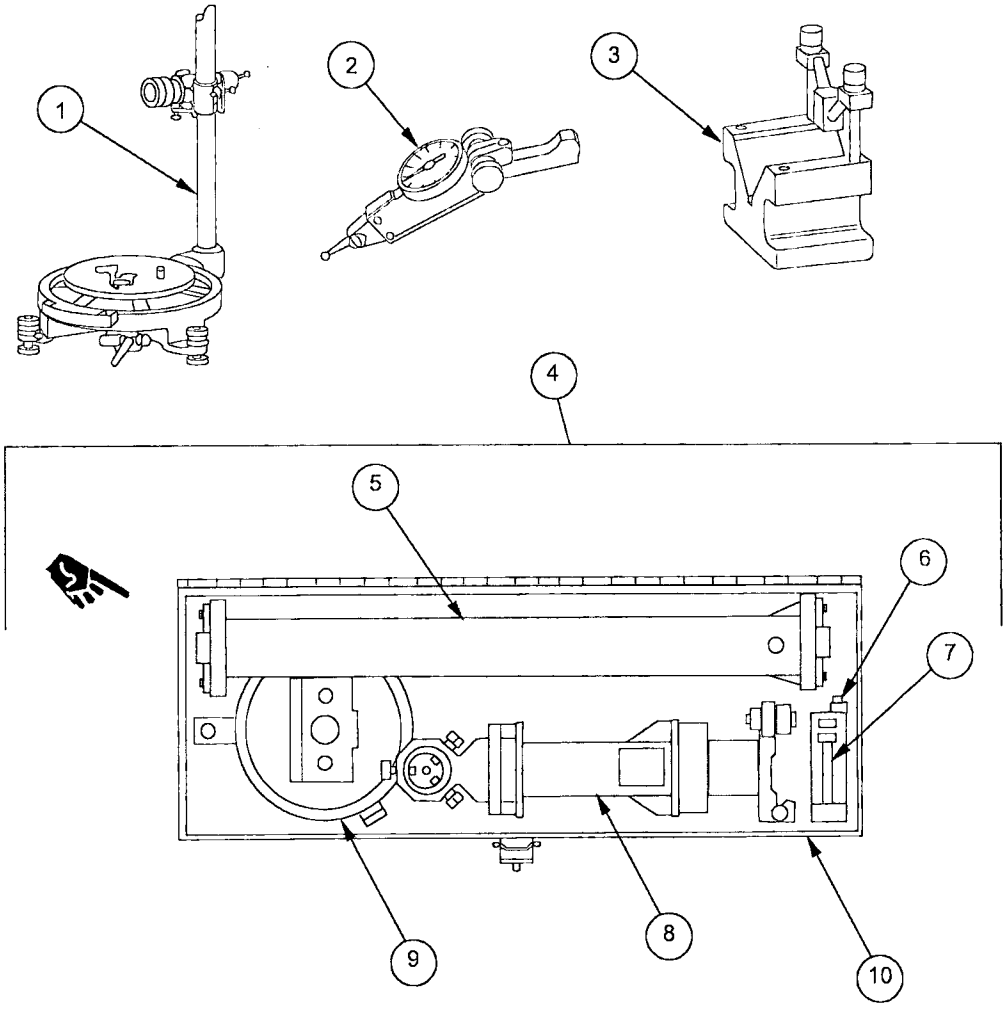


Figure C-6. Special Tools.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					FIGURE C-6, GROUP 95: SPECIAL TOOLS	
1	PEHZA	4931007691596	19200	7691596	FIXTURE, TELESCOPE TESTING	1
2	PAFZZ	5210002739791	58536	A-A-2348	INDICATOR, DIAL	1
3	PAHZZ	3460005176073	81348	A-A-55009	V-BLOCK	1
4	PAHZZ	4931012501596	19200	9388647	COLLIMATION STANDAR D AND STORAGE BOX ASSEMBLY	1
5	XAHZZ		19200	9388615-2	SPACER	1
6	PAHZZ	5315008455110	96906	MS16555-48	PIN, STRAIGHT, HEADLESS	1
7	PAHZZ	6650012260720	19200	10558251	MIRROR, OPTICAL INSTRUMENT	1
8	XAHZZ		19200	9388622-1	COLLIMATION STANDARD	1
9	XAHZZ		19200	9388618	ADAPTER PLATE ASSEMBLY	1
10	XAHZZ		19200	9388641	STORAGE BOX	1

END OF FIGURE

APPENDIX D

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section 1. INTRODUCTION

D-1 SCOPE

This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) or CTA 8-100, Army Medical Department Expendable/Durable Items.

D-2 EXPLANATION OF COLUMNS

a. Column 1 – Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material being used.

b. Column 2 – Level. This column identifies the lowest level of maintenance that requires the listed item.

H..... General Support Maintenance

c. Column 3 – National Stock Number. This item is the national stock number assigned to the item. Use it to request or requisition the item.

d. Column 4 – Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part followed by the Federal Supply Code for Manufacturer (FSCM) in parenthesis, if applicable.

e. Column 5 – Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation. If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) UNIT OF MEAS
1	H	6810-00-201-0907	ALCOHOL, DENATURED: 5 gal. can 27 CFR 21.35 (OMU53)	GL
2	H	8105-00-269-4662	BAG, PLASTIC: 20 x 25 in. (50.8 x 63.5 cm) MIL-B-117 (81349)	EA
2.1	O	8105-00-299-8532	BAG, PLASTIC: 20 x 40 in. (50.8 x 101.6 cm) 10 ea pkg A-A-1668 (58536)	EA
2.1A	O	6135-01-523-3198	BATTERY, NONRECHARGEABLE LITHIUM, SEALED (SIZE AA) (3.6 VOLT) 12984685 (19200)	EA
2.2	O	8115-00-190-5020	BOX, SHIPPING: 14 x 36 x 14 in. (35.6 x 91.4 x 35.6 cm) 10 ea pkg ASTM-D1974 (81348)	EA
3	H	7920-00-205-0565	BRUSH, DUSTING, LENS: R698 (17866)	EA
4	H	6850-00-597-9765	CLEANING COMPOUND: 6G236-6 (80063) 1 gal. can	GL
5	H	8010-00-852-9033	ENAMEL: Yellow, No. 13538 MPI 9-GLOSS (80244) 1 pt. can	PT
5.1	O	6515-01-150-2976 6515-01-150-2977 6515-01-150-2978	GLOVES, Patient exam: 100 each pkg Size Small 2D7491 (07TA6) Size Large, E-011 (07TA6) Size Medium E-012 (22353)	PG PG PG
6	H	9150-00-935-4017	GREASE, AIRCRAFT: Instrument, TYPE I MIL-PRF-23827 (81349) 14 oz. Cartridge	CR
6.1	O	8135-00-281-3920	PAPERBOARD WRAPPING, cushioning A-A-1051(58536) 250 ft roll	FT

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) UNIT OF MEAS
7	H	6640-00-436-5000	PAPER, LENS: Tissue, sheet form type 1 NNN-P-40 (81348)	PG
8	H	8030-00-537-7925	SEALING COMPOUND: Black, semi-solid base compound with catalyst A-A-59293 (58536) 3.5 oz. box	BX
9	H		DELETED	
10	H	7510-00-266-6712	TAPE: 1-inch wide, Masking, pressure sensitive 8783476 (19203)	RL
10.1	O	7510-01-146-7767	TAPE, 1-inch wide, High Strength, 60 yd ASTM D 5486-D 5486M (81346)	RL

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5305-00-054-5636	C-2	13
2640-00-060-3543	C-2	21
4820-00-114-1096	C-2	24
5315-00-234-1854	C-2	17
5210-00-273-9791	C-6	2
1240-00-341-5127	C-1	2
5340-00-464-4792	C-2	23
3460-00-517-6073	C-6	3
5310-00-543-4652	C-2	12
5331-00-600-5041	C-2	2
4931-00-769-1596	C-6	1
5331-00-804-2748	C-2	8
5315-00-845-5110	C-6	6
5310-00-894-2246	C-2	16
5305-00-955-2941	C-2	5
6650-01-043-2200	C-4	2
6650-01-043-2201	C-4	4
1240-01-043-2204	C-2	10
1240-01-043-4767	C-2	3
7690-01-043-7427	C-2	7
5340-01-043-7517	C-2	18
6650-01-043-9889	C-3	2
5331-01-045-7633	C-4	5
5305-01-047-0996	C-2	19
5305-01-120-4353	C-2	6
9905-01-146-3958	C-5	1
1240-01-169-3255	C-3	3
5365-01-177-4910	C-4	3
1240-01-212-6576	C-3	1
4820-01-235-0223	C-2	22
4931-01-250-1596	C-6	4
1240-01-251-0683	C-4	6
1240-01-251-8690	C-4	1
4931-01-472-6622	C-1	1
9905-01-473-6025	C-2	1
6695-01-473-6027	C-2	1
5340-01-473-6028	C-2	1A
9905-01-473-8888	C-2	15
9905-01-517-2175	C-2	15

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
58536	A-A-2348	5210-00-273-9791	C-6	2
81348	A-A-55009	3460-00-517-6073	C-6	3
81343	AS3578-024	5331-00-804-2748	C-2	8
81343	AS3578-026	5331-00-600-5041	C-2	2
96906	MS16555-48	5315-00-845-5110	C-6	6
80205	MS24665-153	5315-00-234-1854	C-2	17
96906	MS35333-69	5310-00-543-4652	C-2	12
96906	MS35692-3	5310-00-894-2246	C-2	16
80205	MS51031-103	5305-01-120-4353	C-2	6
96906	MS51377-2	2640-00-060-3543	C-2	21
96906	MS51607-1	4820-00-114-1096	C-2	24
96906	MS51957-2	5305-00-054-5636	C-2	13
19200	10516567	5340-00-464-4792	C-2	23
19200	10544450-1		C-2	20
19200	10544450-2		C-2	20
19200	10544450-3		C-2	20
19200	10544452	5340-01-043-7517	C-2	18
19200	10544455		C-2	4
19200	10544456	1240-01-169-3255	C-3	3
19200	10544458-3	9905-01-473-8888	C-2	15
19200	10544458-4	9905-01-473-6025	C-2	15
19200	10544458-5	9905-01-517-2175	C-2	15
19200	10544459	6650-01-043-9889	C-3	2
19200	10544460	1240-01-212-6576	C-3	1
19200	10544461	1240-01-043-4767	C-2	3
19200	10544464	1240-01-043-2204	C-2	10
19200	10544465	5305-01-047-0996	C-2	19
19200	10547001	6650-01-043-2200	C-4	2
19200	10547002	6650-01-043-2201	C-4	4
19200	10547017	5365-01-177-4910	C-4	3
19200	10547018-2	5331-01-045-7633	C-4	5
19200	10555157-4	5305-00-955-2941	C-2	5
19200	10558251	6650-01-226-0720	C-6	7
19204	11731008-3	9905-01-146-3958	C-5	1
19200	11739593	7690-01-043-7427	C-2	7
19200	11739600	1240-00-341-5127	C-1	2
19200	11741648-4	4931-01-472-6622	C-1	1
19200	12984672	6695-01-473-6027	C-2	1
19200	7691596	4931-00-769-1596	C-6	1
19200	8200055	4820-01-235-0223	C-2	22
19200	9360369	1240-01-251-0683	C-4	6
19200	9360370	1240-01-251-8690	C-4	1
19200	9360371		C-2	9
19200	9388615-2		C-6	5
19200	9388618		C-6	9
19200	9388622-1		C-6	8
19200	9388641		C-6	10
19200	9388647	4931-01-250-1596	C-6	4

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3		2		Item 10. Change illustration. Reason: Tube and shown assembled on wrong side of lever cam.
109		51		Item 3. The NSN and P/N are not listed on the AMDF nor the MCRL. Request correct NSN and P/N be furnished.
2-8			2-1	Preventive Maintenance Checks and Services Item 7 under "Items to be inspected" should be changed to read as follows: Firing linkage and firing mechanism pawl.

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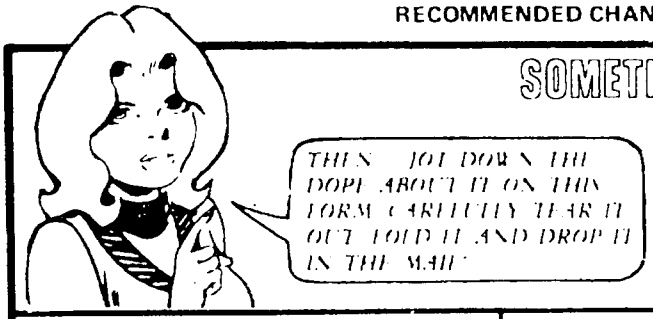

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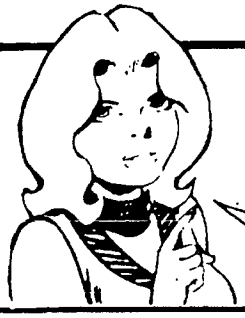

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Commander
US Army Armament, Munitions and
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DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-4931-710-14&P	15 Aug 1986	Operator, Org, Dir Support & General Support Maint Manual for Alinement Device M139& Alinement Dev w/case M140

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

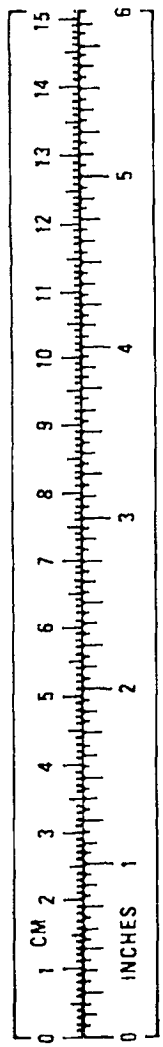
TEMPERATURE

5/9 (°F —32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 (°C + 32) = °F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miler per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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File History Report

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- ☐ **PTO 892**
- ☐ **PTO 948**
- ☐ **PTO 1449**
- ☐ **PTO 1474**
- ☐ **Assignment**

Additional comments

_____

A-1 TECHNICAL MANUALS – CONTINUED

TM9-2350-311-10... Operator's Manual For Howitzer, Medium: Self-Propelled, 155-mm, M109A2 (NSN 2350-01-031-0586), M109A3 (2350-01-031-8851), and M109A4 (2350-01-277-5770) M109A5 (NSN 2350-01-281-1719).

TM 9-2350-311-20-2..... Unit Maintenance Manual for Cab, Armament, Sighting Fire Control, Elevating And Traversing Systems and Associated Components, Howitzer, Medium, Self-Propelled, 155mm, M109A2 (NSN 2350-01-031-0586) (Eic: 3ez) M109A3 (NSN 2350-01-031-8851) M109A4 (NSN 2350-01-277-5770) M109A5 (NSN 2350-01-281-1719).

TM 9-2350-311-24P-2 ..... Unit, Direct Support and General Support Maintenance Repair Parts And Special Tools List (Including Depot Maintenance Repair And Special Tools) for Cab, Armament, Sighting and Fire Control Elevating and Traversing Systems, and Associated Components Howitzer Medium, Self-Propelled: 155mm, M109A2 (NSN 2350-01-031-0586) M109A3 (2350-01-031-8851) M109A4 (2350-01-277-5770) M109A5 (2350-01-281-1719)

TM9-2350-311-34P-2..... Direct and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Cab, Armament, Sighting and Fire Control, Elevating and Traversing Systems and Associated Components, Howitzer, Medium, Self-Propelled, 155-mm, M109A2 (NSN 2350-01-031-0586) and M109A3 (2350-01-031-8851)

TM 9-2350-314-10..... Howitzer, Medium, Self-Propelled: 155mm, M109A6 (NSN 2350-01-305-0028)

TM 9-2350-314-20-2 ..... Unit Maintenance Manual for Cab Systems and Components Howitzer, Medium, Self-Propelled: 155mm, M109A6 (NSN 2350-01-305-0028)

TM 9-2350-314-24P-2..... Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Cab and Associated Components of Howitzer, Medium, Self-Propelled: 155mm M109A6 (NSN 2350-01-305-0028)

TM 9-2350-304-34-2 ..... Direct and General Support Maintenance Manual for Howitzer, Heavy, Self-Propelled: 8-inch, M110A2, Armament and Turret Components (2350-01-041-4590)

TM 9-254 ..... General Maintenance Procedures for Fire Control Materiel

A-2 FORMS AND PAMPHLETS

DA Form 2028 ..... Recommended Changes to Publications & Blank Forms

DA Form 2028-2 ..... Recommended Changes to Equipment Technical Publications

DA Form 2408-5 ..... Equipment Modification Record

DA Form 2409 ..... Equipment Maintenance Log

DA PAM 738-750 ..... The Army Maintenance Management System (TAMMS)

FM 4-25.11 ..... First Aid

SF Form 368 ..... Quality Deficiency Report

A-3 SUPPLY CATALOGS

SC 4931 -95-A07 ..... Shop Equipment, Instrument and Fire Control: Field Maintenance, Basic

SC 4931-95-J54 ..... Fire Control Instrument Purging Kit

SC 51 80-95-1329 ..... Shop Equipment, Instrument and Fire Control System Repair: Field Maintenance

A-4 OTHER

CTA 50-970 . . . . . Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items)

CTA 8-100 . . . . . Army Medical Department Expendable/Durable Items

SB 740-95-700 . . . . . Storage Serviceability Standards for AMCCOM Materiel for Fire Control Items

TB 43-0197 . . . . . Instructions for Safe Handling, Maintenance, Storage, and Disposal of Radioactive Items Managed By U.S. Army Armament Materiel Readiness Command

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1 GENERAL

This Maintenance Allocation Chart designates responsibility for performance of maintenance repair functions at specified maintenance levels.

a. *Section I* is a general explanation and definition of terms.

b. *Section II* shows the maintenance level responsible and estimated work measurement time for specific functions.

c. *Section III* lists common tool sets and the special tools, test and support equipment required for each maintenance function shown in Section II.

B-2 EXPLANATION OF COLUMNS IN SECTION II

a. *Column 1, Group Number.* Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. *Column 2, Component/Assembly.* Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. *Column 3, Maintenance Functions.* Column 3 lists the functions to be performed on the item listed in Column 2.

d. *Column 4, Maintenance Category.* Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or category of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The number of man-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance chart. This figure does not include any time for performance of preliminary tasks listed elsewhere in the MAC, e.g., removal of engine under repair of fuel pump when the engine is listed separately in the MAC. The symbol designations for the various maintenance categories remain as follows:

B-2 EXPLANATION OF COLUMNS IN SECTION II — CONTINUED

C — Operator/Crew
O — Organizational Maintenance
F — Direct Support Maintenance
H — General Support Maintenance
D — Depot Maintenance

e. *Column 5, Tools and Equipment.* Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated functions.

f. *Column 6, Remarks.* Column 6 references any amplifying remarks.

B-3 EXPLANATION OF MAINTENANCE FUNCTIONS

a. *Inspect.* To closely and critically examine (e.g., sight, sound, or feel) an item to detect errors, flaws, wear, etc., and to determine its condition and serviceability by comparing its physical mechanical/electrical characteristics within established standards.

b. *Test.* To verify serviceability and detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. *Service.* Operations required periodically to keep an item in proper operating condition; i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. *Adjust.* To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. *Aline.* To adjust specified variable elements of an item to bring about optimum or desired performance.

f. *Calibrate.* To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. *Install.* The act of emplacing, seating, or fixing into position an item, part or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. *Replace.* The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. *Repair.* The application of maintenance services (inspect, test, service, adjust, aline, calibrate, or replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly module (components or assembly), and item, or system.

B-3. EXPLANATION OF MAINTENANCE FUNCTIONS - CONTINUED

j. *Overhaul.* That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. *Rebuild.* Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipments/components.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	C	(4) MAINTENANCE LEVEL O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
00	M139/M139A1/M140/M140A1 /M154 Alinement Device without Case	Inspect	0.5						
		Service	0.1	0.1					
		Replace		0.5					
		Repair		0.5		1.0			
00	M140 Alinement Device and M140A1 Alinement Device with Case	Inspect	0.5						
		Service	0.1	0.1					
		Replace		0.5					
		Repair		0.5		1.0			
01	M139/M139A1/M140/M140A1 /M154 Alinement Device without Case Exploded View	Inspect	0.1	0.1		0.1		1,2,3,	
		Service		0.1		0.1		4,5,6,7	
		Replace	0.1	0.2		0.5			
		Repair		0.5		1.0			
0101	Optical Cell Assembly	Inspect	0.1			0.1		2	
		Service				0.1			
		Replace				0.5			
		Repair				0.5			
0102	Optical Cell Assembly	Inspect	0.1			0.1		2	
		Service				0.1			
		Replace				0.5			
		Repair				0.5			
02	Optical Instrument Case M140A1	Inspect	0.1						
		Replace		0.1					
		Repair							
0201	Instruction Plate	Inspect	0.1						
		Replace		0.1					

*Subcolumns are as follows:
C - - Operator/Crew
O - - Organizational
F - - Direct Support
H - - General Support
D - - Depot

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS

(1) REFERENCE CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL PART NUMBER
1	H	TOOL KIT, FIRE CONTROL SYSTEM, MECHANIC	4931-00-947-8243	SC5180-95-B29
2	H	SHOP EQUIPMENT, INSTRUMENT AND FIRE CONTROL: FIELD MAINTENANCE, BASIC	4931-00-754-0740	SC4931-95-CL-A07
3	H	COLLIMATION STANDARD AND STORAGE BOX ASSEMBLY	4931-01-250-1596	9388647
4	H	FIXTURE, AZIMUTH TEST	4931-00-769-1596	7691596
5	H	INDICATOR, DIAL	5210-00-273-9791	A-A-2348
6	H	MIRROR, OPTICAL INSTRUMENT	6650-01-226-0720	10558251
7	H	V-BLOCK	3460-00-517-6073	A-A-55009
8	H	PURGING KIT, FIRE CONTROL INSTRUMENT	4931-00-065-1110	SC4931-95-J54

APPENDIX C

DIRECT AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST (INCLUDING DEPOT MAINTENANCE REPAIR PARTS)

Section I. INTRODUCTION

C – 1 SCOPE

This RPSTL lists and authorizes spares and repair parts required for performance of general support maintenance of the M139/M139A1/M140/M14A1/M154 Alinement Devices. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the Source, Maintenance, and Recoverability (SMR) codes.

C - 2 GENERAL

In addition to Section I, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. Section 11. Repair Parts List - A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed by item name in FIG BULK at the end of the section.

b. Section III. Special Tools List - N/A

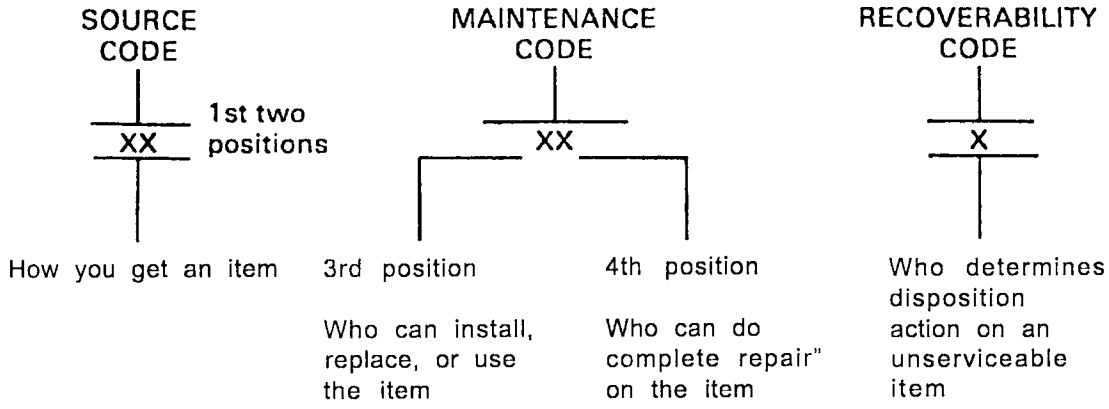
c. Section IV. National Stock Number and Part Number Index - A list, in National Identification Number (NIIN) sequence, of all National stock numbered items appearing in the listings, followed by a list in alphanumeric sequence of all part numbers appearing in the listing. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

C-3 EXPLANATION OF COLUMNS (SECTION II)

a. *ITEM NO. (Column (1))* - Indicates the number used to identify items called out in the illustration.

C-3 EXPLANATION OF COLUMNS (SECTION II) - CONTINUED

b. *SMR CODE (Column (2))* — The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



* Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source Code — The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

CODE	EXPLANATION
PA PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3rd position of the SMR code. **NOTE: Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated by the 3rd position of the SMR code. The complete kit must be requisitioned and applied.

C-3 EXPLANATION OF COLUMNS (SECTION II) — CONTINUED

CODE	EXPLANATION
MO —(Made at org. level) MF — (Made at DS level) MH — (Made at GS level) ML — (Made at Specialized Repair Act (SRA)) MD — (Made at Depot)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Material Group of the repair parts list in this RPSTL If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO — (Assembled by org. level) AF — (Assembled by DS level) AH — (Assembled by GS category) AL — (Assembled by SRA) AD — (Assembled by Depot)	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.

XA — Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)

XB — If an "XB" item is not available from salvage, order it using the FSCM and part number given.

XG — Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number,

XD — Item is not stocked. Order an "XD"-coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

C-3 EXPLANATION OF COLUMNS (SECTION II) – CONTINUED

Note

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 700-42.

(2) Maintenance Code — Maintenance codes tell you the level(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the 3rd and 4th positions of the SMR Code as follows:

(a) The maintenance code entered in the 3rd position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance.

CODE	APPLICATION/EXPLANATION
C	Crew or operator maintenance done within organizational or aviation unit maintenance.
O	Organizational or aviation unit category can remove, replace, and use the item.
F	Direct support or aviation intermediate level can remove, replace, and use the item.
H	General support level can remove, replace, and use the item.
L	Specialized repair activity can remove, replace, and use the item.
D	Depot level can remove, replace, and use the item.

(b) The maintenance code entered in the 4th position tells whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions). (NOTE: Some limited repair maybe done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes.

CODE	APPLICATION/EXPLANATION
O	Organizational or aviation unit is the lowest level that can do complete repair of the item.
F	Direct support or aviation intermediate is the lowest level that can do complete repair of the item.
H	General support is the lowest level that can do complete repair of the item.

C-3 EXPLANATION OF COLUMNS (SECTION II) — CONTINUED

L Specialized repair activity is the lowest level that can do complete repair of the item.

D Depot is the lowest level that can do complete repair of the item.

z Nonreparable. No repair is authorized.

B No repair is authorized. (No parts or special tools are authorized for the maintenance of the "8" coded item.) However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

(3) Recoverability Code — Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the 5th position of the SMR code as follows:

RECOVERABILITY CODES	APPLICATION/EXPLANATION
Z	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3rd position of SMR code.
o	Reparable item. When uneconomically reparable, condemn and dispose of the item at the organizational or aviation unit level
F	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material). Refer to appropriate manuals/directives for specific instructions.

C-3 EXPLANATION OF COLUMNS (SECTION II)— CONTINUED

a. *FSCM (Column (3))* — The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

b. *PART NUMBER (Column (4))* — Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

Note

When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered. (The parts are interchangeable.)

c. *DESCRIPTION AND USABLE ON CODE (UOC) (Column (5))* — This column includes the following information:

1. The Federal item name and, when required, a minimum description to identify the item.
2. The physical security classification of the item.
3. Items that are included in kits and sets.
4. Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry. When a separate figure lists the complete breakdown of an assembly/subassembly, a note "See figure for breakdown" in shown.
5. Part numbers for bulk materials.
6. When the item is not used with all serial numbers of the same model.
7. The usable on code, when applicable (see paragraph 5, Special Information).
8. Special Tools List section.
9. The statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure in Section II.

d. *QTY (Column (6))* — The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

C-3 EXPLANATION OF COLUMNS (SECTION II) – CONTINUED

(4) *Explanation of Columns (Section IV)*

a. *NATIONAL STOCK NUMBER (NSN) INDEX*

1. *STOCK NUMBER Column* —This column lists the NSN by National Item identification Number NIIN) sequence. The NIIN consists of the last nine digits of the NSN.

NSN
(i.e., 5305-01-674-1467),
NIIN

When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

2. *FIGURE Column* -This column lists the number of the figure where the item is identified/located. The figures are in numerical order in Section II.

3. *ITEM Column* —The item number identifies the item associated with the figure listed in the adjacent Figure column, This item is also identified by the NSN listed on the same line.

b. *PART NUMBER INDEX* — Part numbers in this index are listed by part number in ascending alpha numeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A thru Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

1. *FSCM Column* —The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

2. *PART NUMBER Column* — Indicates the primary number used by the manufacturer (individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

3. *STOCK NUMBER Column* — This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and FSCM columns to the left.

4. *FIGURE Column* —This column lists the number of the figure where the item is identified/located in Section II.

5. *ITEM Column* — The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

C-3 EXPLANATION OF COLUMNS (SECTION II) - CONTINUED

(5) Special Information

a. *USABLE ON CODE - The* usable on code appears in the lower left corner of the Description column heading. Usable on codes are shown as "UOC: . . . . " in the Description column (justified left) on the first line after the applicable item description/nomenclature. Uncoded items are applicable to all models. Identification of the usable on codes used in the RPSTL are:

CODE	USED ON
BF4	M140A1 With Case
BF5	M140 Without Case
BF6	M140A1 Without Case
BF7	M139A1 Without Case
BN2	M154 Without Case
U09	M140 With Case
U11	M139 Without Case

b. *FABRICATION INSTRUCTIONS* - N/A

c. *ASSEMBLY INSTRUCTION* - Detailed assembly instructions for items source coded to be assembled from component spare /repair parts a refound in Chapter 2, Section III. Items that make up the assembly are listed immediately following the assembly item entry or reference is made to an applicable figure.

d. *KITS* - N/A

e. *INDEX NUMBERS* -This index number is a cross-reference between the National Stock Number/Part Number Index and the bulk material list in Section II.

f. *ASSOCIATED PUBLICATIONS* - N/A

g. *ILLUSTRATIONS* - LISTING - N/A

(6) How to Locate Repair Parts

a. *When National Stock Number or Part Number is Not Known:*

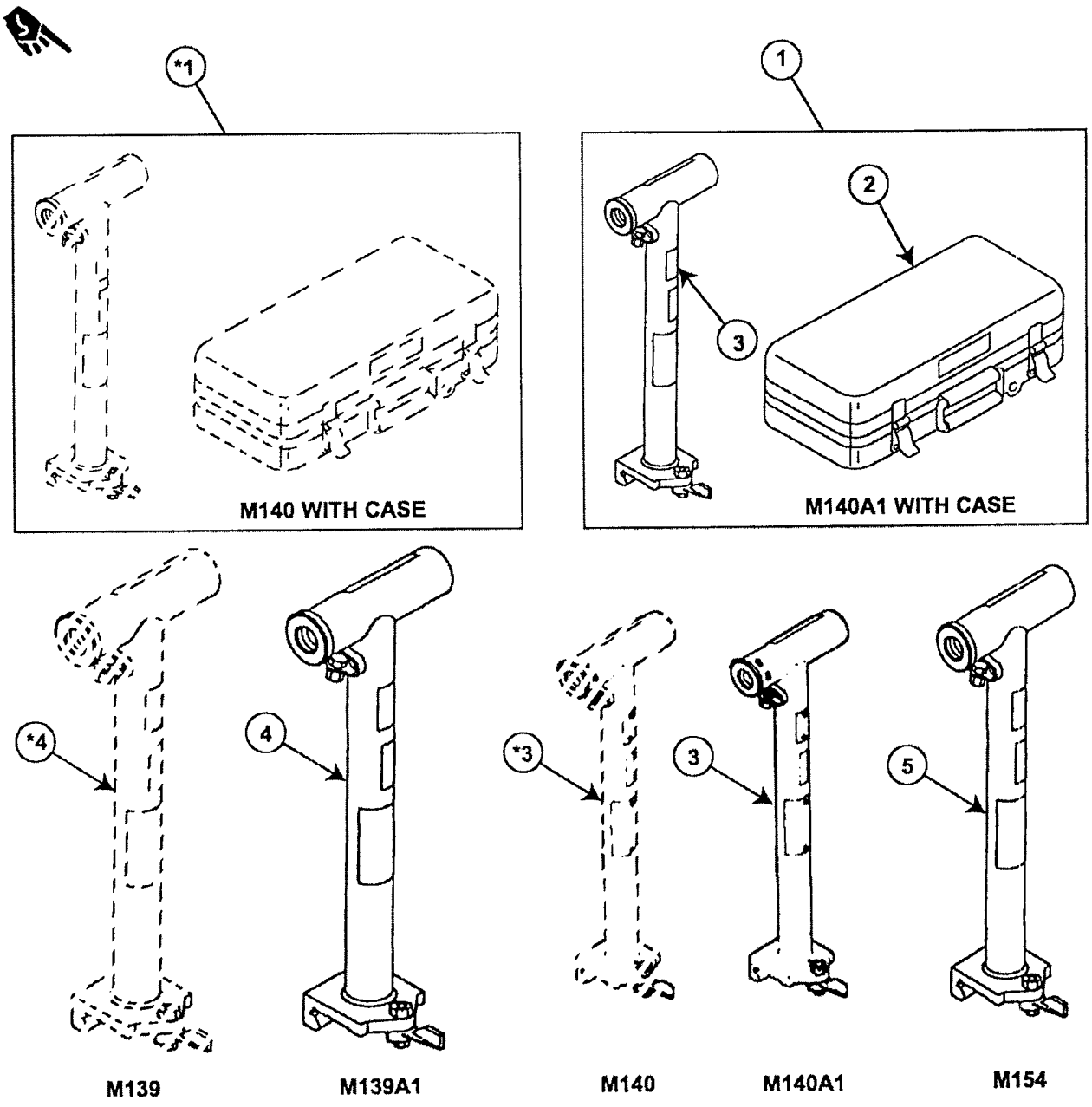
1. *First* - Using the table of contents, determine the assembly group or subassembly group to which the item belongs, This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

2. *Second*- Find the figure covering the assembly group or subassembly group to which the item belongs.

3. *Third* - Identify the item on the figure and note the item number.

4. *Fourth* - Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

5. *Fifth* - Refer to the Part Number Index to find the NSN, if assigned.



NOTE

* AUTHORIZED FOR USE BUT NOT AVAILABLE FOR PROCUREMENT

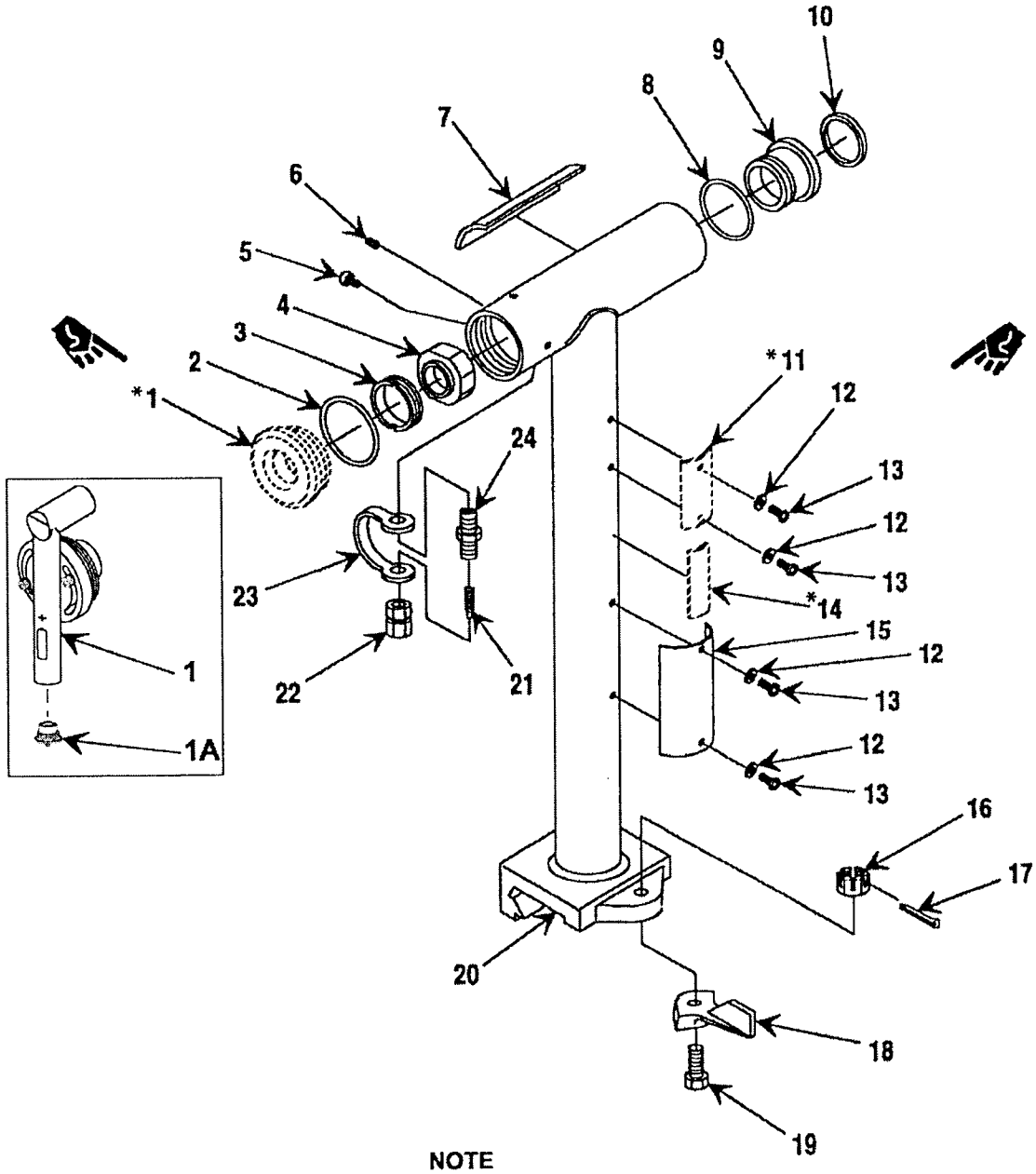
Figure C-1. M140/M140A1 Alinement Device with Case, M139, M139A1, M140, M140A1, and M154 Alinement Device without Case.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 00: ALINEMENT DEVICE M140A1 WITH CASE 129874665 AND ALINEMENT DEVICES M139A1, 11741648-3; M140A1, 11741648-4; M154, 11741648-5 W/O CASE	
					FIGURE C-1. ALINEMENT DEVICE M140A1 WITH CASE 129874665 AND ALINEMENT DEVICES M139A1, 11741648-3; M140A1, 11741648-4; M154, 11741648-5 W/O CASE	
*1		4931011879713			ALINEMENT DEVICE M140 WITH CASE	1
1	PAOHH	4931014727329	19200	12984665	ALINEMENT DEVICE M140A1 WITH CASE UOC: BF4	1
2	PAOZZ	1240003415127	19200	11739600	CASE, OPTICAL INSTRUMENT UOC: BF4 SEE FIG. C-5 FOR CAUTION RADIOACTIVE MATERIAL IDENTIFICATION PLATE	1
*3		4931003415119			ALINEMENT DEVICE M140 W/O CASE SEE FIG. C-2 FOR ASSEMBLY BREAKDOWN	1
3	PACHH	4931014726622	19200	11741648-4	ALINEMENT DEVICE M140A1 W/O CASE UOC: BF4, BF6 SEE FIG. C-2 FOR ASSEMBLY BREAKDOWN	1
*4		4931010485834			ALINEMENT DEVICE M139 W/O CASE SEE FIG. C-2 FOR ASSEMBLY BREAKDOWN	1
4	PACHH	4931014726621	19200	11741648-3	ALINEMENT DEVICE M139A1 W/O CASE UOC: BF7 SEE FIG. C-2 FOR ASSEMBLY BREAKDOWN	1
5	PACHH	4931015161430	19200	11741648-5	ALINEMENT DEVICE M154 W/O CASE SEE FIG. C-2 FOR ASSEMBLY BREAKDOWN	1
					END OF FIGURE	

NOTE

* ITEMS ARE AUTHORIZED FOR USE AND PARTIAL REPAIR BUT NOT AVAILABLE FOR REPLACEMENT PROCUREMENT

END OF FIGURE



NOTE

* AUTHORIZED TO USE AND REPAIR TRITIUM MODELS BUT CANNOT PROCURE A NEW ONE. IF TRITIUM ID PLATE (15) IS LOST (OR LIGHT SOURCE (1) FAILS) OR RADIOACTIVE ID PLATE (11, 14) IS LOST OR NEEDS TO BE REPLACED, CONVERT DEVICE TO AN A1 MODEL. REMOVE TRITIUM LIGHT SOURCE AND REPLACE IT WITH ERLS LIGHT SOURCE (1), AND NEW ID PLATE (15).

Figure C-2. M139/M139A1/M140/M140A1/M154 Alinement Devices (exploded view).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 00: ALINEMENT DEVICES M139A1, 11741648-3; M140A1, 11741648-4; M154, 11741648-5	
					FIGURE C-2. ALINEMENT DEVICES EXPLODED VIEW	
*1	NON-PROCUREABLE				CAP ASSEMBLY, POTTED (RADIOACTIVE)	1
					CONVERT TO BATTERY POWERED	
					REPLACE WITH ITEMS 1 AND 15 (A1 MODEL)	
1	PAOOO	6695014736027	19200	12984672	LIGHT, INSTRUMENT	1
1A	PACZZ	5340014736028	19200	12984679	CAP, PROTECTIVE, DUST	1
2	PAOZZ	5331006005041	81343	AS3578-026	O-RING	1
3	PAHZZ	1240010434767	19200	10544461	RETAINER, OPTICAL ELEMENT	1
4	AHHHH		19200	10544455	CELL ASSEMBLY, OPTIC SEE FIG C-3	1
					FOR BREAKDOWN	
5	PAOZZ	5305009552941	19200	10555157-4	SCREW, MACHINE	1
6	PAHZZ	5305011204353	80205	MS51031-103	SETSCREW	4
7	PCOZZ	7690010437427	19200	11739593	DECAL CAUTION REMOVE AFTER	1
					BORESIGHTING	
8	PCHZZ	5331008042748	81343	AS3578-024	O-RING	1
9	AHHHH		19200	9360371	CELL ASSEMBLY, OPTIC SEE FIG C-4	1
					FOR BREAKDOWN	
10	PAHZZ	1240010432204	19200	10544464	RETAINER, OPTICAL EL	1
*11	NON-PROCUREABLE				PLATE, INSTRUCTION (RADIOACTIVE)	1
					CONVERT TO BATTERY POWERED	
					REPLACE WITH ITEMS 1 AND 15 (A1 MODEL)	
12	PAOZZ	5310005434652	96906	MS35333-69	WASHER, LOCK	2
13	PAOZZ	5305000545636	96906	MS51957-2	SCREW, MACHINE	2
*14	NON-PROCUREABLE				PLATE, INSTRUCTION (RADIOACTIVE)	1
					CONVERT TO BATTERY POWERED	
					REPLACE WITH ITEMS 1 AND 15 (A1 MODEL)	
*15	NON-PROCUREABLE				PLATE, IDENTIFICATION M139	1
					CONVERT TO BATTERY POWERED	
					REPLACE WITH ITEMS 1 AND 15 (A1 MODEL)	
*15	NON-PROCUREABLE				PLATE, IDENTIFICATION M140	1
					CONVERT TO BATTERY POWERED	
					REPLACE WITH ITEMS 1 AND 15 (A1 MODEL)	
15	PAHZZ	9905014736025	19200	10544458-4	PLATE, IDENTIFICATION M140A1	1
					UOC: BF6	
15	PAHZZ	9905014738888	19200	10544458-3	PLATE, IDENTIFICATION M139A1	1
					UOC: BF7	
15	PAHZZ	9905015172175	19200	10544458-5	PLATE, IDENTIFICATION M154	1
					UOC: BN2	
16	PAOZZ	5310008942246	96906	MS35692-3	NUT, PLAIN, SLOTTED, H	1
17	PAOZZ	5315002341854	80205	MS24665-153	PIN, COTTER	1
18	PAOZZ	5340010437517	19200	10544452	LEVER, MANUAL CONTRO	1
19	PAOZZ	5305010470996	19200	10544465	SCREW, CAP, SOCKET HE	1
20	XAHZZ		19200	10544450-1	BODY M139A1	1
					UOC: BF7	
20	XAHZZ		19200	10544450-2	BODY M140A1	1
					UOC: BF6	
20	XAHZZ		19200	10544450-3	BODY M154	1
					UOC: BN2	
21	PAOZZ	2640000603543	96906	MS51377-2	VALVE CORE	1
22	PAOZZ	4820012350223	19200	8200055	CAP, VALVE	1
23	PAOZZ	5340004644792	19200	10516567	STRAP, RETAINING	1
24	PAOZZ	4820001141096	96906	MS51607-1	STEM, FLUID VALVE	1
					END OF FIGURE	

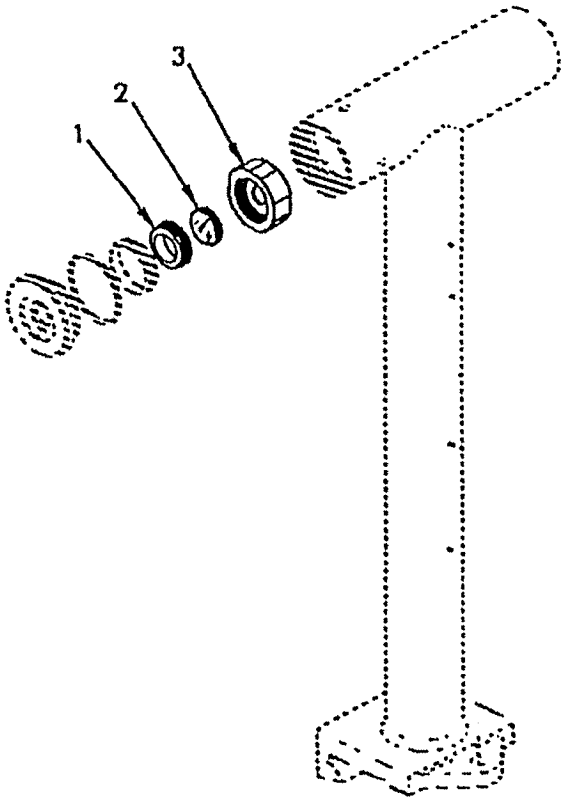


Figure C-3. Optical Cell Assembly – 10544455.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 01: ALINEMENT DEVICES EXPLODED	
					FIGURE C-3. OPTICAL CELL ASSEMBLY P/N 10544455	
1	PAHZZ	1240012126576	19200	10544460	RETAINER, OPTICAL EL	1
2	PAHZZ	6650010439889	19200	10544459	RETICAL, OPTICAL INS	1
3	PAHZZ	1240011693255	19200	10544456	CELL, OPTICAL ELEMEN	1
					END OF FIGURE	

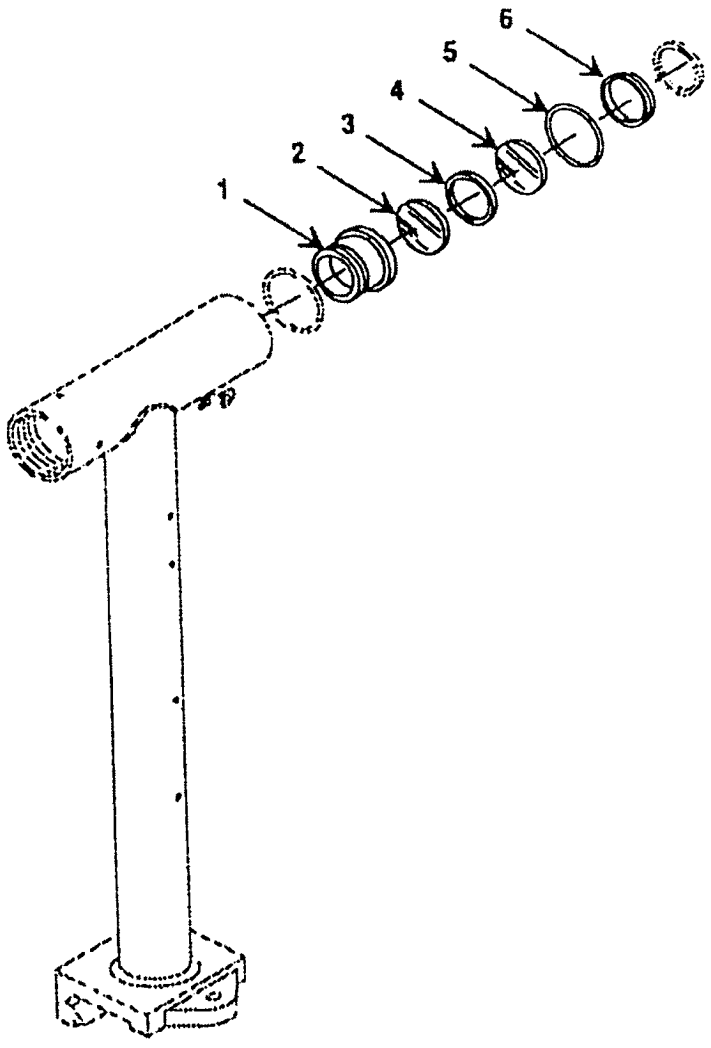


Figure C-4. Optical Cell Assembly – 9360371.

