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Kim

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(54) **APPARATUS AND METHOD FOR ADJUSTING ORIENTATION OFFSET OF A LIGHT BEAM GENERATOR**

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(52) **U.S. Cl.** **42/114**; 42/146
(58) **Field of Search** 42/114, 115, 124, 42/125, 126, 146

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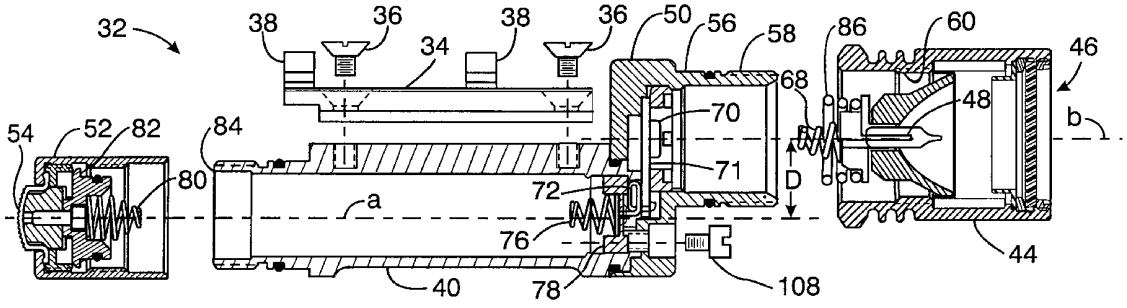
(57) **ABSTRACT**

Apparatus and method for adjusting orientation offset of a light source housing of a light beam generator mounted to a firearm, in such manner as to preclude inadvertent rotational displacement of the light source housing. The apparatus includes a coupler secured to the light source housing and adapted for being longitudinally placed for interfacing with and fastenable to the battery housing for incrementally adjusting orientation offset of the light source housing.