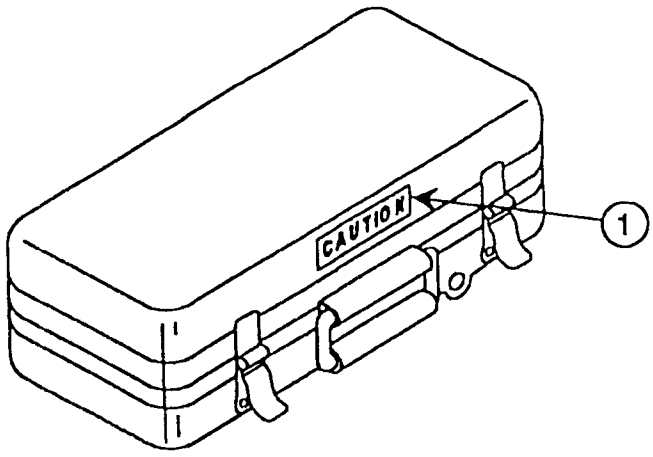


Figure C-5. Optical Instrument Case – 11739600.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 01: ALINEMENT DEVICES EXPLODED VIEW	
					FIGURE C-4. OPTICAL CELL ASSEMBLY P/N 9360371	
1	PAHZZ	1240012518690	19200	9360370	CELL, OPTICAL ELEMEN	1
2	PAHZZ	6650010432200	19200	10547001	LENS, OPTICAL INSTRU	1
3	PAHZZ	5365011774910	19200	10547017	SPACER, RING	1
4	PAHZZ	6650010432201	19200	10547002	LENS, OPTICAL INSTRU	1
5	PAHZZ	5331010457633	19200	10547018-2	O-RING	1
6	PAHZZ	1240012510683	19200	9360369	RETAINER, OPTICAL EL	1

END OF FIGURE

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 02: CASE, OPTICAL INSTRUMENT M140A1, P/N 11739600	
1	PAOZZ	9905011463958	19204	11731008-3	PLATE, INSTRUCTION ..... (CAUTION RADIOACTIVE MATERIAL)	1

END OF FIGURE

Reexamination [redacted]	Application/Control No. 90/010,041	Applicant(s)/Patent Under Reexamination 7,272,904
	Certificate Date	Certificate Number C1

Requester Correspondence Address: ☐ Patent Owner ☒ Third Party
Joshua A. Stockwell, Esq. BARLOW, JOSEPHS & HOLMES, LTD. 101 Dyer Street, 5th Floor Providence, R102903

LITIGATION REVIEW ☒	MCG (examiner initials)	1/15/09 (date)
Case Name		Director Initials
NONE		

COPENDING OFFICE PROCEEDINGS	
TYPE OF PROCEEDING	NUMBER
1. NONE	
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Reexamination [redacted]	Application/Control No. 90/010,041	Applicant(s)/Patent Under Reexamination 7,272,904
	Certificate Date	Certificate Number

Requester Correspondence Address: ☐ Patent Owner ☒ Third Party
Joshua A. Stockwell, Esq. BARLOW, JOSEPHS & HOLMES, LTD. 101 Dyer Street, 5th Floor Providence, R102903

LITIGATION REVIEW ☒	mcg (examiner initials)	(date)
Case Name		Director Initials
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Reexamination [redacted]	Application/Control No. 90/010,041	Applicant(s)/Patent Under Reexamination 7,272,904
	Certificate Date	Certificate Number

Requester Correspondence Address: ☐ Patent Owner ☒ Third Party
JOSHUA A. STOCKWELL BARLOW,JOSEPHS & HOLMES, LTD 101 DYER STREET, 5th FLOOR PROVIDENCE, RI 02903

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Case Name		Director Initials

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90/010,041

ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP

Transaction History

Date	Transaction Description
10/29/2007	Reexamination requested by third party requester
10/29/2007	Receipt of Original Ex Parte Reexam Request
11/1/2007	Completion of Preprocessing - Released to Assigned GAU
11/1/2007	Notice of assignment of reexamination request
11/1/2007	Notice of reexamination request filing date
11/1/2007	Title Report
11/5/2007	Reexam Litigation Search Conducted
11/5/2007	Reexam Assigned to Examiner for Determination
11/5/2007	Case Docketed to Examiner in GAU
12/10/2007	Determination -- Reexam Ordered
12/14/2007	Cleared by OIPE CSR
12/18/2007	Notice of Reexam Published in Official Gazette
2/8/2008	Certificate of Service
2/8/2008	Timely Owner Statement in Response to Order
4/7/2008	Certificate of Service
4/7/2008	Timely Requestor's Reply to an Owner's Statement
6/20/2008	Reexam Non-Final Action Mailed
8/14/2008	Certificate of Service
8/14/2008	Informal / NonResponsive Amendment after Examiner Action
8/25/2008	Certificate of Service
8/25/2008	Supplemental Response after Non-Final Rejection
1/21/2009	Notice of Intent to Issue a Reexam Certificate
1/30/2009	Reexam Forwarded to Office of Publications
2/3/2009	Workflow - File Sent to Contractor
3/18/2009	Input Issue Number and Issue Date for Reexamination

Search Notes [redacted]	Application/Control No. 90/010,041	Applicant(s)/Patent under Reexamination 7,272,904	
	Examiner	Art Unit 3993	

SEARCHED			
Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

Search Notes [redacted]	Application/Control No. 90/010,041	Applicant(s)/Patent under Reexamination 7,272,904	
	Examiner MATTHEW C. GRAHAM	Art Unit 3993	

SEARCHED			
Class	Subclass	Date	Examiner
42	124 127	6/14/08	MCG

INTERFERENCE SEARCHED			
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SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
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Index of Claims

[redacted]

Application/Control No.	Applicant(s)/Patent under Reexamination
90/010,041	7,272,904
Examiner	Art Unit: 3993

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date								
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Index of Claims

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Application/Control No.	Applicant(s)/Patent under Reexamination
90/010,041	7,272,904
Examiner	**Art Unit**
MATTHEW C. GRAHAM	3993

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date
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Issue Classification [redacted]	Application/Control No. 90/010,041	Applicant(s)/Patent under Reexamination 7,272,904	
	Examiner	Art Unit 3993	

ISSUE CLASSIFICATION

ORIGINAL CLASS	ORIGINAL SUBCLASS	CLASS	CROSS REFERENCE(S) SUBCLASS (ONE SUBCLASS PER BLOCK)
42	127		
INTERNATIONAL CLASSIFICATION			
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(Assistant Examiner) (Date)		Total Claims Allowed:	
(Legal Instruments Examiner) (Date)	(Primary Examiner) (Date)	O.G. Print Claim(s)	O.G. Print Fig.

☐ 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
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	17		47		77		107		137		167		197
	18		48		78		108		138		168		198
	19		49		79		109		139		169		199
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	22		52		82		112		142		172		202
	23		53		83		113		143		173		203
	24		54		84		114		144		174		204
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	26		56		86		116		146		176		206
	27		57		87		117		147		177		207
	28		58		88		118		148		178		208
	29		59		89		119		149		179		209
	30		60		90		120		150		180		210

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
[redacted]	90/010,041	7,272,904	
	Examiner	Art Unit	
	MATTHEW C. GRAHAM	3993	

ISSUE CLASSIFICATION

ORIGINAL CLASS	ORIGINAL SUBCLASS	CLASS	CROSS REFERENCE(S) SUBCLASS (ONE SUBCLASS PER BLOCK)						
42	127	42	124	125					
INTERNATIONAL CLASSIFICATION		292	145	155	176	43			
F 4 1 G	1/38								
	/								
	/								
	/								
	/								

(Assistant Examiner) (Date)

(Legal Instruments Examiner) 1/21/09 (Date)

MATTHEW C. GRAHAM
PRIMARY EXAMINER 1/15/09
(Primary Examiner) (Date)

Total Claims Allowed: 20

O.G. Print Claim(s)	O.G. Print Fig.
1	5

☒ 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
1	1		31		61		91		121		151		181
2	~~2~~		32		62		92		122		152		182
3	3		33		63		93		123		153		183
4	4		34		64		94		124		154		184
5	5		35		65		95		125		155		185
6	6		36		66		96		126		156		186
7	7		37		67		97		127		157		187
8	8		38		68		98		128		158		188
9	9		39		69		99		129		159		189
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11	11		41		71		101		131		161		191
12	12		42		72		102		132		162		192
13	13		43		73		103		133		163		193
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15	15		45		75		105		135		165		195
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17	17		47		77		107		137		167		197
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	25		55		85		115		145		175		205
	26		56		86		116		146		176		206
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	28		58		88		118		148		178		208
	29		59		89		119		149		179		209
	30		60		90		120		150		180		210

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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[redacted]

Bib Data Sheet

CONFIRMATION NO. 5162

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
90/010,041	10/29/2007 RULE	042	3993	A042 904 Larue

APPLICANTS

7,272,904, Residence Not Provided;
MARK C. LARUE (OWNER), LEARNDER, TX;
JOSHUA A. STOCKWELL (3RD.PTY.REQ.), PROVIDENCE, RI;
JOSHUA A. STOCKWELL, PROVIDENCE, RI

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

This application is a REX of 11/008,394 12/09/2004 PAT 7,272,904

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

Foreign Priority claimed ☐ yes ☐ no 35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance Verified and Acknowledged _____ Examiner's Signature Initials	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS 21	INDEPENDENT CLAIMS 2

ADDRESS

JAMES L. JACKSON, P.C.
10723 SUGAR HILL DR.
HOUSTON, TX77042

TITLE

ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP

FILING FEE RECEIVED	FEES: Authority has been given in Paper	☐ All Fees
2520	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
[redacted]	90/010,041	7,272,904	
	Examiner	Art Unit	
		3993	

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

This application is a REX of 11/008,394 12/09/2004 PAT 7,272,904

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

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☑ no 35 USC 119 (a-d) conditions ☐ yes ☐ no ☐ Met after Allowance met Verified and Acknowledged Examiner's Signature Initials			21	2

ADDRESS

JAMES L. JACKSON, P.C.
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HOUSTON, TX77042

TITLE

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FILING FEE RECEIVED	FEES: Authority has been given in Paper	
2520	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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

US Patent No:	7,272,904	)
Issued:	September 25, 2007	)
Inventor:	LARUE, Mark C.	)
Title:	ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP	)
Docket No:	A042 904 Larue	)

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THIRD PARTY REQUEST FOR *EX PARTE* REEXAMINATION

Ex parte Reexamination under 35 U.S.C. §§302-307 and 37 CFR §1.510 is requested of United States patent number 7,272,904, issued to Mark C. Larue on September 25, 2007.

IDENTIFICATION OF REAL PARTY IN INTEREST

The real party in interest for this request for *ex parte* reexamination is:

Atlantic Research Marketing Systems, Inc.

230 West Center Street

W. Bridgewater, MA 02379

FEE

The fee under 37 CFR §1.20(c)(2) required for filing an *ex parte* reexamination under 37 CFR §1.510(a) is enclosed. Additionally, the office is permitted to charge any fee deficiency or refund any overpayment to our deposit account number 02-0900.

STATEMENT OF NEW QUESTIONS OF PATENTABILITY

Statements pointing out each substantial new question of patentability raised by the identified prior art are set forth in the enclosed STATEMENT OF NEW QUESTIONS OF PATENTABILITY according to 37 CFR §1.510(b)(1).

IDENTIFICATION OF CLAIMS FOR WHICH REEXAMINATION IS REQUESTED

Ex parte reexamination is requested under for claims 1-21 of U.S. Patent No. 7,272,904, issued to Mark C. Larue.

CITATION OF PRIOR ART PATENTS

Substantial new questions of patentability under 35 U.S.C. §102 and/or §103 exist regarding claims 1-21 of Larue, U.S. Patent 7,27,904, in view of at least:

1) Technical Manual, TM 9-4931-710-14&P, dated August 1986, Department of the Army (M139 Technical Manual);
2) Swan, U.S. Patent No. 4,845,871 (Swan '871);
3) Swan, U.S. Patent No. 5,276,988 (Swan '988);
4) Larue, U.S. Patent No. 6,026,580 (Larue '580); and
5) Bechtel, U.S. Patent No. 4,531,321 (Bechtel '321).

DETAILED EXPLANATION OF THE PERTINENCY OF THE PRIOR ART

A detailed explanation of the pertinency and manner of applying the cited prior to every claim for which reexamination is requested is set forth in the attached DETAILED EXPLANATION OF THE PERTINENCY OF THE PRIOR ART according to 37 CFR §1.510(b)(2).

PRIOR ART PATENT COPIES

Submitted in accordance with 37 CFR 1.510(b)(4), as Exhibits 2-6, are copies of the prior art patents which create substantial new questions of patentability regarding claims of U.S. Patent No. 7,272,904 and are relied upon in support of this request for reexamination.

COPY OF THE PATENT FOR WHICH REEXAMINATION IS REQUESTED

Submitted as Exhibit 1 is a copy of the entire patent for which reexamination is requested, including the front face, drawings, and specification/claims (in double column format), in accordance with 37 CFR §1.510(b)(4).

CONCLUSION

Although Swan '871 and Swan '988 were considered by the Examiner during the Examination of the Larue '904 patent, these references were not considered in light of Army Technical Manual TM 9-4931-710-14 & P for the M139 Alignment Device, the Larue '580 patent or the Bechtel '321 patent. Also, although the Larue '580 patent is cited in the specification of the Larue '904 patent, it appears to have not been discussed or considered by the examiner during prosecution.

Because claims 1-21 of the Larue '904 patent are not believed to be allowable over these prior art references, a substantial new question of patentability is raised. Further, these prior art references are closer to the subject matter of the Larue '904 patent and have not been distinguished by the Applicant.

Accordingly, Claims 1-21 of the Larue are believed to be unpatentable over the cited prior art and reexamination of the Larue '904 patent is respectfully requested.

Respectfully submitted,

/Joshua A. Stockwell/

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(401) 273-4447 (fax)
jas@barjos.com

CERTIFICATION OF SERVICE

The undersigned hereby certifies that a copy of the THIRD PARTY REQUEST FOR REEXAMINATION for US Patent No. 7,272,904, including a copy of all cited references, was mailed on October 29, 2007, by first class mail, postage prepaid, to the correspondence address for the patent holder listed at USPTO database:

JAMES L. JACKSON, P.C.
10723 Sugar Hill Dr.
Houston, TX 77042

10/29/2007 /Joshua A. Stockwell/

Date: _____ _____

Certifier: Joshua A. Stockwell

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

US Patent No:	7,272,904	)
Issued:	September 25, 2007	)
Inventor:	LARUE, Mark C.	)
Title:	ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP	)
Docket No:	A042 904 Larue	)

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

STATEMENT OF NEW QUESTIONS OF PATENTABILITY

Substantial new questions of patentability under 35 U.S.C. §102 and/or §103 exist regarding claims 1-21 of Larue, U.S. Patent 7,272,904, in view of at least:

1) Technical Manual, TM 9-4931-710-14&P, dated August 1986, Department of the Army ("M139 Technical Manual");
2) Swan, U.S. Patent No. 4,845,871 (Swan '871);
3) Swan, U.S. Patent No. 5,276,988 (Swan '988);
4) Larue, U.S. Patent No. 6,026,580 (Larue '580); and
5) Bechtel, U.S. Patent No. 4,531,321 (Bechtel '321).

The filing date of the Larue '904 patent was December 9, 2004. The Larue '904 patent does not claim priority to any other earlier filed patent application. Accordingly, the effective filing date for the '904 patent is December 9, 2004.

The M139 Technical Manual was published by the United States Government, Department of the Army at least as early as August of 1986, which is more than one year prior to the effective filing date of the Larue '904 patent. Accordingly, the M139 Technical Manual is prior art to the Larue '904 patent under at least 35 U.S.C. §102(b).

Although Swan '871 and Swan '988 were considered by the Examiner during the Examination of the Larue '904 patent, these references were not considered in light of Army Technical Manual TM 9-4931-710-14 & P for the M139 Alignment Device, the Larue '580 patent and the Bechtel '321 patent.

The Swan '871 patent was issued on July 11, 1989, which is more than one year prior to the effective filing date of the Larue '904 patent. Accordingly, the Swan '871 patent is prior art to the Larue '904 patent under at least 35 U.S.C. §102(b).

The Swan '988 patent was issued on January 11, 1994, which is more than one year prior to the effective filing date of the Larue '904 patent. Accordingly, the Swan '988 patent is prior art to the Larue '904 patent under at least 35 U.S.C. §102(b).

The Larue '580 patent was issued on February 22, 2000, which is more than one year prior to the effective filing date of the Larue '904 patent. Accordingly, the Larue '580 patent is prior art to the Larue '904 patent under at least 35 U.S.C. §102(b). Although the Larue '580 patent is cited in the specification of the Larue '904 patent, it appears to have not been discussed or considered by the examiner during prosecution.

The Bechtel '321 patent was issued on July 30, 1985, which is more than one year prior to the effective filing date of the Larue '904 patent, Accordingly, the Bechtel '321 patent is prior art to the Larue '904 patent under at least 35 U.S.C. §102(b).

The above-noted references are material to the patentability of the subject matter recited in claims 1-21 of the Larue '904 patent. As explained in the accompanying documentation, the newly cited art anticipates and/or renders obvious claims 1-21 of the Larue '904 patent.

CONCLUSION

Consequently, substantial new questions of patentability have been raised, namely, whether claims 1-21 of the Larue '904 patent are patentable over the above cited art under 35 U.S.C. §102, §103. The U.S. Patent Office is, accordingly, requested to reexamine the Larue '904 patent in light of these new issues.

Respectfully submitted,

/Joshua A. Stockwell/

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

US Patent No:	7,272,904	)
Issued:	September 25, 2007	)
Inventor:	LARUE, Mark C.	)
Title:	ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP	)
Docket No:	A042 904 Larue	)

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DETAILED EXPLANATION OF THE PERTINENCY OF THE PRIOR ART

TABLE OF CONTENTS

DETAILED EXPLANATION OF THE PERTINENCY OF THE PRIOR ART

I. Introduction

Claims 1-21 of the Larue '904 patent are considered to be fully anticipated or obvious under 35 U.S.C. §102 or §103, respectively, by the prior art patents as detailed below in the attached charts. These claims are set forth below with a corresponding explanation of how the prior art references meet all of the recited features of the claims.

Additionally, if the office initiates an *ex parte* reexamination, Requestor sets forth the basis to require Applicant to amend the specification to remove Applicant's derogatory remarks regarding the prior art and to correct misuse of a registered trademark.

II. Application of the Prior Art to the Claims

The Larue '904 patent contains 21 claims. Claims 1 and 16 are independent claims. Claims 2-15 depend from independent claim 1, directly or indirectly, and claims 17-21 depend from independent claim 16 directly or indirectly. As will be further elaborated below, the M139 Technical Manual alone or combination with Swan '871, Swan '988, Larue '580 and/or Bechtel '321 render the claims of the Larue '904 patent invalid under 35 U.S.C. §102 and/or §103.

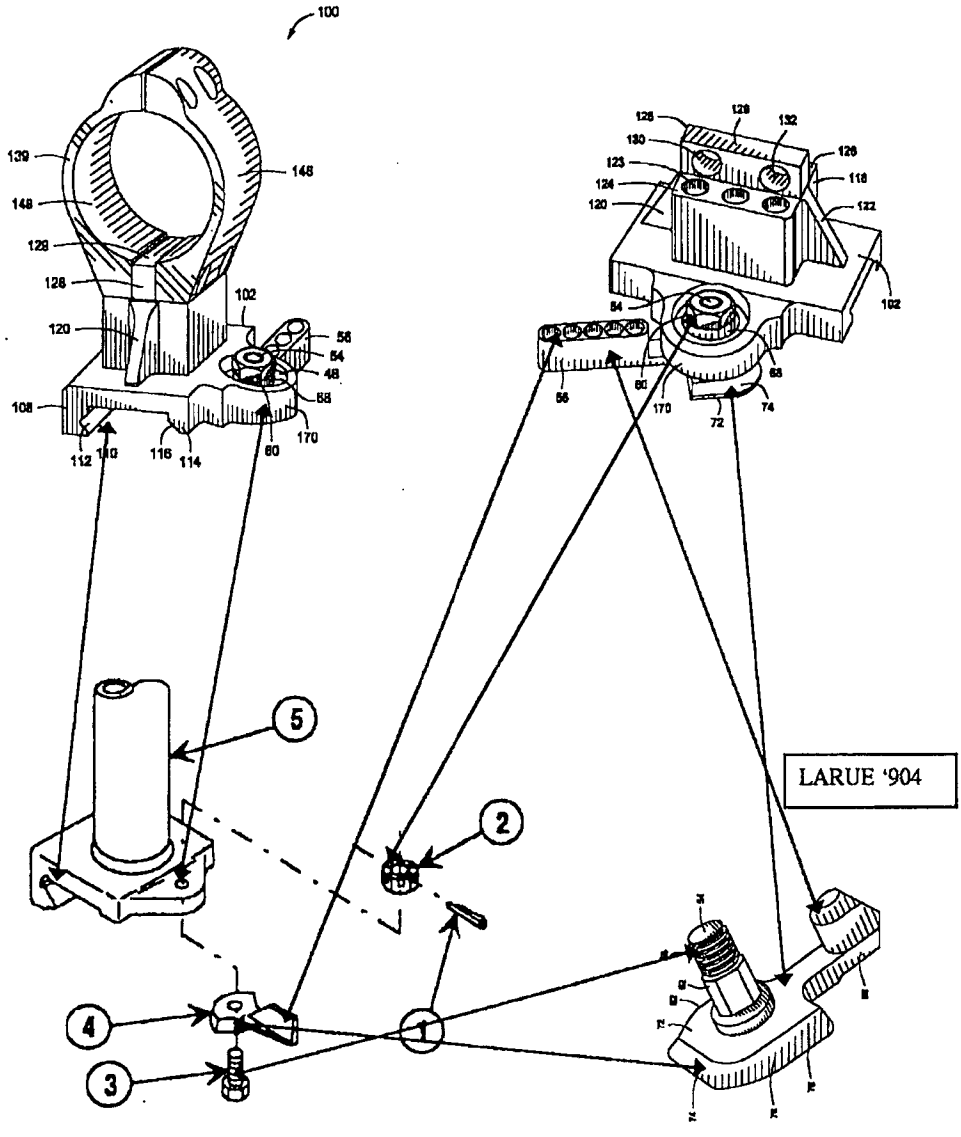
Accordingly, Requestor requests that the Examiner reject claims 1-21 as being anticipated or obvious under 35 U.S.C. §102 or §103 over the above-cited prior art.

U.S. Patent No. 7,272,904

Side-by-Side Comparison with the Primary Reference:

LARUE '904

LARUE '904



M139 DEVICE

A. Independent Claim 1

Claim 1 is fully anticipated under 35 U.S.C. §102 by the M139 Technical Manual. The attached chart sets forth how the M139 Technical Manual meets all of the recited features of the claim. Although Larue claims the locking lever, cam plate and pivot shaft are integral, combining multiple components into a single component is of ordinary skill in the art.

Larue '904 Claim 1	Notes
1. An adjustable mounting system, comprising:	
a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;	M139 Technical Manual, Page 16 Section III 1-10 – Dovetail mounting rails are well known in the art and have a plurality upwardly facing mounting projections and oppositely angulated clamping surfaces.
at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;	M139 Technical Manual, Page 5-8 and Fig. C-2, No. 20
a locking lever having a rotary cam plate and a pivot shaft integral therewith,	M139 Technical Manual. Page 5-8, Nos. 3 and 4, and Fig. C-2, No. 18 and 19.
said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position; and	M139 Technical Manual. Page 5-8, No. 3 and 4, and Fig. C-2, No. 18.
an adjustment nut being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces.	M139 Technical Manual. Page 5-8, No. 2 and 3, and Fig. C-2, No. 16.

B. Claim 2

Claim 2 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1, in further view of the Swan '871 patent. Swan '871 includes spring-like Belleville washers (94) that are captured between the base (80) and the actuator (70). It would have been obvious to one skilled in the art to combine the teachings of the M139 Technical Manual and the Swan '871 patent.

Additionally, Larue's "drive member" is basically a washer. Larue even admits as much in Column 2, lines 40-45, by referring to the element as a "drive washer member." It is extremely well-known in the art to use a washer in conjunction with a nut on a threaded post or bolt to allow the nut to be tightened securely without risking damage against the surface the nut is being tightened against.

Larue '904 Claim 2	**Notes**
2. The adjustable mounting system of claim 1, comprising:	
a drive member being received for linear movement on said pivot shaft; and	Swan '871, Fig. 9, No. 80 and accompanying text.
at least one resilient member being interposed between said drive member and said locking platform and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.	Swan '871, Fig. 9, No. 94 and accompanying text.

C. Claim 3

Claim 3 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1, in further view of the Swan '871 patent. Swan '871 includes spring-like Belleville washers (94) that are captured between the base (80) and the actuator (70). It would have been obvious to one skilled in the art to combine the teachings of the M139 Technical Manual and the Swan '871 patent to arrive at Applicant's claimed device.

Additionally, Larue's "drive member" is basically a keyed washer. Larue even admits as much in Column 2, lines 40-45, by referring to the element as a "drive washer member." It is extremely well-known in the art to use a washer in conjunction with a nut on a threaded post or bolt to allow the nut to be tightened securely without risking damage against the surface the nut is being tightened against.

Larue's use of the term "non-rotatable" is ambiguous. Did Larue intend that the washer not rotate when the shaft moves or that the washer rotate with the shaft? Because the washer is keyed to the shaft, it would appear that Larue intended the later. However, as currently written, the claim 3 language is ambiguous under §112, second paragraph.

Larue '904 Claim 3	**Notes**
3. The adjustable mounting system of claim 1, comprising:	
said pivot shaft defining a threaded section receiving said adjustment nut and defining an external non-circular section;	M139 Technical Manual, Page 5-8, No. 3 and Fig. C-2, No. 19
a drive member having non-rotatable and linearly moveable relation with said external non-circular section; and	Ordinary skill in the art. Swan '871, Fig. 9, No. 80 and accompanying text.
said adjustment nut having adjustment engagement with said drive member.	M139 Technical Manual. Page 5-8, No. 16 and Fig. C-2, No. 16.

D. Claim 4

Claim 4 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1, in view of the Swan '871 patent as applied in claim 3. The spring-like Belleville washers in Swan '871 are resilient and interposed between the base and the actuator to prevent free rotational movement of the locking lever. Accordingly, it would have been obvious to one skilled in the art to combine the attachment device as taught by the M139 Technical Manual with the springs as taught by Swan '871 to arrive at Applicant's claimed device.

Larue '904 Claim 4	**Notes**
4. The adjustable mounting system of claim 3, comprising:	
said at least one resilient member being interposed between said drive member and said locking platform and preventing free rotational movement of said locking lever at said unlocking position.	Swan '871, Fig. 9, No. 94 and accompanying text.

E. Claim 5

Claim 5 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1, in view of the Swan '871 patent as applied in claim 3. Swan '871 includes spring-like Belleville washers (94) that are captured between the base (80) and the actuator (70). It would have been obvious to one skilled in the art to combine the teachings of the M139 Technical Manual and the Swan '871 patent to arrive at Applicant's claimed device.

Additionally, Larue's "drive member" is basically a keyed washer. Larue even admits as much in Column 2, lines 40-45, by referring to the element as a "drive washer member." It is extremely well-known in the art to use a washer in conjunction with a nut on a threaded post or bolt to allow the nut to be tightened securely without risking damage against the surface the nut is being tightened against.

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Larue '904 Claim 5	**Notes**
5. The adjustable mounting system of claim 1, comprising:	
said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;	M139 Technical Manual, Page 5-8, No. 3 and Fig. C-2, No. 19
a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;	Swan '871, Fig. 9, No. 80 and accompanying text.

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force retarding free rotation of said locking lever at the unlocking position thereof; and	Swan '871, Fig. 9, No. 94 and accompanying text.
said adjustment nut being received by said pivot shaft and being rotatable for adjustment of the locking position of said cam plate.	M139 Technical Manual. Page 5-8, No. 16 and Fig. C-2, No. 16.

F. Claim 6

Claim 6 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claims 1 and 5, in view of the Swan '871 patent as applied in claim 5. Swan '871 includes spring-like Belleville washers (94) that basically are "annular wave spring[s]." It would have been obvious to one skilled in the art to combine the teachings of the M139 Technical Manual and the Swan '871 patent to arrive at Applicant's claimed device.

Larue '904 Claim 6	**Notes**
6. The adjustable mounting system of claim 5, comprising:	
said at least one resilient member being an annular wave spring.	Swan '871, Fig. 9, No. 94 and accompanying text.

G. Claim 7

Claim 7 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claims 1 and 5, in view of the Swan '871 patent as applied in claim 5. Although neither Swan '871 nor the M139 Technical Manual teach an "O-ring composed of resilient material," it would have been obvious to one skilled in the art to substitute one spring structure for another to arrive at Applicant's claimed device.

Larue '904 Claim 7	**Notes**
7. The adjustable mounting system of claim 5, comprising: said at least one resilient member being at least one O-ring composed of resilient material.	Swan '871, Fig. 9, No. 94 and accompanying text. Simple substitution of one spring for another

H. Claim 8

Claim 8 is fully anticipated under 35 U.S.C. §102 by the M139 Technical Manual. The attached chart sets forth how the M139 Technical Manual meets all of the recited features of the claim, including those features of claim 1. Although Larue claims the locking lever, cam plate and pivot shaft are integral, combining multiple components into a single component is of ordinary skill in the art.

Larue '904 Claim 8	**Notes**
8. The adjustable mounting system of claim 1, comprising:	
one of said oppositely angulated clamping surfaces having a predetermined angle;	Mounting rails are well known in the art and have oppositely angulated clamping surfaces.
said rotary cam plate defining first and second substantially straight cam surfaces being joined by a curved cam surface; and	M139 Technical Manual. Page 5-8, No. 4, and Fig. C-2, No. 18.
said first and second substantially straight cam surfaces and said curved cam surface each having a taper substantially corresponding to said predetermined angle.	M139 Technical Manual. Page 5-8, No. 4, and Fig. C-2, No. 18.

I. Claim 9

Claim 9 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1, in further view of the Swan '871 patent or the Swan '988 patent. Although neither the Swan '871 patent or the Swan '988 patent describe a "locator key" in the specification, this structure is shown in the figures. Specifically, Figs. 4, 6, 7, or 8 of the Swan '871 patent show a downwardly depending structure configured to engage the mounting projections on the rail system.

Reference character "A" has been added to the figures to point out this structure.

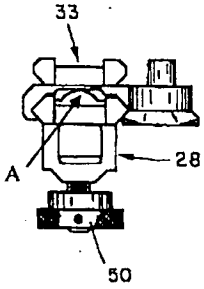

FIG. 4

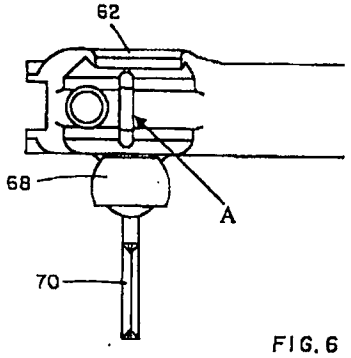

FIG. 6

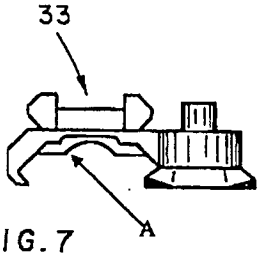

FIG. 7

(Fig. 6 has been cropped in half.)

The structure identified in Fig. 6 and 7 is also readily apparent in Fig. 8 of the Swan '971 patent and also Figs. 4, 5A, 5B, 6A and 6B of the Swan '988 patent.

Accordingly, one skilled in the art would have found it obvious to use the structure found in Swan '871 in combination with the mount taught in the M139 Technical Manual to make a mount that was keyed to the rail system.

Laruc '904 Claim 9	Notes
9. The adjustable mounting system of claim 1, comprising:	
said mounting rail defining spaced positioning receptacles and spaced upwardly extending mounting projections; and	Mounting rails are well known in the art and have a plurality upwardly facing mounting projections and space positioning receptacles. See Swan '871, Figs. 1-3.
said mounting base having at least one locator key having engagement within one of said spaced positioning receptacles and selectively locating said mounting base on said mounting rail.	Swan '871, Fig. 4, 6, 7 and 8. Swan '988, Fig. 4, 5A, 5B, 6A, and 6B

J. Claim 10

Claim 10 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1 and 9, in further view of the Swan '871 patent or the Swan '988 patent as applied to claim 9. It would have been obvious to one skilled in the art to include two locator keys versus one locator key as taught by the M139 Technical Manual in view of either of Swan '871 or Swan '988 because this is merely a duplication of parts.

Laruc '904 Claim 10	Notes
10. The adjustable mounting system of claim 9, comprising:	
said mounting base having a pair of downwardly projecting locator keys disposed in spaced relation and having locating engagement within two of said spaced positioning receptacles.	Swan '871, Fig. 4, 7 or 8. Swan '988, Fig. 4, 5A, 5B, 6A, or 6B Mere duplication of parts.

K. Claim 11

Claim 11 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1, in further view of the Larue '580 patent. It would have been obvious to one skilled in the art to use the aiming sight mount disclosed in Larue '580 in combination with the attachment device shown in the M139 Technical Manual to make the Larue '580 mount quickly detachable.

Larue '904 Claim 11	**Notes**
11. The adjustable mounting system of claim 1, comprising:	
said mounting base defining a ring mounting receptacle;	Larue '580, Figs. 5A, 5B, 6A, 6B, 7A, 7B, 8 or 9 and respective accompanying text.
a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and	Larue '580, Figs. 2A, 2B, 7A and 7B and accompanying text.
retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device.	Larue '580, Figs. 7A (nos. 124, 128, 50 and 112) or 7B (nos. 30, 64, 90, 122, and 126) and accompanying text.

L. Claim 12

Claim 12 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual in view of the Larue '580 patent as applied to claim 11. It would have been obvious to one skilled in the art to use a plurality of parts in order to more securely fasten the mounting ring section together and to the mounting ring because is merely a duplication of parts. To the extent that Larue '904 claims a hardened insert and retainer screw versus a threaded bore and set screw as shown in Larue '580, it is merely a substitution of one type of known fastener with another type of known fastener. Accordingly, one skilled in the art would find it obvious to substitute a hardened insert (such as a nut) and retainer screw in order make a more secure connection, such as to prevent stripping of a threaded bore by over tightening of the screw.

Larue '904 Claim 12	**Notes**
12. The adjustable mounting system of claim 11, comprising:	
a plurality of connector receptacles being located within said mounting ring sections;	Mere duplication of parts shown in Larue '580
a plurality of hardened inserts being fixed within said plurality of connector receptacles and defining internally threaded connector sections; and	Mere duplication of parts shown in Larue '580 Mere substitution of one type of fastener with another known type of fastener
a plurality of retainer screws being in threaded connection within said internally threaded connector sections and retaining said mounting ring sections in friction supported engagement with a supported object.	Mere duplication of parts shown in Larue '580

M. Claim 13

Claim 13 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual in view of the Larue '580 patent as applied to claim 12. It would have been obvious to one skilled in the art to use a plurality of parts in order to more securely fasten the mounting ring section together and to the mounting ring because is merely a duplication of parts. To the extent that Larue '904 claims a hardened insert and retainer screw versus a threaded bore and set screw as shown in Larue '580, it is merely a substitution of one type of known fastener with another type of known fastener.

Accordingly, one skilled in the art would find it obvious to substitute a hardened insert (such as a nut) and retainer screw in order make a more secure connection, such as to prevent stripping of a threaded bore by over tightening of the screw.

Larue '904 Claim 13	**Notes**
13. The adjustable mounting system of claim 12, comprising:	
said plurality of connector receptacles each defining internal insert support shoulders; and	Mere substitution of one type of fastener with another type of fastener.
said plurality of hardened inserts being seated on and supported by said internal insert support shoulders.	Mere substitution of one type of fastener with another type of fastener

N. Claim 14

Claim 14 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual, as applied to claim 1, in further view of the Bechtel '321 patent. It would have been obvious to one skilled in the art to use the scope mounting device disclosed in Bechtel '321 in combination with the attachment device shown in the M139 Technical Manual to make Bechtel '321 mount quickly detachable.

Larue '904 Claim 14	**Notes**
14. The adjustable mounting system of claim 1, comprising:	
said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;	Bechtel '321, Fig. 5, Nos. 50, 52, 54 and 56 and accompanying text.
a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and	Bechtel '321, Figs. 1-3, and accompanying text.
retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20

O. Claim 15

Claim 15 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual in view of the Bechtel '321 patent as applied to claims 1 and 14. It would have been obvious to one skilled in the art to use the scope mounting device disclosed in Bechtel '321 in combination with the attachment device shown in the M139 Technical Manual to make Bechtel '321 mount quickly detachable.

To the extent that Larue '904 claims a hardened insert and retainer screw versus a threaded bore and set screw as shown in Bechtel '321, it is merely a substitution of one type of known fastener with another type of known fastener. Accordingly, one skilled in the art would find it obvious to substitute a hardened insert (such as a nut) and retainer screw in order make a more secure connection, such as to prevent stripping of a threaded bore by over tightening of the screw.

Larue '904 Claim 15	**Notes**
15. The adjustable mounting system of claim 14, comprising:	
said upwardly extending mounting projection defining at least one transverse bore extending therethrough;	Bechtel '321, Fig. 5, Nos. 50, 52, 54 and 56 and accompanying text.
at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20 Mere substitution of one type of fastener for another type of fastener
another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20

P. Independent Claim 16

Claim 16 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual in further view of the Swan '871 patent. Although Larue claims the locking lever, cam plate and pivot shaft are integral, combining multiple components into a single component is of ordinary skill in the art. The Swan '871 includes spring-like Belleville washers (94) that are capture between the base (80) of the actuator (70). It would have been obvious to one skilled in the art to combine the teachings of the M139 Technical Manual and the Swan '871 patent.

Additionally, Larue's "drive member" is basically a washer. Larue even admits as much in Column 2, lines 40-45, by referring to the element as a "drive washer member." It is extremely well-known in the art to use a washer in conjunction with a nut on a threaded post or bolt to allow the nut to be tightened securely without risking damage against the surface the nut is being tightened against.

Larue's use of the term "non-rotatable" regarding the washer is ambiguous. Did Larue intend that the washer not rotate when the shaft moves or that the washer rotates with the shaft? Because the washer is keyed to the shaft, it would appear that Larue intended the later. However, as currently written, the claim 3 language is ambiguous under §112, second paragraph.

Larue '904 Claim 16	Notes
16. An adjustable mounting system, comprising:	
a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;	M139 Technical Manual - Page 16 Section III 1-10 – Dovetail mounting rails are well known in the art and have a plurality upwardly facing mounting projections and oppositely angulated clamping surfaces. See Swan '871, Figs. 1-3.
at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;	M139 Technical Manual, Page 5-8 and Fig. C-2, No. 20
a locking lever having a rotary cam plate and a pivot shaft integral therewith and being rotatably moveable between locking and unlocking positions, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position;	M139 Technical Manual . Page 5-8, Nos. 3 and 4, and Fig. C-2, No. 18 and 19.
a drive member being received in non-rotatable linearly moveable relation on said pivot shaft;	Swan '871, Fig. 9, No. 80 and accompanying text.
an adjustment nut being threaded to said pivot shaft and providing for adjustment of the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces; and	M139 Technical Manual . Page 5-8, No. 2 and 3, and Fig. C-2, No. 16.
at least one resilient member being interposed between said drive member and said locking platform and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.	Swan '871, Fig. 9, No. 94 and accompanying text.

Q. Claim 17

Claim 17 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual in further view of the Swan '871 patent as applied to claim 16. Although neither the Swan '871 nor the M139 Technical Manual describe an annular insert per se, it is because the "circular pocket" is integrally formed on the mount itself. See Swan '871, Fig. 9. In this regard, Larue '904 is merely forming two parts from one. Accordingly, one skilled in the art would have found it obvious to form the annular insert and annular pocket as separate components.

Larue '904 Claim 17	**Notes**
17. The adjustable mounting system of claim 16, comprising:	
an annular insert being seated within said lock opening and defining a circular pocket;	Swan '871, Fig. 9, No. 92 and accompanying text. Applicant turning one part into two.
said drive member being at least partially located within said circular pocket; and	Swan '871, Fig. 9, No. 80 and accompanying text.
said at least one resilient member being located within said circular pocket and being engaged by said drive member and providing resistance preventing free rotation of said locking lever.	Swan '871, Fig. 9, No. 94 and accompanying text.

R. Claim 18

Claim 18 is obvious under 35 U.S.C. §103 by the M139 Technical Manual in view of the Swan '871 patent as applied to claim 16. The can surface in the M139 Technical Manual has a two substantially straight cam sections with a curved cam section merging the two straight sections.

Larue '904 Claim 18	**Notes**
18. The adjustable mounting system of claim 16, comprising:	
said peripheral angulated cam surface of said rotary cam plate having a pair of substantially straight cam sections disposed in angular relation and having a curved cam section merging with said substantially straight cam sections.	M139 Technical Manual. Page 5-8, No. 4, and Fig. C-2, No. 18.

S. Claim 19

Claim 19 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual in view of the Swan '871 patent as applied claim 16. Swan '871 includes spring-like Belleville washers (94) that are captured between the base (80) of the actuator (70). It would have been obvious to one skilled in the art to combine the teachings of the M139 Technical Manual and the Swan '871 patent to arrive at Applicant's claimed device.

Additionally, Larue's "drive member" is basically a keyed washer. Larue even admits as much in Column 2, lines 40-45, by referring to the element as a "drive washer member." It is

extremely well-known in the art to use a washer in conjunction with a nut on a threaded post or bolt to allow the nut to be tightened securely without risking damage against the surface the nut is being tightened against.

Larue's use of the term "non-rotatable" is ambiguous. Did Larue intend that the washer not rotate when the shaft moves or that the washer rotate with the shaft? Because the washer is keyed to the shaft, it would appear that Larue intended the later. However, as currently written, the claim 3 language is ambiguous under §112, second paragraph.

Larue '904 Claim 19	**Notes**
19. The adjustable mounting system of claim 16, comprising:	
said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;	M139 Technical Manual, Page 5-8, No. 3 and Fig. C-2, No. 19
a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;	Swan '871, Fig. 9, No. 80 and accompanying text.
said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force retarding free rotation of said locking lever at the unlocking position thereof; and	Swan '871, Fig. 9, No. 94 and accompanying text.
said adjustment nut being received by said pivot shaft and being rotatable for adjustment of the locking position of said cam plate.	M139 Technical Manual. Page 5-8, No. 16 and Fig. C-2, No. 16.

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T. Claim 20

Claim 20 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual and the Swan '871 patent as applied to claim 16, in further view of the Bechtel '321 patent. It would have been obvious to one skilled in the art to use the scope mounting device disclosed in Bechtel '321 in combination with the attachment device shown in the M139 Technical Manual and the Swan '871 patent to make Bechtel '321 scope mounting device quickly detachable.

Larue '904 Claim 20	**Notes**
20. The adjustable mounting system of claim 16, comprising:	
said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;	Bechtel '321, Fig. 5, Nos. 50, 52, 54 and 56 and accompanying text.
a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and	Bechtel '321, Figs. 1-3, and accompanying text.
retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20

U. Claim 21

Claim 21 is considered obvious under 35 U.S.C. §103, over the M139 Technical Manual in view of the Swan '871 patent and the Bechtel '321 patent as applied to claims 20. It would have been obvious to one skilled in the art to use the scope mounting device disclosed in Bechtel '321 in combination with the attachment device shown in the M139 Technical Manual to make Bechtel '321 mount quickly detachable.

To the extent that Larue '904 claims a hardened insert and retainer screw versus a threaded bore and set screw as shown in Bechtel '321, it is merely a substitution of one type of known fastener with another type of known fastener. Accordingly, one skilled in the art would find it obvious to substitute a hardened insert (such as a nut) and retainer screw in order make a more secure connection, such as to prevent stripping of a threaded bore by over tightening of the screw.

Larue '904 Claim 21	**Notes**
21. The adjustable mounting system of claim 20, comprising:	
said upwardly extending mounting projection defining at least one transverse bore extending therethrough;	Bechtel '321, Fig. 5, Nos. 50, 52, 54 and 56 and accompanying text.
at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20
another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20
a mounting screw being located within said mounting screw opening and being seated on	Bechtel '321, Fig. 1 and 2, Column 5, lines 10-20

said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.	

III. Derogatory Remarks and Mischaracterization of the Prior Art

A. MPEP §608.01(r) Prohibits Derogatory Remarks of the Prior Art

The Larue '904 patent contains derogatory remarks of the prior art against the instruction of MPEP §608.01(r), which provides that:

> The applicant may refer to the general state of the art and the advance thereover made by his or her invention, but he or she is **not permitted to make derogatory remarks concerning the inventions of others.** Derogatory remarks are statements disparaging the products or processes of any particular person other than the applicant, or statements as to the merits or validity of applications or patents of another person. Mere comparisons with the prior art are not considered to be disparaging, per se.

(Emphasis added). The Larue '904 patent contains two instances disparaging the products of others described further below. Additionally, these statements mischaracterizing the prior art as well. Upon commencement of *ex parte* reexamination, Requestor requests that the specification be objected to and that Patentee be required to make appropriate corrections either removing the statements or editing them to conform to the guidance of §608.01(r).

B. Swan '871 Discloses an Adjustable attachment device for a Firearm

On column 1, lines 28-30, when referring the Swan '871 patent, Patentee incorrectly and misleadingly states that:

> The throw-lever of Swan is not adjustable, though the patent makes incorrect assumptions of its adjustability.

Referring to the Swan '871 patent, Column 4, lines 14-26, state that:

> Rotation of the lever of the first fastening device 64 in a counterclockwise direction and of the lever of the second fastening device 64 in a clockwise direction causes their respective first or second camming areas to pass, in abutting relation, under the engagement surface 35 of the first rail 36. Continuing the rotation increases the tightness of the engagement and the compression of the beleville washers or springs 94 provide the means of self adjusting from one Weaver rail to a different one. The engagement and disengagement of the weaver interface 33 with the first weaver interface 28 can thus be accomplished quickly and under military combat conditions.

Simply put, as the camming areas pass underneath the engagement surface of the rail, the base is forced downwardly which draws the shaft and actuator downardly also within the aperture of the support. As the actuator is drawn downwardly, the springs or beleville washers are compressed between the base of the actuator and the shoulder within the aperture of the support. This feature of the Swan '871 patent necessarily increases the distance between the upper surface of the base and the bottom surface of the support. Hence, the Swan '871 patent attachment device is "self adjusting." Accordingly, the Swan '871 patent is entirely accurate in its description of a self-adjusting attach device for a firearm. It is Patentee that "makes incorrect assumptions on adjustability."

Accordingly, Requestor requests that the Examiner object to this sentence in the specification and demand that Patentee delete the sentence of make an appropriate amendment in conformance with the guidance of MPEP §608.01(r).

C. Swan '988 was Invented to Prevent Damage to Rail Systems through Normal Wear and Tear and "Non-Spec" Rail Systems

On column 1, lines 30-35, when referring the Swan '988 patent, Patentee incorrectly and misleadingly states that:

> A subsequently developed throw-lever actuated releasable optical sight mount system is set forth in U.S. Pat. No. 5,276,988 of Swan, **which compensates for the inability of the throw lever to accomplish repeatability of precision positioning over extended periods of repeated firing of tactical rifles.**

(Emphasis added). Patentee's remark is a gross generalization and is inaccurate and misleading.

Referring to column 1, lines 26-36, of the Swan '988 patent:

> The limitation of the '871 Attachment Device and similar type devices lies in the camming areas. Weaver interfaces, receiver sleeves and upper receivers are generally made of aluminum or other light weight material. These materials are softer than the steel used for and necessary to make the camming areas of the '871 Attachment Device and similar type devices. Thus, over time and after repeated use, the '871 attachment device continuously scratches, cuts and erodes the area to which the '871 attachment device is affixed.

And further, in column 1, lines 39-41, and 49-51:

> In view of the foregoing disadvantage inherent in the '871 Attachment Device, the present invention provides an improved attachment device....
>
> To attain this result, the present invention provides a buffer element between the attachment device camming surfaces and the area to which the attachment device is affixed.

And further again, in column 3, lines 32-43:

> The buffer element base portion 11 is positioned between said first edge 72a and said engagement surface 35. Rotation of the throw lever 70 in a clockwise direction causes the first camming area 79 to press the buffer element base portion 11, in abutting relation, under the engagement surface 35 of the first rail 36. The configuration of the buffered interface device 33 causes the

> interface to be drawn vertically downward onto the first weaver interface 28. **The buffer element 10 prevents the cam 72 from directly touching and thereby scratching the engagement surface 35.**

(Emphasis added). Accordingly, it is apparent that the Swan '988 patent solves a problem with wear caused by repeated use of the attachment device. Rail systems and attachment devices are subject to wear caused by the repeated operation of the lever on the attachment device simply because having a hardened steel element constantly rub against a soft aluminum element causes wear. Additionally, the Swan '988 patent solves the problem of inadvertently damaging rail systems that are non-conforming to the Department of Defense's standards, or are otherwise"non-spec" rail systems.

Patentee's derogatory remark that the Swan '871 has an "inability ...to accomplish repeatability of precision positioning over extended periods of repeated firing of tactical rifles" is not only a gross mischaracterization of the product that is prohibited under the guidance of MPEP §608.01(r), but is also simply untrue. Patentee's bald statement infers that merely firing a rifle with a Swan '871 patented attachment device somehow causes the attachment device to malfunction, which is simply untrue. Attachment devices manufactured under the Swan '871 patent have undergone rigorous testing by the Department of Defense. Tens of thousands of these attachment devices are still in service.

Requestor requests that the Examiner object to this sentence in the specification and demand that Patentee delete the sentence of make an appropriate amendment in conformance with the guidance of MPEP §608.01(r).

IV. Trademark Misuse

The trademark THROW LEVER® for firearm accessory mounts is protected under US Trademark Registration No. 2885336. A copy of the '336 Registration is attached for your review as Exhibit 7.

The product depicted in the US Patent No. 7,272,904 is sold in direct competition with the branded THROW LEVER® mount.

The '904 patent is replete with the use of the trademark THROW LEVER® as a generic term for a class of products known as "quick-detach mounts". The specification even includes the mark as part of the TITLE of the Invention. A marked-up copy of the specification is attached for your review as Exhibit 8. Each instance of the term THROW LEVER® is circled.

Re-Publication of this patent including the improper use of the trademark THROW LEVER® will severely affect the trademark owner's business and will dilute the value of his registered trademark.

MPEP Section 608.01(v) addresses the use of trademarks in Patent Applications.

> Although the use of trademarks having definite meanings is permissible in patent applications, the proprietary nature of the marks should be respected. Trademarks should be identified by capitalizing each letter of the mark (in the case of word or letter marks) or otherwise indicating the description of the mark (in the case of marks in the form of a symbol or device or other nontextual form). **Every effort should be made to prevent their use in any manner which might adversely affect their validity as trademarks.**

> Technology Center Directors should reply to all trademark misuse complaint letters and forward a copy to the editor of this manual. **Where a letter demonstrates a trademark misuse in a patent application publication, the Office should, where the application is still pending, ensure that the trademark is replaced by appropriate generic terminology.**

The MPEP clearly states that **every effort** should be made to prevent a use of a trademark that would adversely affect the validity of the trademark. Further, the MPEP clearly states that where a complaint letter demonstrates a misuse, the Office should, when the application is still pending, **ensure** that the trademark is replaced by generic terminology. The trademark owner filed such a Trademark Misuse complaint during the pendency of the application. However, the complaint was filed very late in the publication process, and was not acted on by the Office.

Accordingly, based on the requirements of MPEP 608.01 that every effort be made to ensure that a trademark misuse is avoided, Requester demands that upon commencement of the reexamination of the Larue '904 patent, that the patent owner be required to amend of the patent to replace all instances of the term "throw lever" with an appropriate generic term.

VI. Conclusion

Consequently, substantial new questions of patentability have been raised, namely, whether claims 1-21 of the Larue '904 patent are patentable over the above cited art under 35

U.S.C. §102 and/or §103. The U.S. Patent Office is, accordingly, requested to reexamine the Larue '904 patent in light of these new issues.

Respectfully submitted,

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EXHIBIT

1

US007272904B2

(12) **United States Patent**
Larue

(10) **Patent No.: US 7,272,904 B2**
(45) **Date of Patent: Sep. 25, 2007**

(54) **ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP**

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(51) **Int. Cl.**
F41G 1/38 (2006.01)

(52) **U.S. Cl.** **42/127**; 42/124; 42/125; 292/43; 292/145; 292/155; 292/176

(58) **Field of Classification Search** 42/111–148; 292/43, 145, 155, 176
See application file for complete search history.

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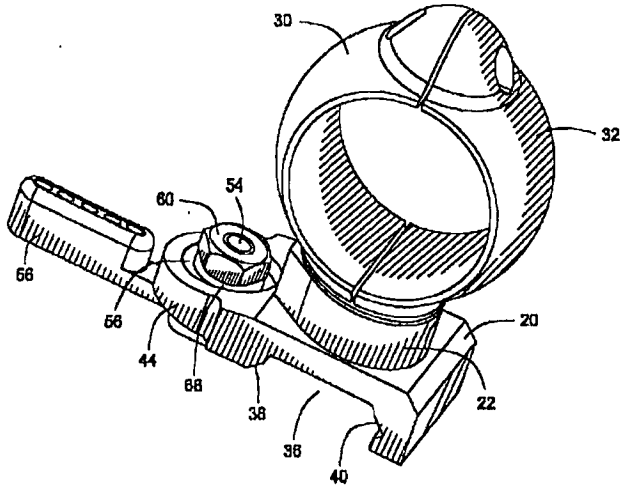
(57) **ABSTRACT**

A throw-lever releasable mounting system for mounting a device in quick-release relation to a support member has a mounting base having a configuration fitting opposed angulated rail surfaces and having a locator key engaging a positioning slot of the rail. Each mounting base provides for mounting and stabilization of optics mounting rings. A locking platform projects from the mounting base and defines a locking opening having a circular hard metal insert therein that defines a receptacle receiving a resilient member and providing for location of the spline/spindle shaft of a rotatable locking plate. A locking plate of a throw-lever that is rotatable between locking and unlocking positions has angulated and curved cam surfaces for forcibly engaging correspondingly angulated surfaces of the rail to achieve cam energized precision locating and locking engagement with the rail. A non-circular section of a spline/spindle shaft of the throw-lever is receives a drive member in non-rotatable and linearly moveable relation. Resilient members are interposed between the drive member and the hardened insert and prevent free throw-lever movement at the release position thereof.

21 Claims, 16 Drawing Sheets



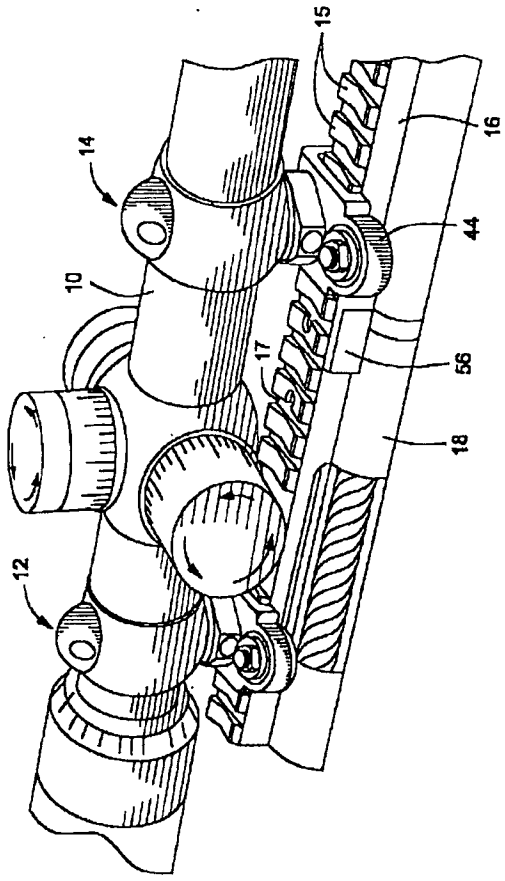


FIG. 1

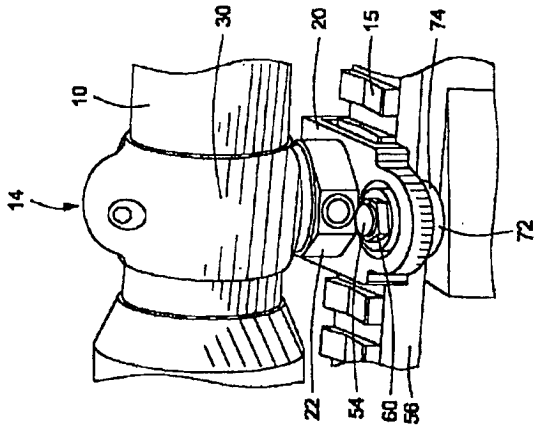


FIG. 3

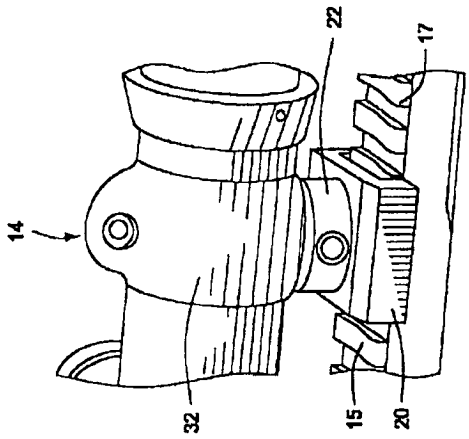
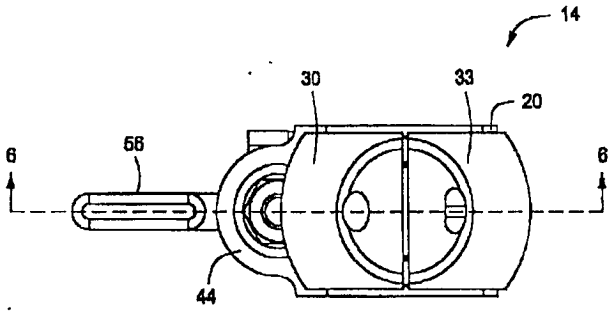


FIG. 2



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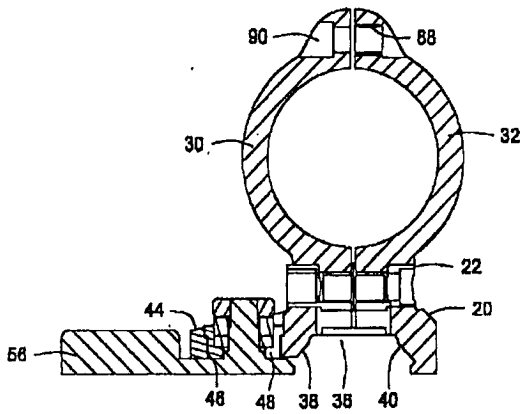

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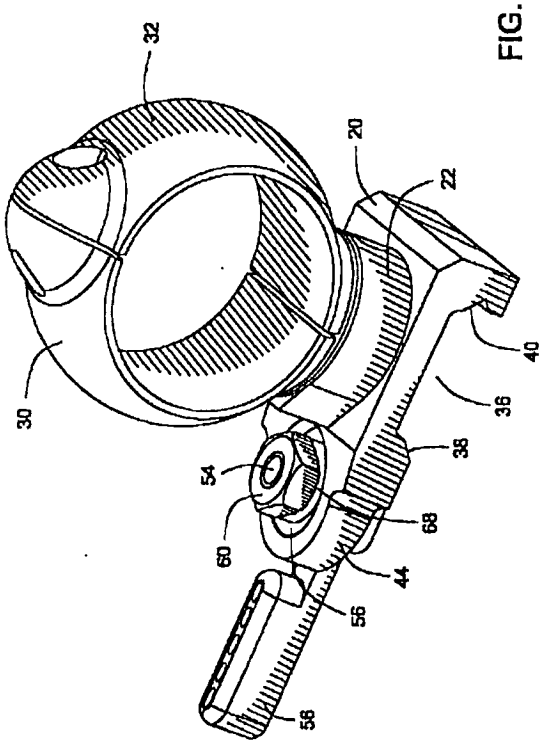

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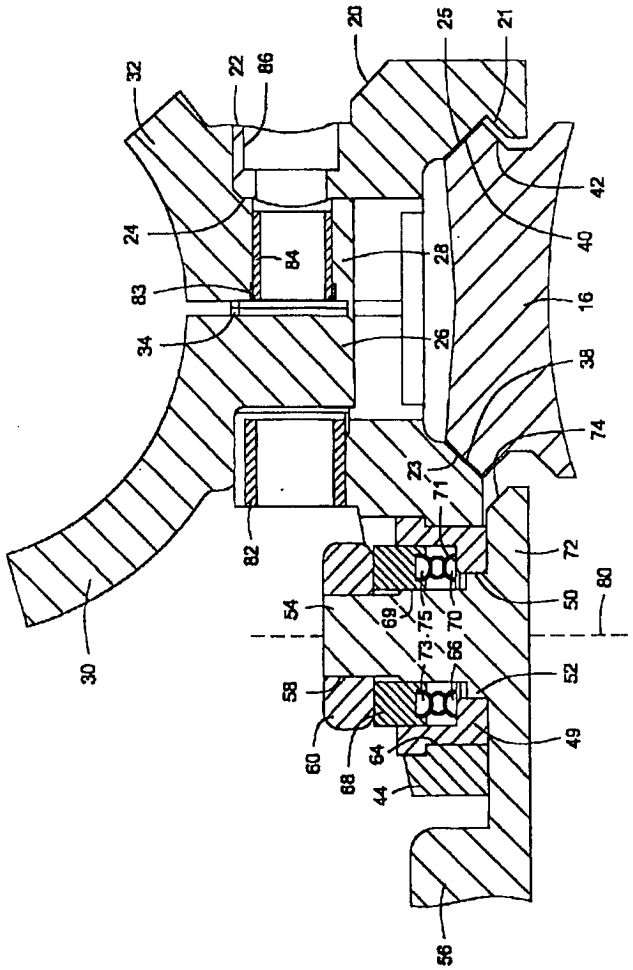
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FIG. 7

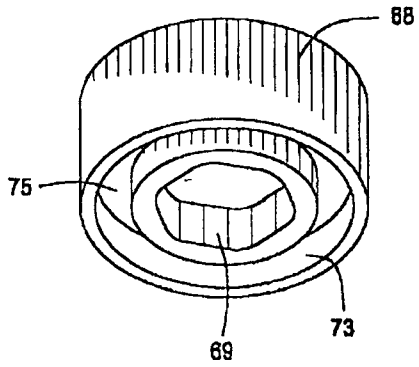


FIG. 8

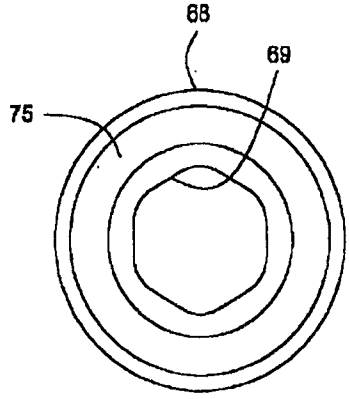


FIG. 9

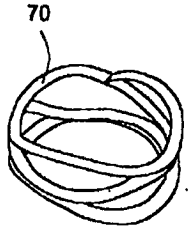
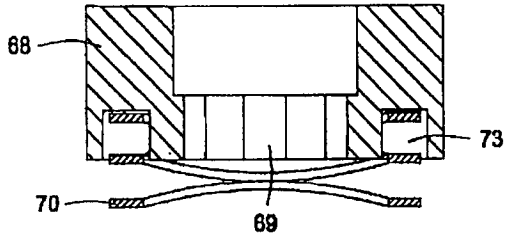


FIG. 10



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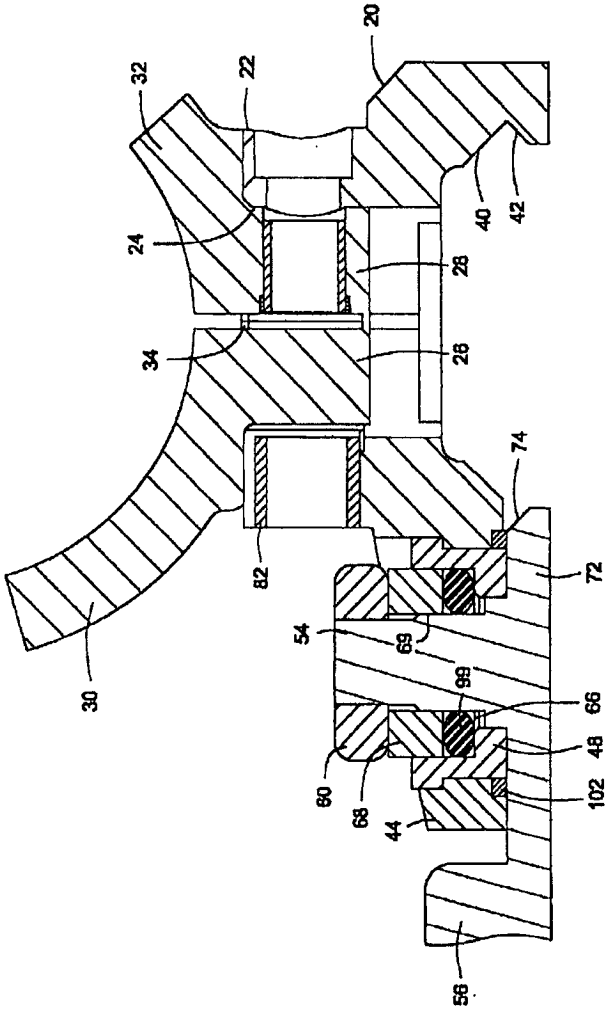
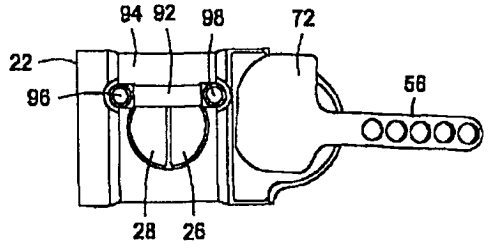


FIG. 12



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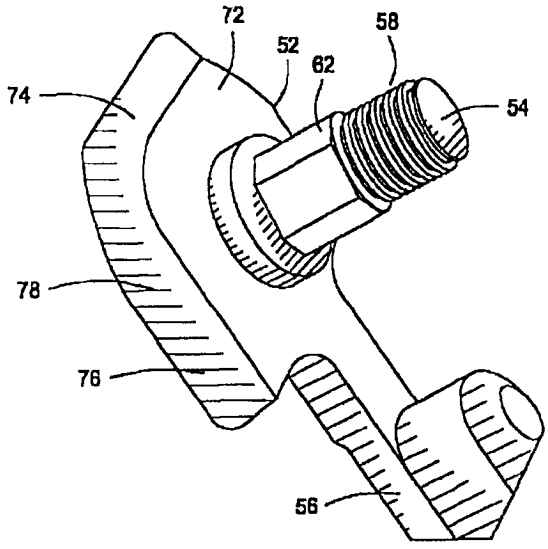
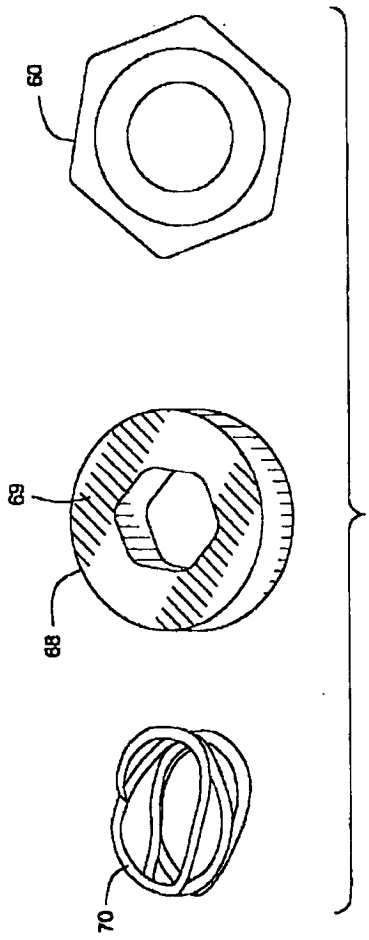


FIG. 14



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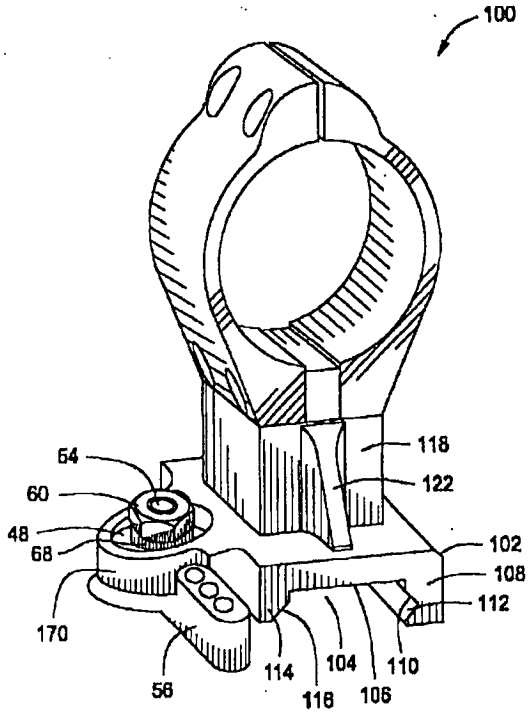

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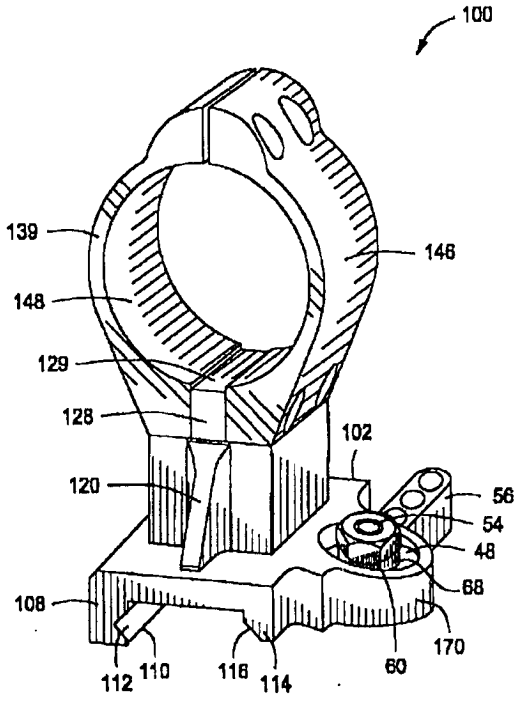
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FIG. 17

FIG. 18

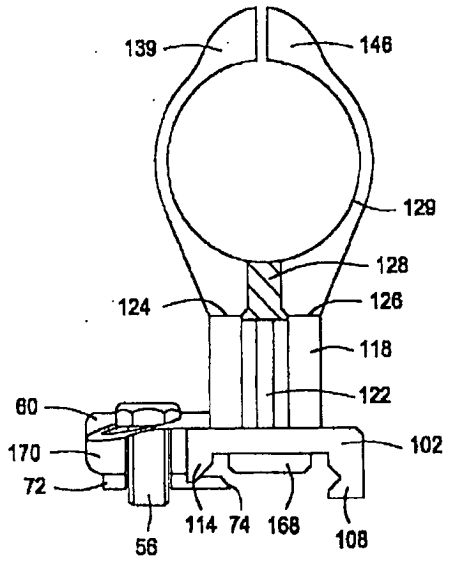
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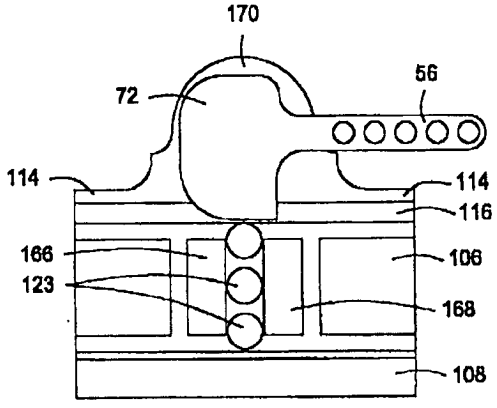
FIG. 19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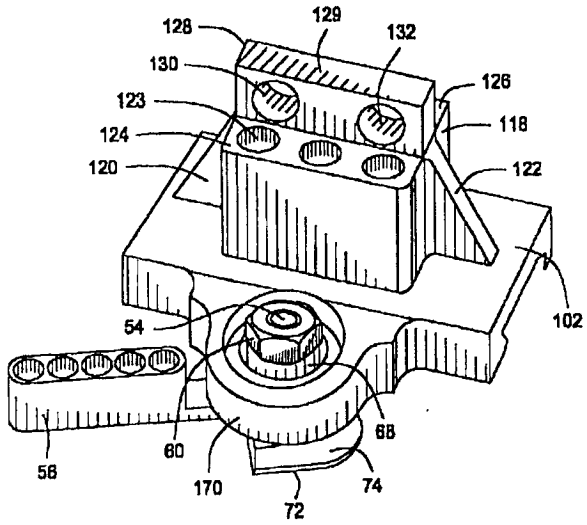

FIG. 20

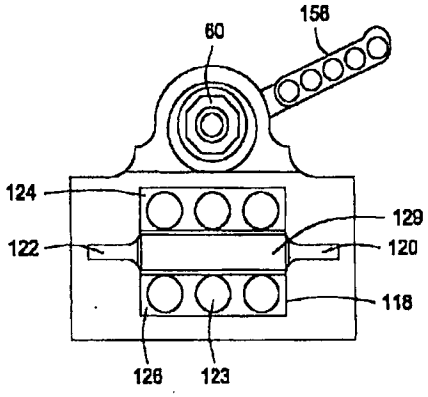

FIG. 21

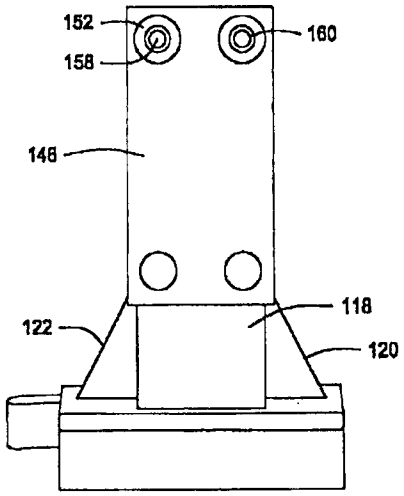

FIG. 22

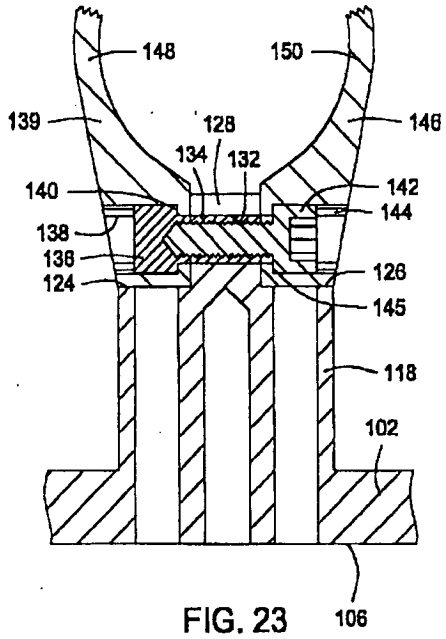
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FIG. 23

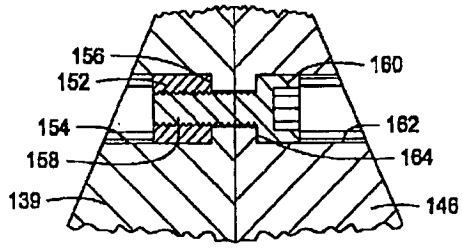
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FIG. 24

ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to quick-release mounting devices for releasably mounting various devices on a support structure. The present invention also relates to firearms and more particularly to releasable sighting or aiming devices for rifles. More particularly, the present invention concerns mounting devices having adjustable locking mechanisms and mounting rings for releasably securing aiming devices, such as the sighting telescopes of rifles and similar firearms and for maintaining optimum sighting accuracy even when the firearm is subjected to repeated heavy recoil when firing high velocity, large bore ammunition. Even more particularly, the present invention concerns locking type mounting rings that enable rifle sighting devices to be simply and efficiently removable and replaceable under field conditions while maintaining a preset zero when replaced.

2. Description of the Prior Art

U.S. Pat. No. 4,845,871 of Swan discloses a means for attaching first and second Weaver interface platforms of an optical rifle sight mount using throw-lever actuated locking mechanisms. The throw-lever of Swan is not adjustable, though the patent makes incorrect assumptions of its adjustability. A subsequently developed throw-lever actuated releasable optical sight mount system is set forth in U.S. Pat. No. 5,276,988 of Swan, which compensates for the inability of the throw lever to accomplish repeatability of precision positioning over extended periods of repeated firing of tactical rifles. This later patent of Swan discloses a throw-lever actuating mechanism of similar nature as set forth in U.S. Pat. No. 4,845,871, with the exception that the optical sight mount incorporates a buffer element in the form of a shim between the attachment device camming surface and the area to which the attachment device is affixed. U.S. Pat. No. 6,026,580 of Mark C. LaRue, the inventor of the present invention, discloses a self-centering and self-aligning optical sight mounting system, including front and rear mounting ring assemblies and mounting bases for mounting an optical sighting device on a firearm such as a rifle or on other devices.

SUMMARY OF THE INVENTION

It is a primary feature of the present invention to provide novel mounting rings for retaining sighting devices, such as telescopes, low light optical devices, mechanical sighting devices on firearms such as rifles and to permit removal and replacement of the sighting devices, even under field conditions, without losing the preset zero of the sighting device;

It is another feature of the present invention to provide a novel optical sight mounting system which permits one or several daylight, night or close combat optical sighting devices to be selectively interchanged on a firearm in a manner that maintains the preset sighting zero of each of the optical sighting devices with respect to the firearm that is involved; and

It is also a feature of the present invention to provide a novel optical sight mounting system that employs self-centering and self-aligning optical sight mounting rings that eliminates the need for lapping for achieving a close fit with the tube of an optical sighting device and prevents damage to an optical sighting device by tube distortion from clamping force.

Though the present invention is discussed herein particularly with its application to adjustable quick-release mounting devices for firearm optical sighting devices, it should be borne in mind that it is not intended to limit the spirit and scope of the present invention solely to use in conjunction with firearms. The present invention clearly has a wide range of application in circumstances where a device is intended to be releasably mounted in stable fashion to a supporting structure. For example, the present invention has application to camera and spotting scope mounts that are used in connection with various sporting events and commercial activities. Many other uses of the present invention will become obvious to one skilled in the art upon acquiring a thorough understanding of the present invention.

Briefly, the various objects and features of the present invention are realized by a sighting device mounting system that is designed particularly for mounting to Picatinny rails, Weaver rails or other similar mounting base rail systems. Front and rear, substantially identical throw-lever actuated mounting ring assemblies are provided, each having a base structure having a portion thereof configured for fitting opposed angulated rail surfaces and having a locator element that is received within one of the multiple positioning slots of the rail. The base structures each receive a self-centering and self-aligning tube mounting ring for retaining the tube of an optical sighting device or engaging a circular portion of any supported device.

The base structures are each provided with integral laterally projecting lock supports, each defining a receptacle receiving the spline/spindle shaft of a rotatable locking plate. The rotatable locking plate has angulated cam surfaces merging with a central curved cam surface for forcibly engaging correspondingly angulated rail surfaces to achieve cam energized locking engagement with the angulated rail surfaces. Throw-levers project from each of the rotatable locking plates to provide for manual rotation of the rotatable locking plates during locking and unlocking. At least a portion of the spline/spindle shaft is of non-circular, typically hexagonal cross-sectional configuration and receives a generally circular drive washer member having a central opening of corresponding non-circular configuration so as to have non-rotatable and linearly moveable relation with the spline/spindle shaft. To provide a light weight optical sight mount for firearms, the mounting base and the support rings of the sight mounting system are preferably composed of a light-weight material such an aluminum alloy, hard polymer material or the like. The mounting base is drilled or otherwise formed to eliminate material and reduce the weight thereof. Since the light weight material are often quite soft and easily yielded by application of forces, hardened metal inserts composed of stainless steel, steel or other suitable hard materials are press-fitted or otherwise seated in appropriate openings or receptacles of the mount structure. These inserts are typically threaded so as to have threaded engagement with retainer elements such as Torx or Allen screws.

BRIEF DESCRIPTION OF THE DRAWINGS

So that the manner in which the above recited features, advantages and objects of the present invention are attained and can be understood in detail, a more particular description of the invention, briefly summarized above, may be had by reference to the preferred embodiment thereof which is

illustrated in the appended drawings, which drawings are incorporated as a part hereof.

It is to be noted however, that the appended drawings illustrate only a typical embodiment of this invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally effective embodiments.

In the Drawings:

FIG. 1 is a pictorial representation showing a sight mounting rail on a firearm and showing releasable, adjustable optical sight mounting rings embodying the principles of the present invention and being in locked assembly with the sight mounting rail and mounting an optical sighting device;

FIG. 2 is a pictorial representation of one of the optical sight mounting ring assemblies of FIG. 1 showing one side of the releasable and adjustable mounting ring assembly of the present invention:

FIG. 3 is a pictorial representation showing the opposite side of the releasable and adjustable mounting ring assembly shown in FIG. 2 and showing the lever actuated locking mechanism in the locked position thereof;

FIG. 4 is a plan view of the releasable and adjustable mounting ring assembly of FIGS. 1-3 and showing the locking lever thereof in its release position and with a wave spring providing an urging force on the locking lever assembly;

FIG. 5 is an isometric illustration of the releasable and adjustable mounting ring assembly of the present invention, again with the locking lever being shown in the release position thereof;

FIG. 6 is a sectional view of the releasable and adjustable mounting ring assembly taken along line 6-6 in FIG. 4, with the locking lever being shown in the release position thereof;

FIG. 7 is a partial sectional view of the releasable and adjustable mounting ring assembly of the present invention and with the locking lever being shown in the release position thereof;

FIG. 8 is an isometric illustration of a drive nut component of the locking lever assembly and showing a downwardly facing annular spring recess for receiving a wave spring or one or more O-ring type locking lever resistance members;

FIG. 9 is a bottom view of the drive nut component of FIG. 8;

FIG. 10 is a side elevational view showing a wave spring that is received by the downwardly facing annular spring recess of the drive nut member of FIG. 8;

FIG. 11 is a sectional view of the drive nut member of FIGS. 8 and 9;

FIG. 12 is a partial sectional view of an alternative embodiment of the releasable and adjustable mounting ring assembly of the present invention, showing the use of resilient O-ring members which retard inadvertent throw-lever movement at the unlocked position of the adjustable mounting ring assembly.

FIG. 13 is a bottom view of the releasable and adjustable mounting ring assembly of the present invention showing the bottom of the locking lever and showing the offset position of a rail slot engaging sight locator key element with respect to the pivot point of the locking lever;

FIG. 14 is a partial isometric illustration of the locking lever, showing the non-circular configuration of the lever spline/spindle post and showing the threaded terminal end of the lever pivot shaft or post;

FIG. 15 is an isometric illustration showing the disassembled components of the adjustment assembly of the adjustment mechanism of the locking lever and showing the wave spring and the non-circular opening that is defined by a spring urged drive washer member of the locking lever adjustment mechanism;

FIG. 16 is an isometric illustration showing a preferred embodiment of the present invention comprising a releasable, adjustable optical sight mounting ring assembly having a locking lever assembly of the nature shown in FIG. 1;

FIG. 17 is another isometric illustration showing the releasable, adjustable optical sight mounting ring assembly of FIG. 16;

FIG. 18 is a front elevational view of the releasable, adjustable optical sight mounting ring assembly of FIGS. 16 and 17;

FIG. 19 is a bottom view of the releasable, adjustable optical sight mounting ring assembly of FIGS. 16-18;

FIG. 20 is an isometric illustration showing the releasable, adjustable optical sight mounting ring assembly, with the sighting device mounting elements removed and showing the detailed structure of the mounting base;

FIG. 21 is a plan view of the mounting base structure of FIG. 20;

FIG. 22 is a elevational view showing the opposite side of the releasable, adjustable optical sight mounting ring assembly as compared with the views of FIGS. 16 and 17;

FIG. 23 is a partial transverse sectional view taken along line 23-23 of FIG. 22; and

FIG. 24 is a partial transverse sectional view taken along line 24-24 of FIG. 22.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Though the present invention is discussed herein particularly as it relates to releasable mounts for firearms, particularly tactical rifles used by military and law enforcement personnel, it is to be understood that this invention has application for support of devices other than optical sighting devices on other objects. Referring now to the drawings and first to FIG. 1, an optical sighting device 10, such as a sighting telescope, is supported by front and rear mounting ring assemblies, shown generally at 12 and 14, that mount the sighting device on a mounting rail 16, such as a Picatinny rail or a Weaver rail or the like which is affixed to a firearm 18 or other object. The rail 16 defines a number of evenly spaced upwardly extending mounting projections 15 with evenly spaced transverse slots 17 therebetween to provide for selective location of an optical device on the firearm. As is evident in FIG. 7, each of the spaced upwardly extending mounting projections defines undercut parallel, oppositely angulated clamping surfaces 19 and 21 and oppositely angulated, typically upwardly facing support surfaces 23 and 25 that are disposed in angulated relation with one another. Each of the clamping surfaces 19 and 21 and the support surfaces 23 and 25 are initially formed by elongated surfaces, typically extending the length of the rail structure 16 and are interrupted by transverse slots 17 that are machined or otherwise formed in evenly spaced relation along the length of the rail.

Each of the mounting ring assemblies 12 and 14 incorporates a mounting base 20 having an integral, upwardly projecting member or boss 22 that is internally machined to define a receptacle 24 within which is received the depending mounting tongue elements 26 and 28 of mounting ring sections 30 and 32. The mounting ring sections 30 and 32 are secured together by fastener members, such as Torx screws, Allen screws or the like, to establish clamping retention of

the mounting ring sections **30** and **32** to a tubular housing member of a sighting device such as an optical sighting device or telescope or a laser sighting device. Where fastener members such as retainer screws and set screws are employed to secure soft metal members, such as aluminum members, in assembly, hard metal inserts, typically composed of steel, such as stainless steel, are press-fitted into drilled or bored openings in the soft metal members as shown in FIGS. **6** and **7** as well as FIGS. **23** and **24**. These hard metal inserts are typically internally threaded and provide the soft metal members with exceptional resistance to wear or thread damage by hard metal retainer screws and the like. The hard metal inserts may be seated on internal support shoulders of the mounting ring sections to ensure against movement thereof by the forces that are developed when screws are tightened by screwdrivers or by Allen or Torx wrenches.

In the embodiment of FIGS. **1-15**, as shown particularly in FIGS. **7** and **12**, one or more shims **34** are located between the mounting tongue elements **26** and **28**. The shims ensure proper spacing of the mounting ring sections **30** and **30** for optimum gripping relation with the tubular housing of the optical sighting device, without causing collapsing, excessive application of torque force or causing other damage to the tubular housing of the sighting device and the internal sighting mechanism thereof. The fastener screws of each of the mount bases are sequentially tightened to ensure even and efficiently controlled gripping of the tubular housing of the sighting device, without subjecting the tubular housing to torque forces during tightening. This feature ensures against mount tightening force deformation of tubular telescope sections and thus ensures protection of delicate internal telescope components from damage and accelerated wear.

The mounting base **20** is configured to define a rail receiving receptacle **36** with spaced, downwardly and oppositely angulated surfaces **38** and **40** which are oriented for contact with correspondingly angulated support surfaces **23** and **25** of the rail **16**. The mounting base **20** also defines an upwardly angulated surface **42** that is positioned for retaining engagement with a correspondingly angulated clamping surface **21** of the rail **16**.