25 Claims, 2 Drawing Sheets



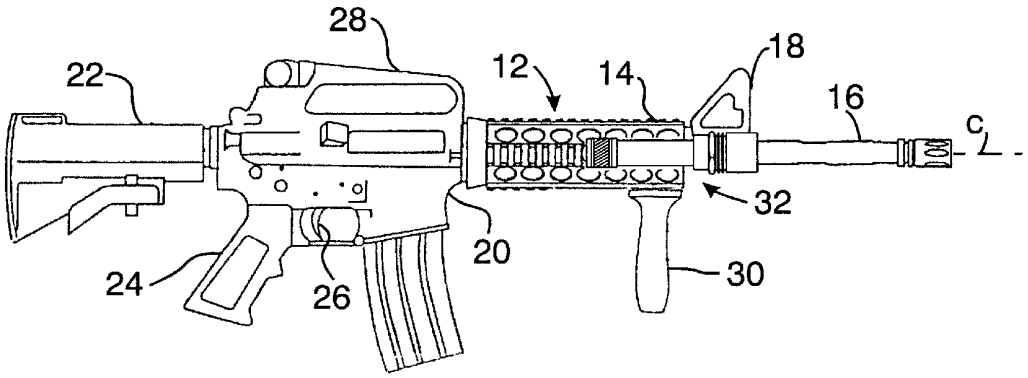


Fig. 1

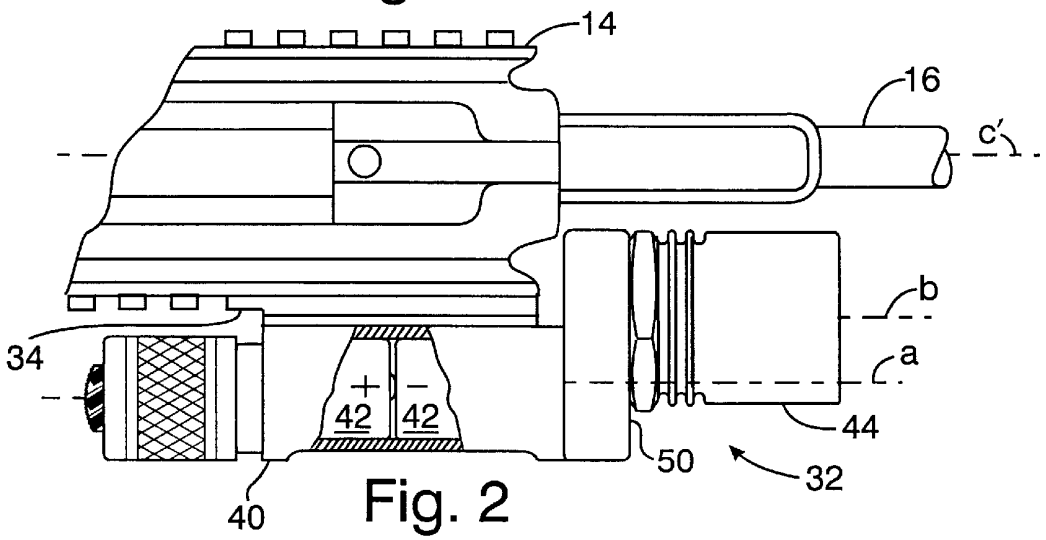


Fig. 2

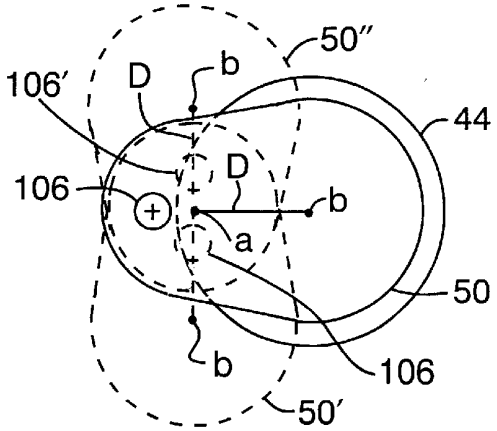


Fig.8

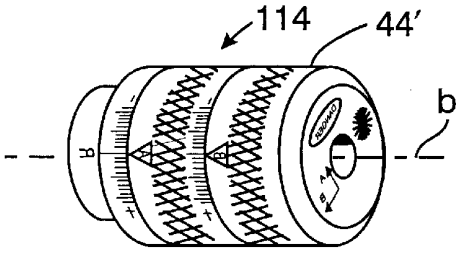


Fig. 9

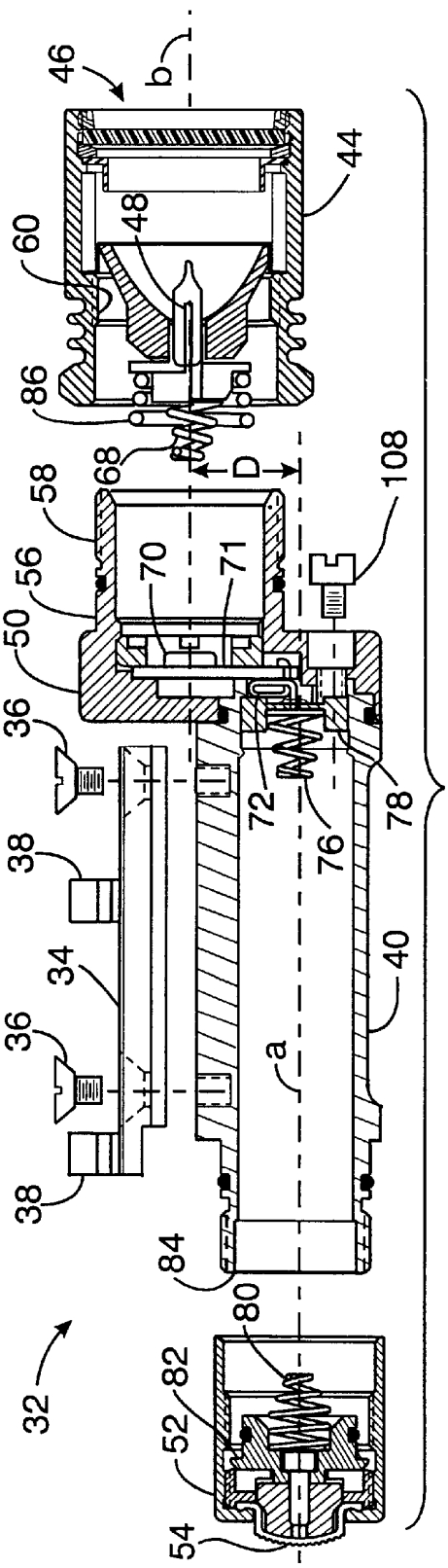


Fig. 3

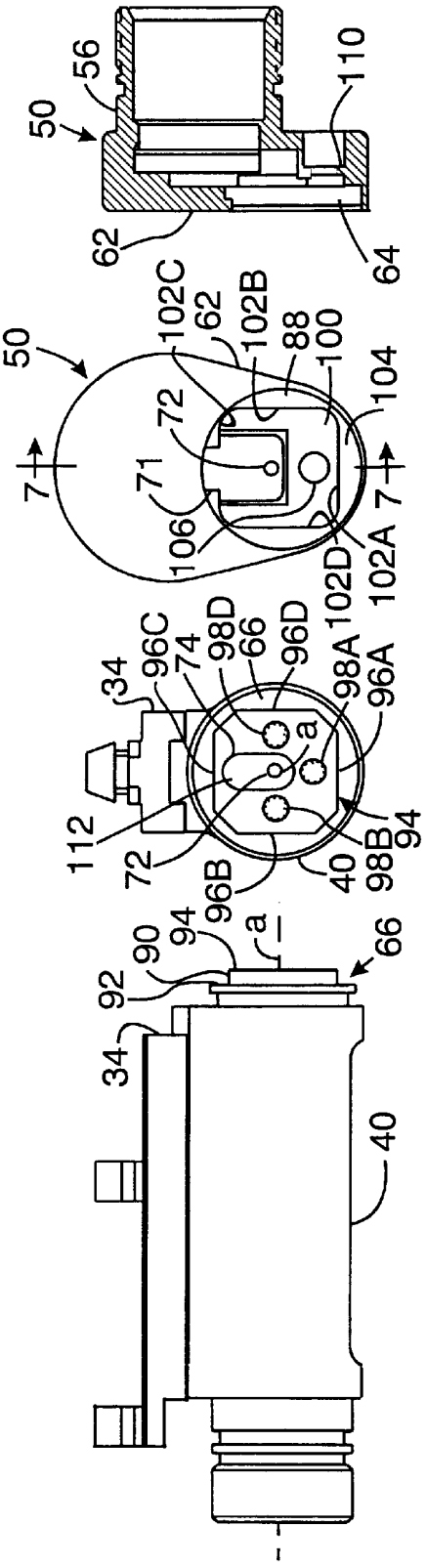


Fig. 4

Fig. 5

Fig. 6

Fig. 7

APPARATUS AND METHOD FOR ADJUSTING ORIENTATION OFFSET OF A LIGHT BEAM GENERATOR

BACKGROUND OF THE INVENTION

This invention relates to light beam generators for firearms, such as target illuminators and lasers sights, and more particularly to apparatus and methods for adjusting orientation offset of a light beam generator mounted to a firearm.

Firearm mounted light beam generators are well known. Target illuminators have been used on firearms for illuminating targets, and laser sights have been mounted to firearms for assisting in aiming the firearm. Such light beam generators are mounted to the firearm such that the generated light beam is parallel to and preferably close to the longitudinal axis of the firearm's barrel.

In certain mounting configurations, it may be desired to bring the light source housing closer to the barrel, or farther away from the barrel such as for avoiding other firearm accessories or when large diameter light source housings are employed. In such configurations, the light generator light source housing may be offset from its battery housing which is typically mounted to the firearm or to a rail interface system mounted to the firearm. In many situations, it may be desired to adjust the orientation of the offset on a mounted light beam generator.