A locking platform **44** is integral with and extends laterally from each of the mounting bases **20** and defines an opening **46** within which is seated an annular insert **48** that is composed of a suitable hard, wear and impact resistant metal material such as steel, stainless steel, titanium alloy or any suitable non-metal material having wear and impact resistance. The annular insert **48** defines a central opening **50** that receives an upwardly projecting circular shoulder **52** of a spline/spindle shaft or post **54** in rotatable relation therein. The spline/spindle shaft **54** is integral with and projects upwardly from a manually rotated cam plate of a locking lever structure **56**, also referred to as a "throw-lever", as shown in FIGS. **6** and **7**. The manually rotated locking lever structure **56** of each ring assembly **12** and **14** is manipulated, i.e., rotated, for locking and unlocking of the front and rear mounting bases **20** from the rail **16** when it is desired to remove and replace the optical sighting device **10**. Especially when the sighting device is being used on firearms under tactical circumstances, this feature permits the sighting device to be carried in protective fashion, such as in a pocket of a personnel pack, and when its use is needed, the user will simply and quickly clamp the sighting device to the rail device **16** of the firearm, with the sighting device being accurately positioned at its pre-set sighting position or zero. This feature permits a sighting device to be unlocked, removed and re-assembled and locked in place without losing its preset aim point or zero.

The outer or terminal extremity of the spline/spindle shaft **54** is threaded as shown at **58** for receiving an adjustment nut **60**. The threaded section **58** and the internal threads of the adjustment nut **60** are cut on a slightly different pitch to cause interference tightening of the nut on the threaded section **58** of the spline/spindle shaft **54** as the adjustment nut is rotated in the direction, typically clockwise, during assembly of the adjustment nut to the spline/spindle shaft **54**. This feature minimizes the potential for loosening of the adjustment nut **60** after it has been selectively positioned on the spline/spindle shaft **54**. However, if further tightening or loosening of the adjustment nut is needed, such as for increasing or decreasing the clamping force of the mounting base **20** on the rail **16** of a firearm, rotational movement of the adjustment nut **60** is easily accomplished through the use of a simple hex wrench. The interference tightening arrangement ensures that the adjustment nut **60** will remain in any pre-set position even when the mounting ring assembly of a sighting device is subjected to impacts, vibration or other rough treatment.

The spline/spindle shaft **54** is also provided with a shaft section **62** of non-circular cross-sectional configuration that may be hexagonal or may have any other non-circular cross-sectional configuration as desired. The shaft section **62** is also referred to herein as a "spline section", with the non-circular configuration or spline thereof extending longitudinally of the spline/spindle shaft **54** from the externally threaded section **58** to the circular shoulder **52**. The spline/spindle shaft **54** and the inner cylindrical surface **64** of the annular insert **48** are of significantly different dimensions, thus defining an annular space **66** therebetween within which a drive washer member **68** and one or more resilient members are received. The resilient member or members preferably comprise a single wave spring **70**, as shown in FIGS. **7** and. **15**, but may comprise one or more resilient O-rings as shown in FIG. **8** or may comprise one or more washer-like springs referred to as Belleville springs or washers. Typically, however, the spring forces achieved by one or more Belleville springs used in this fashion would be quite high and might add significantly and unnecessarily to the rotational force that is required to rotate the locking lever to and from its locking position and at its unlocked condition. Also, Belleville springs minimize permissible linear movement of the drive washer member **68** as the springs are subjected to compression force by tightening the adjustment nut **60**. Thus, Belleville springs are not considered preferred resilient components for the locking lever assembly. The annular insert **48** defines an upwardly facing internal shoulder surface **71** which serves to retain the lowermost portion or the lowermost one of the resilient member or members within the annular space **66**. A lower portion of the drive washer member **68** extends into the annular space **66** and defines an annular downwardly facing recess **73** within which the upper portion of the wave spring **70** is located to provide for spring centering and stabilization. The wave spring is maintained under compression between the upwardly facing annular surface **71** and an annular downwardly facing recess surface **75** of the drive washer member **68** and imparts a spring force to surfaces **71** and **75** that is only great enough to provide sufficient frictional resistance that prevents free rotational movement of the locking lever **56** when the locking lever is at its unlocked position as shown in FIGS. **7** and **12**. In other words, the wave spring **70**, or other resilient member or members **99**, prevent the locking lever from freely flopping about when it is unlocked.

Other resilient members discussed herein provide similar function. This feature is considered important to the tactical use of a firearm, especially in conditions of poor light, where the condition of the locking lever may need to be assured at any point in time, even in its unlocked condition. By minimizing the potential for locking lever movement when it is unlocked, the potential for undesired noise is minimized. This feature is quite important in tactical firearm use.

The drive washer member **68** defines a non-circular internal spline section **69** corresponding to the dimension and configuration of the non-circular external spline of the spline section **62** of the spline/spindle shaft **54**. The spline section **69** may be of hexagonal configuration or any other suitable non-circular configuration having mating, non-rotational relation with the non-circular external portion of the spindle/spline shaft **54**. This feature causes the drive washer member **68** to be non-rotatable and linearly moveable with respect to the spline/spindle shaft and rotatable along with the spline/spindle shaft as the locking lever **56** is manually rotated. Also, the axial length of the spline section **62** of the spline/spindle shaft **54** in comparison with the shorter axial length of the non-circular internal spline section **69** of the drive washer member **68** permits axial movement of the drive washer member by the adjustment nut **60** and the wave spring **70** for the purpose of increasing or decreasing the clamping force of the mounting base **20** with respect to the rail **16**. A firearm user is capable of achieving adjustment of the clamping force simply by rotating the adjustment nut with a simple hex wrench or other readily available adjustment tool.

The locking lever **56** is provided with an integral cam plate **72** from which the spline/spindle shaft **54** projects. Edge portions of the cam plate **72** define angulated, substantially straight tapered cam surface sections **74** and **76** that merge with an intermediate substantially curved tapered cam section **78** that is located eccentrically with respect to the longitudinal axis of the spline/spindle shaft **54**. Each of the tapered cam sections is inclined at an angle corresponding to the inclination and orientation of the undercut downwardly facing angulated clamping surface **19** of the rail **16**. Thus, manually energized rotation of the cam plate **72** by application of manual force to the locking lever **56** causes locking or unlocking movement of the mount assembly with respect to the sight mounting rail of the firearm.

During locking rotation of the cam plate the eccentric curved cam surface will engage the undercut downwardly facing angulated clamping surface **19**. As locking rotation continues, due to its eccentric orientation, the clamping force of the curved cam surface will increase as the distance of the curved cam surface from the pivot axis **80** increases until a maximum clamping force is reached at the merged juncture of the curved cam surface and the locking cam surface **76**. This maximum clamping force is easily controlled by selective rotation of the adjustment nut **60** so that metal deformation of the undercut downwardly facing angulated clamping surface **19** will not occur or will be minimized within acceptable limits. Further locking rotation of the cam plate by the locking lever **56** causes the substantially straight locking cam section **76** to move into face to face relation with the angulated clamping surface **19** of the rail **16**.

The cam surface sections **74**, **76** and **78** of the cam plate are positioned with respect to the pivot axis **80** of the spline/spindle shaft **54** so that engagement of the cam surface sections tighten on the corresponding angulated rail surfaces as the locking lever is rotated from the unlocking position to the locking position. At the unlocking position of the locking lever **56** the unlocking surface **74** is essentially clear of the angulated clamping surface **19** of the rail **16**, thus allowing lateral movement of the mounting base **20** to a position allowing separation of the mounting base from the rail structure. During locking rotation of the locking lever, the curved eccentric section **78** of the cam surface will engage the downwardly facing angulated surface **19** that extends along one side of the rail **16** and will cause forcible engagement of the angulated surfaces of the mounting base with corresponding angulated surfaces of the rail structure. After sufficient rotation of the locking lever has occurred, the substantially arcuate section **78** of the cam surface will have achieved desired clamping force and the substantially straight locking cam section **76** will move into locking engagement with the corresponding angulated rail surface **19**. Since the spacing of the locking cam section **76** from the axis **80** is slightly less than the maximum spacing of the curved cam surface from the axis **80** the force required for rotational locking movement of the locking lever **56** will decrease slightly when the locking position of the locking lever has been reached. This essentially over-center cam movement feature during locking movement causes the locking lever to remain at its locked position once the locking position has been achieved. When rotating the locking lever **56** from its locking position to its unlocked position the opposite over-center force transition occurs. During initial unlocking rotation of the cam plate **72** the curved cam surface section, being located eccentrically with respect to the axis of the spline/pivot shaft **80**, will cause slight tightening of the clamping force. During further unlocking rotation of the cam plate the curved cam surface section will move clear of the angulated rail surface **19**, thus releasing the clamping force completely. This feature ensures that the locking mechanism of the mount system remains either locked or unlocked unless manual force is applied to the locking lever by the user. This force enhancing rotary locking movement of the locking lever and the resistance of the locking lever **56** to be rotated to its unlocking position causes the locking lever to remain at its locked position and effectively prevents inadvertent unlocking movement of the locking lever **56** even during conditions of rough firearm handling in field conditions.

The desired cam-induced clamping force of the mounting ring assembly is achieved by rotation of the locking lever to its locked position and by controlled positioning of the locking nut **60** on the threaded portion of the pivot shaft **54**. The desired clamping force is typically achieved by controlled rotation of the locking nut **60** after the wave spring or other resilient member has been substantially fully compressed or bottomed-out by downward movement of the drive washer member **68** responsive to adjustment rotation of the adjustment nut **60**. However, from a practical standpoint the user of the firearm will simply adjust the position of the adjustment nut to ensure positive clamping of the mount rings to the rail, without requiring excessive manual force for locking or unlocking movement of the locking lever **56**.

As mentioned above, one of the requirements for effective use of the releasable and adjustable sighting device ring mounts of the present invention by military and police personnel is the requirement that the mounting system be of light weight for ease of firearm handling and yet have sufficient structural integrity to minimize the potential for optics misalignment (loss of zero) by the repeated heavy impacts and vibration of weapon firing or by rough handling in field conditions. To accomplish these features the basic structure of the mounting base and optics mounting rings is

composed of a lightweight metal such as aluminum alloy, or a suitable non-metal material. Inserts of hardened material such as stainless steel are located within openings of the base material either by press-fit or by molding them in place. These hard metal inserts are typically internally threaded to receive fastening screws and positioning screws and thus readily accommodate the severe impacts of repeated rifle firing. The inserts protect the mounting base structure and the mounting ring structure from being deformed, and thus minimize the potential for loss of aiming zero as the result of the multiple impacts that occur during repeated rifle firing. As mentioned above, the annular insert **48** shown in FIGS. **6**, **7** and **8** is composed of any suitable wear and impact resistant material such as steel, stainless steel or a suitable hard polymer material. The upwardly projecting member or boss **22** is provided with a threaded insert **82** as shown in FIGS. **7** and **12** within which a set screw such as an Allen or Torx screw is received to establish retention of the mounting ring tongues **26** and **28**. The threaded inserts are preferably provided with annular flanges **83** which seat against soft metal shoulders or other structure and prevent the inserts from being extracted from their openings or receptacles by tightening of the retainer screws. A threaded hard metal insert **84** is located within the mounting ring tongue **28** and receives a mounting screw, which extends into screw receptacle **86** for retention of the mounting ring tongues in assembly within the circular receptacle **86**. Another threaded insert **88** is located within one of the ring assembly sections **30** and receives a retainer screw having a screw head that is located within a screw receptacle **90**.

A locator key element **92**, shown in the bottom view of FIG. **9**, is composed of hard wear and impact resistant material is secured to a bottom surface **94** of the mounting base **22** by retainer screws **96** and **98**. The locator key element **92** engages within a selected one of the multiple transverse slots **17** of a mounting rail structure to locate the rear portion of optical sighting device for desired eye relief, which is accomplished by positioning the rear lens of the optical sight device at a selected distance from the eye of the user.

During assembly of the lever mechanism, the adjustment nut **60** is tightened sufficiently to apply a desired force to the wave spring **70**. Thereafter, the preload force of the wave spring urges the locking lever upwardly and develops a friction force that prevents the locking from flopping back and forth when it is unlocked. For precision locking and clamping of the mounting base with respect to the angulated locking or clamping surfaces of the rail **16**, the adjustment nut **60** is rotated to a desired position on the threaded spindle/spline shaft **54** and thus maintains the angulated cam surface **76** in secure forcible clamping engagement with the angulated locking surface **19** of the mounting rail **16**. The splined engagement of the non-circular shaft section **62** and the internal non-circular section **69** of the drive washer member **68** causes the drive washer member to be rotated along with the spindle/spline shaft **54**. This feature also causes the adjustment nut **60** of be substantially free of any rotational force that might otherwise tend to loosen or tighten the adjustment nut when the locking lever **56** is rotated. The adjustment nut **60** simply rotates along with the spindle or pivot shaft **54** of the cam plate **72** and the drive washer member **68** during manually energized rotation of the locking lever **56**. The force of the wave spring **70** also retards inadvertent movement of the locking lever at its unlocked position. In the event that the mount locking system should become loosened by repeated heavy impact firing of the weapon or for any other reason the mounting system can be easily restored to its optimum stable precision positioning characteristics simply by rotating the adjustment nut only by a few degrees of clockwise rotation by using a small hex wrench. This can be easily accomplished in field conditions since no special adjustment tools are required. For example, from 5 degrees to 15 degrees of adjustment nut rotation will restore the locking mount to its proper locking position for support of an optical sighting device such as a rifle telescope.

An alternative embodiment of the present invention is shown in FIG. **12** and is different from that shown in FIG. **7** only in that one or more resilient O-rings **99** are shown to be located within the annular space **66** and are compressed to the extent desired by the adjustment nut **60** and the washer member **68**. The resilient O-ring **99** provides rotational resistance to the locking lever and thus prevents the rotatable locking lever **56** from being loose at its unlocked position, and thus prevents the locking lever from inadvertently moving about. This feature is particularly important when the quick-release mounting system is employed for mounting sighting devices to tactical firearms, where unnecessary lever movement or noise is a detriment to optimum use of the firearm. While one O-ring is shown in FIG. **12**, it is to be understood that two or more O-rings may be employed to accomplish the same purpose.

Referring now to FIGS. **16-24**, a mounting assembly is shown generally at **100** and represents the preferred embodiment of the present invention. However, it is to be borne in mind that many of the features of the mounting assembly of FIGS. **1-12** are incorporated within the mounting assembly of FIGS. **16-24**. The mounting assembly **100** incorporates a mounting base **102** having a downwardly facing mounting slot **104** which is defined by a downwardly facing surface **106** and by a downwardly extending base flange **108** having oppositely angulated rail clamping surfaces **110** and **112**. Opposite from the downwardly extending base flange **108** the mounting base **102** defines another downwardly extending base flange **114** having formed thereon an angulated clamping surface **116**. Typically, the downwardly facing mounting slot **104** is formed by a machining operation, such as by milling the slot in a metal mounting base workpiece.

A ring mounting member or pedestal **118** projects upwardly from the mounting base **102** and may be integral with the mounting base or fixed to it in any suitable manner. The joint of the pedestal **118** with the mounting base may be strengthened by structural web members **120** and **122** if desired, especially since it is desired that the mount assembly be as light weight as possible while maintaining sufficient structural integrity to ensure secure support of a firearm sighting device. The ring mounting member or pedestal **118**, as shown best in FIGS. **20** and **21**, defines opposed substantially co-planar ring support shoulders **124** and **126**, with a mounting projection **128** extending upwardly from the pedestal and between the ring support shoulders. To minimize the weight of the support pedestal and the mounting base **102**, as shown in FIGS. **20** and **21** the mounting base and support pedestal are drilled to remove metal and thus define drill openings **123**. As is evident from the bottom view of FIG. **19**, some of these metal removing drilled openings **123** extend upwardly into the central mounting projection **128**. None of the metal removing drilled openings extend completely through the base or mounting pedestal structures, though it is within the spirit and scope of the present invention to do so. The mounting projection **128** defines spaced transverse bores **130** and **132** as shown in FIGS. **20** and **23** that receive tubular internally threaded ring locator and connector members **134**. The

internally threaded ring locator and connector members extend from an form part of locator and connector inserts **136** that are received, such as by press fitting within openings **138** of a mounting ring section **139**. The inserts **136** are preferably composed of hard metal such as steel, stainless steel, titanium and the like, and are seated on internal support shoulders **140** of the openings **138** of the respective mounting ring section. Mounting screws **142**, such as Torx screws, Allen screws or the like, are inserted through openings **144** of the opposite mounting ring section **146**. Preferably, each mounting ring section **139** and **146** is provided with an insert having a tubular internally threaded ring locator and connector member to facilitate ease of assembly of the mounting ring sections to the upwardly extending mounting projection **128** and to ensure precise location of the mounting sections with respect to the mounting base **102** and the ring mounting pedestal. The mounting ring sections preferably define annular internal shoulder surfaces **145** thus enabling the heads of the retainer screws **142** to draw the lower portions of the mounting ring sections into tight engagement with respective sides of the central mounting projection **128**.

The mounting ring sections **130** and **146** define respective internal arcuate surfaces **148** and **150** that are accurately dimensioned to establish frictional retention with respect to a tubular section of an optical sighting device or any other at least partially cylindrical surface of an object that is to be supported in immoveable relation with respect to a firearm or other object to which a mounting rail is fixed. The upper planar surface **129** of the central mounting projection **128** is located below an imaginary arcuate surface that is defined by continuation of the arcuate surfaces **148** and **150**, thus ensuring that the optical device does not engage the central mounting projection **128** of the pedestal **118**. This feature ensures that the cylindrical tube or portion of the optical sighting device remains free of torque forces when the mounting ring sections **139** and **146** are tightened to the central mounting projection **128**.

As shown in detail in FIG. **24**, for securing the upper portions of the mounting ring sections in assembly, internally threaded hardened inserts **152** are press fitted or otherwise located within openings **154** of the respective mounting ring sections **139** and **146**. Preferably the internally threaded hardened inserts **152** are seated on annular internal shoulders **156** of the mounting ring sections to ensure that the inserts are not moved within the openings **154** by the force that is generated by tightening of the retainer screws. The externally threaded sections **158** of retainer screws **160** are threaded into the inserts and serve to secure the mounting ring sections **139** and **146** in friction retention with an optical sighting device or other object. The respective mounting ring sections **139** and **146** define retainer openings **162** and annular internal support shoulders **164** that are engaged by the heads of the retainer screws **160** and thus enable the retainer screws to tighten the upper portions of the mounting ring sections **139** and **146** together and establish fictional retention of the tubular section of the optical sighting device or other object being supported.

At least two spaced positioning projections **166** and **168** extend downwardly from the central portion of the mounting base **102**, as shown in FIGS. **18** and **19**, with the space therebetween being sufficient to receive one of the upwardly extending mounting projections **15**. A locking platform **170** projects laterally from the mounting base structure **102** and is preferably formed integrally with the mounting base though it may be fixed to the mounting base in any suitable fashion. The support platform is machined in the same manner as is discussed above in connection with the locking platform **44** of FIGS. **1-6** to form a mounting receptacle for a locking lever mounting assembly which is indicated by like reference numerals and is provided for the same purpose.

Situations will arise requiring only a single releasable mounting device or requiring more than two spaced releasable mounting devices for mounting optical sighting devices and other objects to firearms. Thus, it is not intended that the present invention be restricted solely to the use of two spaced quick-release mounting devices for mounting firearm optical devices. It is also intended that the present invention have application to a wide range of devices that are intended to be mounted in quick-release, stable fashion to a support structure. Thus, it is not intended to restrict the spirit and scope of the present invention to use in connection with the sighting devices of firearms. The discussion here, for purposes of simplicity, is intended only to be representative of a preferred embodiments of the present invention. Other and further embodiments of the present invention will become obvious and inherent to one skilled in the art upon a thorough understanding of the spirit and scope of the present invention.

In view of the foregoing it is evident that the present invention is one well adapted to attain all of the objects and features hereinabove set forth, together with other objects and features which are inherent in the apparatus disclosed herein.

As will be readily apparent to those skilled in the art, the present invention may easily be produced in other specific forms without departing from its spirit or essential characteristics. The present embodiment is, therefore, to be considered as merely illustrative and not restrictive, the scope of the invention being indicated by the claims rather than the foregoing description, and all changes which come within the meaning and range of equivalence of the claims are therefore intended to be embraced therein.

I claim:

1. An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a rotary cam plate and a pivot shaft integral therewith, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position; and

an adjustment nut being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces.

2. The adjustable mounting system of claim **1**, comprising:

a drive member being received for linear movement on said pivot shaft; and

at least one resilient member being interposed between said drive member and said locking platform and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

3. The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and defining an external non-circular section;

a drive member having non-rotatable and linearly moveable relation with said external non-circular section; and

said adjustment nut having adjustment engagement with said drive member.

4. The adjustable mounting system of claim 3, comprising:

said at least one resilient member being interposed between said drive member and said locking platform and preventing free rotational movement of said locking lever at said unlocking position.

5. The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;

a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force retarding free rotation of said locking lever at the unlocking position thereof; and

said adjustment nut being received by said pivot shaft and being rotatable for adjustment of the locking position of said cam plate.

6. The adjustable mounting system of claim 5, comprising:

said at least one resilient member being an annular wave spring.

7. The adjustable mounting system of claim 5, comprising:

said at least one resilient member being at least one O-ring composed of resilient material.

8. The adjustable mounting system of claim 1, comprising:

one of said oppositely angulated clamping surfaces having a predetermined angle;

said rotary cam plate defining first and second substantially straight cam surfaces being joined by a curved cam surface; and

said first and second substantially straight cam surfaces and said curved cam surface each having a taper substantially corresponding to said predetermined angle.

9. The adjustable mounting system of claim 1, comprising:

said mounting rail defining spaced positioning receptacles and spaced upwardly extending mounting projections; and

said mounting base having at least one locator key having engagement within one of said spaced positioning receptacles and selectively locating said mounting base on said mounting rail.

10. The adjustable mounting system of claim 9, comprising:

said mounting base having a pair of downwardly projecting locator keys disposed in spaced relation and having locating engagement within two of said spaced positioning receptacles.

11. The adjustable mounting system of claim 1, comprising:

said mounting base defining a ring mounting receptacle;

a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and

retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device.

12. The adjustable mounting system of claim 11, comprising:

a plurality of connector receptacles being located within said mounting ring sections;

a plurality of hardened inserts being fixed within said plurality of connector receptacles and defining internally threaded connector sections; and

a plurality of retainer screws being in threaded connection within said internally threaded connector sections and retaining said mounting ring sections in friction supported engagement with a supported object.

13. The adjustable mounting system of claim 12, comprising:

said plurality of connector receptacles each defining internal insert support shoulders; and

said plurality of hardened inserts being seated on and supported by said internal insert support shoulders.

14. The adjustable mounting system of claim 1, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

15. The adjustable mounting system of claim 14, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough;

at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

16. An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a rotary cam plate and a pivot shaft integral therewith and being rotatably moveable between locking and unlocking positions, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position;

a drive member being received in non-rotatable linearly moveable relation on said pivot shaft;

an adjustment nut being threaded to said pivot shaft and providing for adjustment of the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces; and

at least one resilient member being interposed between said drive member and said locking platform and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

17. The adjustable mounting system of claim **16**, comprising:

an annular insert being seated within said lock opening and defining a circular pocket;

said drive member being at least partially located within said circular pocket; and

said at least one resilient member being located within said circular pocket and being engaged by said drive member and providing resistance preventing free rotation of said locking lever.

18. The adjustable mounting system of claim **16**, comprising:

said peripheral angulated cam surface of said rotary cam plate having a pair of substantially straight cam sections disposed in angular relation and having a curved cam section merging with said substantially straight cam sections.

19. The adjustable mounting system of claim **16**, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;

a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force retarding free rotation of said locking lever at the unlocking position thereof; and

said adjustment nut being received by said pivot shaft and being rotatable for adjustment of the locking position of said cam plate.

20. The adjustable mounting system of claim **16**, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

21. The adjustable mounting system of claim **20**, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough;

at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

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EFS ID:	2386086
Application Number:	90010041
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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.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:	ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP			
First Named Inventor/Applicant Name:	Mark C Larue			
Filer:	Joshua Adam Stockwell			
Attorney Docket Number:	A042 904 Larue			
Filed as Large Entity				
ex parte reexam Filing Fees				
Description	**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:				
Request for ex parte reexamination	1812	1	2520	2520
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($)
Miscellaneous:				
			Total in USD ($)	**2520**

REEXAMINATION TITLE REPORT (AKA PATENT ASSIGNMENT ABSTRACT OF TITLE)

TYPE OF REEXAMINATION: XX EX PARTE *INTER PARTES*

REEXAM CONTROL NO.:90/010,041

SERIAL NUMBER : 11/0008394 FILING DATE 12/09/2004

PATENT NUMBER: 7,272,904 ISSUE DATE 09/25/07

FIRST *THREE* INVENTORS' NAMES: LARUE,MARK C.

ET. AL?: Y XN

CONTINUITY DATA (IF ANY) :

__ THIS IS (OR) A CON __DIV CIP A PROVISIONAL APPLICATION ___OTHER OF SERIAL NUMBER FILED ON . STATUS: PATENTED WITH PATENT NUMBER OR__PENDING, OR XABANDONED (*EXPIRED* FOR PROVISIONALS).

__ WHICH IS A CON, DIV, CIP, PROVISIONAL, OR ___OTHER, OF SERIAL NUMBER FILED ON. STATUS: PATENTED, WITH PATENT NUMBER AND SERIAL NUMBER FILED PENDING, OR ABANDONED.

__ WHICH IS A CON, DIV, CIP A PROVISIONAL APPLICATION ___OTHER OF SERIAL NUMBER FILED ON. STATUS: PATENTED WITH PATENT NUMBER: OR__PENDING, OR ABANDONED.

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__WHICH IS A CIP OF SERIAL NUMBER FILED ON. STATUS: PATENTED, WITH PATENT NUMBER.

ET AL

ASSIGNMENT RECORD DATA

THE ASSIGNMENT RECORDS REVEAL THAT THE TITLE REPORT APPEARS TO BE VESTED IN:

xxxINVENTOR(S): LEANDER, TEXAS

___AS ENDORSED:

___AS THE RECORD STANDS, THE PATENT WHEN GRANTED WILL ISSUE IN THE NAME OF THE INVENTOR(S)

___LEGAL REPRESENTATIVE:

___SECURITY ASSIGNMENT/LICENSEE(PLEASE NOTE THAT THE OWNERSHIP OF THE PATENT IS STILL REFLECTED IN THE *ASSIGNOR*. THE *ASSIGNEE* IN THIS CASE CANNOT OWN THE PATENT. (SEE ACCOMPANYING PAGES, IF ANY.)

___WHEN THE ASSIGNMENT IS RECORDED, THE PATENT SHOULD BELONG TO:

___OTHER: REEL NO: FRAME NO.: DATE RECORDED: // COMPANY NAME: CITY AND STATE OR COUNTRY: .

___NOTES/COMMENTS: Please see section 306 of the Manual of Patent Examining Procedure regarding the *Assignment of a Division, Continuation, Substitute, and Continuation-in-Part in Relation to Parent Application.*

EXAMINED UP TO AND INCLUDING THIS CERTIFICATE DATED AND SIGNED: 11/01/07

LEGAL INSTRUMENTS EXMR., OFFICE OF PATENT LEGAL ADMIN., CENTRAL REEXAMINATION UNIT

TO ANY PRINTERS: THE REEXAMINATION TITLE REPORT DOES NOT HAVE TO HAVE THE STREET ADDRESS OF THE OWNER(S). IF THERE IS ANY INQUIRY, PLEASE NOTIFY THE PERSON ABOVE.

UNITED STATES PATENT AND TRADEMARK OFFICE

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REEXAM CONTROL NUMBER	FILING OR 371 (c) DATE	PATENT NUMBER
90/010,041	10/29/2007	7272904

CONFIRMATION NO. 5162

JOSHUA A. STOCKWELL
BARLOW,JOSEPHS & HOLMES, LTD
101 DYER STREET, 5th FLOOR
PROVIDENCE, RI 02903

REEXAMINATION REQUEST NOTICE

Date Mailed: 11/01/2007

NOTICE OF REEXAMINATION REQUEST FILING DATE

(Third Party Requester)

Requester is hereby notified that the filing date of the request for reexamination is 10/29/2007, the date that the filing requirements of 37 CFR § 1.510 were received.

A decision on the request for reexamination will be mailed within three months from the filing date of the request for reexamination. (See 37 CFR 1.515(a)).

A copy of the Notice is being sent to the person identified by the requester as the patent owner. Further patent owner correspondence will be the latest attorney or agent of record in the patent file. (See 37 CFR 1.33). Any paper filed should include a reference to the present request for reexamination (by Reexamination Control Number).

cc: Patent Owner
JAMES L. JACKSON, P.C.
10723 SUGAR HILL DR.
HOUSTON, TX 77042

/kpdozier/

Legal Instruments Examiner
Central Reexamination Unit 571-272-7705; FAX No. 571-273-9900

PART 1 - ATTORNEY/3RD PARTY REQUESTER COPY

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REEXAM CONTROL NUMBER	FILING OR 371 (c) DATE	PATENT NUMBER
90/010,041	10/29/2007	7272904

CONFIRMATION NO. 5162

JAMES L. JACKSON, P.C.
10723 SUGAR HILL DR.
HOUSTON, TX 77042

REEXAM ASSIGNMENT NOTICE

OCD00000026564585

Date Mailed: 11/01/2007

NOTICE OF ASSIGNMENT OF REEXAMINATION REQUEST

The above-identified request for reexamination has been assigned to Art Unit 3993. All future correspondence to the proceeding should be identified by the control number listed above and directed to the assigned Art Unit.

A copy of this Notice is being sent to the latest attorney or agent of record in the patent file or to all owners of record. (See 37 CFR 1.33(c)). If the addressee is not, or does not represent, the current owner, he or she is required to forward all communications regarding this proceeding to the current owner(s). An attorney or agent receiving this communication who does not represent the current owner(s) may wish to seek to withdraw pursuant to 37 CFR 1.36 in order to avoid receiving future communications. If the address of the current owner(s) is unknown, this communication should be returned within the request to withdraw pursuant to Section 1.36.

cc: Third Party Requester(if any)
JOSHUA A. STOCKWELL
BARLOW,JOSEPHS & HOLMES, LTD
101 DYER STREET, 5th FLOOR
PROVIDENCE, RI 02903

/kpdozier/

Legal Instruments Examiner
Central Reexamination Unit 571-272-7705; FAX No. 571-273-9900

PART 1 - ATTORNEY/PATENT OWNER COPY

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/010,041	10/29/2007	7,272,904	A042 904 Laruc	5162

7590 12/10/2007

JAMES L. JACKSON, P.C.
10723 SUGAR HILL DR.
HOUSTON, TX 77042

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 12/10/2007

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

Order Granting / Denying Request For Ex Parte Reexamination	Control No.	Patent Under Reexamination	
	90/010,041	7,272,904	
	Examiner	Art Unit	
	Matthew C. Graham	3993	

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

The request for *ex parte* reexamination filed 29 October 2007 has been considered and a determination has been made. An identification of the claims, the references relied upon, and the rationale supporting the determination are attached.

Attachments: a)☒ PTO-892, b)☐ PTO/SB/08, c)☐ Other: _____

1. ☒ The request for *ex parte* reexamination is GRANTED.

RESPONSE TIMES ARE SET AS FOLLOWS:

For Patent Owner's Statement (Optional): TWO MONTHS from the mailing date of this communication (37 CFR 1.530 (b)). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

For Requester's Reply (optional): TWO MONTHS from the **date of service** of any timely filed Patent Owner's Statement (37 CFR 1.535). **NO EXTENSION OF THIS TIME PERIOD IS PERMITTED.** If Patent Owner does not file a timely statement under 37 CFR 1.530(b), then no reply by requester is permitted.

2. ☐ The request for *ex parte* reexamination is DENIED.

This decision is not appealable (35 U.S.C. 303(c)). Requester may seek review by petition to the Commissioner under 37 CFR 1.181 within ONE MONTH from the mailing date of this communication (37 CFR 1.515(c)). **EXTENSION OF TIME TO FILE SUCH A PETITION UNDER 37 CFR 1.181 ARE AVAILABLE ONLY BY PETITION TO SUSPEND OR WAIVE THE REGULATIONS UNDER 37 CFR 1.183.**

In due course, a refund under 37 CFR 1.26 (c) will be made to requester:

a) ☐ by Treasury check or,

b) ☐ by credit to Deposit Account No. _____, or

c) ☐ by credit to a credit card account, unless otherwise notified (35 U.S.C. 303(c)).

cc:Requester (if third party requester)

ORDER

1. A substantial new question of patentability affecting claims 1-21 of United States Patent Number 7,272,904 to LaRue is raised by the request for *ex parte* reexamination.

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that *ex parte* reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extensions of time in *ex parte* reexamination proceedings are provided for in 37 CFR 1.550(c).

The requester indicates in the request filed on 10/29/2007 that Technical Manual, TM 9-4931-710-14&P, dated August 1986, Department of the Army (M 139 Technical Manual) raises a substantial new question of patentability of claims 1-21.

Claim 1 of Larue recites an adjustable mounting system, comprising: a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces; at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein; a locking lever having a rotary cam plate and a pivot shaft integral therewith, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position; and

an adjustment nut being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces.

Independent claim 16 recites an adjustable mounting system, comprising: a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces; at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein; a locking lever having a rotary cam plate and a pivot shaft integral therewith and being rotatably moveable between locking and unlocking positions, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position; a drive member being received in non-rotatable linearly moveable relation on said pivot shaft; an adjustment nut being threaded to said pivot shaft and providing for adjustment of the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces; and at least one resilient member being interposed between said drive member and said locking platform and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

Key to claims 1 and 16 is the recitation of a locking lever having a rotary cam plate and a pivot shaft integral therewith.

The M 139 Technical Manual shows a mounting system having a locking lever 18 having a rotary cam plate and a pivot shaft 19 that is integral with the lever to the broad degree claimed in that the shaft works together with the lever.

There is a substantial likelihood that a reasonable examiner would consider this teaching to be important in deciding whether or not the claims of LaRue '904 are patentable. Accordingly, the M 139 Technical Manual raises a substantial new question of patentability of claims 1-21 of LaRue '904, which question has not been decided in a previous examination of LaRue '904.

The request also indicates that US Patent 4,845,871 to Swan (Swan '871), in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 3-7, 9-10, 16-17 and 19. Claims 3 and dependent claims 4-7, as well as claim 16, 17 and 19, relate to a pivot shaft defining a threaded section receiving an adjustment nut and defining an external non-circular section and a drive member having a non-rotatable and linearly moveable relation with and external non-circular section. Swan '871 shows drive member 70, 80 that is distinct from the pivot shaft 74. Claims 9-10 relate to a locater key. Swan '871 shows an unlabeled locater key in Figure 6.

There is a substantial likelihood that a reasonable examiner would consider this teaching to be important in deciding whether or not the claims of LaRue '904 are patentable. Accordingly, Swan '871 raises a substantial new question of patentability of claims 3-7, 9-10, 16-17 and 19 of LaRue '904.

Swan '871 is considered to be "old art", i.e. a prior art reference cited in the record of the prior examination of the patent. During the previous examination of the patent, the examiner did not rely upon this "old art" to reject any claim in combination with the M 139 Technical Manual. Therefore, Swan '871 is being viewed in a new light and use of this "old art" is proper in this reexamination proceeding. See MPEP 2258.01, item "(B)", section "(1)".

The request also indicates that US Patent 5,276,988 to Swan (Swan '988), in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 9-10. As noted above, claims 9-10 relate to a locater key. Swan '871 shows a locater key in Figures 5A, 5B, 6A and 6B.

There is a substantial likelihood that a reasonable examiner would consider this teaching to be important in deciding whether or not the claims of LaRue '904 are patentable. Accordingly, Swan '988 raises a substantial new question of patentability of claims 9-10 of LaRue '904.

Swan '988 is considered to be "old art", i.e. a prior art reference cited in the record of the prior examination of the patent. During the previous examination of the patent, the examiner did not rely upon this "old art" to reject any claim in combination with the M 139 Technical Manual. Therefore, Swan '988 is being viewed in a new light and use of this "old art" is proper in this reexamination proceeding. See MPEP 2258.01, item "(B)", section "(1)".

The request also indicates that US Patent 4,531,321 to Bechtel, in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 14-15 and 20-21.

Claims 14-15 and 20-21 recite a mounting base a pair of mounting ring sections and retainer members. Bechtel shows a mounting base having retainers extending through the mounting base sections 50,54 for receiving rings.

There is a substantial likelihood that a reasonable examiner would consider this teaching to be important in deciding whether or not the claims of LaRue '904 are patentable. Accordingly, Bechtel raises a substantial new question of patentability of claims 14-15 and 20-21 of LaRue '904, which question has not been decided in a previous examination of LaRue '904.

Finally, the request indicates that US Patent 6,026,580 to LaRue (LaRue '580), in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 11-13. Claim 11, and dependent claims 12-13 add the recitation of a mounting base defining a ring mounting receptacle; a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device.

LaRue '580 shows the use of fasteners (retaining members) to secure a base to rings in Figure 7A.

There is a substantial likelihood that a reasonable examiner would consider this teaching to be important in deciding whether or not the claims of LaRue '904 are patentable. Accordingly, LaRue '580 raises a substantial new question of patentability of claims 11-13 of LaRue '904, which question has not been decided in a previous examination of LaRue '904.

Accordingly, all claims 1-21 will be reexamined.

2. The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 7,272,904 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

3. Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

4. The comments relating to derogatory remarks on pages 27-32 of the request are not germane in a reexamination request and have not been considered. Reexamination is limited to substantial new questions of patentability based upon prior art patents and publications.

5. Any inquiry concerning this communication should be directed to Matthew C. Graham at telephone number 571-272-7116.

Please mail any communications to:

Attn: Mail Stop "Ex Parte Reexam"
Central Reexamination Unit
Commissioner for Patents
P. O. Box 1450
Alexandria VA 22313-1450

Please FAX any communications to:
(571) 273-9900
Central Reexamination Unit

Please hand-deliver any communications to:

Customer Service Window
Attn: Central Reexamination Unit
Randolph Building, Lobby Level
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:

Matthew C. Graham
CRU Examiner
3993
(571) 272-7116

Conferees

Notice of References Cited	Application/Control No. 90/010,041	Applicant(s)/Patent Under Reexamination 7,272,904	
	Examiner Matthew C. Graham	Art Unit 3993	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,026,580	02-2000	LaRue, Mark C.	42/127
*	B	US-5,276,988	01-1994	Swan, Richard E.	42/127
*	C	US-4,845,871	07-1989	Swan, Richard E.	42/127
*	D	US-4,531,321	07-1985	Bechtel, Daniel L.	42/126
	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)
*	U	Technical Manual, TM 9-4931-710-14&P, dated August 1986, Department of the Army
	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.

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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

Joshua A. Stockwell, Esq.

BARLOW, JOSEPHS & HOLMES, LTD.

101 Dyer Street, 5th Floor

Providence, RI 02903

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. 90/010,041.

PATENT NO. 7,272,904.

ART UNIT 3993.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

RECEIVED

FEB 0 8 2008

CENTRAL REEXAMINATION UNIT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

U.S. Patent No:	7,272,904	Control No.:	90/010,041
Issued:	September 25, 2007	Docket No:	LRU004 Reex
Patentee:	LARUE, Mark C.	Art Unit:	3993
Title:	ADJUSTABLE THROW LEVER PICATINNY RAIL CLAMP		

PATENT OWNER'S STATEMENT

Mail Stop Ex Parte Reexam
Central Reexamination Unit
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Order of the Central Reexamination Unit mailed December 10, 2007 Patentee, Mark C. LaRue, hereby files this Patent Owner's Statement. In paragraph 1 of the Order it is stated that "A substantial new question of patentability affecting claims 1-21 of United States Patent Number 7,272,904 to LaRue is raised by the request for ex parte reexamination".

On pages 2 and 3 of the Order independent claims 1 and 16 of the LaRue '904 patent are presented. Though not so indicated in the Order, it is clear that both of the independent claims include specific recitations of subject matter that is not taught or inherently set forth by any of the references cited in the Order.. In the M 139 Technical Manual there are at least three exploded view illustrations showing the dovetail mount locking mechanism of the M 139 sighting device. An exploded illustration most clearly showing the M139/M140 Alignment Devices of the M 139 Technical Service Manual, Figure. C-2, is attached hereto as Exhibit A.

Exhibit B, also attached hereto, is a parts list identifying, among other things, the parts that comprise the releasable mount assembly of the Alignment Device shown in Exhibit A.

Claim 1, among other features, recites the specific limitation ***"a locking lever having a rotary cam plate and a pivot shaft integral therewith"***. The M 139 Technical Manual does not provide the teaching of a locking lever having a rotary cam plate having an integral pivotal shaft nor its equivalent.

The M 139 alignment device (see Exhibits A and B), is intended for mounting to a dove-tail mount structure of a piece of military equipment such as a towed or self-propelled artillery piece or a military vehicle. The alignment device employs a mount locking mechanism having a body 20 defining an undercut geometry for registry with a portion of a dove-tail mount. A cylindrical post is mounted to and extends upwardly from the body 20 and provides for support and positioning of the optical and light system of the alignment device. The body defines an integral laterally extending mount platform having a pivot mount hole. A rotatable locking lever 18 is pivotally mounted to the mount platform by a screw, nut and cotter pin assembly which is separate from the locking lever and which is used to provide for retention and pivotal mounting of the locking lever on the mount platform. The shaft of the screw member serves as the pivot about which the locking lever is rotated. The locking lever is rotated in one direction about the pivot to lock the alignment device to the dove-tail mount and is rotated in the opposite direction about the pivot to release the body 20 from the dove-tail mount. The rotatable locking lever 18 has a locking plate member defining a pivot hole and is positioned beneath and in surface to surface engagement with the bottom surface of the laterally extending mount platform. A screw member 19 of the screw, nut and cotter pin assembly has a threaded shaft that projects upwardly through the pivot hole of the locking plate and also extends through the pivot mount hole of the

mount platform of the body 20. A slotted nut member 16 is threaded onto the threaded shaft of the screw member 19 and when properly positioned is secured against rotary movement relative to the threaded shaft of the screw member by means of a cotter pin 17.

Claim 1 of LaRue '904 further recites ", ***said pivot shaft being rotatable within said lock opening***". This rotatable pivot shaft feature is essential to the functionality of the adjustable mounting system of the invention of the '904 patent and is made possible by the recitations that the pivot shaft is integral with the rotary cam plate of the locking lever and that the pivot shaft is rotatable within the lock opening of the mount platform. The screw, nut and cotter pin assembly of the M 139 Technical Manual serves only to provide for pivotal mounting of the locking lever 18 and does not provide for adjustment of the position of the locking lever during use of the mount system. Neither the screw nor the nut shown in the M 139 Technical Manual is rotatable along with the locking lever; rather the screw shaft merely extends through the pivot holes of the mount platform and locking lever to secure the locking lever in pivotally moveable relation with the mount platform. Any rotation of the screw, nut and cotter pin assembly that might occur is not controlled, but rather would be incidental. The M 139 Technical Manual does not explain any particular procedure for adjustment of the position of the slotted nut 16. Thus it is obvious from the disclosure of Figure C-2 (Exhibit A) and from the parts list of Figure C-2-1 (Exhibit B) that the slotted nut is simply tightened to the extent that the locking lever is positioned to establish releasable locking with the dove-tail of the mount, but is sufficiently loose that it can be manually rotated to its locking and release positions. Accordingly, it is respectfully submitted that the above-identified limitations of claim 1 establish clear and patentable distinction over the teachings of the M 139 Technical Manual.

Independent claim 16 of LaRue '904 incorporates a number of limitations that clearly and patentably distinguish its recited language from the disclosure of the M 139 Technical Manual. The claim recites ***"a locking lever having a rotary cam plate and a pivot shaft integral therewith"***... As explained above, the M 139 Technical Manual does not provide the teaching of a locking lever having an integral cam plate and integral pivotal shaft. Moreover, the screw, slotted nut and cotter pin assembly of Figure C-2 (Exhibit A) is not the equivalent of an integral pivot shaft since it does not provide the essential structure nor function of the integral pivot shaft as specifically recited in claim 1.

Claim 16 further recites ***"said pivot shaft being rotatable within said lock opening".*** The M 139 Technical Manual does not disclose or suggest any features or structural relationships that would make the screw 19 rotatable within the pivot opening. The screw 19 of Figure C-2 merely serves as a pivot about which the locking lever is rotatable. The screw may rotate if there is frictional resistance between the screw and the pivot hole of the locking lever, but it is not controllably pivoted as the locking lever is pivoted as recited in claim 16. Certainly from the disclosure of the M 139 Technical Manual any rotation of the screw would be incidental and uncontrollable. And of course, if the nut 16 were not secured against rotation on the screw by the slotted nut 16 and cotter pin 17 any rotation of the screw 19 could loosen the nut and could thus result in inadvertent separation of the locking lever from the mounting platform. The slotted nut and cotter pin arrangement shown in Figure C-2 obviously prevents inadvertent separation of the nut from the screw.

As mentioned above, it is necessary that the pivot shaft of the locking mechanism of the present invention be rotatable along with the locking lever. By causing the pivot shaft and the adjustment nut to rotate along with the locking lever, because the pivot shaft is integral with the

rotary locking lever, there is no tendency for inadvertent counter-rotation and separation of the adjustment nut from the threaded end of the pivot shaft. Yet, the user of the locking mechanism, typically a soldier or law enforcement officer is provided with the capability for simply and easily adjusting the position of the locking lever and its cam plate with respect to the locking geometry of a Picatinny rail and more importantly to accomplish this character of adjustment during tactical conditions and conditions of poor light. Neither of these important features is addressed by the M 139 Technical Manual.

Claim 16 further recites ***"a drive member being received in non-rotatable linearly moveable relation on said pivot shaft"***. This "drive member" is clearly evident at 68 in FIGS. 7, 8, 9, 11, 12, 15 and other Figures of the '904 patent of LaRue. The adjustment nut 60 engages and establishes frictional resistance with the upper surface of the drive member. Though the general appearance of the drive member is that of a simple circular washer, various figures of the drawings of the LaRue '904 patent confirm that it does not have the geometry or function of a simple washer. It should be noted that the central opening 69 of the drive member 68 is of non-circular configuration (see FIGS. 8, 9 and 15). This non-circular central opening establishes a non-rotatable and linearly moveable relation of the drive member with the pivot shaft. Note with respect to FIG. 14 that the pivot shaft 54 defines a corresponding section 62 of non-circular cross-section matching the configuration of the central opening. These features ensure that the drive member is rotatable along with the locking lever and also ensures that the drive member has linear movement along the length of the non-circular section 62 of the integral shaft. None of the references cited in the Order disclose or inherently suggest these specifically recited features.