In the past and present, adjustable offset capability has been used in firearm mounted light beam generators. In one manner of adjusting orientation offset, a typically cylindrical battery housing of the light source generator may be inserted in a U-shaped holder mounted to the firearm, the battery housing rotated in the holder for placing an included offset arm in a desired orientation, and then clamping the battery housing in such position. In another manner of adjusting orientation of an offset, the cylindrical battery housing may be made in two parts, one part being mounted to the firearm and the second part including an offset leg, the second part being adapted to screw into the mounted portion to a desired orientation of the offset leg and then locking it there. In either type, the battery housing or the battery housing portion including the offset leg are subject to undesired rotational displacement when inadvertently hit or when jarred or vibrated as by forces generated by the firing of the firearm.

SUMMARY OF THE INVENTION

The present invention provides a method and apparatus for adjusting orientation offset of a light source housing of a light beam generator mounted to a firearm, in such manner as to preclude inadvertent rotational displacement of the offset light source housing. According to one aspect of the present invention, a light beam generator apparatus is provided for a firearm having a barrel, comprising the combination of: a battery housing having a first longitudinal axis and adapted to be secured to the firearm with the first longitudinal axis parallel to the barrel; a light source housing having a second longitudinal axis; a coupler secured to the light source housing, the coupler and the battery housing adapted for longitudinally placing the coupler to the battery housing with the second longitudinal axis parallel to the first longitudinal axis and spaced from the first longitudinal axis along one or another of at least two angular dispositions of the second longitudinal axis with respect to the first longitudinal axis; and a fastener fastening the coupler to the battery housing when the coupler is placed to the battery housing with the second longitudinal axis along one or another of the at least two angular dispositions. The light source housing may house either a lamp assembly for illuminating a target, or a laser assembly for assisting aiming of the firearm.

The battery housing includes a front end, and the coupler includes a rear end interfacing with the front end when the coupler is longitudinally placed to the battery housing. One of such ends (preferably the battery housing front end) includes a longitudinal projection and the other of such ends (preferably the coupler rear end) includes a longitudinal recess for longitudinally receiving the projection, the projection and the recess configured for longitudinally placing the coupler to the battery housing with the second longitudinal axis along one or another of the at least two angular dispositions.

In a preferred embodiment, the longitudinal projection of the battery carrier front end includes at least two lateral surfaces spaced about the first longitudinal axis, and the longitudinal recess in the coupler rear end includes at least two lateral surfaces complementing the lateral surfaces of the front end when the projection is received by the recess, the angular dispositions of the surfaces about the first longitudinal axis corresponding to the angular dispositions of the second longitudinal axis with respect to the first longitudinal axis when the projection is received by the recess. The fastener preferably includes a threaded screw, a bore through the coupler's rear end for receiving the screw, and at least two threaded longitudinal bores in the battery housing front end spaced about the first longitudinal axis such that the screw is threadably received by one or another of the threaded bores corresponding to one or another of the at least two angular dispositions of the second longitudinal axis.

The lateral surfaces of the longitudinal projection are preferably along sides of a polygon, preferably an equilateral polygon, and the lateral surfaces of the longitudinal recess are respectively along sides of a polygon, preferably an equilateral polygon, the polygon of the longitudinal projection being centered along the first longitudinal axis, and the lateral surfaces of the projection fittingly engaging the lateral surfaces of the recess when the projection is received by the recess for preventing rotation of the coupler about the first longitudinal axis along one or another of the at least two angular dispositions. In the preferred embodiment, the polygons are squares, and successive ones of the angular dispositions are separated by 90°.

According to another aspect of the present invention, a method is provided of adjusting orientation offset of a light beam generator for a firearm having a barrel, comprising: providing a light beam generator including a battery housing having a first longitudinal axis, a light source housing having a second longitudinal axis, and a coupler secured to the light source housing; longitudinally placing the coupler to the battery housing with the second longitudinal axis parallel to the first longitudinal axis and spaced from the first longitudinal axis along one of at least two angular dispositions of the second longitudinal axis with respect to the first longitudinal axis; and fastening the coupler to the battery housing. The method further includes: unfastening the coupler from the battery housing; longitudinally withdrawing the coupler from the battery housing; longitudinally replacing the coupler to the battery housing with the second longitudinal axis along another of the angular dispositions; and fastening the coupler to the battery housing.

The battery housing has a front end and the coupler has a rear end, one of such ends includes a longitudinal projection

and the other of such ends includes a longitudinal recess; and when longitudinally placing the coupler, the projection is received by the recess with the second longitudinal axis along one of the angular dispositions.

The longitudinal projection includes lateral surfaces respectively along sides of a preferably equilateral polygon, preferably a square, centered along the first longitudinal axis, and the longitudinal recess includes lateral surfaces respectively along sides of a preferably equilateral polygon, preferably a square; and when longitudinally placing the coupler, the projection is received by the recess such that the lateral surfaces of the projection engage the lateral surfaces of the recess.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed to be characteristic of the invention, together with further advantages thereof, will be better understood from the following description considered in connection with the accompanying drawings in which a preferred embodiment of the present invention is illustrated by way of example. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention.

FIG. **1** is an elevation view of a preferred embodiment of an adjustable orientation offset light generator apparatus according to the present invention, mounted to a firearm;

FIG. **2** is a top plan view, partially broken away and partially fragmentary, of the preferred embodiment of the invention and firearm of FIG. **1**, shown in increased scale;

FIG. **3** is an exploded longitudinal generally cross-sectional view of the preferred embodiment shown in FIG. **2**, with an included lamp assembly for illuminating a target;

FIG. **4** is a top plan view of the battery housing and mount shown-in FIGS. **2** and **3**;

FIG. **5** is a view of the front end of the preferred embodiment battery housing and mount of FIGS. **3** and **4**;

FIG. **6** is a view of the rear end of a coupler included in the preferred embodiment shown in FIG. **3**;

FIG. **7** is a cross-sectional view of the coupler housing of FIGS. **3** and **6**, taken along the line **7**—**7** of FIG. **6** in the direction of the appended arrows;

FIG. **8** is a schematic representation of the orientation positions of the coupler of the preferred light generator apparatus, viewed from the front with the solid line representing the coupler orientation as shown in FIG. **1**; and

FIG. **9** is a perspective view of a laser sight module for being secured to the coupler of the present invention, for assisting in aiming of the firearm.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning first to FIG. **1**, there is illustrated a firearm **12**, specifically a carbine such as manufactured by Colt Firearms (Division of Colt Industries, of Hartford, Conn.), equipped with a rail interface system device **14** such as manufactured by Knights Manufacturing Co. (of Vero Beach, Fla.) secured to the carbine and surrounding the carbine's barrel **16** along the carbine's fore-end section between the front sight **18** and the lower receiver **20**. The carbine **12** further includes a stock **22**, pistol grip **24**, trigger **26** and upper receiver **28** with (in this example) carrying handle and rear sight. A fore grip or handgrip **30** is mounted to the underside of the rail interface device **14**, in a position such that the user of the firearm **12** may comfortably grasp the handgrip **30** with one hand while the user's other hand grasps the pistol grip **24** for facilitating firing of the firearm **12**. Such carbines **12**, rail interface system devices **14**, and handgrips **30** are well known in the firearms art.

A preferred embodiment of an adjustable orientation offset light generator apparatus **32** according to the present invention is mounted to the rail interface device **14** by means of a mounting plate **34** secured to the housing of the light generator **32** (such as by screws **36**, see FIG. **3**) and including projections **38** cooperating with the rail interface device **14** for removably mounting the light generator **32** thereto.

As best shown in FIGS. **2**–**7**, the preferred embodiment of the adjustable orientation offset light generator **32** includes a generally cylindrical battery housing **40** having a first longitudinal axis a, for holding a battery such as the two battery cells **42** (FIG. **2**), a generally cylindrical light source housing **44** having a second longitudinal axis b and equipped with a lamp assembly **46** including a lamp **48**, a coupler **50** secured to the light source housing **44** along the light source housing's longitudinal axis b as well as to the battery housing **40** along the battery housing's longitudinal axis a. The lamp **48** is in electrical circuit with the batteries **42** in the battery housing **40**, through the coupler **50**, and a rear cap assembly **52** including a rearwardly projecting pushbutton switch **54** may be provided for actuating the batteries **44** to energize the lamp **48**. Such lamp assemblies **46** and rear cap pushbutton switch assemblies **52** may be of the types shown, for example, in U.S. Pat. No. 5,642,932 to John W. Matthews, assigned to the assignee of the present invention, the disclosure of which Matthews patent is incorporated herein by reference.