Claim 16 further recites ***"at least one resilient member being interposed between said drive member and said locking platform"***. The resilient member 70 provides resistance to movement of the drive member 68 and ensures the development of frictional resistance to rotation of the adjustment nut 60. Further, the resilient member 70 permits some linear movement of the locking lever as it is rotated to its locking position to ensure that the cam surface of the rotary cam plate ensures proper clamping force with a sight mounting rail of a tactical firearm. And the resilient member 70 does not permit the cam plate to over-stress and deform the metal of the mounting rail as the locking lever is rotated to its locking position. If the mounting rail is deformed by excessive clamping force, the typically softer metal of the mounting rail will likely be yielded and permanently deformed. Such permanent deformation of the locking surface of a sight mounting rail will likely cause loss of the zero of the sighting device. When a telescope or other sighting device is mounted to a firearm mounting rail by excessive locking force and is then unlocked and removed, when the sighting device is later re-mounted on the mount rail of the firearm, it is highly likely that the zero of the sighting device would have been lost. It will then be necessary for proper zero to again sight in the firearm sighting device; however during tactical activities and field activities re-sighting for zero may not be possible or practical.

During tactical conditions it is highly desirable to provide a sighting device mounting system that will permit the sighting device to be unlocked and removed from its mounting rail and later re-mounted and locked to the mounting rail without losing its zero. The resilient member that is specifically recited in claim 16 is one of the several novel features of the '409 patent that has proven the quality of the invention of the sight mounting system of the '409 patent during factory tests and military field tests. Military and other tactical sighting systems

employing the sight mounting system of the '409 patent are removed and replaced many times without the loss of zero.

On page 3 of the Order, in the last two lines, it is correctly stated "Key to claims 1 and 16 is the recitation of a locking lever having a rotary cam plate and a pivot shaft integral therewith". It is incorrectly stated, however, that "The M 139 Technical Manual shows a mounting system having a locking lever 18 having a rotary cam plate and a pivot shaft 19 that is integral with the lever or the broad degree claimed in that the shaft works together with the lever". It is clear that the pivot shaft, the shaft of the screw 19 does not work together with the lever. Rotation of the locking lever does not cause consequent rotation of the screw. Also, if desired, the screw 19 may be rotated independently of the locking lever and mount platform. According to the invention set forth in the '904 patent of LaRue it is necessary that the pivot shaft rotate along with the locking lever during both locking and unlocking lever rotation. This critical requirement is not provided by the screw, slotted nut and cotter key arrangement shown in Figure C-2 of the M 139 Technical Manual. Accordingly, it is respectfully submitted that claims 1 and 16 of the '904 patent of LaRue are properly patentable in comparison with the teachings of the M 139 Technical Manual.

The integral relation of the pivot shaft with the rotary cam plate is very important to the functionality of the locking lever system of LaRue '904. It is necessary to the functionality of the sight mount locking system that the pivot shaft rotate along with the rotary cam plate and that the adjustment nut be rotatable on the threaded pivot shaft and adjustably movable relative to the rotary cam plate. Clearly the disclosure of the M 139 Technical Manual does not show or suggest a pivot shaft that is "integral" with a rotatable locking lever. Rather, in the exploded view (Figure C-2) of the M 139 Technical Manual shown in Exhibit A hereof, the alignment

device is shown to have a locking lever mounting flange with a hole through which the threaded shaft of a screw 19 extends. A rotary locking lever 18 having a pivot plate is positioned beneath and is apparently in surface to surface contact with the mounting flange if the slotted nut is tightened on the shaft of the screw. And the shaft of the screw 19 extends through aligned pivot holes of the pivot plate and the mounting flange of the body 20 so that the rotary locking lever 18 is pivotally mounted beneath and either in spaced relation with or in contact with the bottom surface of the mounting flange. The rotary locking lever 18 is clearly rotatable relative to the screw and cannot by any stretch of the imagination be considered "integral" with the screw as recited in claim 1 of the '904 patent. According to Figure C-2 of the drawings of the M 139 Technical Service Manual a slotted nut 16, is threaded onto the threaded shaft of the screw 19 and is secured against rotation relative to the shaft of the screw by means of a cotter pin 17. Typically slotted or castellated nuts define a number of cotter pin slots which permit adjustment of the nut to a number of different incremental rotational positions relative to a cotter pin passage extending transversely through a shaft. For example, a slotted hex nut as shown in Figure C-2 of the M 139 Technical Service Manual can have a maximum angular rotational adjustment of almost 60° for alignment of adjacent slots with the cotter pin hole of a shaft. A slotted nut of octagonal configuration might have rotational adjustment of almost 45° to establish a holding but not binding support of a bearing or other device. Typically a slotted nut is rotated until it becomes tight and binding and then it is rotated in the reverse direction sufficient to relieve its binding force and to align one of its slots with the cotter pin hole of a shaft. When rotated in the reverse direction the nut quickly becomes loose on the threaded shaft and typically can be turned by hand. The bearing retainer nut for an automotive vehicle wheel spindle is a reasonable example. The nut is normally tightened until the bearing becomes bound. If this condition were

maintained the bearing would be subject to excessive wear and would fail in a short period of time. However the bearing nut is counter-rotated, i.e., loosened, until the bearing can freely rotate and one of the slots of the nut becomes aligned with the cotter pin opening A cotter pin is then inserted through the aligned slot and shaft hole to secure the slotted nut against inadvertent rotational movement on the shaft. The cotter pin is usually deformed by bending a part of it to prevent its movement out of the aligned cotter pin hole and nut slot.

With these considerations in mind it is logical that there is no intention to adjust the position of the slotted nut 16 to establish a frictional resistance relation of the rotary locking lever 18 shown in Figure C-2 of the M 139 Technical Manual with the mounting platform. Precision rotational adjustment of the slotted nut for precision positioning of the locking lever relative to the dove-tail is not possible because of the included angles of nut rotation for cotter pin alignment. And since the upper surface of the locking lever and the bottom surface of the lateral lever mounting projection of the body 20 are disposed in face to face relation, tightening of the slotted nut to the point that it can draw the locking lever into forceful engagement with the lateral projection would not be practical. To do so could develop frictional resistance between the facing surfaces of the locking lever and its support platform. This frictional resistance could retard rotary motion of the locking lever or lock it against rotation, which is obviously not intended. Thus, the rotary locking lever 18 of the M 139 Technical Manual, by the nature of being pivotally mounted by a screw and slotted nut and cotter pin arrangement, is therefore somewhat loosely pivotally mounted by the screw and nut assembly so that the locking lever may be easily rotated to its locking and unlocking positions. Moreover when the rotary locking lever is mounted and the alignment device is being used, it is not practical and perhaps not possible to accomplish minute adjustment of the position of the slotted nut on the threaded shaft

of the screw. The nut is only incrementally adjustable within ranges of multiple degrees of rotation due to the need for alignment of one of the slots of the nut with a transverse cotter pin hole in the shaft of the screw 19. Moreover, if adjustment of the slotted nut is needed, it would be necessary to remove the cotter pin before tightening or loosening the nut by an increment of several degrees of rotation. If adjustment of the nut is needed during field conditions the cotter pin could easily become lost if it were removed or the cotter pin could become damaged to the point that it is no longer useable, thus potentially rendering the alignment device ineffective.

In contrast, the adjustment nut of the locking mechanism of the '409 patent is not of the slotted variety and is not restrained against rotation by a cotter pin. Rather, the adjustment nut is infinitely rotationally adjustable on the threaded section of the integral pivot shaft, thus permitting minute positioning adjustment of the rotary locking lever and its integral rotary cam plate and pivot shaft. This locking lever adjustment feature is invaluable and critical during use of a firearm sighting device during tactical or field conditions. The user, typically a soldier and highly trained marksman, need only use a simple hex head wrench, slotted wrench or simple pliers device to accomplish desired rotational adjustment of the adjustment nut. This locking lever adjustment can easily be done in a few seconds of time during tactical activities and can be done at night or in poor lighting conditions. And since the pivot shaft is integral with the rotary cam plate it is not necessary to secure the shaft, such as with a back-up wrench, during rotation of the adjustment nut by means of a small hex head wrench that can be easily carried in a pocket of the users clothing.

It is also stated in the Order "The request also indicates that US Patent 4,845,871 to Swan (Swan '871), in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 3-7, 9-10, 16-17 and 19.

In claim 3 it is recited ***"said pivot shaft defining a threaded section receiving said adjustment nut and defining an external non-circular section"***. The M 139 Technical Manual simply shows a screw 19 that serves as a pivot shaft. The screw has no non-circular pivot shaft section; rather the screw obviously has a circular cross-sectional configuration and is shown in Figure C-2 of the M 139 Technical Manual to be threaded throughout the length of its shaft. Swan '871 discloses a pivot shaft that obviously has a circular cross-sectional configuration and thus is significantly different in construction and function as compared with the pivot shaft geometry that is recited in claim 3 of LaRue '904. The pivot shaft of Swan '871 has no adjustment feature; rather the actuating handle 88 of the locking lever is pinned to the pivot shaft and thus is not adjustable relative to the pivot shaft. A threaded shaft section and an adjustment nut are not shown or inherently suggested in the teachings of Swan '871 or in the teachings of M 139 Technical Manual. Thus the combined teachings of the M 139 Technical Manual and Swan '871 do not imply or inherently suggest a pivot shaft having an external non-circular section as is called for in Claim 3 of LaRue '904.

Claim 3 of LaRue '904 also includes the limitation ***"a drive member having non-rotatable and linearly moveable relation with said external non-circular section"***. This drive member is element 68 which is shown in FIG. 7 by sectional view and shown in FIGS. 8 and 9 by isometric and plan views. Note that the drive member 68 of LaRue '904 has a non-circular central opening having a non-circular geometry that matches the external non-circular section of the integral pivot shaft 54. Thus the drive member 68 is linearly moveable on the pivot shaft but is prevented from rotation relative to the pivot shaft. This causes the drive member 68 to rotate along with the pivot shaft during rotation of the locking lever so that there exists no relatively moveable component activity that would tend to cause rotation of the adjustment nut relative to

the pivot shaft. This feature prevents any relative rotational movement of the drive member 68 and the adjustment nut and thereby prevents the adjustment nut from being inadvertently loosened or tightened as the integral pivot shaft is rotated by rotation of the locking lever between its locking and release positions.

The drive member 68 is referred to in the LaRue patent as a drive washer member because it is of circular outer configuration, has a flat upper surface and is interposed between two components, a resilient member such as the spring 70 and the adjustment nut 60. However the member 68, whether called a drive washer or drive member, does not have the configuration of a conventional circular washer nor does it provide the function of a simple conventional washer. The drive member is linearly moveable on the pivot shaft and is rotated by the shaft as the locking lever is rotated. Additionally the drive member is in non-rotatable and force transmitting engagement with the adjustment nut and applies constant force to the adjustment nut via the force of the spring member 70. These features are clearly absent from the combined teachings of the M 139 Technical Manual and Swan '871 whether taken along or in combination.

Claim 4 of LaRue '409, in addition to the subject matter recited in claim 3, calls for ***"said at least one resilient member being interposed between said drive member and said locking platform and preventing free rotational movement of said locking lever at said unlocking position"***. Swan '871 in FIGS. 8 and 9 shows a pin 94 that extends through a hole 86 in a tubular portion 84 of the actuating handle 88 to secure the lever and shaft in fixed assembly. The same reference numeral 94 is used for reference to a stack of Belleville washers that are located within a first aperture 90 of the support 71 and within the tubular portion in circumscribing relation to the shaft 74. The lower washer is seated on an annular internal shoulder 92 within the first aperture 90 of the support 71. It appears from the drawings that the top-most Belleville

washer engages the bottom surface of a base member 80 having a top surface, bottom surface and a centrally positioned aperture 82 through which the shaft 74 extends. Though it is probable that free rotation of the actuating handle at its unlocked condition would be at least retarded by a frictional force between the top-most Belleville washer 94 and the bottom surface of the base 80, nevertheless the features set forth in claim 3 of LaRue '904 are not present in the combined teachings of Swan '871 and the M 139 Technical Manual (see the above discussion concerning claim 3 of LaRue '904).

With regard to claims 5-7 of LaRue '904, claim 5 recites ***"said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;"***. As explained above, neither the M 139 Technical Manual nor Swan '871 teach a pivot shaft having a threaded section and a non-circular section. Claim 5 further recites ***"a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;"***. These novel features are included in claims 6 and 7 which are dependent from claim 5. The drive member or, drive washer as it is also called, is shown in detail at 68 in FIGS. 7-9, 11, 12 and 15. It is clear from these figures that the drive member 68 has a central opening having the configuration of a hexagon, thus being non-circular. And it is clear from FIG. 14 and other figures that the integral pivot shaft section 62 is of non-circular cross-sectional configuration. The pivot shaft section 62 obviously has the external cross-sectional configuration of a hexagon that matches the internal configuration of the drive member 68. These features permit the drive member to be linearly moveable along the length of the non-circular section of the pivot shaft 62 and yet causes the drive member to be disposed in non-rotatable relation with the pivot shaft and with the adjustment nut 60. The pivot shaft, drive

member and adjustment must rotate in unison; otherwise the adjustment nut 60 might become inadvertently loosened or tightened upon locking and unlocking rotation of the locking lever 56.

These features are important because it is necessary that the drive member 68 have non-rotatable relation with the adjustment nut which is adjustably threaded to the threaded section of the pivot shaft. It is also necessary that the drive member 68 be capable of linear movement relative to the pivot shaft so that the force of the spring member 70 or resilient O-ring member 99 is employed to maintain the tapered cam surface in precise force transmitting engagement with the correspondingly tapered mount locking surface of the picatinny rail. Though Swan '871 discloses the use of a stack of Belleville washers 94 to impart a yieldable locking force to the first locking means 68, the Belleville washers are not constrained against rotation relative to the pivot shaft 74. And the base 80 is fixed to the upper end of the pivot shaft by means of the pin 94. Thus it is clear that none of the novel features of claims 5-7 are taught or inherently suggested by Swan '871. These features are important because it is necessary that the drive member 68 have non-rotatable relation with the adjustment nut which is adjustably threaded to the threaded section of the pivot shaft. It is also necessary that the drive member 68 be capable of linear movement relative to the pivot shaft so that the force of the spring member 70 or resilient O-ring member 99 can be transmitted through the drive member to the adjustment nut. This feature permits the tapered cam surface of the locking lever platform to be maintained in precise force transmitting engagement with the correspondingly tapered surface of the picatinny mounting rail. And, as the locking lever is rotated, the locking lever is linearly movable relative to the pivot shaft to accommodate locking force conditions that might otherwise result in over-stressing the metal of the Picatinny rail. None of these novel features are shown or inherently

disclosed by the combined teachings of the M 139 Technical Manual and Swan '871 or by either of them individually.

With regard to claims 9 and 10 of LaRue '904, though Swan '871 shows a locator key in FIG. 6 it should be borne in mind that claims 9 and 10 incorporate the recited features of claim 1 and therefore distinguish over the teachings of Swan '871 in the manner discussed above concerning claim 1. Thus the presence of the recited locator key of claims 9 and 10 is in addition to other specifically recited components which are not suggested by the combined teachings of the references.

Claims 16-19 of LaRue '904 each include limitations concerning the non-rotatable relation of the drive member with the pivot shaft, features which are not taught nor inherently suggested by the combined teachings of the M 139 Technical Manual and Swan '871 as described above. Note that claim 16 recites ***"a drive member being received in non-rotatable linearly moveable relation on said pivot shaft".*** This recitation clearly and patentably distinguishes the present invention from either the M 139 Technical Manual or Swan '871. Claim 16 further recites ***"an adjustment nut being threaded to said pivot shaft and providing for adjustment of the locking position of said rotary cam plate relative to one of said oppositely angulated cam surfaces:".*** Swan '871 does not show or inherently suggest the provision of an adjustment nut. Rather, the locking lever is fixed to the pivot shaft by a pin member 94. And though the M 139 Technical Manual shows a threaded screw 19 (Figure C-2) which serves as a pivot shaft for the locking lever 18, it is clear that the nut 16 is provided for mounting of the locking lever to the body 20, it is not provided for the purpose of precisely adjusting the position of the locking lever beyond the amount of adjustment that is needed for its installation. The slotted nut 16 is threaded on the shaft of the screw 19 and is tightened on the screw shaft to the

extent that the locking lever is free for rotation but is not too loose. If the nut 20 is a hex nut, then each increment of rotational adjustment for alignment of one of the slots with the hole through the screw will be in the order of 60°. As stated above, typically slotted nuts are tightened until binding occurs and are then backed off until one of the slots of the nut becomes aligned with the hole of the threaded shaft. At this point the cotter pin 17 is inserted through a slot of the nut and through a hole of the screw to lock the nut against rotational movement relative to the shaft of the screw. Thus, when installed the nut 16 is not precisely rotationally adjustable for precision adjustment of the position of the cam surfaces of the locking lever 18 relative to the corresponding tapered locking surface of a sight mounting structure such as a dove-tail mount. Rather the slotted nut 16 is only adjustable within relatively large increments of rotation for mounting of the locking lever to the base. Claims 17-19, being dependent from claim 16, also include the novel limitation of the drive member being received in non–rotatable linearly moveable relation on the pivot shaft. Thus claims 16-19 are clearly and patentably distinguishable over the combined teachings of the M 139 Technical Manual and Swan '871 and were properly allowed.

Claim 18, in addition to the limitations of its parent claim 16, includes the further recitation ***"said peripheral angulated cam surfaces of said rotary cam plate having a pair of substantially straight cam sections disposed in angular relation and having a curved cam section merging with said substantially straight cam sections"***. Swan '871 shows a plurality of straight cam sections 79, 75 and 72 in FIG. 9, but does not disclose or suggest the provision of curved cam sections merged with them. Claim is thus additionally distinguishable over the teachings of Swan '871 in this regard.

Claim 19 of LaRue '904 introduces the further limitation to the claimed subject matter of claim 16 ***"said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;"*** and also recites ***"a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;"*** As explained above neither the M 139 Technical Manual nor Swan '871 provide teachings of these novel features.

Claims 20 and 21 of LaRue '904 are each dependent from claim 16 and thus also include the limitations of claims 16. These claims were properly allowed in the same manner that claim 16 was properly allowed and were also properly deemed patentable in view of the additional specific limitations that they provide.

It is also stated in the Order that "US Patent 5,276,988 to Swan (Swan '988), in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 9-10. As noted above, claims 9-10 relate to a locator key. Swan '871 shows a locator key in Figures 5A, 5B, 6A and 6B". In the last sentence or the Order it is believed that Swan '988 is being referred to rather than Swan '871. Though it is apparent that locator keys are shown by each of the '971 and '988 patents of Swan, it is clear that neither of the patents of Swan disclose or inherently suggest the specifically recited limitations of parent claim 1 from which claims 9 and 10 depend. Neither of the patents of Swan disclose a locking lever having an integral pivot shaft and having an adjustment nut threaded to the integral pivot shaft, as is specifically recited in Claim 1. The M 139 Technical Manual does not show or suggest an integral pivot shaft having an adjustment nut threaded to it. Rather the M 139 Technical Manual teaches the use of a screw, slotted nut and cotter pin assembly to provide for pivotal mounting of a locking lever. Thus, since claim 1 was properly allowed over the teachings of the Swan '871

and '988 patents and since features specifically recited in claim 1 are not present in the teachings of the M 139 Technical Manual, it is respectfully submitted that the combined teachings of the M 139 Technical Manual and either of the Swan '871 and '988 patents do not anticipate claims 1, 9 and 10 of LaRue '904 under 35 U.S.C. 102 nor render the claims obvious under 35 U.S.C. 103.

On page 6 of the Order it is stated "The request also indicates that US Patent 4,531,321 to Bechtel, in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 14-15 and 20-21". It is further stated "Claims 14-15 and 20-21 recite a mounting base a pair of mounting ring sections and retainer members. Bechtel shows a mounting base having retainers extending through the mounting base sections 50-54 for receiving rings. There is a substantial likelihood that a reasonable examiner would consider this teaching to be important in deciding whether or not the claims of LaRue '904 are patentable. Accordingly, Bechtel raises a substantial new question of patentability of claims 14-15 and 20-21 of LaRue '904, which question has not been decided in a previous examination of LaRue '904".

Claim 14 of LaRue '904, in addition to the subject matter of its parent claim 1, recites ***"said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;"***. The claim further recites ***"a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and"***. Bechtel discloses a sight mount device having a base member 12 which is not provided with an upwardly extending mounting projection as set forth in claim 14 of LaRue '904, but rather is provided with laterally extending front and rear elements 50 and 54 according to FIGS. 1-5. The mount ring sections are fixed directly to the front and rear elements of the base member 12 by means of bolts

that extend through apertures 52 and 56. The base member 12, rather than being releasably mounted to a firearm sight mount rail by a locking lever actuated clamp mechanism according to claim 1, is fixed to the firearm by means of side plate members 30 and 30 that are fixed to the base member 12 by means of small locking screws 44 and 46. The position of the base member relative to the structure of the firearm, for the purpose of elevation adjustment of the scope device, is adjusted by set screw members 40 and 42 which are adjusted to pivot the base member about the bearing 22 shown best in FIGS. 2 and 3.

It is clear that Bechtel '321 does not provide the teaching of a mounting pedestal defining an upwardly extending mounting projection and defining support shoulders as is specifically recited in claim 14 of LaRue '904. Nor does Bechtel '321 provide the teaching of mounting ring sections that are seated on the support shoulders of an upwardly extending mounting projection of a mounting base. And claim 14 of LaRue '904 further recites ***"retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immovable assembly with said support pedestal"***. This specifically recited feature is also absent from the combined teachings of Bechtel '321 and the M 139 Technical manual, thus further supporting the patentability of claim 14 of LaRue '904. Accordingly, it is clear that claim 14 of LaRue '904 establishes patentable distinction in comparison with Bechtel '321 or the combined teachings of Bechtel '321 with the M 139 Technical Manual or the combined teachings of either of the Swan patents and the M 139 Technical Manual.

Claim 15 of LaRue '904, in addition to the subject matter of its parent claims 1 and 14, specifically recites ***"said upwardly extending mounting projection having defining at least one transverse bore extending therethrough; at least one of said mounting ring sections having a***

hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore; another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and" These specifically recited features are not taught or inherently suggested by the combined teachings of Bechtel '321 and the M 139 Technical Manual, nor any of the other references identified in the Order.

Claims 20 and 21 of LaRue '904 specifically recite much the same features as set forth in claims 14 and 15, discussed above. Specifically, claim 20, in addition to the subject matter of its parent claim 16 recites ***"said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders; a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal".*** As discussed above the combined teachings of Bechtel '321 and the M 139 Technical Manual do not teach the provision of a mounting base having a mounting pedestal defining an upwardly extending mounting projection, the mounting pedestal defining mounting ring support shoulders. Figure C-2 of the M 139 Technical Manual merely shows a body 20 having a vertically oriented cylindrical post apparently welded to it and extending upwardly from it. Bechtel '321 discloses a base member 12 having no pedestal or upwardly extending mounting projection or mounting ring support shoulders as are specifically recited in claim 20 of LaRue '904. The base 12 of Bechtel has forwardly and rearwardly extending elements 50 and 54 as described above to which the mount ring sections are directly

connected by mounting bolts. Clearly claim the specific limitations set forth in claim 20 establishes patentable distinction over the combined teachings of Bechtel '321 and the M 139 Technical Manual.

Claim 21 of LaRue '904, in addition to the specifically recited subject matter of its parent claims 16 and 20, included the further specifically recited limitations: ***"said upwardly extending mounting projection defining at least one transverse bore extending therethrough; at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore; another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal".*** Teachings of at least one transverse bore in an upwardly extending mounting projection and mounting ring sections having a hardened insert, and screw openings with internal shoulder surfaces and not taught or suggested by the combined teachings of Bechtel '321 and the M 139 Technical Manual or any combination of teachings of the other references that are identified in the Order. Accordingly, it is clear that claim 20 was also properly allowed during examination and that it is also patentable over the combined teachings of Bechtel '321 and the M 139 Technical Manual.

The Order also states: "Finally the request indicates that US Patent 6,026,580 to LaRue (LaRue '580) in combination with the M 139 Technical Manual, raises a substantial new question of patentability of claims 11-13". It is further stated: "claim 11, and dependent claims

12-13 add the recitation of a mounting base defining a ring mounting receptacle; a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device". Claim 11 of LaRue '904, in addition to the recited subject matter of claim 1, from which claim 11 depends, further recites: ***"said mounting base defining a ring mounting receptacle; a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device".*** Claim 11 of LaRue '904 distinguishes over the teachings of the M 139 Technical Service Manual in the manner discussed above in connection with claim 1. Further, though LaRue '580 discloses a mount defining a receptacle receiving the tongues of scope mount rings and having set screws for locking the tongues within the receptacle, no provision is made for adjustment of the position of the scope mount rings relative to the mount base. Claim 11 of LaRue '904 calls for retainer members that are selectively adjustable to position arcuate internal surface sections in frictional retention with a supported surface. Thus the claim further distinguishes over the combined teachings of LaRue '580 and the M 139 Technical Service Manual and is therefore patentable.

In addition to the combined recitations of claims 1 and 11, claim 12 of LaRue '904 further recites: ***"a plurality of connector receptacles being located within said mounting ring sections; a plurality of hardened inserts being fixed within said plurality of connector***

receptacles and defining internally threaded connector sections; and a plurality of retainer screws being in threaded connection within said internally threaded connector sections and retaining said mounting ring sections in friction supported engagement with a supported object". As is evident particularly in FIG. 7 of LaRue '904, the mounting ring sections 30 and 32 define screw receptacles and insert receptacles within which are located hardened metal inserts 82 and 84 with insert 82 being internally threaded. Retainer screws extend through the receptacles and are threaded into the internally threaded inserts 82. The combined teachings of LaRue '580 and the M 139 Technical Service Manual do not teach or suggest these specifically recited features. These features are important for ensuring that the sight mount mechanism is as lightweight as possible for ease of personnel transport and use in the tactical environment and yet sufficiently durable to withstand typically rough field use for extended periods of time without loss of firearm sight zero. Lightweight but relatively soft metal materials can be effectively used for the basic sight mount components while hard metal inserts secure the components in efficient and structurally sound assembly. None of the references identified in the Order provide the use of hard metal inserts in a sight mount system for firearms.

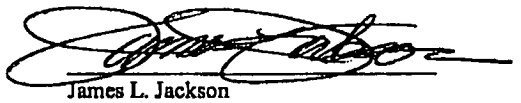
Claim 13 of LaRue '904, In addition to the combined recitations of claims 1, 11 and 12 further recites ***"said plurality of connector receptacles each defining internal insert support shoulders; and said plurality of hardened inserts being seated on and supported by said internal insert support shoulders".*** The connector receptacles of the mounting ring sections 30 and 32 are designed to provide support for the hard metal inserts. Thus when the retainer screws are tightened or when the retainer screws and hard metal inserts are subjected to recoil forces during repeated firing activities the hard metal inserts will be supported by the internal support shoulders so that they cannot be stripped from their receptacles by shock forces of firearm recoil

or by the impact forces of rough handling in a tactical environment. This feature is very important for application of the present invention to tactical firearm use. None of the references set forth in the Order show or suggest the use of hard metal inserts that are contained within receptacles and are supported against movement by insert support shoulders defined within the receptacles.

CONCLUSION

In view of the foregoing, discussions of each of the claims of LaRue '904 with respect to each of the references that are identified in the Order provide confirmation that claims 1-21 are patentable as presented in United States Patent No. 7,272,904 of LaRue.

Respectfully submitted,



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CERTIFICATE OF SERVICE

Patent Owner in this reexamination proceeding has served a copy of this Patent Owner's Statement by first class mail this date to Joshua A. Stockwell, Esq., Barlow, Josephs & Holmes, Ltd., 101 Dyer Street, 5th Floor, Providence, RI 02903.

RECEIVED

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CENTRAL REEXAMINATION UNIT

PTO/SB/21 (01-08)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	

Application Number	Patent No. 7,272,904
Filing Date	December 9, 2004
First Named Inventor	Mark C. LaRue
Art Unit	
Examiner Name	
Attorney Docket Number	LRU004 Reax

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please identify below):

Remarks

Patent Owner's Statement in Ex Parte Reexamination No. 90/010,041

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	James L. Jackson, P.C		
Signature			
Printed name	James L. Jackson		
Date	February 8, 2008	Reg. No.	20791

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	James L. Jackson	Date	February 8, 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Control No.:	90/010,041	)
US Patent No:	7,272,904	)
Issued:	September 25, 2007	)
Inventor:	LARUE, Mark C.	)
Title:	ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP	)
Docket No.:	A042 904 Larue	)

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Commissioner for Patents
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Alexandria, VA 22313-1450

REPLY BY THIRD PARTY REQUESTER

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REPLY BY THIRD PARTY REQUESTER

I. Facts and Travel

On October 29, 2007, third party requester filed a request for *ex parte* reexamination of U.S. Patent No. 7,272,904, issued to Larue (the "Larue '904 patent"). The Office granted the request on December 10, 2007. Pursuant to 37 CFR § 1.530, Larue filed a Patent Owner's Statement on February 8, 2008. Third party requester now submits this Reply to the Patent Owner's Statement pursuant to 37 CFR § 1.535. Accordingly, third party requester submits that the Larue '904 patent is now ready for reexamination on the merits.

II. A locking lever having a rotary cam plate and a pivot shaft integral therewith is not patentable over the prior art because making several parts into a single unit is an obvious engineering choice and it is known in the art to integrate a pivot shaft with a rotary cam plate for rail clamps

A. Making a pivot shaft integral with a rotary cam plate is an obvious engineering choice

In its Patent Owner's Statement, Larue argues that the M139 Technical manual does not anticipate or render obvious the Larue '904 patent because it does not disclose "a locking lever having a rotary cam plate and pivot shaft *integral* therewith." (Emphasis added). However, it is well established rule that making multiple parts into a single piece is an obvious engineering choice that is likely not a patentable advance over the prior art. Specifically, as MPEP § 2144.04(V)(B) counsels:

> *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) (A claim to a fluid transporting vehicle was rejected as obvious over a prior art reference which differed from the prior art in claiming a brake drum integral with a clamping means, whereas the brake disc and clamp of the prior art comprise several parts rigidly secured together as a single unit. The court affirmed the rejection holding, among other reasons, "that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice."); but see *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983) (Claims were directed to a vibratory testing machine (a hard-bearing wheel balancer) comprising a holding structure, a base

> structure, and a supporting means which form "a single integral and gaplessly continuous piece." Nortron argued that the invention is just making integral what had been made in four bolted pieces. The court found this argument unpersuasive and held that the claims were patentable because the prior art perceived a need for mechanisms to dampen resonance, whereas the inventor eliminated the need for dampening via the one-piece gapless support structure, showing insight that was contrary to the understandings and expectations of the art.).

In this case, Larue merely states that the M139 does not have an integral pivot shaft and that it cannot anticipate or render the claims obvious of the Larue '904 patent. Larue does not provide any argument as to why it would be advantageous to make the pivot shaft integral with the cam plate or any problem that the prior art that he was trying to solve. Although Larue argues that he was attempting to make a lever that allowed for minute adjustment of the nut without the nut loosening form the pivot shaft, claim 1 simply is not commensurate with this scope. Accordingly, claim 1 should be rejected.

B. The Swan '871 patent shows that it is known in the art to integrate a pivot shaft with a rotary cam plate on a Picatinny rail clamp

Regardless, the Swan '871 patent show a pivot shaft that is integral with a rotary cam plate. (See Fig. 9). Larue argues that Swan '871 does not show a pivot shaft that includes a threaded portion with a nut. However, the examiner should find this argument unpersuasive because the M139 Technical Manual does show that it is known in the art to fasten a locking lever using a threaded post (the bolt) and a nut. One skilled in the art would have found it obvious to apply the teaching of integrating a pivot shaft with a rotary cam plate as taught in Swan '871 patent to the teaching of the M139 Technical Manual of having locking lever integral with a rotary cam plate that is fastened with a nut.

Moreover, because the pivot shaft is integral with the rotary cam plate and the cam plate itself is rotated to lock and unlock the mount, the pivot shaft necessarily must rotate within the lock opening as taught in the Swan '871 patent.

Accordingly, claims 1 and 16 should be rejected as being obvious over the M139 Technical manual in further view of the Swan '871 patent.

II. It is inherent that the castellated nut shown in the M139 Technical Manual is "minutely" adjustable and, regardless, making a rail clamp adjustable is not a patentable advance over the prior art because there exists an art-recognized need for adjustable rail clamps

A. Omitting the cotter pin on the castellated nut allows the M139 to be minutely adjustable

Larue points out that a limitation of the M139 technical manual is that the device contemplates use of a cotter pin to retain the castellated nut on the pivot shaft and that because the number of crenellations on the castellated nut is fixed the M139 technical manual does not disclose an adjustable nut that is minutely adjustable. This ignores the fact, however, that if one removes the cotter pin, the castellated nut shown in the M139 technical manual is just as minutely adjustable as Larue's nut. Moreover, it is well settled that omitting an element and its function is obvious if the function of the element is not desired. As MPEP § 2144.04(II)(A) states:

> *Ex parte Wu*, 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989) (Claims at issue were directed to a method for inhibiting corrosion on metal surfaces using a composition consisting of epoxy resin, petroleum sulfonate, and hydrocarbon diluent. The claims were rejected over a primary reference which disclosed an anticorrosion composition of epoxy resin, hydrocarbon diluent, and polybasic acid salts wherein said salts were taught to be beneficial when employed in a freshwater environment, in view of secondary references which clearly suggested the addition of petroleum sulfonate to corrosion inhibiting compositions. The Board affirmed the rejection, holding that it would have been obvious to omit the polybasic acid salts of the primary reference where the function attributed to such salt is not desired or required, such as in compositions for providing corrosion resistance in environments which do not encounter fresh water.). See also *In re Larson*, 340 F.2d 965, 144 USPQ 347 (CCPA 1965) (Omission of additional framework and axle which served to increase the cargo carrying capacity of prior art mobile fluid carrying unit would have been obvious if this feature was not desired.); and *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (deleting a prior art switch member and thereby eliminating its function was an obvious expedient).

Additionally, one skilled in the art could select a castellated nut with more crenellations in order to increase the number of fixed positions available, yet still retain the use of the cotter pin

safety device. Accordingly, the examiner should find Larue's arguments unpersuasive and reject the claims under reexamination.

B. Making the nut adjustable on a rail clamp is not a patentable advance because there is an art-recognized need for adjustable rail clamps

The claims of the Larue '904 patent should be found unpatentable over the prior art because there is an art-recognized need for adjustable rail clamps and merely making something adjustable is not a patentable advance. As MPEP § 2144.04(V)(D) states:

> *In re Stevens*, 212 F.2d 197, 101 USPQ 284 (CCPA 1954) (Claims were directed to a handle for a fishing rod wherein the handle has a longitudinally adjustable finger hook, and the hand grip of the handle connects with the body portion by means of a universal joint. The court held that adjustability, where needed, is not a patentable advance, and because there was an art-recognized need for adjustment in a fishing rod, the substitution of a universal joint for the single pivot of the prior art would have been obvious.).

The M139 technical manual teaches that a Picatinny rail clamp may be made adjustable by using a castellated nut on a threaded post. A cotter pin is used to retain the castellated nut in place once it is fastened to the pivot shaft and base. Laure's removal of the cotter pin and inclusion of a prevailing torque lock in order to allow for more minute adjustments of the nut is merely adding adjustability where needed, and therefore, not a patentable advance. Accordingly, the examiner should reject the claims under reexamination as not patentable over the prior art.

III. Including a washer with a keyed opening that mates to non-circular shaft is a well known technique to isolate a nut from rotation

Larue further argues that his selection of a non-circular pivot shaft and use of a keyed washer to prevent the nut from loosening in a rail clamp is a patentable advance over the prior art. Specifically, Larue found that when he pulled his lever the motion might inadvertently loosen or

dislodge his nuts. To solve this problem, he turned to a well-known solution – a prevailing torque lock.

However, the examiner should find this argument unpersuasive because it is a well-known technique to isolate a nut from rotation through use of a washer keyed to a non-circular shaft, or rather a prevailing torque lock. For instance, U.S. Patent No. 4,790,703, issued to Wing on December 13, 1988, attached as Exhibit A, discloses a prevailing torque fastener assembly. As described in the background of the invention section, prevailing torque assemblies are used in rotating structures to prevent the rotation from applying an unloosening or tightening torque to the adjusting nut. See Col. 1, lns. 8-18, and 54-64.

Larue is simply exercising ordinary skill in the art by selecting a well-known structure to solve a problem for which it was intended. Accordingly, the examiner should find the claims of the Larue '904 patent unpatentable over the prior art.

IV. Reinforcing the soft aluminum mounts for fasteners of a scope mount with a hard metal insert is an obvious engineering choice

Larue argues further argues that the use of hard metal inserts in claim 12, 13 and 15 distinguish the Larue '904 patent over the cited prior art. However, the technique of reinforcing a soft aluminum structure with steel inserts is well known in the art, and specifically in weapons accessories, such as rails and rail clamps. For instance, U.S. Patent No. 6,490,822, issued to Swan on December 10, 2002, attached as Exhibit B, provides for use of helicoils (99) in apertures (98) on the module sleeve (1). See Col. 7, lns 65-67 and Fig. 15. Helicoils are hard steel inserts designed to reinforce screw threads. Helicoils are, of course, only an example of one type of reinforcing structure that might be used.

Those skilled in the art use this technique because the underlying structure is often made of aluminum to reduce cost and weight of the structure. However, the disadvantage to using aluminum is that it is softer than other metals, such as steel. The malleability of the aluminum becomes a problem at stress points such as screw threads. The soft aluminum is prone to being deformed, and in the case of screw threads, possibly stripped. Those skilled in the have, therefore, reinforced these stress points with harder metal structures to prolong the useable life of the overall product. Accordingly, the examiner should find Larue's arguments unpersuasive and reject the claims under reexamination.

V. The orientation of the mounting projection, laterally versus upwardly, should be accorded no patentable weight because they function in exactly the same manner with no difference in result

Larue argues that claims 14, 15, 20 and 21 are patentable over the Bechtel '321 patent in combination with the M139 technical manual because the Bechtel '321 patent discloses a mounting pedestal with shoulders that extend laterally from the base rather than upwardly as claimed in the Larue '904 patent. Third party requester submits that the orientation of the mounting pedestal should carry no patentable weight with the examiner because they function in same manner with no difference in result.

The Bechtel '321 patent shows that the concept of having a thinner flange that is clamped between a pair of vertically split scope rings is known in the art. Although the Bechtel '321 patent discloses the mounting structures extending laterally, this due to the fact that Bechtel '321 includes two mounting points for scope rings and is for mounting a scope on a pistol, rather than a larger firearm such as a rifle.

Larue may argue that the orientation of the mounting pedestal matters because it allows the shoulders to support the scope ring. The examiner should reject this argument, however, because Bechtel '321 includes shoulders on the scope rings themselves. Specifically, Bechtel '321 shows in Figs. 3 and 11 that the scope rings have in inwardly projecting tabs. In this regard, Larue has merely rearranged the parts by moving the inwardly projecting tabs on the scope rings to be underneath the mounting structure. Accordingly, one skilled in the art would have found it obvious to reorient the mounting structures shown in Bechtel '321 upwardly and/or relocated the inwardly projecting tabs on the scope rings to the mounting structure.

VI. The Swan '871 patent shows that it is known in the art to have a cam plate with a plurality of curved edges and a plurality of straight edges

Larue states that the Swan '871 patent does not teach a rotary cam plate that with a peripheral angulated cam surface that has "a pair of substantially straight cam sections disposed in angular relation and having a curved cam section merging with said substantially cam sections." Larue cites Fig. 9 to support this assertion. Larue is simply incorrect. The Swan '871 patent clearly shows this structure in Fig. 6, reference no. 68.

Larue may argue that the pair of substantially straight cam sections is not "disposed in angular relation." However, the straight sections are parallel to one another, which would appear to fit Larue's very broad language of "disposed in angular relation" because parallel is an "angular relation" of zero degrees. Regardless, the M139 technical manual shows, in Fig. C-2, that the lever includes a cam surface that includes a curved portion and a pair of straight portions.

Larue may also argue that the surfaces do not "merge." However, the surfaces shown in the Swan '871 patent and the M139 technical manual are unitary structures where one surface is integrally connected to the next surface. Additionally, the M139 technical manual also appears to show a curved cam surface that "merges" with a pair of straight cam surfaces.

Regardless, Larue has not stated why his claimed cam surface would be a patentable advance over either the Swan '871 patent or the M139 technical manual. Accordingly, claim 18 should be rejected as non-patentable over the prior art.

VII. Conclusion

For the foregoing reasons, the examiner should find Larue's arguments in his Patent Owner's Statement unpersuasive and find that claims 1-21 of the Larue '904 patent are unpatentable over the above cited art under 35 U.S.C. §102 and/or §103. Accordingly, third party requester requests that claims 1-21 in the Larue '904 patent be canceled by the U.S. Patent Office for failure to comply with 35 U.S.C. §102 and/or §103.

Respectfully submitted,

/Joshua A. Stockwell/

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U.S. Patent No. 7,272,904
Control No. 90/010,041

CERTIFICATION OF SERVICE

The undersigned hereby certifies that a copy of the REPLY BY THIRD PARTY REQUESTER for US Patent No. 7,272,904, including a copy of all cited references, was mailed on April 7, 2008, by first class mail, postage prepaid, to the correspondence address for the patent holder listed at USPTO database:

JAMES L. JACKSON, P.C.
10723 Sugar Hill Dr.
Houston, TX 77042

Date: 4/7/2008

/Joshua A. Stockwell/

Certifier: Joshua A. Stockwell

Electronic Acknowledgement Receipt	
EFS ID:	3110944
Application Number:	90010041
International Application Number:	
Confirmation Number:	5162
Title of Invention:	ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP
First Named Inventor/Applicant Name:	7,272,904
Correspondence Address:	JAMES L. JACKSON, P.C. - 10723 SUGAR HILL DR. - HOUSTON TX 77042 US 713-785-6909 -
Filer:	Joshua Adam Stockwell
Filer Authorized By:	
Attorney Docket Number:	A042 904 Larue
Receipt Date:	07-APR-2008
Filing Date:	29-OCT-2007
Time Stamp:	11:40:23
Application Type:	Reexam (Third Party)

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	Reexam Timely Requester's Reply to an Owner's Statement	Reply_by_Third_Party_Requester-7272904_Reexam.pdf	67642 [illegible]	no	9
Warnings:					
Information:					
2	NPL Documents	Exhibits.pdf	1916908 [illegible]	no	36
Warnings:					
Information:					
		Total Files Size (in bytes):	1984550		

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/010,041	10/29/2007	7,272,904	A042 904 Larue	5162

7590 06/20/2008

JAMES L. JACKSON, P.C.
10723 SUGAR HILL DR.
HOUSTON, TX 77042

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 06/20/2008

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

Office Action in Ex Parte Reexamination	Control No. 90/010,041	Patent Under Reexamination 7,272,904	
	Examiner MATTHEW C. GRAHAM	Art Unit 3993	

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

a☒ Responsive to the communication(s) filed on *08 February 2008 and 07 April 2008*. b☐ This action is made FINAL.
c☐ A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).** If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Information Disclosure Statement, PTO/SB/08.
3. ☐ Interview Summary, PTO-474.
4. ☐ _____.

Part II SUMMARY OF ACTION

1a. ☒ Claims *1-21* are subject to reexamination.

1b. ☐ Claims _____ are not subject to reexamination.

2. ☐ Claims _____ have been canceled in the present reexamination proceeding.

3. ☐ Claims _____ are patentable and/or confirmed.

4. ☒ Claims *1-21* are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ The drawings, filed on _____ are acceptable.

7. ☐ The proposed drawing correction, filed on _____ has been (7a)☐ approved (7b)☐ disapproved.

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

a)☐ All b)☐ Some* c)☐ None of the certified copies have

1☐ been received.

2☐ not been received.

3☐ been filed in Application No. _____.

4☐ been filed in reexamination Control No. _____.

5☐ been received by the International Bureau in PCT application No. _____.

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

9. ☐ Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate 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.

10. ☐ Other: _____

cc: Requester (if third party requester)

NON-FINAL ACTION

1. Receipt is acknowledged of the Patent Owner's statement filed on 2/08/2008 and the Third Party Requestor's reply filed on 4/07/2008.

2. 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.

3. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Technical Manual, TM 9-4931-710-14&P, dated August 1986, Department of the Army (M 139 Technical Manual).

The M 139 Technical Manual shows an adjustable mounting system, comprising: a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces; at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein (see Figure C-2);. a locking lever 18 having a rotary cam plate and a pivot shaft 19 attached to work with the lever and thus being integral therewith to the broad degree claimed, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an

unlocking position to a locking position. The mount of the M 139 Technical Manual is designed to be attached to a rail. Thus, a rail with mounting surfaces is inherent. The M 139 Technical Manual further shows an adjustment nut 16 being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces.

4. 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.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual.

The claimed invention differs from the M 139 Technical Manual only in specifying the shape of the cam. It would have been obvious to one of ordinary skill in the art to have utilized a cam with predetermined angles as recited depending on the complimentary camming surface in order to insure a tight grip as required to hold the mount in the proper position.

6. Claims 2-7 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 4,845,871 to Swan (Swan '871).

Regarding claim 2, the claimed invention differs from the M 139 Technical Manual only in the inclusion of a resilient member.

Swan '871 shows a resilient member, Bellville washers 94, on a rail mounting device. It would have been obvious to one of ordinary skill in the art to have utilized a resilient member on the device in the M 139 Technical Manual so as to provide biasing as taught by Swan '871. Claims 3 -7, as well as claim 16, 17 and 19, relate to a pivot shaft defining a threaded section receiving an adjustment nut and defining an external non-circular section and a drive member having a non-rotatable and linearly moveable relation with and external non-circular section. Swan '871 shows drive member 70, 80 that is distinct from the pivot shaft 74. It would have been obvious to one of ordinary skill in the art to have utilized a drive member, such as shown by Swan '871, as mere replacement of well know fastening-type elements without any evidence of criticality to the contrary.