The coupler **50** includes a forwardly directed tubular portion **56** having external threads **58** to which the light source housing **44** is secured by means of the light source housing's cooperating internal threads **60**. When so secured, the coupler's tubular portion **56** and the generally cylindrical light source housing **44** are longitudinally aligned along the light source housing's longitudinal axis b.

The coupler **50** includes an offset leg portion **62** having a rear or rearwardly facing circular opening **64** for receiving the front or forwardly facing end portion **66** of the battery housing **40** such that the longitudinal axis b is parallel to the longitudinal axis a and perpendicularly spaced therefrom by a distance D (FIG. **3**).

As used herein, "forward" indicates the same direction as that of the light beam which may be produced by the light generator apparatus, i.e. the direction in which the barrel **16** of the firearm **12** is pointed when the light generator apparatus **32** is secured to the firearm **12** with the longitudinal axis b parallel to the longitudinal axis c of the barrel **16**. "Rearward" indicates the direction opposite the forward direction.

With the battery housing **40** and the light source housing **44** secured to the coupler **50**, the first lamp terminal spring **68** is in electrical connection with button contact **70** held by circuit board **71** in the coupler **50**, such electrical connection continuing to flexible conductive wire **72** rearwardly extending, with some slack, from the circuit board **71** through the coupler rear opening **64**, passing through an aperture **74** in the battery housing front end portion **66** and in electrical connection with battery contact spring **76** held within the battery housing **40** by insulator **78**.

With the tail cap assembly **52** in place and the batteries **42** between battery contact springs **76**, **80**, the lamp will be

energized upon contact by the tail switch contact surface **82** with the annular rear end **84** of the electrically conductive battery housing **40**, completing the circuit to the second lamp terminal spring **86** in electrical contact with the electrically conductive coupler **50** which in turn is in electrical contact with the battery housing **40**.

The front end **66** of the battery housing **40** and the rear end **88** of the coupler **50**, situated within the coupler rear opening **64**, are configured for interfacing one with the other along the longitudinal axis a, with the longitudinal axis b spaced by the distance D from the longitudinal axis a along one or another of at least two orientations or angular dispositions of the longitudinal axis b with respect to the longitudinal axis a. The battery housing front end **66** includes a longitudinal projection **90** forwardly extending along longitudinal axis a from a base surface **92**, the projection **90** in this preferred embodiment having a flat forward face **94** and bounded by at least two longitudinally directed lateral surfaces **96** angularly disposed with respect to each other. The projection **90** further includes at least two threaded longitudinal apertures **98** associated with the sides **96**, each bore **98** preferably spaced perpendicularly from its associated side or sides **96** by a line passing through the longitudinal axis a with each bore **98** equally spaced from the axis a.

The lateral surfaces **96** of the longitudinal projection **90** may be configured as being along respective sides of a polygon, preferably an equilateral polygon centered along the longitudinal axis a. In the preferred embodiment shown in FIG. **5**, the lateral surfaces **96** are configured along respective sides of a square, and the projection **90** includes three threaded apertures **98** situated within the square.

The rear end **88** of the coupler **50** includes a longitudinal recess **100** having at least two longitudinally directed lateral surfaces **102** forwardly extending from a base surface **104** within the coupler rear opening **64**. The recess **100** is configured to fittingly receive the projection **90**, preferably by a slip fit, with the coupler lateral surfaces **102** complementing the battery housing lateral surfaces **96**, when the coupler rear end **88** is placed to the battery housing front end **66**, restraining the coupler **50** against rotational and lateral movement with respect to the battery housing's longitudinal axis a. A longitudinal bore **106** through the coupler leg portion **62**, preferably through the recess **100**, receives a headed bolt or screw **108** for being threadedly received by an aligned one of the threaded apertures **98**, for longitudinally fastening the coupler **50** to the battery housing **40**.