Regarding claim 18, it would have been obvious to one of ordinary skill in the art to have utilized a cam with predetermined angles as recited depending on the complimentary camming surface in order to insure a tight grip as required to hold the mount in the proper position.

7. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over with the M 139 Technical Manual in view of US Patent 5,276,988 to Swan (Swan '988).

Regarding claim 9, the claimed invention differs from the M 139 Technical Manual only in the inclusion of a locater key. Swan '988 shows a locater key as a downwardly projecting portion in Figure 5A. It would have been obvious to one of

ordinary skill in the art to have utilized such a key on the device in the M 139 Technical Manual so as to better align the mount on the rail.

Regarding claim 10, to have utilized two keys would have been obvious to one of ordinary skill in the art as a mere duplication of parts.

8. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual in view of US Patent 6,026,580 to LaRue (LaRue '580).

Regarding claims 11-13, the claimed invention differs from the M 139 Technical Manual only in the type of fastener. LaRue '580 shows mounting rings and retaining members in Figures 7A and 7B. It would have been obvious to one of ordinary skill in the art to have utilized these rings and retaining members as well known fastening elements in view of the teaching of LaRue '580. As to the use of a plurality of connectors, such use would have been obvious to one of ordinary skill in the art as a mere duplication of parts. To have included inserts would have been obvious to one of ordinary skill in the art as a mere accessory fastening element.

9. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual in view of US Patent 4,531,321 to Bechtel.

As to claim 14-15, the claimed invention differs from the M 139 Technical Manual only in inclusion of a pedestal.

Note the pedestal in Figure 5 of Bechtel. It would have been obvious to one of ordinary skill in the art have utilized the pedestal and fasteners in Bechtel in the mount

of the M 139 Technical Manual as a mere alternative mounting arrangement depending on the associated environment. As to hardened inserts, again to have included inserts would have been obvious to one of ordinary skill in the art as a mere accessory fastening element

10. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual in view of Swan '871 as applied to claim 19 above, and further in view of Bechtel.

Note the previous discussions in paragraphs 6 and 10 above.

11. Swan '871 and Swan '988 are considered to be "old art", i.e. a prior art reference cited in the record of the prior examination of the patent. During the previous examination of the patent, the examiner did not rely upon this "old art" to reject any claim in combination with the M 139 Technical Manual. Therefore, Swan '871 and Swan '988 are being viewed in a new light and use of this "old art" is proper in this reexamination proceeding. See MPEP 2258.01, item "(B)", section "(1)".

12. Regarding the remarks filed by the Patent Owner and the reply by the Third Party Requester. The Examiner concurs with the remarks by the Third Party Requester. As to the primary issue of whether the M 139 Technical Manual shows an integral pivot shaft, it has long been held that two pieces that work together as an integral unit or device are in fact integral. The Patent Owner has not recited a one piece unitary pivot shaft and rotary cam.

13. The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent

proceeding, involving Patent No. 7,272,904 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

14. Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

15. In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, after final rejection and 37 CFR 41.33 after appeal, which will be strictly enforced.

16. Any inquiry concerning this communication should be directed to Matthew C. Graham at telephone number 571-272-7116.

Please mail any communications to:

Attn: Mail Stop "Ex Parte Reexam"
Central Reexamination Unit
Commissioner for Patents
P. O. Box 1450
Alexandria VA 22313-1450

Please FAX any communications to:

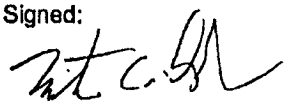
(571) 273-9900
Central Reexamination Unit

Please hand-deliver any communications to:

Customer Service Window
Attn: Central Reexamination Unit
Randolph Building, Lobby Level
401 Dulany Street
Alexandria, VA 22314

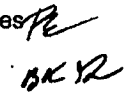
Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:



Matthew C. Graham
CRU Examiner
3993
(571) 272-7116

Conferees:



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Joshua A. Stockwell, Esq.

BARLOW, JOSEPHS & HOLMES, LTD.

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Providence, RI 02903

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. *90/010,041*.

PATENT NO. *7,272,904*.

ART UNIT *3993*.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Reexamination Control No.:	90/010,041		
Patent No. 7,272,904 of:	Mark C. LaRue	Art Unit:	3993
Date Issued:			
For:	Adjustable Throw-Lever Picatinny Rail Clamp	CRU Examiner:	Matthew C. Graham 3993

AMENDMENT

Mail Stop "Ex Parte Reexam
Central Reexamination Unit
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Ex Parte Reexamination Communication of 06/20/2008, and in compliance with the format required under 37 C.F.R. 1.111, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims beginning on page 3 of this paper. It is to be understood that the claims being amended are the claims set forth in patent No. 7,272,904 though these claims may have been amended from their originally filed condition during prosecution of the corresponding patent application No. 11/008,394. Thus, the term "Original" in the first line of any claim set forth in this Amendment is intended to mean the claim as it is presented in the subject patent under reexamination.

Remarks begin on page 13 of this paper.

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this Amendment is being deposited with the United States Postal Service on this date in an envelope as "Express Mail Post Office", addressed to: Mail Stop "Ex Parte Reexam, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. Express Mail No. EB 829296255 US.

James L. Jackson

Date of Signature August 14, 2008
Reg. No. 20791
Customer No. 000052563

AMENDMENTS TO THE CLAIMS:
(with complete listing)

1. (Currently Amended) An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a one-piece unitary rotary cam plate and ~~a~~ pivot shaft integral therewith, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and one-piece unitary rotary cam plate and pivot shaft from an unlocking position to a locking position; ~~and~~

an adjustment nut being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said one-piece unitary rotary cam plate and pivot shaft relative to one of said oppositely angulated clamp surfaces;

a drive member engaging said adjustment nut and having a central opening receiving said pivot shaft, said drive member having non-rotatable and linearly moveable relation with said one-piece unitary rotary cam plate and pivot shaft; and

a resilient member having force transmitting relation with said drive member and continuously urging said drive member against said adjustment nut and developing friction for resisting inadvertent rotation of said adjustment nut on said pivot shaft

relative to said drive member during locking and unlocking rotation of said locking lever.

2. (Canceled)

3. (Currently Amended) The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and defining an external non-circular section;

a said central opening of said drive member being of non-circular configuration and establishing said ~~having~~ non-rotatable and linearly moveable relation with said external non-circular section of said pivot shaft; and

adjustment rotation of said adjustment nut on said threaded section of said pivot shaft causing ~~having~~ linear adjustment ~~engagement with~~ movement of said drive member on said pivot shaft and linear adjustment of said one-piece unitary rotary cam plate and pivot shaft relative to said angulated clamping surfaces of said mounting rail.

4. (Currently Amended) The adjustable mounting system of claim 3, comprising:

said at least one resilient member being interposed between said drive member and said locking platform and imparting force to said drive member and force and frictional resistance to said locking lever preventing free rotational movement of said locking lever at said unlocking position.

5. (Currently Amended) The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and

having an external non-circular section;

a said central opening of said drive member being of non-circular configuration and being received in non-rotatable and linearly moveable relation by said external non-circular section of said pivot shaft;

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force developing frictional resistance retarding free rotation of said locking lever at the unlocking position thereof; and

said adjustment nut being received by said threaded section of said pivot shaft and being rotatable for adjustment of the locking position of said cam plate relative to said clamping surfaces of said mounting rail.

6. (Original) The adjustable mounting system of claim 5, comprising: said at least one resilient member being an annular wave spring.

7. (Original) The adjustable mounting system of claim 5, comprising: said at least one resilient member being at least one O-ring composed of resilient material.

8. (Original) The adjustable mounting system of claim 1, comprising:

one of said oppositely angulated clamping surfaces having a predetermined angle; said rotary cam plate defining first and second substantially straight cam surfaces being joined by a curved cam surface; and

said first and second substantially straight cam surfaces and said curved cam surface each having a taper substantially corresponding to said predetermined angle.

9. (Original) The adjustable mounting system of claim 1, comprising:

said mounting rail defining spaced positioning receptacles and spaced upwardly extending mounting projections; and

said mounting base having at least one locator key having engagement within one of said spaced positioning receptacles and selectively locating said mounting base on said mounting rail.

10. (Original) The adjustable mounting system of claim 9, comprising:

said mounting base having a pair of downwardly projecting locator keys disposed in spaced relation and having locating engagement within two of said spaced positioning receptacles.

11. (Original) The adjustable mounting system of claim 1, comprising:

said mounting base defining a ring mounting receptacle; a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and

retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device.

12. (Original) The adjustable mounting system of claim 11, comprising:

a plurality of connector receptacles being located within said mounting ring

sections; a plurality of hardened inserts being fixed within said plurality of connector receptacles and defining internally threaded connector sections; and

a plurality of retainer screws being in threaded connection within said internally threaded connector sections and retaining said mounting ring sections in friction supported engagement with a supported object.

13. (Original) The adjustable mounting system of claim 12, comprising:

said plurality of connector receptacles each defining internal insert support shoulders; and

said plurality of hardened inserts being seated on and supported by said internal insert support shoulders.

14. (Original) The adjustable mounting system of claim 1, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

15. (Original) The adjustable mounting system of claim 14, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough; at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

16. (Currently Amended) An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a one-piece unitary pivot shaft and rotary cam plate ~~and a pivot shaft~~ integral therewith and being rotatably moveable between locking and unlocking positions, said pivot shaft being rotatable within said lock opening and having a non-circular section, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely

angulated clamp surfaces upon rotation of said locking lever and said one-piece unitary pivot shaft and rotary cam plate from ~~an~~ said unlocking position to ~~a~~ said locking position;

a drive member having an internal non-circular drive opening being received in non-rotatable and linearly moveable relation on said non-circular section of said pivot shaft;

an adjustment nut being threaded to said pivot shaft and having engagement with said drive member and providing for adjustment of the locking position of said one-piece unitary pivot shaft and rotary cam plate relative to one of said oppositely angulated clamp surfaces; and

at least one resilient member being interposed between said drive member and said locking platform and having force transmitting relation with said drive member urging said drive member into frictional engagement with said adjustment nut ensuring concurrent rotation of said pivot shaft said drive member and said adjustment nut during locking and unlocking rotation of said locking lever, preventing inadvertent rotation of said adjustment nut on said pivot shaft and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

17. (Original) The adjustable mounting system of claim 16, comprising:

an annular insert being seated within said lock opening and defining a circular pocket; said drive member being at least partially located within said circular pocket; and said at least one resilient member being located within said circular pocket and being engaged by said drive member and providing resistance preventing free rotation of said

locking lever.

18. (Original) The adjustable mounting system of claim 16, comprising:

said peripheral angulated cam surface of said rotary cam plate having a pair of substantially straight cam sections disposed in angular relation and having a curved cam section merging with said substantially straight cam sections.

19. (Canceled)

20. (Original) The adjustable mounting system of claim 16, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

21. (Original) The adjustable mounting system of claim 20, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough;

at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

22. (New) An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having an angulated clamping surface;

a least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a one-piece unitary pivot shaft and rotary cam plate, said pivot shaft having a threaded end and a non-circular section and being rotatable within said lock opening, said rotary cam plate having an angulated locking surface being moveable into force transmitting locking engagement with said angulated clamp surface upon rotation of said one piece unitary locking lever from an unlocking position to a locking position;

an adjustment nut being threaded to said threaded end of said pivot shaft and upon

rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to said angulated clamp surface;

a drive member having a central opening of non-circular configuration receiving said non-circular section of said pivot shaft and having non-rotatable and linearly moveable relation with said pivot shaft, said drive member rotating concurrently with said pivot shaft during unlocking and locking rotation of said locking lever, said drive member having non-rotatable force transmitting engagement with said adjustment nut preventing inadvertent rotation of said adjustment nut upon locking and unlocking rotation of said locking lever and being moveable linearly by rotational adjustment of said adjustment nut; and

a resilient member having force transmitting relation with said drive member and urging said drive member against said adjustment nut.

REMARKS

In the Office Action of June 20, 2008 of this Ex Parte Reexamination proceeding all of the claims 1-21 of U.S. Patent No. 7,272,904 were rejected.

Claim 1 was rejected under 35 U.S.C. 102(b) as being anticipated by Technical Manual, TM 9-4931-710-14&P, dated August 1986, Department of the Army (M 139 Technical Manual). Though Figure C-2 of the M 139 Technical Manual shows a locking lever 18 being pivotally mounted to a platform by a simple bolt 19, castellated nut 19 and cotter pin 17 the position has been taken that these components are integral to the broad degree claimed.

Clearly however the lever mounting arrangement shown in Figure C-2 of the M 139 Technical Manual would not be function within the spirit and scope of the present invention. After the nut 19 of Figure C-2 has been adjusted on the shaft of the bolt 19 the nut is secured against rotary movement on the shaft by a cotter pin 17. In contrast, the lock nut 60 is not so secured against rotary movement. In practice it is necessary that the nut 60 be adjustable on the pivot shaft 54 via the use of a simple wrench. It is also necessary that the pivot shaft and the rotary locking plate are not rotated along with the nut during locking lever adjustment. By incorporating the pivot shaft and rotary locking plates in a one-piece unit along with the locking lever the principles of the present invention are met. During prosecution of the application from which patent 7,272,904 issued it was intended that the term "integral" mean a one-piece locking lever structure having a pivot shaft and a rotary cam plate. However, it is understood that the term "integral" can mean made up of parts forming a whole.

To overcome the rejection of claim 1, the claim has been amended herewith to specifically recite a one-piece unitary pivot shaft and rotary cam plate, thus overcoming

the legal principle that two pieces that work together as an integral unit or device are in fact integral. In the case of the present invention the locking lever, pivot shaft and rotary cam plate are components of a one-piece unit. The claim has been amended herewith to specifically recite this feature, thus establishing patentable distinction of the claim over the teachings of the M 139 Technical Manual.

Claim 8 was rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual. Claim 8, in addition to its recitation of a cam having predetermined angles, not shown or suggested by the M 139 Technical Manual, also incorporates the amendments made to its parent claim 1 thus patentably distinguishing claim 8 over the teachings of the Technical Manual as indicated above. The locking lever of Figure C-2 is defined as a simple helically curved edge that is eccentric with respect to the pivot point that is established by the bolt member 19 extending through the hole of the locking lever. In contrast, the arrangement of the specifically designed cam surfaces of the rotary cam plate permit the clamping activity to be somewhat relaxed at the locking position of the locking lever. This feature minimizes metal deformation when the locking lever is maintained at its locking position for extended periods of time. Additionally, the cam surfaces minimize the potential for release of the clamp from its locked condition, such as when the locking lever might come into contact with an object that could otherwise rotate it from its locked position. In view of the amendments made in parent claim 1, it is respectfully submitted that claim 8 is allowable as presented herewith along with claim 1.

Claims 2-7 and 16-19 was rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 4,845,871 to Swan. This ground

of rejection has been overcome by the amendments to the claims, particularly the amendments to independent parent claims 1 and 16. Features now recited in the independent parent claims and not presented or inherently suggested by the M 139 Technical Manual and/or Swan '871 are as follows:

1. A locking lever having a one-piece unitary pivot shaft and rotary cam plate. The M 139 Technical Manual shows a bolt 19 with its threaded shaft extending through holes of a locking lever 18 and a laterally extending platform of the mounting base 20, which cannot be considered a locking lever having a one-piece unitary pivot shaft and rotary cam plate. Swan '871 shows a one-piece unitary pivot shaft and rotary cam plate 68, however the locking lever 70 is separate from the pivot shaft and is secured to the pivot shaft by a pin 94 that extends through aligned holes 78 and 86 of the pivot shaft and the tubular portion 84 of the locking lever.

2. A drive member having a non-rotatable and linearly moveable relationship with a pivot shaft. A drive member having the equivalent structure and function of the drive member 68 and its non-rotatable and linearly moveable relation with the pivot shaft is not present in either the M 139 Technical Manual and/or Swan '871. The threaded shaft of the bolt 19 of the M 139 Technical Manual has no drive member at all, but merely extends through holes of the locking lever and lateral platform of the mounting base. Element 80 of Swan '871 is recited as a base having a top surface, a bottom surface and a centerally positioned aperture extending

therethrough. A non-rotatable and linearly moveable relationship of the base and the pivot shaft is clearly not possible.

3. Apparatus preventing rotation of adjustment nut on pivot shaft during locking and unlocking rotation of locking lever. The drive member 68 is linearly moveable relative to the pivot shaft 54 so that it can be urged into rotation resisting but non-rotatable contact with the adjustment nut member 60 which is threaded to the pivot shaft. This feature is necessary to prevent rotation of the adjustment nut 60 on the pivot shaft as the locking lever is pivotally moved between its locking and unlocking positions. The feature that makes this linearly moveable and non-rotatable movement possible is a non-circular internal configuration 69 (see Figs. 8, 9 and 14 of patentee's '904 patent), allowing the drive member 68 to move along the pivot shaft while being prevented from rotation relative to the pivot shaft. The result of this linearly moveable and non-rotatable arrangement of the drive member is that the drive member is rotated concurrently with rotation of the pivot shaft by locking and unlocking movement of the locking lever and maintains force transmitting, friction generating and substantially non-rotatable contact with the adjustment. This ensures that the adjustment nut is not subjected to any rotational forces as the locking lever and its pivot shaft and rotary locking plate, which are components of a one-piece unitary structure, are rotated by manual manipulation of the locking lever. It should be borne in mind that

this non-circular geometry can be defined by splines and slots or by other suitable means as indicated in the specification.

4. a resilient member or spring continuously applying linear force to the drive member to maintain the drive member in frictional, non-rotatable contact with the adjustment nut. The mechanism set forth in Fig. C-2 of the M 139 Technical Manual has no drive member nor resilient member or spring within the scope of the claims as presented herewith. Swan '871 does not teach the use of a non-rotatable linearly moveable drive member on its pivot shaft 74, but Belleville washers 94, which are spring members, urge the pivot shaft upwardly, since the Belleville washers apply force to the base member 80 which is in turn pinned to the pivot shaft 74 by pin 94. The Belleville washers are not disposed in non-rotatable relation with the pivot shaft but merely apply frictional resistance and force urging the rotatable cam plate and pivot shaft upward for control of the clamping force of the locking lever assembly.

Claims 2 and 19 have been canceled herewith since the subject matter thereof has been incorporated within independent claims 1 and 16.

Since claims 3-7 and 16-18, as amended herewith, incorporate features discussed above which are not present in the cited references, it is respectfully submitted that these claims are allowable as presented.

Regarding claims 18, it is respectfully submitted that the amendments to parent claim 16 render dependent claim 18 allowable over the references as applied by the examiner. Additionally the predetermined angles of the rotary cam plate permit slight

relaxation of clamping force when the rotary cam plate is at its locking position. This feature minimizes the potential for inadvertent unlocking rotation of the of the rotary cam plate from its locked position in the event the locking lever might come into contact with a foreign object during movement of the apparatus to which the mounting base is attached.

Claims 9 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 5,276,998 to Swan. Swan '998 was cited for its teaching of a locator key. Though the provision of one or more locator keys on a mounting base is not deemed novel, claims 9 and 10 incorporate novel features that are now present in independent parent claim 1 by this amendment. Accordingly, the combination of features of claims 9 and 10 with the features now specifically recited in claim 1 is clearly novel. Allowance of claims 9 and 10 as presented herewith is respectfully solicited.

Claims 11 - 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 6,026,580 to LaRue. Though LaRue shows mounting rings and retaining members to be well known fastening elements are not novel in themselves, these claims are nevertheless dependent from claim 1 and thus incorporate the novel features that are now present in claim 1. These claims are deemed allowable since the specifically recited combination of features of the parent and dependent claims are not evident from the teachings of the M 139 Technical Manual or LaRue '580.

Claims 14 and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 4,531,321 to Bechtel. It is stated

that Bechtel shows a pedestal in Fig. 5; however no pedestal is mentioned and no structure is provided that functions as a pedestal such as is shown at 118 in Figs. 16 and 17 of the drawings of patent 7,272,904. Element 12 of the sight base of Bechtel '321 is simply described as a base. The base is provided with front and rear elements 50 and 54 which extend forward and rearward from the base and provide for mounting of the scope ring members. However, assuming arguendo that Fig. 5 of Bechtel '321 shows a pedestal, the specifically recited novel features of claims 14 and 15 presented by this amendment, establish a novel combination of features that are not taught or inherently suggested by Bechtel '321 or any of the other references of record taken alone or in combination. Allowance of claims14 and 15 is thus respectfully solicited on these grounds.

Claims 20-21 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of Swan '871, as applied to claim 19 in paragraph 6 of the Office Action. It should be noted that claim 19 has been canceled since its subject matter has been incorporated within independent claim 16 by this amendment. For the reasons discussed above in response to the ground of rejection applied to claims 3-7 and 16, 17, 19, claims 20 and 21 specifically recite novel features that are not taught or inherently suggested by either the M 139 Technical Manual or Swan '871. Claims 20 and 21 are therefore deemed allowable as presently presented.

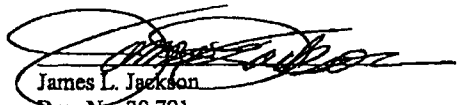
In paragraph 12 of the Office Action it is rightly stated that the Patent Owner has not recited a one-piece unitary pivot shaft and rotary cam. Though the Patent Owner originally intended the term "integral" to mean a one-piece unitary pivot shaft and rotary cam, the claim language has been amended herewith to substitute terms such as "a one-

piece unitary pivot shaft and rotary cam" for the term "integral", thereby clearly distinguishing the present invention from the teachings of the references of record. Thus, it is respectfully submitted that all of the remaining claims of this application specifically recite novel features that are not taught by the relevant prior art.

It is respectfully that this reexamination application is in compliance with 73 C.F.R. 1.530(d)-(j) and is now in condition for allowance. It is believed that on fees are due under 37 CFR 1.20(c). However, in the event that any fees are in fact due, please charge such fees to Deposit Account 50-3112. A copy of this page is enclosed herewith for such purpose.

Consideration and allowance of the amended claims and subsequent grant of a Reexamination Certificate is therefore respectfully requested.

Respectfully submitted,



James L. Jackson
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Reexamination Control No.:	90/010,041		
Patent No. 7,272,904 of:	Mark C. LaRue	Art Unit:	3993
Date Issued:	September 25, 2007		
For:	Adjustable Throw-Lever Picatinny Rail Clamp	CRU Examiner:	Matthew C. Graham 3993

SUPPLEMENTAL AMENDMENT

Mail Stop "Ex Parte Reexam
Central Reexamination Unit
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Ex Parte Reexamination Communication of 06/20/2008, and in compliance with the format required under 37 C.F.R. 1.111, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims beginning on page 3 of this paper. It is to be understood that the claims being amended are the claims set forth in patent No. 7,272,904 though these claims may have been amended from their originally filed condition during prosecution of the corresponding patent application No. 11/008,394. Thus, the term "Original" in the first line of any claim set forth in this Amendment is intended to mean the claim as it is presented in the subject patent under reexamination and the terms "Amended", "Canceled" and "New" indicate the current status of each claim other than the original claims, including newly added claim 22.

Remarks begin on page 13 of this paper.

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this Supplemental Amendment is being deposited with the United States Postal Service on this date in an envelope as "Express Mail Post Office", addressed to: Mail Stop "Ex Parte Reexam, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. Express Mail No. EB 829296269 US.

James L. Jackson

Date of Signature August 25, 2008
Reg. No. 20791
Customer No. 000052563

CERTIFICATE OF SERVICE

Applicant hereby certifies that complete copies of this Supplemental Amendment and the Amendment filed on August 14, 2008 have been served on Requestor by First Class Mail addressed to Joshua A. Stockwell, Esq., BARLOW & HOLMES, LTD., 101 Dyer Street, 5th Floor, Providence, RI 02903

James L. Jackson

Mailing Date: August 25, 2008

AMENDMENTS TO THE CLAIMS:
(with complete listing)

1. (Amended) An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a one-piece unitary rotary cam plate and [a] pivot shaft integral therewith, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and one-piece unitary rotary cam plate and pivot shaft from an unlocking position to a locking position; [and]

an adjustment nut being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said one-piece unitary rotary cam plate and pivot shaft relative to one of said oppositely angulated clamp surfaces;

a drive member engaging said adjustment nut and having a central opening receiving said pivot shaft, said drive member having non-rotatable and linearly moveable relation with said one-piece unitary rotary cam plate and pivot shaft; and

a resilient member having force transmitting relation with said drive member and continuously urging said drive member against said adjustment nut and developing friction for resisting inadvertent rotation of said adjustment nut on said pivot shaft

relative to said drive member during locking and unlocking rotation of said locking lever.

2. (Canceled)

3. (Amended) The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and defining an external non-circular section;

[a] said central opening of said drive member being of non-circular configuration and establishing said [having] non-rotatable and linearly moveable relation with said external non-circular section of said pivot shaft; and

adjustment rotation of said adjustment nut on said threaded section of said pivot shaft causing [having] linear adjustment [engagement with] movement of said drive member on said pivot shaft and linear adjustment of said one-piece unitary rotary cam plate and pivot shaft relative to said angulated clamping surfaces of said mounting rail.

4. (Amended) The adjustable mounting system of claim 3, comprising:

said at least one resilient member being interposed between said drive member and said locking platform and imparting force to said drive member and force and frictional resistance to said locking lever preventing free rotational movement of said locking lever at said unlocking position.

5. (Amended) The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and

having an external non-circular section;

[a] said central opening of said drive member being of non-circular configuration and being received in non-rotatable and linearly moveable relation by said external non-circular section of said pivot shaft;

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force developing frictional resistance retarding free rotation of said locking lever at the unlocking position thereof; and

said adjustment nut being received by said threaded section of said pivot shaft and being rotatable for adjustment of the locking position of said cam plate relative to said clamping surfaces of said mounting rail.

6. (Original) The adjustable mounting system of claim 5, comprising: said at least one resilient member being an annular wave spring.

7. (Original) The adjustable mounting system of claim 5, comprising: said at least one resilient member being at least one O-ring composed of resilient material.

8. (Original) The adjustable mounting system of claim 1, comprising:

one of said oppositely angulated clamping surfaces having a predetermined angle;

said rotary cam plate defining first and second substantially straight cam surfaces being joined by a curved cam surface; and

said first and second substantially straight cam surfaces and said curved cam surface each having a taper substantially corresponding to said predetermined angle.

9. (Original) The adjustable mounting system of claim 1, comprising:

said mounting rail defining spaced positioning receptacles and spaced upwardly extending mounting projections; and

said mounting base having at least one locator key having engagement within one of said spaced positioning receptacles and selectively locating said mounting base on said mounting rail.

10. (Original) The adjustable mounting system of claim 9, comprising:

said mounting base having a pair of downwardly projecting locator keys disposed in spaced relation and having locating engagement within two of said spaced positioning receptacles.

11. (Original) The adjustable mounting system of claim 1, comprising:

said mounting base defining a ring mounting receptacle; a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and

retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device.

12. (Original) The adjustable mounting system of claim 11, comprising:

a plurality of connector receptacles being located within said mounting ring

sections; a plurality of hardened inserts being fixed within said plurality of connector receptacles and defining internally threaded connector sections; and

a plurality of retainer screws being in threaded connection within said internally threaded connector sections and retaining said mounting ring sections in friction supported engagement with a supported object.

13. (Original) The adjustable mounting system of claim 12, comprising:

said plurality of connector receptacles each defining internal insert support shoulders; and

said plurality of hardened inserts being seated on and supported by said internal insert support shoulders.

14. (Original) The adjustable mounting system of claim 1, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

15. (Original) The adjustable mounting system of claim 14, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough; at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

16. (Amended) An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a <u>one-piece unitary pivot shaft and</u> rotary cam plate [and a pivot shaft] integral therewith and being rotatably moveable between locking and unlocking positions, said pivot shaft being rotatable within said lock opening <u>and having a non-circular section</u>, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely

angulated clamp surfaces upon rotation of said locking lever and said one-piece unitary pivot shaft and rotary cam plate from [an] said unlocking position to [a] said locking position;

a drive member having an internal non-circular drive opening being received in non-rotatable and linearly moveable relation on said non-circular section of said pivot shaft;

an adjustment nut being threaded to said pivot shaft and having engagement with said drive member and providing for adjustment of the locking position of said one-piece unitary pivot shaft and rotary cam plate relative to one of said oppositely angulated clamp surfaces; and

at least one resilient member being interposed between said drive member and said locking platform and having force transmitting relation with said drive member urging said drive member into frictional engagement with said adjustment nut ensuring concurrent rotation of said pivot shaft said drive member and said adjustment nut during locking and unlocking rotation of said locking lever, preventing inadvertent rotation of said adjustment nut on said pivot shaft and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

17. (Original) The adjustable mounting system of claim 16, comprising:

an annular insert being seated within said lock opening and defining a circular pocket; said drive member being at least partially located within said circular pocket; and said at least one resilient member being located within said circular pocket and being engaged by said drive member and providing resistance preventing free rotation of said

locking lever.

18. (Original) The adjustable mounting system of claim 16, comprising:

said peripheral angulated cam surface of said rotary cam plate having a pair of substantially straight cam sections disposed in angular relation and having a curved cam section merging with said substantially straight cam sections.

19. (Canceled)

20. (Original) The adjustable mounting system of claim 16, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

21. (Original) The adjustable mounting system of claim 20, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough;

at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

22. (New) An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having an angulated clamping surface;

a least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a one-piece unitary pivot shaft and rotary cam plate, said pivot shaft having a threaded end and a non-circular section and being rotatable within said lock opening, said rotary cam plate having an angulated locking surface being moveable into force transmitting locking engagement with said angulated clamp surface upon rotation of said one piece unitary locking lever from an unlocking position to a locking position;

an adjustment nut being threaded to said threaded end of said pivot shaft and upon

rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to said angulated clamp surface;

a drive member having a central opening of non-circular configuration receiving said non-circular section of said pivot shaft and having non-rotatable and linearly moveable relation with said pivot shaft, said drive member rotating concurrently with said pivot shaft during unlocking and locking rotation of said locking lever, said drive member having non-rotatable force transmitting engagement with said adjustment nut preventing inadvertent rotation of said adjustment nut upon locking and unlocking rotation of said locking lever and being moveable linearly by rotational adjustment of said adjustment nut; and

a resilient member having force transmitting relation with said drive member and urging said drive member against said adjustment nut.

REMARKS

In the Office Action of June 20, 2008 of this Ex Parte Reexamination proceeding all of the claims 1-21 of U.S. Patent No. 7,272,904 were rejected.

Claim 1 was rejected under 35 U.S.C. 102(b) as being anticipated by Technical Manual, TM 9-4931-710-14&P, dated August 1986, Department of the Army (M 139 Technical Manual). Though Figure C-2 of the M 139 Technical Manual shows a locking lever 18 being pivotally mounted to a platform by a simple bolt 19, castellated nut 19 and cotter pin 17 the position has been taken that these components are integral to the broad degree claimed.

Clearly however the lever mounting arrangement shown in Figure C-2 of the M 139 Technical Manual would not be function within the spirit and scope of the present invention. After the nut 19 of Figure C-2 has been adjusted on the shaft of the bolt 19 the nut is secured against rotary movement on the shaft by a cotter pin 17. In contrast, the lock nut 60 is not so secured against rotary movement. In practice it is necessary that the nut 60 be adjustable on the pivot shaft 54 via the use of a simple wrench. It is also necessary that the pivot shaft and the rotary locking plate are not rotated along with the nut during locking lever adjustment. By incorporating the pivot shaft and rotary locking plates in a one-piece unit along with the locking lever the principles of the present invention are met. During prosecution of the application from which patent 7,272,904 issued it was intended that the term "integral" mean a one-piece locking lever structure having a pivot shaft and a rotary cam plate. However, it is understood that the term "integral" can mean made up of parts forming a whole.

To overcome the rejection of claim 1, the claim has been amended herewith to specifically recite a one-piece unitary pivot shaft and rotary cam plate, thus overcoming

the legal principle that two pieces that work together as an integral unit or device are in fact integral. In the case of the present invention the locking lever, pivot shaft and rotary cam plate are components of a one-piece unit. The claim has been amended herewith to specifically recite this feature, thus establishing patentable distinction of the claim over the teachings of the M 139 Technical Manual.

Claim 8 was rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual. Claim 8, in addition to its recitation of a cam having predetermined angles, not shown or suggested by the M 139 Technical Manual, also incorporates the amendments made to its parent claim 1 thus patentably distinguishing claim 8 over the teachings of the Technical Manual as indicated above. The locking lever of Figure C-2 is defined as a simple helically curved edge that is eccentric with respect to the pivot point that is established by the bolt member 19 extending through the hole of the locking lever. In contrast, the arrangement of the specifically designed cam surfaces of the rotary cam plate permit the clamping activity to be somewhat relaxed at the locking position of the locking lever. This feature minimizes metal deformation when the locking lever is maintained at its locking position for extended periods of time. Additionally, the cam surfaces minimize the potential for release of the clamp from its locked condition, such as when the locking lever might come into contact with an object that could otherwise rotate it from its locked position. In view of the amendments made in parent claim 1, it is respectfully submitted that claim 8 is allowable as presented herewith along with claim 1.

Claims 2-7 and 16-19 was rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 4,845,871 to Swan. This ground

of rejection has been overcome by the amendments to the claims, particularly the amendments to independent parent claims 1 and 16. Features now recited in the independent parent claims and not presented or inherently suggested by the M 139 Technical Manual and/or Swan '871 are as follows:

1. A locking lever having a one-piece unitary pivot shaft and rotary cam plate. The M 139 Technical Manual shows a bolt 19 with its threaded shaft extending through holes of a locking lever 18 and a laterally extending platform of the mounting base 20, which cannot be considered a locking lever having a one-piece unitary pivot shaft and rotary cam plate. Swan '871 shows a one-piece unitary pivot shaft and rotary cam plate 68, however the locking lever 70 is separate from the pivot shaft and is secured to the pivot shaft by a pin 94 that extends through aligned holes 78 and 86 of the pivot shaft and the tubular portion 84 of the locking lever.

2. A drive member having a non-rotatable and linearly moveable relationship with a pivot shaft. A drive member having the equivalent structure and function of the drive member 68 and its non-rotatable and linearly moveable relation with the pivot shaft is not present in either the M 139 Technical Manual and/or Swan '871. The threaded shaft of the bolt 19 of the M 139 Technical Manual has no drive member at all, but merely extends through holes of the locking lever and lateral platform of the mounting base. Element 80 of Swan '871 is recited as a base having a top surface, a bottom surface and a centerally positioned aperture extending

therethrough. A non-rotatable and linearly moveable relationship of the base and the pivot shaft is clearly not possible.

3. Apparatus preventing rotation of adjustment nut on pivot shaft during locking and unlocking rotation of locking lever. The drive member 68 is linearly moveable relative to the pivot shaft 54 so that it can be urged into rotation resisting but non-rotatable contact with the adjustment nut member 60 which is threaded to the pivot shaft. This feature is necessary to prevent rotation of the adjustment nut 60 on the pivot shaft as the locking lever is pivotally moved between its locking and unlocking positions. The feature that makes this linearly moveable and non-rotatable movement possible is a non-circular internal configuration 69 (see Figs. 8, 9 and 14 of patentee's '904 patent), allowing the drive member 68 to move along the pivot shaft while being prevented from rotation relative to the pivot shaft. The result of this linearly moveable and non-rotatable arrangement of the drive member is that the drive member is rotated concurrently with rotation of the pivot shaft by locking and unlocking movement of the locking lever and maintains force transmitting, friction generating and substantially non-rotatable contact with the adjustment. This ensures that the adjustment nut is not subjected to any rotational forces as the locking lever and its pivot shaft and rotary locking plate, which are components of a one-piece unitary structure, are rotated by manual manipulation of the locking lever. It should be borne in mind that

this non-circular geometry can be defined by splines and slots or by other suitable means as indicated in the specification.

4. a resilient member or spring continuously applying linear force to the drive member to maintain the drive member in frictional, non-rotatable contact with the adjustment nut. The mechanism set forth in Fig. C-2 of the M 139 Technical Manual has no drive member nor resilient member or spring within the scope of the claims as presented herewith. Swan '871 does not teach the use of a non-rotatable linearly moveable drive member on its pivot shaft 74, but Belleville washers 94, which are spring members, urge the pivot shaft upwardly, since the Belleville washers apply force to the base member 80 which is in turn pinned to the pivot shaft 74 by pin 94. The Belleville washers are not disposed in non-rotatable relation with the pivot shaft but merely apply frictional resistance and force urging the rotatable cam plate and pivot shaft upward for control of the clamping force of the locking lever assembly.

Claims 2 and 19 have been canceled herewith since the subject matter thereof has been incorporated within independent claims 1 and 16.

Since claims 3-7 and 16-18, as amended herewith, incorporate features discussed above which are not present in the cited references, it is respectfully submitted that these claims are allowable as presented.

Regarding claims 18, it is respectfully submitted that the amendments to parent claim 16 render dependent claim 18 allowable over the references as applied by the examiner. Additionally the predetermined angles of the rotary cam plate permit slight

relaxation of clamping force when the rotary cam plate is at its locking position. This feature minimizes the potential for inadvertent unlocking rotation of the of the rotary cam plate from its locked position in the event the locking lever might come into contact with a foreign object during movement of the apparatus to which the mounting base is attached.

Claims 9 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 5,276,998 to Swan. Swan '998 was cited for its teaching of a locator key. Though the provision of one or more locator keys on a mounting base is not deemed novel, claims 9 and 10 incorporate novel features that are now present in independent parent claim 1 by this amendment. Accordingly, the combination of features of claims 9 and 10 with the features now specifically recited in claim 1 is clearly novel. Allowance of claims 9 and 10 as presented herewith is respectfully solicited.

Claims 11 - 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 6,026,580 to LaRue. Though LaRue shows mounting rings and retaining members to be well known fastening elements are not novel in themselves, these claims are nevertheless dependent from claim 1 and thus incorporate the novel features that are now present in claim 1. These claims are deemed allowable since the specifically recited combination of features of the parent and dependent claims are not evident from the teachings of the M 139 Technical Manual or LaRue '580.

Claims 14 and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of US Patent 4,531,321 to Bechtel. It is stated

that Bechtel shows a pedestal in Fig. 5; however no pedestal is mentioned and no structure is provided that functions as a pedestal such as is shown at 118 in Figs. 16 and 17 of the drawings of patent 7,272,904. Element 12 of the sight base of Bechtel '321 is simply described as a base. The base is provided with front and rear elements 50 and 54 which extend forward and rearward from the base and provide for mounting of the scope ring members. However, assuming arguendo that Fig. 5 of Bechtel '321 shows a pedestal, the specifically recited novel features of claims 14 and 15 presented by this amendment, establish a novel combination of features that are not taught or inherently suggested by Bechtel '321 or any of the other references of record taken alone or in combination. Allowance of claims14 and 15 is thus respectfully solicited on these grounds.

Claims 20-21 were rejected under 35 U.S.C. 103(a) as being unpatentable over the M 139 Technical Manual, in view of Swan '871, as applied to claim 19 in paragraph 6 of the Office Action. It should be noted that claim 19 has been canceled since its subject matter has been incorporated within independent claim 16 by this amendment. For the reasons discussed above in response to the ground of rejection applied to claims 3-7 and 16, 17, 19, claims 20 and 21 specifically recite novel features that are not taught or inherently suggested by either the M 139 Technical Manual or Swan '871. Claims 20 and 21 are therefore deemed allowable as presently presented.

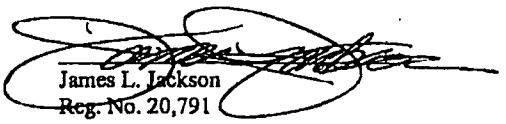
In paragraph 12 of the Office Action it is rightly stated that the Patent Owner has not recited a one-piece unitary pivot shaft and rotary cam. Though the Patent Owner originally intended the term "integral" to mean a one-piece unitary pivot shaft and rotary cam, the claim language has been amended herewith to substitute terms such as "a one-

piece unitary pivot shaft and rotary cam" for the term "integral", thereby clearly distinguishing the present invention from the teachings of the references of record. Thus, it is respectfully submitted that all of the remaining claims of this application specifically recite novel features that are not taught by the relevant prior art.

It is respectfully that this reexamination application is in compliance with 73 C.F.R. 1.530(d)-(j) and is now in condition for allowance. It is believed that on fees are due under 37 CFR 1.20(c). However, in the event that any fees are in fact due, please charge such fees to Deposit Account 50-3112. A copy of this page is enclosed herewith for such purpose.

Consideration and allowance of the amended claims and subsequent grant of a Reexamination Certificate is therefore respectfully requested.

Respectfully submitted,



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US007272904B2

(12) **United States Patent**
Larue

(10) **Patent No.: US 7,272,904 B2**
(45) **Date of Patent: Sep. 25, 2007**

(54) **ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP**

(76) Inventor: **Mark C. Larue**, 850 County Rd. 177, Leander, TX (US) 78641

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 420 days.

(21) Appl. No.: **11/008,394**

(22) Filed: **Dec. 9, 2004**

(65) **Prior Publication Data**

US 2006/0123686 A1 Jun. 15, 2006

(51) **Int. Cl.**
F41G 1/38 (2006.01)

(52) **U.S. Cl.** **42/127**; 42/124; 42/125; 292/43; 292/145; 292/155; 292/176

(58) **Field of Classification Search** 42/111–148; 292/43, 145, 155, 176

See application file for complete search history.

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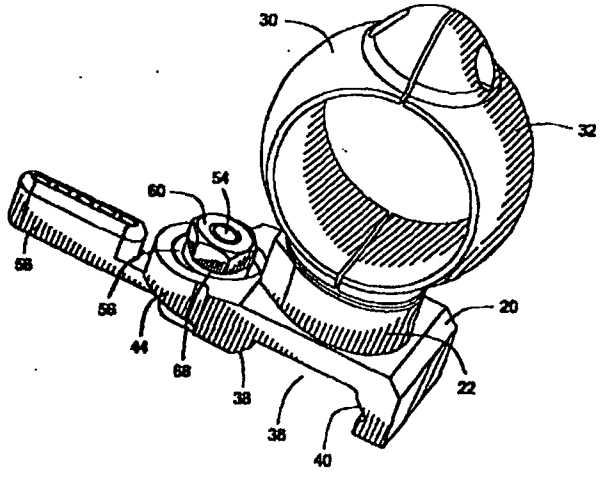
Primary Examiner—Lynda Jasmin
Assistant Examiner—Jamie Kucab
(74) *Attorney, Agent, or Firm*—James L. Jackson

(57) **ABSTRACT**

A throw-lever releasable mounting system for mounting a device in quick-release relation to a support member has a mounting base having a configuration fitting opposed angulated rail surfaces and having a locator key engaging a positioning slot of the rail. Each mounting base provides for mounting and stabilization of optics mounting rings. A locking platform projects from the mounting base and defines a locking opening having a circular hard metal insert therein that defines a receptacle receiving a resilient member and providing for location of the spline/spindle shaft of a rotatable locking plate. A locking plate of a throw-lever that is rotatable between locking and unlocking positions has angulated and curved cam surfaces for forcibly engaging correspondingly angulated surfaces of the rail to achieve cam energized precision locating and locking engagement with the rail. A non-circular section of a spline/spindle shaft of the throw-lever is receives a drive member in non-rotatable and linearly moveable relation. Resilient members are interposed between the drive member and the hardened insert and prevent free throw-lever movement at the release position thereof.

21 Claims, 16 Drawing Sheets



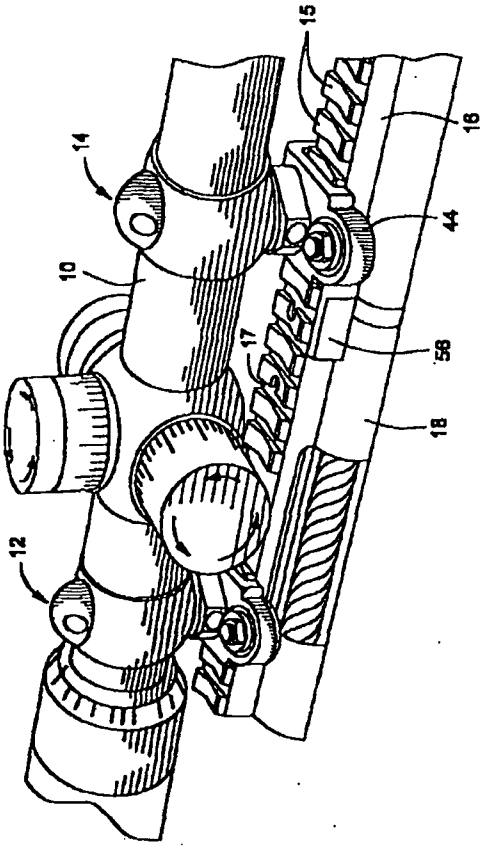


FIG. 1

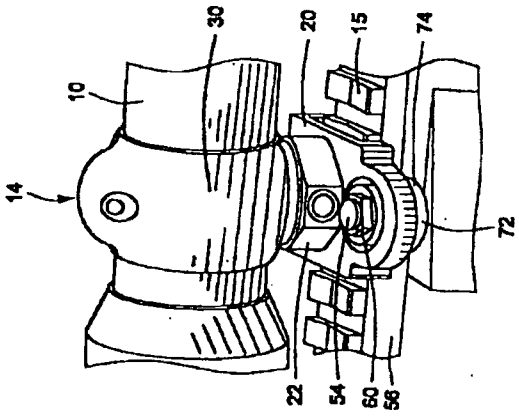


FIG. 3

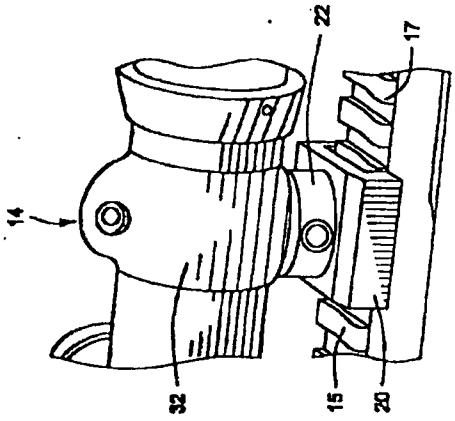


FIG. 2

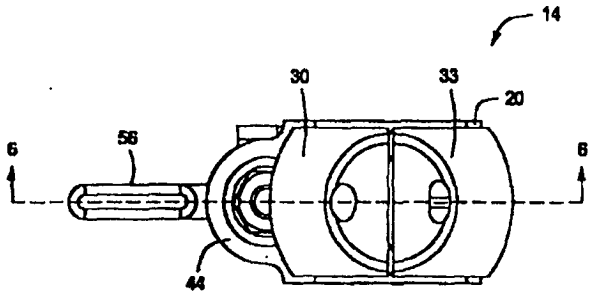


FIG. 4

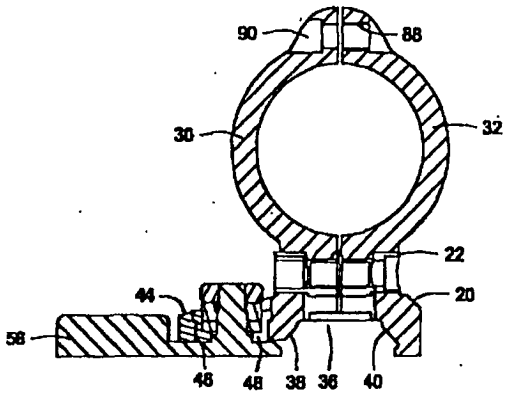


FIG. 6

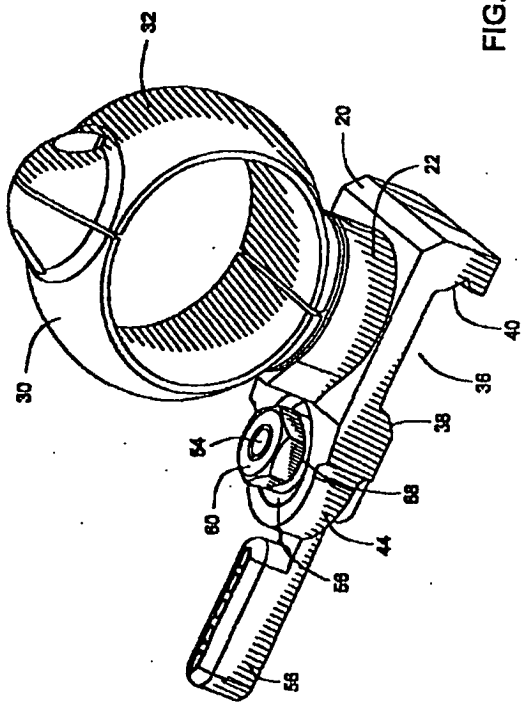


FIG. 5

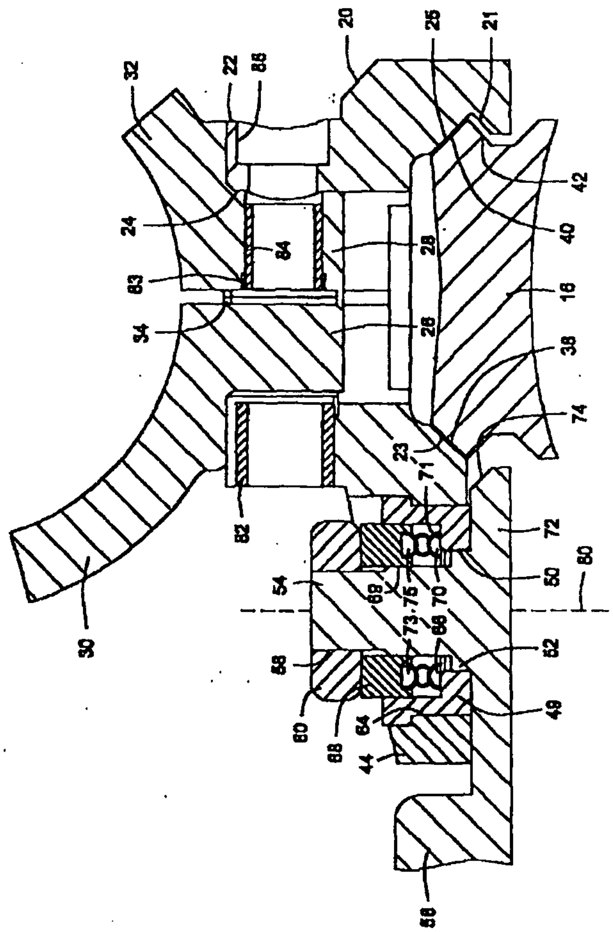

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FIG. 7

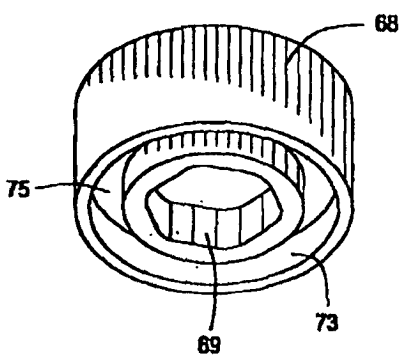

FIG. 8

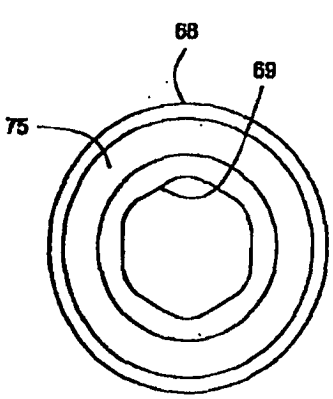

FIG. 9

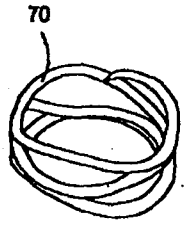

FIG. 10

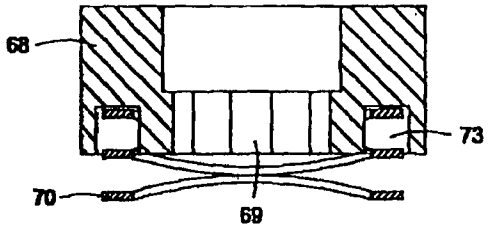

FIG. 11

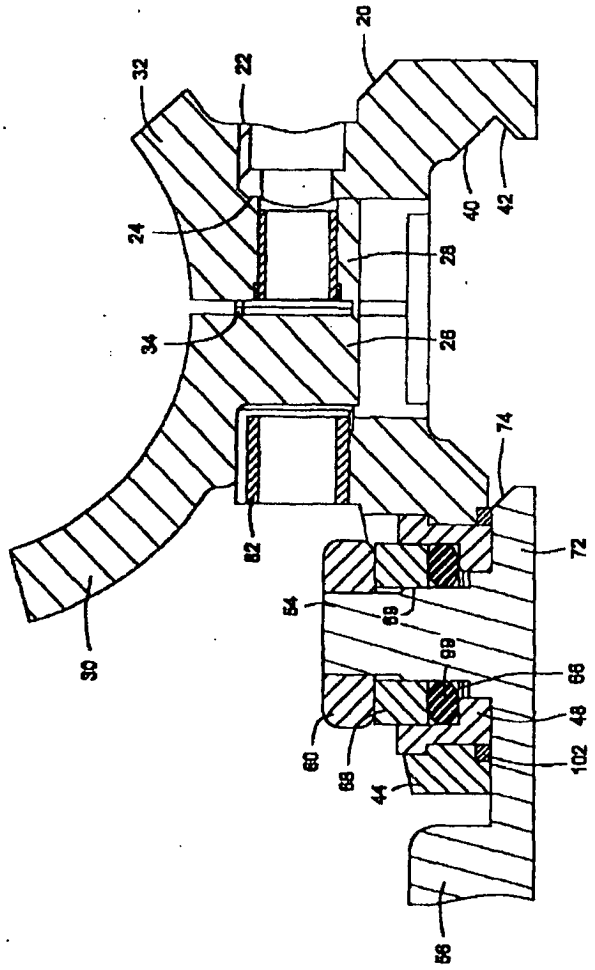

FIG. 12

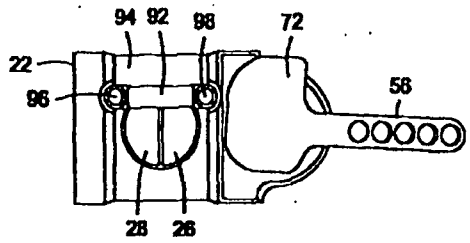

FIG. 13

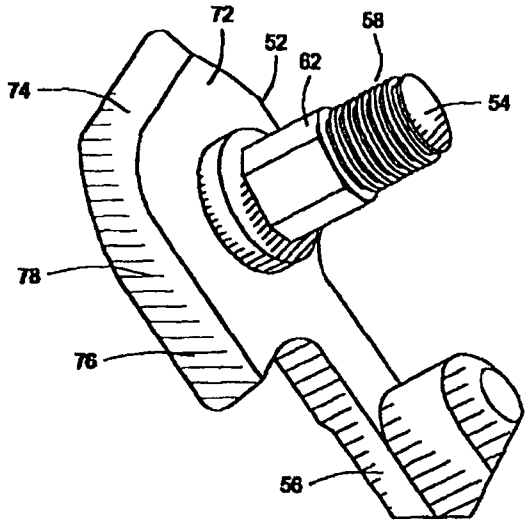

FIG. 14

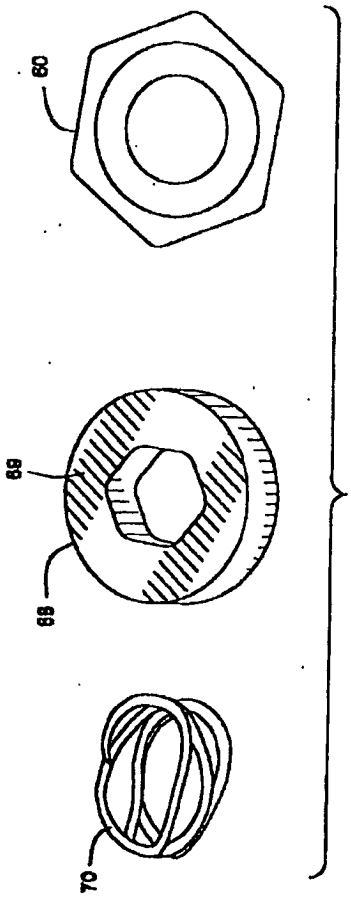

FIG. 15

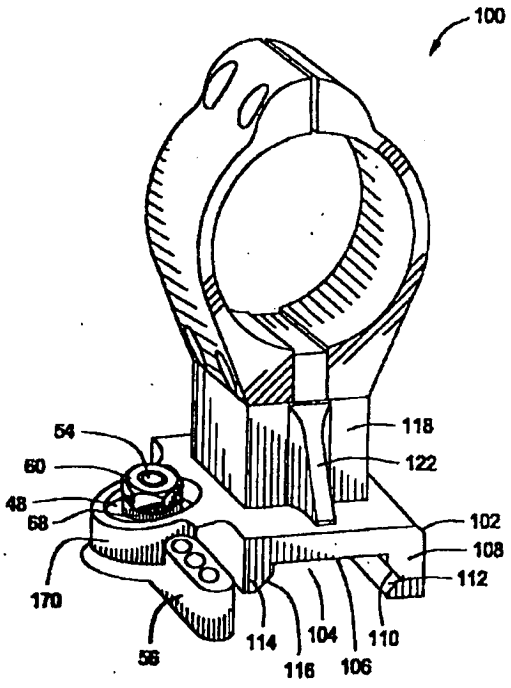

FIG. 16

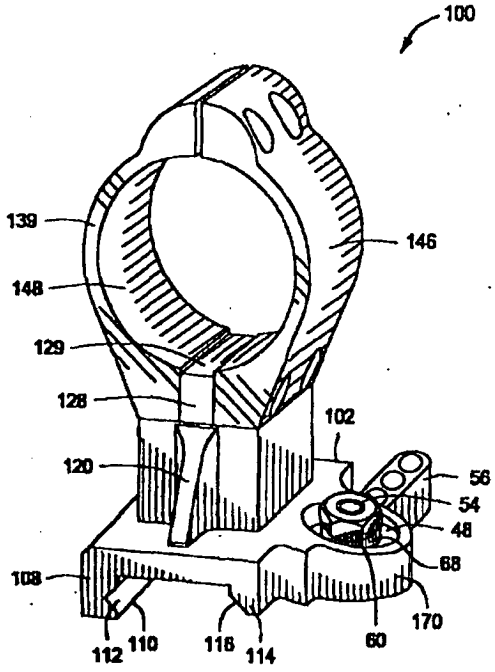
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FIG. 17

FIG. 18

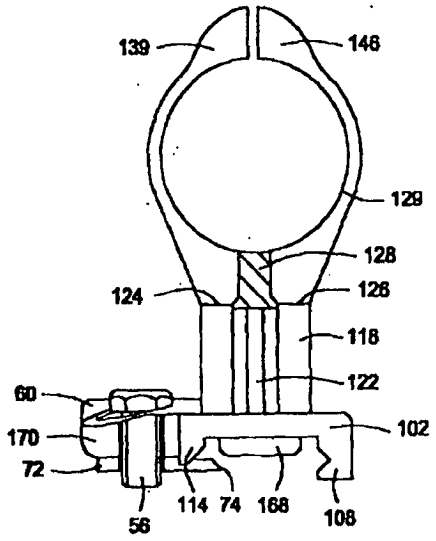
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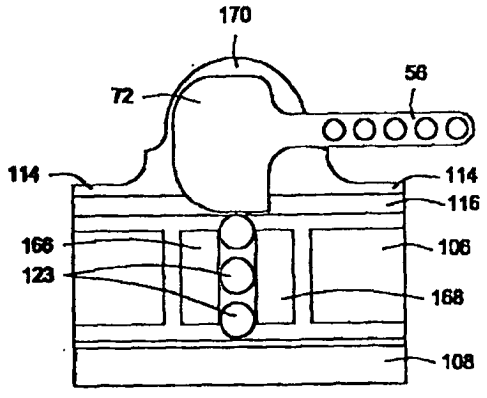
FIG. 19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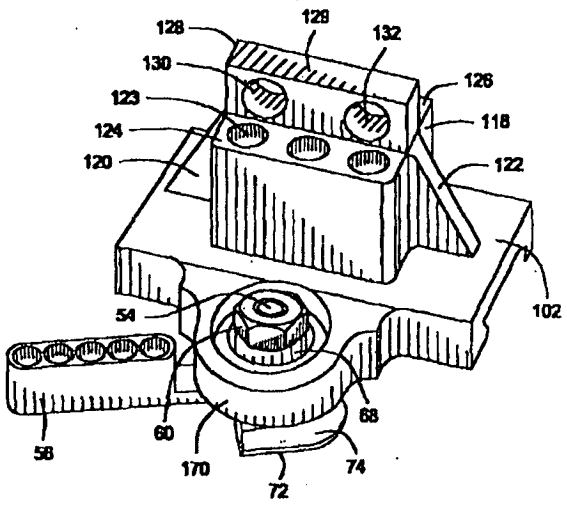

FIG. 20

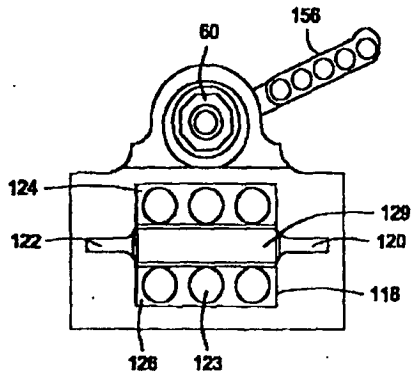

FIG. 21

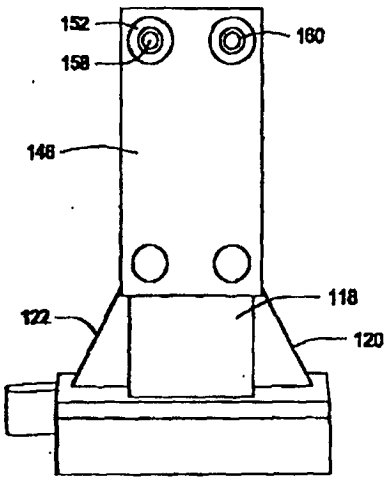

FIG. 22

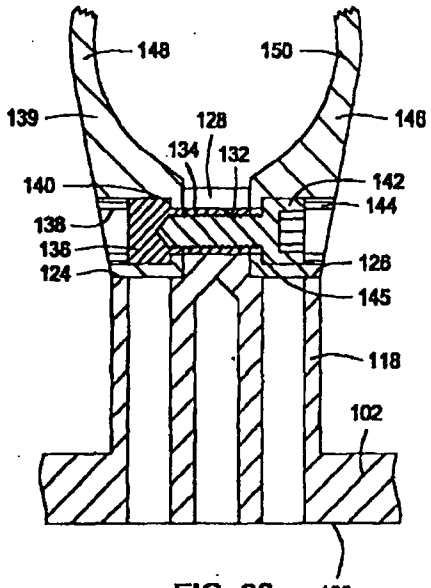
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FIG. 23

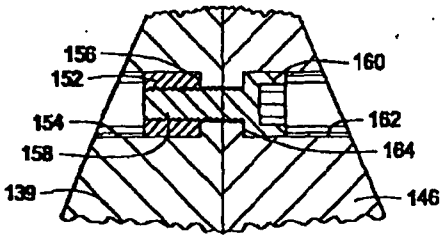
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FIG. 24

ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to quick-release mounting devices for releasably mounting various devices on a support structure. The present invention also relates to firearms and more particularly to releasable sighting or aiming devices for rifles. More particularly, the present invention concerns mounting devices having adjustable locking mechanisms and mounting rings for releasably securing aiming devices, such as the sighting telescopes of rifles and similar firearms and for maintaining optimum sighting accuracy even when the firearm is subjected to repeated heavy recoil when firing high velocity, large bore ammunition. Even more particularly, the present invention concerns locking type mounting rings that enable rifle sighting devices to be simply and efficiently removable and replaceable under field conditions while maintaining a preset zero when replaced.

2. Description of the Prior Art

U.S. Pat. No. 4,845,871 of Swan discloses a means for attaching first and second Weaver interface platforms of an optical rifle sight mount using throw-lever actuated locking mechanisms. The throw-lever of Swan is not adjustable, though the patent makes incorrect assumptions of its adjustability. A subsequently developed throw-lever actuated releasable optical sight mount system is set forth in U.S. Pat. No. 5,276,988 of Swan, which compensates for the inability of the throw lever to accomplish repeatability of precision positioning over extended periods of repeated firing of tactical rifles. This later patent of Swan discloses a throw-lever actuating mechanism of similar nature as set forth in U.S. Pat. No. 4,845,871, with the exception that the optical sight mount incorporates a buffer element in the form of a shim between the attachment device camming surface and the area to which the attachment device is affixed. U.S. Pat. No. 6,026,580 of Mark C. LaRue, the inventor of the present invention, discloses a self-centering and self-aligning optical sight mounting system, including front and rear mounting ring assemblies and mounting bases for mounting an optical sighting device on a firearm such as a rifle or on other devices.

SUMMARY OF THE INVENTION

It is a primary feature of the present invention to provide novel mounting rings for retaining sighting devices, such as telescopes, low light optical devices, mechanical sighting devices on firearms such as rifles and to permit removal and replacement of the sighting devices, even under field conditions, without losing the preset zero of the sighting device;

It is another feature of the present invention to provide a novel optical sight mounting system which permits one or several daylight, night or close combat optical sighting devices to be selectively interchanged on a firearm in a manner that maintains the preset sighting zero of each of the optical sighting devices with respect to the firearm that is involved; and

It is also a feature of the present invention to provide a novel optical sight mounting system that employs self-centering and self-aligning optical sight mounting rings that eliminates the need for lapping for achieving a close fit with the tube of an optical sighting device and prevents damage to an optical sighting device by tube distortion from clamping force.

Though the present invention is discussed herein particularly with its application to adjustable quick-release mounting devices for firearm optical sighting devices, it should be borne in mind that it is not intended to limit the spirit and scope of the present invention solely to use in conjunction with firearms. The present invention clearly has a wide range of application in circumstances where a device is intended to be releasably mounted in stable fashion to a supporting structure. For example, the present invention has application to camera and spotting scope mounts that are used in connection with various sporting events and commercial activities. Many other uses of the present invention will become obvious to one skilled in the art upon acquiring a thorough understanding of the present invention.

Briefly, the various objects and features of the present invention are realized by a sighting device mounting system that is designed particularly for mounting to Picatinny rails, Weaver rails or other similar mounting base rail systems. Front and rear, substantially identical throw-lever actuated mounting ring assemblies are provided, each having a base structure having a portion thereof configured for fitting opposed angulated rail surfaces and having a locator element that is received within one of the multiple positioning slots of the rail. The base structures each receive a self-centering and self-aligning tube mounting ring for retaining the tube of an optical sighting device or engaging a circular portion of any supported device.

The base structures are each provided with integral laterally projecting lock supports, each defining a receptacle receiving the spline/spindle shaft of a rotatable locking plate. The rotatable locking plate has angulated cam surfaces merging with a central curved cam surface for forcibly engaging correspondingly angulated rail surfaces to achieve cam energized locking engagement with the angulated rail surfaces. Throw-levers project from each of the rotatable locking plates to provide for manual rotation of the rotatable locking plates during locking and unlocking. At least a portion of the spline/spindle shaft is of non-circular, typically hexagonal cross-sectional configuration and receives a generally circular drive washer member having a central opening of corresponding non-circular configuration so as to have non-rotatable and linearly moveable relation with the spline/spindle shaft. To provide a light weight optical sight mount for firearms, the mounting base and the support rings of the sight mounting system are preferably composed of a light-weight material such an aluminum alloy, hard polymer material or the like. The mounting base is drilled or otherwise formed to eliminate material and reduce the weight thereof. Since the light weight material are often quite soft and easily yielded by application of forces, hardened metal inserts composed of stainless steel, steel or other suitable hard materials are press-fitted or otherwise seated in appropriate openings or receptacles of the mount structure. These inserts are typically threaded so as to have threaded engagement with retainer elements such as Torx or Allen screws.

BRIEF DESCRIPTION OF THE DRAWINGS

So that the manner in which the above recited features, advantages and objects of the present invention are attained and can be understood in detail, a more particular description of the invention, briefly summarized above, may be had by reference to the preferred embodiment thereof which is

illustrated in the appended drawings, which drawings are incorporated as a part hereof.

It is to be noted however, that the appended drawings illustrate only a typical embodiment of this invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally effective embodiments.

In the Drawings:

FIG. 1 is a pictorial representation showing a sight mounting rail on a firearm and showing releasable, adjustable optical sight mounting rings embodying the principles of the present invention and being in locked assembly with the sight mounting rail and mounting an optical sighting device;

FIG. 2 is a pictorial representation of one of the optical sight mounting ring assemblies of FIG. 1 showing one side of the releasable and adjustable mounting ring assembly of the present invention;

FIG. 3 is a pictorial representation showing the opposite side of the releasable and adjustable mounting ring assembly shown in FIG. 2 and showing the lever actuated locking mechanism in the locked position thereof;

FIG. 4 is a plan view of the releasable and adjustable mounting ring assembly of FIGS. 1-3 and showing the locking lever thereof in its release position and with a wave spring providing an urging force on the locking lever assembly;

FIG. 5 is an isometric illustration of the releasable and adjustable mounting ring assembly of the present invention, again with the locking lever being shown in the release position thereof;

FIG. 6 is a sectional view of the releasable and adjustable mounting ring assembly taken along line 6-6 in FIG. 4, with the locking lever being shown in the release position thereof;

FIG. 7 is a partial sectional view of the releasable and adjustable mounting ring assembly of the present invention and with the locking lever being shown in the release position thereof;

FIG. 8 is an isometric illustration of a drive nut component of the locking lever assembly and showing a downwardly facing annular spring recess for receiving a wave spring or one or more O-ring type locking lever resistance members;

FIG. 9 is a bottom view of the drive nut component of FIG. 8;

FIG. 10 is a side elevational view showing a wave spring that is received by the downwardly facing annular spring recess of the drive nut member of FIG. 8;

FIG. 11 is a sectional view of the drive nut member of FIGS. 8 and 9;

FIG. 12 is a partial sectional view of an alternative embodiment of the releasable and adjustable mounting ring assembly of the present invention, showing the use of resilient O-ring members which retard inadvertent throw-lever movement at the unlocked position of the adjustable mounting ring assembly.

FIG. 13 is a bottom view of the releasable and adjustable mounting ring assembly of the present invention showing the bottom of the locking lever and showing the offset position of a rail slot engaging sight locator key element with respect to the pivot point of the locking lever;

FIG. 14 is a partial isometric illustration of the locking lever, showing the non-circular configuration of the lever spline/spindle post and showing the threaded terminal end of the lever pivot shaft or post;

FIG. 15 is an isometric illustration showing the disassembled components of the adjustment assembly of the adjustment mechanism of the locking lever and showing the wave spring and the non-circular opening that is defined by a spring urged drive washer member of the locking lever adjustment mechanism;

FIG. 16 is an isometric illustration showing a preferred embodiment of the present invention comprising a releasable, adjustable optical sight mounting ring assembly having a locking lever assembly of the nature shown in FIG. 1;

FIG. 17 is another isometric illustration showing the releasable, adjustable optical sight mounting ring assembly of FIG. 16;

FIG. 18 is a front elevational view of the releasable, adjustable optical sight mounting ring assembly of FIGS. 16 and 17;

FIG. 19 is a bottom view of the releasable, adjustable optical sight mounting ring assembly of FIGS. 16-18;

FIG. 20 is an isometric illustration showing the releasable, adjustable optical sight mounting ring assembly, with the sighting device mounting elements removed and showing the detailed structure of the mounting base;

FIG. 21 is a plan view of the mounting base structure of FIG. 20;

FIG. 22 is a elevational view showing the opposite side of the releasable, adjustable optical sight mounting ring assembly as compared with the views of FIGS. 16 and 17;

FIG. 23 is a partial transverse sectional view taken along line 23-23 of FIG. 22; and

FIG. 24 is a partial transverse sectional view taken along line 24-24 of FIG. 22.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Though the present invention is discussed herein particularly as it relates to releasable mounts for firearms, particularly tactical rifles used by military and law enforcement personnel, it is to be understood that this invention has application for support of devices other than optical sighting devices on other objects. Referring now to the drawings and first to FIG. 1, an optical sighting device 10, such as a sighting telescope, is supported by front and rear mounting ring assemblies, shown generally at 12 and 14, that mount the sighting device on a mounting rail 16, such as a Picatinny rail or a Weaver rail or the like which is affixed to a firearm 18 or other object. The rail 16 defines a number of evenly spaced upwardly extending mounting projections 15 with evenly spaced transverse slots 17 therebetween to provide for selective location of an optical device on the firearm. As is evident in FIG. 7, each of the spaced upwardly extending mounting projections defines undercut parallel, oppositely angulated clamping surfaces 19 and 21 and oppositely angulated, typically upwardly facing support surfaces 23 and 25 that are disposed in angulated relation with one another. Each of the clamping surfaces 19 and 21 and the support surfaces 23 and 25 are initially formed by elongated surfaces, typically extending the length of the rail structure 16 and are interrupted by transverse slots 17 that are machined or otherwise formed in evenly spaced relation along the length of the rail.

Each of the mounting ring assemblies 12 and 14 incorporates a mounting base 20 having an integral, upwardly projecting member or boss 22 that is internally machined to define a receptacle 24 within which is received the depending mounting tongue elements 26 and 28 of mounting ring sections 30 and 32. The mounting ring sections 30 and 32 are secured together by fastener members, such as Torx screws, Allen screws or the like, to establish clamping retention of

the mounting ring sections 30 and 32 to a tubular housing member of a sighting device such as an optical sighting device or telescope or a laser sighting device. Where fastener members such as retainer screws and set screws are employed to secure soft metal members, such as aluminum members, in assembly, hard metal inserts, typically composed of steel, such as stainless steel, are press-fitted into drilled or bored openings in the soft metal members as shown in FIGS. 6 and 7 as well as FIGS. 23 and 24. These hard metal inserts are typically internally threaded and provide the soft metal members with exceptional resistance to wear or thread damage by hard metal retainer screws and the like. The hard metal inserts may be seated on internal support shoulders of the mounting ring sections to ensure against movement thereof by the forces that are developed when screws are tightened by screwdrivers or by Allen or Torx wrenches.

In the embodiment of FIGS. 1-15, as shown particularly in FIGS. 7 and 12, one or more shims 34 are located between the mounting tongue elements 26 and 28. The shims ensure proper spacing of the mounting ring sections 30 and 30 for optimum gripping relation with the tubular housing of the optical sighting device, without causing collapsing, excessive application of torque force or causing other damage to the tubular housing of the sighting device and the internal sighting mechanism thereof. The fastener screws of each of the mount bases are sequentially tightened to ensure even and efficiently controlled gripping of the tubular housing of the sighting device, without subjecting the tubular housing to torque forces during tightening. This feature ensures against mount tightening force deformation of tubular telescope sections and thus ensures protection of delicate internal telescope components from damage and accelerated wear.

The mounting base 20 is configured to define a rail receiving receptacle 36 with spaced, downwardly and oppositely angulated surfaces 38 and 40 which are oriented for contact with correspondingly angulated support surfaces 23 and 25 of the rail 16. The mounting base 20 also defines an upwardly angulated surface 42 that is positioned for retaining engagement with a correspondingly angulated clamping surface 21 of the rail 16.

A locking platform 44 is integral with and extends laterally from each of the mounting bases 20 and defines an opening 46 within which is seated an annular insert 48 that is composed of a suitable hard, wear and impact resistant metal material such as steel, stainless steel, titanium alloy or any suitable non-metal material having wear and impact resistance. The annular insert 48 defines a central opening 50 that receives an upwardly projecting circular shoulder 52 of a spline/spindle shaft or post 54 in rotatable relation therein. The spline/spindle shaft 54 is integral with and projects upwardly from a manually rotated cam plate of a locking lever structure 56, also referred to as a "throw-lever", as shown in FIGS. 6 and 7. The manually rotated locking lever structure 56 of each ring assembly 12 and 14 is manipulated, i.e., rotated, for locking and unlocking of the front and rear mounting bases 20 from the rail 16 when it is desired to remove and replace the optical sighting device 10. Especially when the sighting device is being used on firearms under tactical circumstances, this feature permits the sighting device to be carried in protective fashion, such as in a pocket of a personnel pack, and when its use is needed, the user will simply and quickly clamp the sighting device to the rail device 16 of the firearm, with the sighting device being accurately positioned at its pre-set sighting position or zero. This feature permits a sighting device to be unlocked, removed and re-assembled and locked in place without losing its preset aim point or zero.

The outer or terminal extremity of the spline/spindle shaft 54 is threaded as shown at 58 for receiving an adjustment nut 60. The threaded section 58 and the internal threads of the adjustment nut 60 are cut on a slightly different pitch to cause interference tightening of the nut on the threaded section 58 of the spline/spindle shaft 54 as the adjustment nut is rotated in the direction, typically clockwise, during assembly of the adjustment nut to the spline/spindle shaft 54. This feature minimizes the potential for loosening of the adjustment nut 60 after it has been selectively positioned on the spline/spindle shaft 54. However, if further tightening or loosening of the adjustment nut is needed, such as for increasing or decreasing the clamping force of the mounting base 20 on the rail 16 of a firearm, rotational movement of the adjustment nut 60 is easily accomplished through the use of a simple hex wrench. The interference tightening arrangement ensures that the adjustment nut 60 will remain in any pre-set position even when the mounting ring assembly of a sighting device is subjected to impacts, vibration or other rough treatment.

The spline/spindle shaft 54 is also provided with a shaft section 62 of non-circular cross-sectional configuration that may be hexagonal or may have any other non-circular cross-sectional configuration as desired. The shaft section 62 is also referred to herein as a "spline section", with the non-circular configuration or spline thereof extending longitudinally of the spline/spindle shaft 54 from the externally threaded section 58 to the circular shoulder 52. The spline/spindle shaft 54 and the inner cylindrical surface 64 of the annular insert 48 are of significantly different dimensions, thus defining an annular space 66 therebetween within which a drive washer member 68 and one or more resilient members are received. The resilient member or members preferably comprise a single wave spring 70, as shown in FIGS. 7 and 15, but may comprise one or more resilient O-rings as shown in FIG. 8 or may comprise one or more washer-like springs referred to as Belleville springs or washers. Typically, however, the spring forces achieved by one or more Belleville springs used in this fashion would be quite high and might add significantly and unnecessarily to the rotational force that is required to rotate the locking lever to and from its locking position and at its unlocked condition. Also, Belleville springs minimize permissible linear movement of the drive washer member 68 as the springs are subjected to compression force by tightening the adjustment nut 60. Thus, Belleville springs are not considered preferred resilient components for the locking lever assembly. The annular insert 48 defines an upwardly facing internal shoulder surface 71 which serves to retain the lowermost portion or the lowermost one of the resilient member or members within the annular space 66. A lower portion of the drive washer member 68 extends into the annular space 66 and defines an annular downwardly facing recess 73 within which the upper portion of the wave spring 70 is located to provide for spring centering and stabilization. The wave spring is maintained under compression between the upwardly facing annular surface 71 and an annular downwardly facing recess surface 75 of the drive washer member 68 and imparts a spring force to surfaces 71 and 75 that is only great enough to provide sufficient frictional resistance that prevents free rotational movement of the locking lever 56 when the locking lever is at its unlocked position as shown in FIGS. 7 and 12. In other words, the wave spring 70, or other resilient member or members 99, prevent the locking lever from freely flopping about when it is unlocked.

Other resilient members discussed herein provide similar function. This feature is considered important to the tactical use of a firearm, especially in conditions of poor light, where the condition of the locking lever may need to be assured at any point in time, even in its unlocked condition. By minimizing the potential for locking lever movement when it is unlocked, the potential for undesired noise is minimized. This feature is quite important in tactical firearm use.

The drive washer member **68** defines a non-circular internal spline section **69** corresponding to the dimension and configuration of the non-circular external spline of the spline section **62** of the spline/spindle shaft **54**. The spline section **69** may be of hexagonal configuration or any other suitable non-circular configuration having mating, non-rotational relation with the non-circular external portion of the spindle/spline shaft **54**. This feature causes the drive washer member **68** to be non-rotatable and linearly moveable with respect to the spline/spindle shaft and rotatable along with the spline/spindle shaft as the locking lever **56** is manually rotated. Also, the axial length of the spline section **62** of the spline/spindle shaft **54** in comparison with the shorter axial length of the non-circular internal spline section **69** of the drive washer member **68** permits axial movement of the drive washer member by the adjustment nut **60** and the wave spring **70** for the purpose of increasing or decreasing the clamping force of the mounting base **20** with respect to the rail **16**. A firearm user is capable of achieving adjustment of the clamping force simply by rotating the adjustment nut with a simple hex wrench or other readily available adjustment tool.

The locking lever **56** is provided with an integral cam plate **72** from which the spline/spindle shaft **54** projects. Edge portions of the cam plate **72** define angulated, substantially straight tapered cam surface sections **74** and **76** that merge with an intermediate substantially curved tapered cam section **78** that is located eccentrically with respect to the longitudinal axis of the spline/spindle shaft **54**. Each of the tapered cam sections is inclined at an angle corresponding to the inclination and orientation of the undercut downwardly facing angulated clamping surface **19** of the rail **16**. Thus, manually energized rotation of the cam plate **72** by application of manual force to the locking lever **56** causes locking or unlocking movement of the mount assembly with respect to the sight mounting rail of the firearm.

During locking rotation of the cam plate the eccentric curved cam surface will engage the undercut downwardly facing angulated clamping surface **19**. As locking rotation continues, due to its eccentric orientation, the clamping force of the curved cam surface will increase as the distance of the curved cam surface from the pivot axis **80** increases until a maximum clamping force is reached at the merged juncture of the curved cam surface and the locking cam surface **76**. This maximum clamping force is easily controlled by selective rotation of the adjustment nut **60** so that metal deformation of the undercut downwardly facing angulated clamping surface **19** will not occur or will be minimized within acceptable limits. Further locking rotation of the cam plate by the locking lever **56** causes the substantially straight locking cam section **76** to move into face to face relation with the angulated clamping surface **19** of the rail **16**.

The cam surface sections **74**, **76** and **78** of the cam plate are positioned with respect to the pivot axis **80** of the spline/spindle shaft **54** so that engagement of the cam surface sections tighten on the corresponding angulated rail surfaces as the locking lever is rotated from the unlocking position to the locking position. At the unlocking position of the locking lever **56** the unlocking surface **74** is essentially clear of the angulated clamping surface **19** of the rail **16**, thus allowing lateral movement of the mounting base **20** to a position allowing separation of the mounting base from the rail structure. During locking rotation of the locking lever, the curved eccentric section **78** of the cam surface will engage the downwardly facing angulated surface **19** that extends along one side of the rail **16** and will cause forcible engagement of the angulated surfaces of the mounting base with corresponding angulated surfaces of the rail structure. After sufficient rotation of the locking lever has occurred, the substantially arcuate section **78** of the cam surface will have achieved desired clamping force and the substantially straight locking cam section **76** will move into locking engagement with the corresponding angulated rail surface **19**. Since the spacing of the locking cam section **76** from the axis **80** is slightly less than the maximum spacing of the curved cam surface from the axis **80** the force required for rotational locking movement of the locking lever **56** will decrease slightly when the locking position of the locking lever has been reached. This essentially over-center cam movement feature during locking movement causes the locking lever to remain at its locked position once the locking position has been achieved. When rotating the locking lever **56** from its locking position to its unlocked position the opposite over-center force transition occurs. During initial unlocking rotation of the cam plate **72** the curved cam surface section, being located eccentrically with respect to the axis of the spline/pivot shaft **80**, will cause slight tightening of the clamping force. During further unlocking rotation of the cam plate the curved cam surface section will move clear of the angulated rail surface **19**, thus releasing the clamping force completely. This feature ensures that the locking mechanism of the mount system remains either locked or unlocked unless manual force is applied to the locking lever by the user. This force enhancing rotary locking movement of the locking lever and the resistance of the locking lever **56** to be rotated to its unlocking position causes the locking lever to remain at its locked position and effectively prevents inadvertent unlocking movement of the locking lever **56** even during conditions of rough firearm handling in field conditions.

The desired cam-induced clamping force of the mounting ring assembly is achieved by rotation of the locking lever to its locked position and by controlled positioning of the locking nut **60** on the threaded portion of the pivot shaft **54**. The desired clamping force is typically achieved by controlled rotation of the locking nut **60** after the wave spring or other resilient member has been substantially fully compressed or bottomed-out by downward movement of the drive washer member **68** responsive to adjustment rotation of the adjustment nut **60**. However, from a practical standpoint the user of the firearm will simply adjust the position of the adjustment nut to ensure positive clamping of the mount rings to the rail, without requiring excessive manual force for locking or unlocking movement of the locking lever **56**.

As mentioned above, one of the requirements for effective use of the releasable and adjustable sighting device ring mounts of the present invention by military and police personnel is the requirement that the mounting system be of light weight for ease of firearm handling and yet have sufficient structural integrity to minimize the potential for optics misalignment (loss of zero) by the repeated heavy impacts and vibration of weapon firing or by rough handling in field conditions. To accomplish these features the basic structure of the mounting base and optics mounting rings is

composed of a lightweight metal such as aluminum alloy, or a suitable non-metal material. Inserts of hardened material such as stainless steel are located within openings of the base material either by press-fit or by molding them in place. These hard metal inserts are typically internally threaded to receive fastening screws and positioning screws and thus readily accommodate the severe impacts of repeated rifle firing. The inserts protect the mounting base structure and the mounting ring structure from being deformed, and thus minimize the potential for loss of aiming zero as the result of the multiple impacts that occur during repeated rifle firing. As mentioned above, the annular insert 48 shown in FIGS. 6, 7 and 8 is composed of any suitable wear and impact resistant material such as steel, stainless steel or a suitable hard polymer material. The upwardly projecting member or boss 22 is provided with a threaded insert 82 as shown in FIGS. 7 and 12 within which a set screw such as an Allen or Torx screw is received to establish retention of the mounting ring tongues 26 and 28. The threaded inserts are preferably provided with annular flanges 83 which seat against soft metal shoulders or other structure and prevent the inserts from being extracted from their openings or receptacles by tightening of the retainer screws. A threaded hard metal insert 84 is located within the mounting ring tongue 28 and receives a mounting screw, which extends into screw receptacle 86 for retention of the mounting ring tongues in assembly within the circular receptacle 86. Another threaded insert 88 is located within one of the ring assembly sections 30 and receives a retainer screw having a screw head that is located within a screw receptacle 90.

A locator key element 92, shown in the bottom view of FIG. 9, is composed of hard wear and impact resistant material is secured to a bottom surface 94 of the mounting base 22 by retainer screws 96 and 98. The locator key element 92 engages within a selected one of the multiple transverse slots 17 of a mounting rail structure to locate the rear portion of optical sighting device for desired eye relief, which is accomplished by positioning the rear lens of the optical sight device at a selected distance from the eye of the user.

During assembly of the lever mechanism, the adjustment nut 60 is tightened sufficiently to apply a desired force to the wave spring 70. Thereafter, the preload force of the wave spring urges the locking lever upwardly and develops a friction force that prevents the locking from flopping back and forth when it is unlocked. For precision locking and clamping of the mounting base with respect to the angulated locking or clamping surfaces of the rail 16, the adjustment nut 60 is rotated to a desired position on the threaded spindle/spline shaft 54 and thus maintains the angulated cam surface 76 in secure forcible clamping engagement with the angulated locking surface 19 of the mounting rail 16. The splined engagement of the non-circular shaft section 62 and the internal non-circular section 69 of the drive washer member 68 causes the drive washer member to be rotated along with the spindle/spline shaft 54. This feature also causes the adjustment nut 60 of be substantially free of any rotational force that might otherwise tend to loosen or tighten the adjustment nut when the locking lever 56 is rotated. The adjustment nut 60 simply rotates along with the spindle or pivot shaft 54 of the cam plate 72 and the drive washer member 68 during manually energized rotation of the locking lever 56. The force of the wave spring 70 also retards inadvertent movement of the locking lever at its unlocked position. In the event that the mount locking system should become loosened by repeated heavy impact firing of the weapon or for any other reason the mounting system can be easily restored to its optimum stable precision positioning characteristics simply by rotating the adjustment nut only by a few degrees of clockwise rotation by using a small hex wrench. This can be easily accomplished in field conditions since no special adjustment tools are required. For example, from 5 degrees to 15 degrees of adjustment nut rotation will restore the locking mount to its proper locking position for support of an optical sighting device such as a rifle telescope.

An alternative embodiment of the present invention is shown in FIG. 12 and is different from that shown in FIG. 7 only in that one or more resilient O-rings 99 are shown to be located within the annular space 66 and are compressed to the extent desired by the adjustment nut 60 and the washer member 68. The resilient O-ring 99 provides rotational resistance to the locking lever and thus prevents the rotatable locking lever 56 from being loose at its unlocked position, and thus prevents the locking lever from inadvertantly moving about. This feature is particularly important when the quick-release mounting system is employed for mounting sighting devices to tactical firearms, where unnecessary lever movement or noise is a detriment to optimum use of the firearm. While one O-ring is shown in FIG. 12, it is to be understood that two or more O-rings may be employed to accomplish the same purpose.

Referring now to FIGS. 16-24, a mounting assembly is shown generally at 100 and represents the preferred embodiment of the present invention. However, it is to be borne in mind that many of the features of the mounting assembly of FIGS. 1-12 are incorporated within the mounting assembly of FIGS. 16-24. The mounting assembly 100 incorporates a mounting base 102 having a downwardly facing mounting slot 104 which is defined by a downwardly facing surface 106 and by a downwardly extending base flange 108 having oppositely angulated rail clamping surfaces 110 and 112. Opposite from the downwardly extending base flange 108 the mounting base 102 defines another downwardly extending base flange 114 having formed thereon an angulated clamping surface 116. Typically, the downwardly facing mounting slot 104 is formed by a machining operation, such as by milling the slot in a metal mounting base workpiece.

A ring mounting member or pedestal 118 projects upwardly from the mounting base 102 and may be integral with the mounting base or fixed to it in any suitable manner. The joint of the pedestal 118 with the mounting base may be strengthened by structural web members 120 and 122 if desired, especially since it is desired that the mount assembly be as light weight as possible while maintaining sufficient structural integrity to ensure secure support of a firearm sighting device. The ring mounting member or pedestal 118, as shown best in FIGS. 20 and 21, defines opposed substantially co-planar ring support shoulders 124 and 126, with a mounting projection 128 extending upwardly from the pedestal and between the ring support shoulders. To minimize the weight of the support pedestal and the mounting base 102, as shown in FIGS. 20 and 21 the mounting base and support pedestal are drilled to remove metal and thus define drill openings 123. As is evident from the bottom view of FIG. 19, some of these metal removing drilled openings 123 extend upwardly into the central mounting projection 128. None of the metal removing drilled openings extend completely through the base or mounting pedestal structures, though it is within the spirit and scope of the present invention to do so. The mounting projection 128 defines spaced transverse bores 130 and 132 as shown in FIGS. 20 and 23 that receive tubular internally threaded ring locator and connector members 134. The

internally threaded ring locator and connector members extend from an form part of locator and connector inserts 136 that are received, such as by press fitting within openings 138 of a mounting ring section 139. The inserts 136 are preferably composed of hard metal such as steel, stainless steel, titanium and the like, and are seated on internal support shoulders 140 of the openings 138 of the respective mounting ring section. Mounting screws 142, such as Torx screws, Allen screws or the like, are inserted through openings 144 of the opposite mounting ring section 146. Preferably, each mounting ring section 139 and 146 is provided with an insert having a tubular internally threaded ring locator and connector member to facilitate ease of assembly of the mounting ring sections to the upwardly extending mounting projection 128 and to ensure precise location of the mounting sections with respect to the mounting base 102 and the ring mounting pedestal. The mounting ring sections preferably define annular internal shoulder surfaces 145 thus enabling the heads of the retainer screws 142 to draw the lower portions of the mounting ring sections into tight engagement with respective sides of the central mounting projection 128.

The mounting ring sections 139 and 146 define respective internal arcuate surfaces 148 and 150 that are accurately dimensioned to establish frictional retention with respect to a tubular section of an optical sighting device or any other at least partially cylindrical surface of an object that is to be supported in immoveable relation with respect to a firearm or other object to which a mounting rail is fixed. The upper planar surface 129 of the central mounting projection 128 is located below an imaginary arcuate surface that is defined by continuation of the arcuate surfaces 148 and 150, thus ensuring that the optical device does not engage the central mounting projection 128 of the pedestal 118. This feature ensures that the cylindrical tube or portion of the optical sighting device remains free of torque forces when the mounting ring sections 139 and 146 are tightened to the central mounting projection 128.

As shown in detail in FIG. 24, for securing the upper portions of the mounting ring sections in assembly, internally threaded hardened inserts 152 are press fitted or otherwise located within openings 154 of the respective mounting ring sections 139 and 146. Preferably the internally threaded hardened inserts 152 are seated on annular internal shoulders 156 of the mounting ring sections to ensure that the inserts are not moved within the openings 154 by the force that is generated by tightening of the retainer screws. The externally threaded sections 158 of retainer screws 160 are threaded into the inserts and serve to secure the mounting ring sections 139 and 146 in friction retention with an optical sighting device or other object. The respective mounting ring sections 139 and 146 define retainer openings 162 and annular internal support shoulders 164 that are engaged by the heads of the retainer screws 160 and thus enable the retainer screws to tighten the upper portions of the mounting ring sections 139 and 146 together and establish fictional retention of the tubular section of the optical sighting device or other object being supported.

At least two spaced positioning projections 166 and 168 extend downwardly from the central portion of the mounting base 102, as shown in FIGS. 18 and 19, with the space therebetween being sufficient to receive one of the upwardly extending mounting projections 15. A locking platform 170 projects laterally from the mounting base structure 102 and is preferably formed integrally with the mounting base though it may be fixed to the mounting base in any suitable fashion. The support platform is machined in the same manner as is discussed above in connection with the locking platform 44 of FIGS. 1-6 to form a mounting receptacle for a locking lever mounting assembly which is indicated by like reference numerals and is provided for the same purpose.

Situations will arise requiring only a single releasable mounting device or requiring more than two spaced releasable mounting devices for mounting optical sighting devices and other objects to firearms. Thus, it is not intended that the present invention be restricted solely to the use of two spaced quick-release mounting devices for mounting firearm optical devices. It is also intended that the present invention have application to a wide range of devices that are intended to be mounted in quick-release, stable fashion to a support structure. Thus, it is not intended to restrict the spirit and scope of the present invention to use in connection with the sighting devices of firearms. The discussion here, for purposes of simplicity, is intended only to be representative of a preferred embodiments of the present invention. Other and further embodiments of the present invention will become obvious and inherent to one skilled in the art upon a thorough understanding of the spirit and scope of the present invention.

In view of the foregoing it is evident that the present invention is one well adapted to attain all of the objects and features hereinabove set forth, together with other objects and features which are inherent in the apparatus disclosed herein.

As will be readily apparent to those skilled in the art, the present invention may easily be produced in other specific forms without departing from its spirit or essential characteristics. The present embodiment is, therefore, to be considered as merely illustrative and not restrictive, the scope of the invention being indicated by the claims rather than the foregoing description, and all changes which come within the meaning and range of equivalence of the claims are therefore intended to be embraced therein.

I claim:

1. An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a rotary cam plate and a pivot shaft integral therewith, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position; and

an adjustment nut being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces.

2. The adjustable mounting system of claim 1, comprising:

a drive member being received for linear movement on said pivot shaft; and

at least one resilient member being interposed between said drive member and said locking platform and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

3. The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and defining an external non-circular section;

a drive member having non-rotatable and linearly movable relation with said external non-circular section; and

said adjustment nut having adjustment engagement with said drive member.

4. The adjustable mounting system of claim 3, comprising:

said at least one resilient member being interposed between said drive member and said locking platform and preventing free rotational movement of said locking lever at said unlocking position.

5. The adjustable mounting system of claim 1, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;

a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force retarding free rotation of said locking lever at the unlocking position thereof; and

said adjustment nut being received by said pivot shaft and being rotatable for adjustment of the locking position of said cam plate.

6. The adjustable mounting system of claim 5, comprising:

said at least one resilient member being an annular wave spring.

7. The adjustable mounting system of claim 5, comprising:

said at least one resilient member being at least one O-ring composed of resilient material.

8. The adjustable mounting system of claim 1, comprising:

one of said oppositely angulated clamping surfaces having a predetermined angle;

said rotary cam plate defining first and second substantially straight cam surfaces being joined by a curved cam surface; and

said first and second substantially straight cam surfaces and said curved cam surface each having a taper substantially corresponding to said predetermined angle.

9. The adjustable mounting system of claim 1, comprising:

said mounting rail defining spaced positioning receptacles and spaced upwardly extending mounting projections; and

said mounting base having at least one locator key having engagement within one of said spaced positioning receptacles and selectively locating said mounting base on said mounting rail.

10. The adjustable mounting system of claim 9, comprising:

said mounting base having a pair of downwardly projecting locator keys disposed in spaced relation and having locating engagement within two of said spaced positioning receptacles.

11. The adjustable mounting system of claim 1, comprising:

said mounting base defining a ring mounting receptacle;

a pair of mounting ring sections each defining arcuate internal surface sections and each having a mounting tongue being received within said ring mounting receptacle; and

retainer members securing said mounting tongues in fixed relation within said ring mounting receptacles and being selectively adjustable to position said arcuate internal surface sections in frictional retention with a supported device.

12. The adjustable mounting system of claim 11, comprising:

a plurality of connector receptacles being located within said mounting ring sections;

a plurality of hardened inserts being fixed within said plurality of connector receptacles and defining internally threaded connector sections; and

a plurality of retainer screws being in threaded connection within said internally threaded connector sections and retaining said mounting ring sections in friction supported engagement with a supported object.

13. The adjustable mounting system of claim 12, comprising:

said plurality of connector receptacles each defining internal insert support shoulders; and

said plurality of hardened inserts being seated on and supported by said internal insert support shoulders.

14. The adjustable mounting system of claim 1, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

15. The adjustable mounting system of claim 14, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough;

at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

16. An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a rotary cam plate and a pivot shaft integral therewith and being rotatably moveable between locking and unlocking positions, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and cam plate from an unlocking position to a locking position;

a drive member being received in non-rotatable linearly moveable relation on said pivot shaft;

an adjustment nut being threaded to said pivot shaft and providing for adjustment of the locking position of said rotary cam plate relative to one of said oppositely angulated clamp surfaces; and

at least one resilient member being interposed between said drive member and said locking platform and providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

17. The adjustable mounting system of claim 16, comprising:

an annular insert being seated within said lock opening and defining a circular pocket;

said drive member being at least partially located within said circular pocket; and

said at least one resilient member being located within said circular pocket and being engaged by said drive member and providing resistance preventing free rotation of said locking lever.

18. The adjustable mounting system of claim 16, comprising:

said peripheral angulated cam surface of said rotary cam plate having a pair of substantially straight cam sections disposed in angular relation and having a curved cam section merging with said substantially straight cam sections.

19. The adjustable mounting system of claim 16, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;

a drive member being received in non-rotatable and linearly moveable relation by said external non-circular section;

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force retarding free rotation of said locking lever at the unlocking position thereof; and

said adjustment nut being received by said pivot shaft and being rotatable for adjustment of the locking position of said cam plate.

20. The adjustable mounting system of claim 16, comprising:

said mounting base having a mounting pedestal defining an upwardly extending mounting projection having transverse mounting openings therein, said mounting pedestal defining mounting ring support shoulders;

a pair of mounting ring sections being seated on said mounting ring support shoulders and defining internal arcuate surfaces for frictional retaining engagement with a supported device; and

retainer members extending through said mounting ring sections and through said transverse mounting openings of said upwardly extending mounting projection and retaining said mounting ring sections in immoveable assembly with said support pedestal.

21. The adjustable mounting system of claim 20, comprising:

said upwardly extending mounting projection defining at least one transverse bore extending therethrough;

at least one of said mounting ring sections having a hardened insert therein defining an internally threaded ring locator member projecting into said at least one transverse bore;

another of said mounting ring sections defining at least one mounting screw opening having an internal shoulder surface; and

a mounting screw being located within said mounting screw opening and being seated on said internal shoulder surface, said mounting screw having a threaded section having threaded engagement with said internally threaded ring locator member and securing said mounting ring sections in supported assembly with said upwardly extending mounting projection of said support pedestal.

* * * * *

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/010,041	10/29/2007	7,272,904	A042 904 Laruc	5162

7590 01/21/2009

JAMES L. JACKSON, P.C.
10723 SUGAR HILL DR.
HOUSTON, TX 77042

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 01/21/2009

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

Notice of Intent to Issue Ex Parte Reexamination Certificate	Control No.	Patent Under Reexamination	
	90/010,041	7,272,904	
	Examiner	Art Unit	
	MATTHEW C. GRAHAM	3993	

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

1. ☒ Prosecution on the merits is (or remains) closed in this *ex parte* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. *Cf.* 37 CFR 1.313(a). A Certificate will be issued in view of
   - (a) ☒ Patent owner's communication(s) filed: *8/25/2008*.
   - (b) ☐ Patent owner's late response filed: _____.
   - (c) ☐ Patent owner's failure to file an appropriate response to the Office action mailed: _____.
   - (d) ☐ Patent owner's failure to timely file an Appeal Brief (37 CFR 41.31).
   - (e) ☐ Other: _____.

   Status of *Ex Parte* Reexamination:
   - (f) Change in the Specification: ☐ Yes ☒ No
   - (g) Change in the Drawing(s): ☐ Yes ☒ No
   - (h) Status of the Claim(s):
     - (1) Patent claim(s) confirmed: _____.
     - (2) Patent claim(s) amended (including dependent on amended claim(s)): *1,3-18,20 and 21*
     - (3) Patent claim(s) cancelled: *2 and 19*.
     - (4) Newly presented claim(s) patentable: 22.
     - (5) Newly presented cancelled claims: _____.
2. ☒ Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."
3. ☐ Note attached NOTICE OF REFERENCES CITED (PTO-892).
4. ☐ Note attached LIST OF REFERENCES CITED (PTO/SB/08).
5. ☐ The drawing correction request filed on _____ is: ☐ approved ☐ disapproved.
6. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All b)☐ Some* c)☐ None of the certified copies have
   - ☐ been received.
   - ☐ not been received.
   - ☐ been filed in Application No. _____.
   - ☐ been filed in reexamination Control No. _____.
   - ☐ been received by the International Bureau in PCT Application No. _____.

   * Certified copies not received: _____.
7. ☐ Note attached Examiner's Amendment.
8. ☐ Note attached Interview Summary (PTO-474).
9. ☐ Other: _____.

cc: Requester (if third party requester)

1. Receipt is acknowledged of the amendment filed on 8/25/2008.

2. **STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION**

The following is an examiner's statement of reasons for patentability and/or confirmation of the claims found patentable in this reexamination proceeding: the prior art, including the M 139 Technical Manual, fails to show or suggest the "one-piece unitary" rotary cam plate and pivot shaft as now recited in claims 1 and 16 and new claim 22. Claims 3-15 and 17-18 and 20-21 are considered to be patentable due to their dependency on claims 1 and 16. Claims 2 and 19 have been canceled.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

3. Any inquiry concerning this communication should be directed to Matthew C. Graham at telephone number 571-272-7116.

Please mail any communications to:

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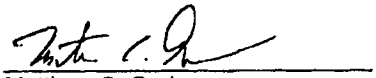
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:



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CONFEREES: PE
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Date:
MAILED
JAN 21 2009
CENTRAL REEXAMINATION UNIT

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. : 90010041
PATENT NO. : 7272904
ART UNIT : 3900

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified ex parte reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the ex parte reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

US007272904C1

(12) EX PARTE REEXAMINATION CERTIFICATE (6757th)

United States Patent
Larue

(10) Number: US 7,272,904 C1
(45) Certificate Issued: Apr. 7, 2009

(54) ADJUSTABLE THROW-LEVER PICATINNY RAIL CLAMP

(76) Inventor: Mark C. Larue, 850 County Rd. 177, Leander, TX (US) 78641

Reexamination Request:
No. 90/010,041, Oct. 29, 2007

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Issued: Sep. 25, 2007
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Filed: Dec. 9, 2004

(51) Int. Cl.
F41G 1/38 (2006.01)

(52) U.S. Cl. 42/127; 42/124; 42/125; 292/145; 292/155; 292/176; 292/43

(58) Field of Classification Search 42/124–128
See application file for complete search history.

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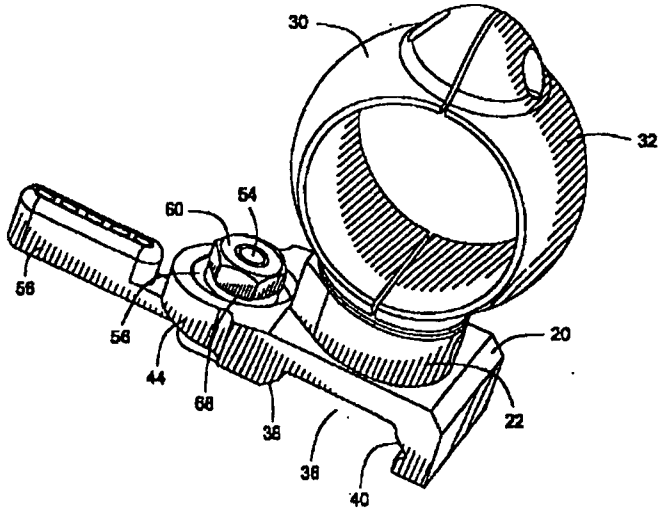
Primary Examiner—Matthew C. Graham

(57) ABSTRACT

A throw-lever releasable mounting system for mounting a device in quick-release relation to a support member has a mounting base having a configuration fitting opposed angulated rail surfaces and having a locator key engaging a positioning slot of the rail. Each mounting base provides for mounting and stabilization of optics mounting rings. A locking platform projects from the mounting base and defines a locking opening having a circular hard metal insert therein that defines a receptacle receiving a resilient member and providing for location of the spline/spindle shaft of a rotatable locking plate. A locking plate of a throw-lever that is rotatable between locking and unlocking positions has angulated and curved cam surfaces for forcibly engaging correspondingly angulated surfaces of the rail to achieve cam energized precision locating and locking engagement with the rail. A non-circular section of a spline/spindle shaft of the throw-lever is receives a drive member in non-rotatable and linearly moveable relation. Resilient members are interposed between the drive member and the hardened insert and prevent free throw-lever movement at the release position thereof.



EX PARTE REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 307

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **2** and **19** are cancelled.

Claims **1, 3, 4, 5** and **16** are determined to be patentable as amended.

Claims **6–15, 17–18** and **20–21**, dependent on an amended claim, are determined to be patentable.

New claim **22** is added and determined to be patentable.

1. An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a *one-piece unitary* rotary cam plate and [a] pivot shaft integral therewith, said pivot shaft being rotatable within said lock opening, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and *one-piece unitary rotary* cam plate *and pivot shaft* from an unlocking position to a locking position; [and]

an adjustment nut being threaded to said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said *one-piece unitary* rotary cam plate *and pivot shaft* relative to one of said oppositely angulated clamp surfaces;

a drive member engaging said adjustment nut and having a central opening receiving said pivot shaft, said drive member having non-rotatable and linearly moveable relation with said one-piece unitary rotary cam plate and pivot shaft; and

a resilient member having force transmitting relation with said drive member and continuously urging said drive member against said adjustment nut and developing friction for resisting inadvertent rotation of said adjustment nut on said pivot shaft relative to said drive member during locking and unlocking rotation of said locking lever.

3. The adjustable mounting system of claim **1**, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and defining an external non-circular section;

[a] *said central opening of said* drive member *being of non-circular configuration and establishing said* [having] non-rotatable and linearly moveable relation with said external non-circular section *of said pivot shaft*; and

adjustment rotation of said adjustment nut [having] *on said threaded section of said pivot shaft causing linear* adjustment [engagement with] *movement of* said drive member *on said pivot shaft and linear adjustment of said one-piece unitary rotary cam plate and pivot shaft relative to said angulated clamping surfaces of said mounting rail.*

4. The adjustable mounting system of claim **3**, comprising:

said at least one resilient member being interposed between said drive member and said locking platform and *imparting force to said drive member and force and frictional resistance to said locking lever* preventing free rotational movement of said locking lever at said unlocking position.

5. The adjustable mounting system of claim **1**, comprising:

said pivot shaft defining a threaded section receiving said adjustment nut and having an external non-circular section;

[a] *said central opening of said* drive member being *of non-circular configuration and being* received in non-rotatable and linearly moveable relation by said external non-circular section *of said pivot shaft*;

said at least one resilient member being interposed between said drive member and said locking platform and developing a spring force *developing frictional resistance* retarding free rotation of said locking lever at the unlocking position thereof; and

said adjustment nut being received by said *threaded section of said* pivot shaft and being rotatable for adjustment of the locking position of said cam plate *relative to said clamping surfaces of said mounting rail.*

16. An adjustable mounting system, comprising:

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having oppositely angulated clamping surfaces;

at least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a *one-piece unitary pivot shaft and* rotary cam plate [and a pivot shaft] integral therewith and being rotatably moveable between locking and unlocking positions, said pivot shaft being rotatable within said lock opening *and having a non-circular section*, said rotary cam plate having a peripheral angulated cam surface being moveable into force transmitting locking engagement with one of said oppositely angulated clamp surfaces upon rotation of said locking lever and *said one-piece unitary pivot shaft and rotary* cam plate from [an] *said* unlocking position to [a] *said* locking position;

a drive member *having an internal non-circular drive opening* being received in non-rotatable *and* linearly moveable relation on said *non-circular section of said* pivot shaft;

an adjustment nut being threaded to said pivot shaft and *having engagement with said drive member and* providing for adjustment of the locking position of said *one-piece unitary pivot shaft and* rotary cam plate relative to one of said oppositely angulated clamp surfaces; and

at least one resilient member being interposed between said drive member and said locking platform and *having force transmitting relation with said drive member urging said drive member into frictional engagement with said adjustment nut ensuring concurrent rotation of said pivot shaft said drive member and said adjustment nut during locking and unlocking rotation of said locking lever, preventing inadvertent rotation of said adjustment nut on said pivot shaft and* providing resistance to free rotation of said locking lever at the unlocked position of said locking lever.

22. *An adjustable mounting system, comprising:*

a mounting rail attached to a structure and defining a plurality of upwardly facing mounting projections each having an angulated clamping surface;

a least one mounting base having an angulated clamp surface and defining a locking platform having a lock opening therein;

a locking lever having a one-piece unitary pivot shaft and rotary cam plate, said pivot shaft having a threaded end and a non-circular section and being rotatable within said lock opening, said rotary cam plate having an angulated locking surface being moveable into force transmitting locking engagement with said angulated clamp surface upon rotation of said one piece unitary locking lever from an unlocking position to a locking position;

an adjustment nut being threaded to said threaded end of said pivot shaft and upon rotation on said pivot shaft adjusting the locking position of said rotary cam plate relative to said angulated clamp surface;

a drive member having a central opening of non-circular configuration receiving said non-circular section of said pivot shaft and having non-rotatable and linearly moveable relation with said pivot shaft, said drive member rotating concurrently with said pivot shaft during unlocking and locking rotation of said locking lever, said drive member having non-rotatable force transmitting engagement with said adjustment nut preventing inadvertent rotation of said adjustment nut upon locking and unlocking rotation of said locking lever and being moveable linearly by rotational adjustment of said adjustment nut; and

a resilient member having force transmitting relation with said drive member and urging said drive member against said adjustment nut.

* * * * *

STIC
Scientific & Technical Information Center

Search Report
EIC 3700

STIC Database Tracking Number: 242332

To:	From:
ANDY KASHNIKOW Location: MDW-7B87 Art Unit: N/A Monday, November 05, 2007 Case Serial Number: 90/010041	TERRANCE SOLOMON Location: EIC3700 RND-8B31 / RND-8B31 Phone: (571)272-3509 terrance.solomon@uspto.gov

Search Notes

No current or past litigation found involving US pat. 7272904.

Sources:

Lexis/Nexis
Courtlink
Questel-Orbit

sira
Search and Information Resources Administration

008394 (11) 7272904 September 25, 2007

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

7272904

September 25, 2007

Adjustable throw-lever picatinny rail clamp

APPL-NO: 008394 (11)

FILED-DATE: December 9, 2004

GRANTED-DATE: September 25, 2007

LEGAL-REP: Jackson, James L. -

CORE TERMS: mounting, locking, ring, sighting, rail, lever, cam, spline, optical, angulated ...

Patent Search 7,272,904 11/5/2007

No cases found.

Selected file: PLUSPAT
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Comprehensive Worldwide Patents database

** SS 1: Results 1
PRT SS 1 MAX 1 LEGALALL

1 / 1 PLUSPAT - ©QUESTEL-ORBIT - image

Patent Number :
US2006123686 A1 20060615 [US20060123686]
Patent Number 2 :
US7272904 B2 20070925 [US7272904]
Title :
(A1) Adjustable throw-lever picatinny rail clamp
Language :
ENGLISH (ENG)
Patent Assignee :
(B2) LARUE MARK C
Patent Assignee 2 :
(B2) LARUE MARK C
Inventor(s) :
(A1) LARUE MARK C (US)
Application Nbr :
US839404 20041209 [2004US-0008394]
Filing Details :
Previous Publication: US20060123686 A1 20060615
Priority Details :
US839404 20041209 [2004US-0008394]
Intl Patent Class :
(A1) F41G-001/00 F41G-001/38
IPC Advanced All :
F41G-001/38 [2006-01 A F I B H US]
IPC Core All :
F41G-001/00 [2006 C F I B H US]
EPO ECLA Class :
F41G-011/00B4
US Patent Class :
ORIGINAL (O) : 042127000; CROSS-REFERENCE (X) : 042124000 042125000 292043000 292145000 292155000 292176000
Document Type :
Basic
Citations :
Cited in the search report

US2810963(A);US4620372(A);US4835895(A);US4845871(A);US5155915(A);US5276988(A);US5375361(A);US5383278(A);US5680725(A);US7107716(B1);US2006283070(A1);
Publication Stage :
(A1) Utility Patent Application published on or after January 2, 2001
Publication Stage 2 :
(B2) U.S. Patent (with pre-grant pub.) after Jan. 2, 2001
Abstract :
A throw-lever releasable mounting system for mounting a device in quick-release relation to a support member has a mounting base having a configuration fitting opposed angulated rail surfaces and having a locator key engaging a positioning slot of the rail. Each mounting base provides for mounting and stabilization of optics mounting rings. A locking platform projects from the mounting base and defines a locking opening having a circular hard metal insert therein that defines a receptacle receiving a resilient member and providing for location of the spline/spindle shaft of a rotatable locking plate. A locking plate of a throw-lever that is rotatable between locking and unlocking positions has angulated and curved cam surfaces for forcibly engaging

correspondingly angulated surfaces of the rail to achieve cam energized precision locating and locking engagement with the rail. A non-circular section of a spline/spindle shaft of the throw-lever is receives a drive member in non-rotatable and linearly moveable relation. Resilient members are interposed between the drive member and the hardened insert and prevent free throw-lever movement at the release position thereof.

Update Code :
2006-24

Session finished: 05 NOV 2007 Time 16:14:19
QUESTEL.ORBIT thanks you. Hope to hear from you again soon.

STIC
Scientific & Technical Information Center

Search Report
EIC 3700

STIC Database Tracking Number: 242332

To:	From:
ANDY KASHNIKOW Location: MDW-7B87 Art Unit: N/A Monday, November 05, 2007 Case Serial Number: 90/010041	TERRANCE SOLOMON Location: EIC3700 RND-8B31 / RND-8B31 Phone: (571)272-3509 terrance.solomon@uspto.gov

Search Notes

No current or past litigation found involving US pat. 7272904.

Sources:

Lexis/Nexis
Courtlink
Questel-Orbit

sira
Search and Information Resources Administration

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	"7272904".pn.	USPAT	OR	OFF	2008/06/19 11:15
L2	12	("20060283070" | "2810963" | "4620372" | "4835895" | "4845871" | "5155915" | "5276988" | "5375361" | "5383278" | "5680725" | "7107716"). PN. OR ("7272904").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2008/06/19 11:15
L3	480	42/124-127.ccls.	USPAT	OR	OFF	2008/06/19 11:16

EXHIBIT

A

United States Patent [19]

Wing

[11] **Patent Number: 4,790,703**

[45] **Date of Patent: Dec. 13, 1988**

[54] **PREVAILING TORQUE FASTENER ASSEMBLY**

[76] Inventor: George S. Wing, 531 Esplanade, Apartment 515, Redondo Beach, Calif. 90277

[21] Appl. No.: 42,358

[22] Filed: Apr. 24, 1987

[51] Int. Cl.[4] F16B 39/16

[52] U.S. Cl. 411/260; 411/282; 411/301; 411/313; 411/324; 411/416; 411/937.2; 411/533

[58] Field of Search 411/237, 259, 260, 301, 411/311, 313, 314, 324, 281, 282, 2, 3, 432, 416, 168, 937.2, 533

[56] References Cited

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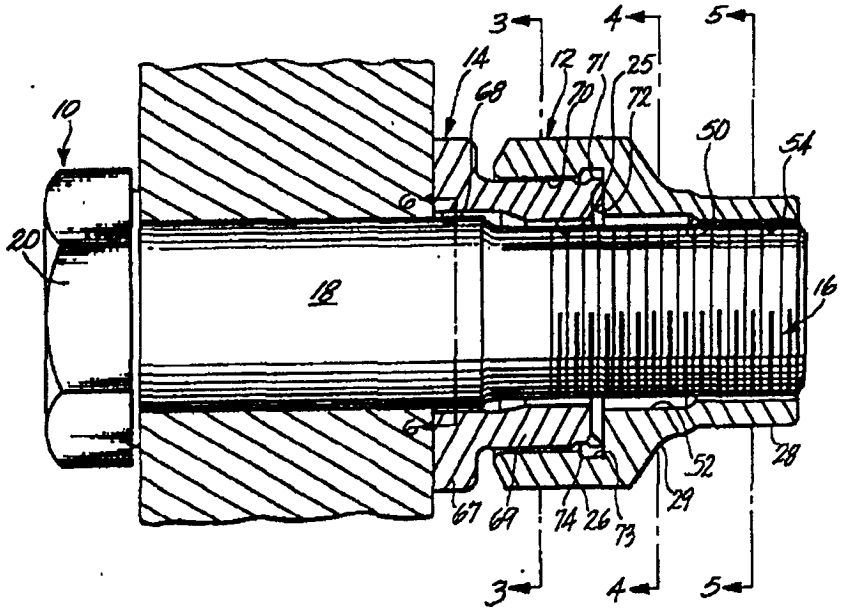
293136	9/1953	Fed. Rep. of Germany	411/417
828003	2/1960	United Kingdom	411/260

Primary Examiner—Neill R. Wilson
Assistant Examiner—Curtis B. Brueske
Attorney, Agent, or Firm—Christie, Parker & Hale

[57] ABSTRACT

A tri-lobular section of a bolt receives a mating tri-lobular bore of a washer to prevent the washer from rotating. Roll formed male threads on the tri-lobular section of the bolt receive a cooperating nut. The nut has a base shaped for wrench engagement, a thin walled barrel, a spring temper, and a threaded bore. The thread of the nut has two thread diameters: a large diameter thread in the base and a smaller diameter thread in the barrel continuing from the base thread; both thread sections have the same pitch. The barrel thread is substantially circular when relaxed. The barrel elastically flexes in response to the lobes of the nut as the lobes turn in the barrel, and when rotation stops, the barrel generally conforms to the tri-lobular shape of the bolt to form a thread lock, but the base does not.

22 Claims, 6 Drawing Sheets



EXHIBIT

B

US006490822B1

(12) **United States Patent**
Swan

(10) **Patent No.: US 6,490,822 B1**
(45) **Date of Patent: Dec. 10, 2002**

(54) **MODULAR SLEEVE**

(76) Inventor: **Richard E. Swan**, 171 West St., E. Bridgewater, MA (US) 02333

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/007,590**

(22) Filed: **Dec. 10, 2001**

Related U.S. Application Data

(60) Provisional application No. 60/274,147, filed on Mar. 9, 2001.

(51) **Int. Cl.**[7] F41C 23/00

(52) **U.S. Cl.** 42/71.01; 42/75.01; 42/124

(58) **Field of Search** 42/71.01, 75.01, 42/124

(56) **References Cited**

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6,453,594	*	9/2002	Griffin	42/105

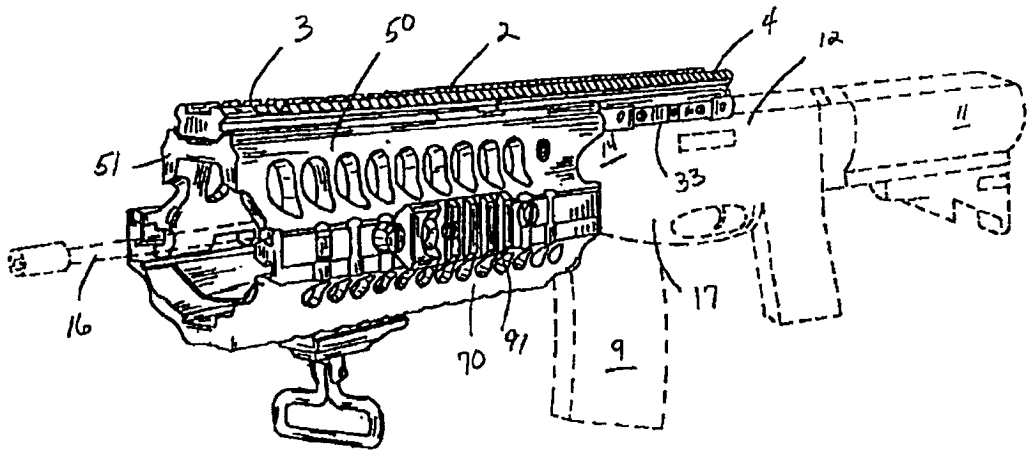
* cited by examiner

Primary Examiner—J. Woodrow Eldred
(74) *Attorney, Agent, or Firm*—John P. McGonagle

(57) **ABSTRACT**

A Swan universal receiver sleeve attached to the top of a firearm upper receiver and extended forward above the firearm barrel to a position just short of the firearm front sight. The underside of the rear portion of the sleeve is fixedly attached to the receiver top. The underside of the forward portion of the sleeve has an upper handguard piece attached thereto. A bottom handguard piece is fitted about the bottom of the gun barrel and is attached to the upper handguard piece. The handguard pieces are not physically connected in any way to the gun barrel. The sleeve is self supported by the connection of the rear portion underside to the receiver top.

18 Claims, 14 Drawing Sheets



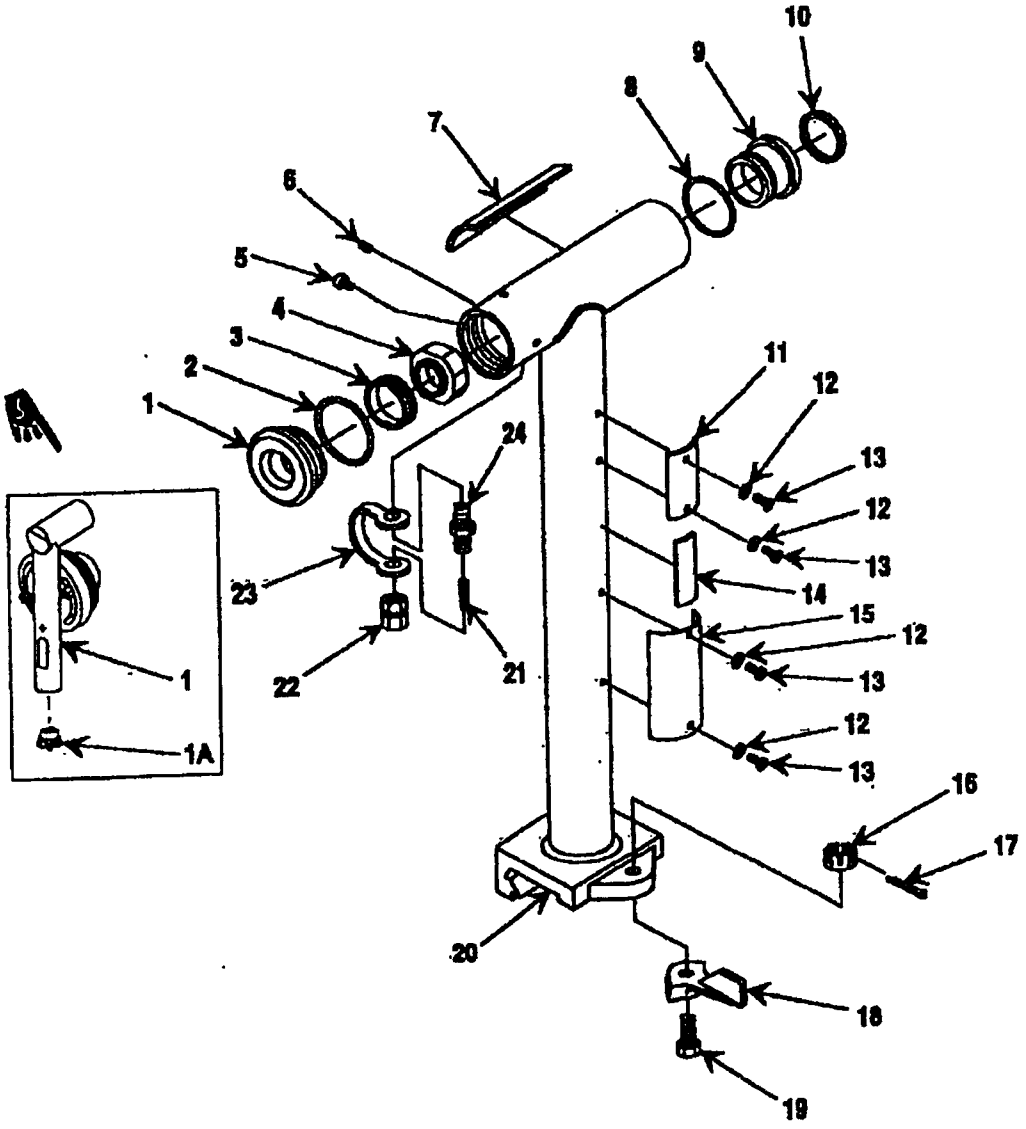


Figure C-2. M139/M140 Alinement Devices (exploded view).

EXHIBIT A

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. C-2, GROUP 01:	
				M139 AND M140 ALINEMENT DEVICES	
*1	PCHZA	19200	10544462	CAP ASSEMBLY, POTTED	1
*1	PAOOO	19200	12984672	LIGHT ASSEMBLY, NON-TRITIUM	1
*1A	PAOZZ	19200	12984679	CAP ASSEMBLY	1
*2	PAHZZ	96906	AS3578-026	O-RING	1
3	PAHZZ	19200	10544461	RETAINER, OPTICAL ELEMENT	1
4	AHHHL	19200	10544455	CELL ASSEMBLY, OPTICAL (SEE FIG. C-3)	1
5	PAOZZ	19200	10555157-4	SCREW, MACHINE	1
*6	PAHZZ	80205	MS51031-103	SETSCREW	4
7	PAOZZ	19200	11739583	DECAL	1
*8	PAHZZ	81343	AS3578-024	O-RING	1
9	AHHHL	19200	9360371	CELL ASSEMBLY, OPTICAL (SEE FIG. C-4)	1
*10	PAHZZ	19200	10544464	RETAINER, OPTICAL ELEMENT	1
11	PAOZZ	19200	10544467	PLATE, INSTRUCTION	1
12	PAOZZ	96906	MS35333-69	WASHER, LOCK	2
13	PAOZZ	96906	MS51957-2	SCREW, MACHINE	2
14	PAOZZ	19200	11731011	PLATE, INSTRUCTION	1
15	PAHZZ	19200	10544458-2	PLATE, IDENTIFICATION UOC:U09	1
15	PAHZZ	19200	10544458-1	PLATE, IDENTIFICATION UOC:U11	1
*15	PAOZZ	19200	10544458-4	PLATE, IDENTIFICATION (NON-TRITIUM) UOC:U11	1
16	PAOZZ	96906	MS35692-3	NUT, PLAIN, SLOTTED, HEX	1
*17	PAOZZ	80205	MS24665-153	PIN, COTTER	1
18	PAOZZ	19200	10544452	LEVER, MANUAL CONTROL	1
19	PAOZZ	19200	10544465	SCREW, CAP, SOCKET HEAD	1
20	XAHHH	19200	10544450-1	BODY:M139 UOC:U11	1
20	XAHHH	19200	10544450-2	BODY:M140 UOC:U09	1
21	PAOZZ	96906	MS51377-2	VALVE CORE	1
*22	PAOZZ	19200	8200055	CAP, AIR VALVE	1
*23	PAOZZ	19200	10518587	STRAP, RETAINING	1
24	PAOZZ	96906	MS51607-1	VALVE STEM, PURGING	1

END OF FIGURE

EXHIBIT B

EXHIBIT

2

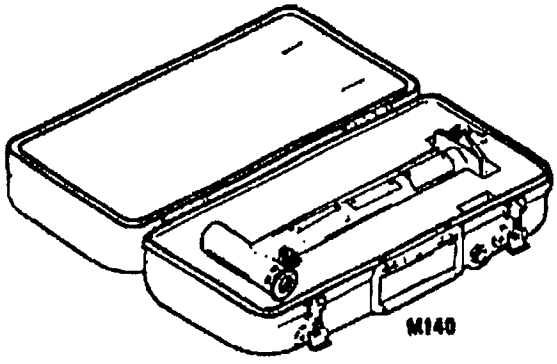
TM 9-4931-710-14&P

TECHNICAL MANUAL

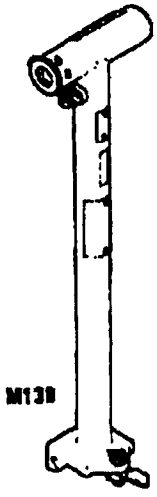
OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

(Including Repair Parts and Special Tools List)

for



M140



M139

ALINEMENT DEVICE: M139 (RADIOACTIVE) (4931-01-048-5834)
M139A1 (NONRADIOACTIVE) (4931-01-472-6621)

and

ALINEMENT DEVICE WITH CASE: M140 (RADIOACTIVE) (4931-01-187-9713)
M140A1 (NONRADIOACTIVE) (4931-01-472-7329)

and

ALINEMENT DEVICE WITHOUT CASE: M140 (RADIOACTIVE) (4931-00-341-5119)
M140A1 (NONRADIOACTIVE) (4931-01-472-6622)

HEADQUARTERS, DEPARTMENT OF THE ARMY

AUGUST 1986

PIN: 060462-002

WARNING SUMMARY

WARNING

RADIATION  HAZARD

TRITIUM GAS (H_3)

This item contains radioactive materiel. Control of this radioactive materiel is mandated by Federal law. Immediately report any suspected lost or damaged items to your Radiation Protection Officer. If your Radiation Protection Officer cannot be reached, contact the TACOM-RI safety office during regular duty hours; or call the Rock Island Police office at DSN 793-6135 after duty hours.

All personnel that operate and/or maintain fire control equipment must be aware of the following special precautions:

Use adhesives, cleaning solvents, and sealing compounds in well-ventilated area away from open flame; adhesives, cleaning solvents, and sealing compounds are harmful to skin and clothing and may give off harmful vapor.

LOCAL RPO: _____ TELEPHONE: _____

A. RULES AND REGULATIONS: Copies of the following rules and regulations are maintained at TACOM-RI, Rock Island, IL 61299-7630. Copies may be requested or information obtained by contacting the TACOM-RI Radiation Protection Officer (RPO), DSN 793-2962/2965, Commercial (309) 782-2962/2965.

(1) 10CFR Part 19 - Notices, Instructions and Reports to Workers; Inspections.

(2) 10CFR Part 20 - Standards for Protection against Radiation.

(3) 10CFR Part 21 - Reporting of Defects and Noncompliance.

(4) NRC license, license conditions, and license application.

B. SAFETY PRECAUTIONS: The radioactive material used in these instruments in tritium gas (H_3) sealed or in glass vials. These sources illuminate the instrumentation for night operations. Tampering with or removal of the sources in the field is prohibited by Federal law. In the event there is no illumination, notify the local RPO or TACOM-RI RPO. If skin contact is made with any area contaminated with tritium, wash immediately with soap and water.

The beta radiation emitted by tritium is a hazard only if the vial or source is broken. Tritium can be taken into the body by inhalation, ingestion, or skin absorption/injection. If the vial is broken, the tritium gas will dissipate into the surrounding air. If released in a confined space such as a storage locker, container, unventilated room, or military vehicle, tritium is absorbed by lungs from air or by skin contact with contaminated surfaces. However, the body naturally eliminates absorbed tritium.

C. IDENTIFICATION: Instruments containing radioactive self-luminous vials are identified by means of radioactive warning labels (see above). These labels should not be defaced or removed and should be replaced immediately when necessary. Refer to the local RPO or the TACOM-RI RPO for instructions on handling, storage, or disposal.

D. STORAGE: Spare equipment must be stored in the shipping container, as received, until installed on the weapon. Storage of these items is recommended to be in an outdoor shed-type storage or unoccupied building.

E. SHIPPING: All radioactively illuminated instruments will be evacuated to the appropriate echelon for inspection and repair. Non-illuminated instruments will be disposed of as radioactive waste. Contact installation Radiation Protection Officer.

F. EMERGENCY PROCEDURES: If a source breaks or is not illuminated, follow "SWIMN""

Stop -and think
Warn - nearby personnel of situation to avoid additional exposure. Immediately open door/hatches if exiting room/vehicle/area is not possible. If exiting, move upwind for 15 minutes.
Isolate - Do not handle broken tritium devices tritium devices with bare hands. Use gloves (if available) or a bag. Quickly place item in plastic bag (item 2, Appendix D) (or, if bag not immediately available, wrap in plastic) and, if possible, leave area.
Minimize - wash hands.
Notify - call the Radiation Protection Officer (RPO).

GENERAL WARNINGS

Do not drop tank of compressed nitrogen gas. When using in confined areas, use extreme care; gas could cause asphyxiation.

Do not purge or charge a collimator that has a damaged or broken radioactive light source.

Do not disassemble the radioactive reticle assembly.

FIRST AID

For further information on first aid, see FM 21-11.

LIST OF EFFECTIVE PAGES

NOTE: The portion of text effected by changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands.

Dates of issue for original and changed pages are:

Original ..... 0 ..... 15 August 1986

Change ..... 1 ..... 15 September 2000

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 82, CONSISTING OF THE FOLLOWING:

Page No.	*Change No.
Title	2
a	2
b	2
A added	1
B blank	0
i – ii	1
1-1 – 1-2	0
1-3 – 1-5	2
1-6 blank	0
2-1 – 4-1	0
4-2 blank	0
5-1 – 5-2	0
5-3	2
5-4	0
5-5 – 5-6	2
5-7 – 5-8	1
5-9	2
5-10 – 5-11	0
5-12	2
5-13 – 5-18	1
5-19 – 5-22	0
5-23 – 5-26	1
5-27 – 5-28	0
5-29	2
5-30	0
A-1 – A-4	0
B-1 – B-2	0
B-3	1
B-4 – B-5	2
B-6 blank	0
C-1 – C-9	0

Page No.	*Change No.
Figure C-1	0
C-1-1	2
C-2 – C-2-1	2
C-3	0
C-3-1	2
C-4	0
C-4-1	2
C-5	0
C-5-1	2
C-6 – C-6-1	2
C-6-2 blank	0
D-1	0
D-2	1
D-3	0
D-4 blank	0
I-1 – I-2	2
Index-1 – Index-2	0

*Zero in this column indicates an original page

CHANGE NO.

NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 15 September 2000

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
FOR
ALINEMENT DEVICE: M139 (RADIOACTIVE) (4931-01-048-5834)
M139A1 (NONRADIOACTIVE) (4931-01-472-6621)
AND
ALINEMENT DEVICE WITH CASE: M140 (RADIOACTIVE) (4931-01-187-9713)
M140A1 (NONRADIOACTIVE) (4931-01-472-7329)
AND
ALINEMENT DEVICE WITHOUT CASE: M140 (RADIOACTIVE) (4931-00-341-5119)
M140A1 (NONRADIOACTIVE) (4931-01-472-6622)

TM 9-4931-710-14&P, 15 August 1986, is changed as follows:

1. Remove old pages and insert new pages as indicated below.

2. New or changed material is indicated by a vertical bar in the margin of the page.

3. Added or revised illustrations are indicated by miniature pointing hands in the affected areas.

Remove pages	Insert pages
a through c (d blank)	a and b
I and II	I and II
1-3 through 1-5(1-6 blank)	1-3 through 1-5(1-6 blank)
5-3 through 5-6	5-3 through 5-6
5-9 through 5-12	5-9 through 5-12
5-29 and 5-30	5-29 and 5-30
B-3 through B-5(B-6 blank)	B-3 through B-5(B-6 blank)
C-9(C-10 blank)	C-9 and Figure C-1
C-1-1 through C-6-1	C-1-1 through C-6-1(C-6-2 blank)
D-1 and D-2	D-1 and D-2
I-1 and I-2	I-1 and I-2
Front Cover	Front Cover

4. File this sheet in the front of the manual for reference purposes.