When placing the coupler **50** to the battery housing **40**, the coupler circular rear opening **64** is placed for fittingly receiving the battery housing front end portion **66** along the battery housing's longitudinal axis a. During such placing, the projection **90** is fittingly received by the recess **100** such that the longitudinal axis b is in one of at least two offset orientations or angular dispositions about the longitudinal axis a. In the preferred embodiment shown in FIGS. **5**, **6** and **8**, the square projection **90** is fittingly received by the complementary square recess **100** in any one of three incremental rotational positions about the longitudinal axis a.

In a first such orientation, specifically where the light housing longitudinal axis b is angularly disposed in a horizontal orientation towards the firearm barrel **16** as shown in FIGS. **1**, **2** and **8**, the square projection **90** is received within the square recess **100** with the projection lateral surface **96**A engaging the recess lateral surface **102**A, projection surface **96**B engaging recess surface **102**B, projection surface **96**C engaging recess (discontinuous) surface **102**C, and projection surface **96**D engaging recess surface **102**D. At such orientation, the coupler bore **106** is longitudinally aligned with the threaded bore **98**A, and the threaded screw **108** is inserted through the bore **106** (the head of the screw **108** being retained in the coupler **50** by the lip **110**, see FIG. **7**) for threadably engaging the threaded bore **98**A. The engagement of the projection lateral surfaces **96** with such recess lateral surfaces **102** restrains the coupler **50** against rotational and lateral movement with respect to the battery housing's longitudinal axis a, while the coupler **50** is longitudinally secured to the battery housing **40** by the screw **108**/bore **98**A combination, with the light source housing longitudinal axis b spaced from the battery housing longitudinal axis a by the distance D and horizontally disposed therefrom as schematically shown by the solid line representation of FIG. **8**.

When it is desired to incrementally change the offset orientation or angular disposition of the light source housing longitudinal axis b with respect to the battery housing longitudinal axis a, the coupler **50** is unfastened from the battery housing **40** by removing the screw **108** from the threaded bore **98**A and longitudinally withdrawing the coupler **50** from the battery housing **40** until the projection **90** is no longer received by the recess **100**. The flexible conductive wire **72** electrically coupling the lamp's first terminal contact **70** to the battery terminal spring **76**, remains connected between circuit board **71** in the coupler **50** and the battery terminal spring contact **76** in the battery housing **40**, the slack of the wire **72** having been taken up and stored within the aperture **74** through the battery housing front end **84**, so that the coupler **50** may be longitudinally withdrawn from the battery housing **40** by a longitudinal distance equal to the extended slack length of the wire **72**. When the coupler recess **100** is withdrawn from the battery housing projection **90**, the coupler **50** may be manually rotated about the longitudinal axis a for placing the light source housing longitudinal axis b in another offset orientation or angular disposition with respect to the battery housing longitudinal axis a.

The coupler **50** may be rotated clockwise or downwardly, as schematically indicated in FIG. **8** by the dashed line representation **50'** of the coupler, and the rotated coupler **50** is longitudinally replaced to the battery housing **40** such that the square projection **90** is fittingly received within the square recess **100** with the projection lateral surface **96**A engaging the recess lateral surface **102**D, projection surface **96**B engaging recess surface **102**A, projection surface **96**C engaging recess surface **102**B, and projection surface **96**D engaging recess (discontinuous) surface **102**C. At such second orientation, the coupler bore (indicated by the dashed line representation **106'** in FIG. **8**) is longitudinally aligned with threaded bore **98**B, and the threaded screw **108** is inserted through the bore **106** for threadably engaging the threaded bore **98**B. The engagement of such projection lateral surfaces **96** with such recess lateral surfaces **102** restrains the coupler **50** against rotational and lateral movement with respect to the battery housing's longitudinal axis a, while the coupler **50** is longitudinally secured to the battery housing **40** by the screw **108**/bore **98**B combination, with the light source housing longitudinal axis b spaced from the battery housing longitudinal axis a by the distance D and vertically downwardly disposed therefrom (dashed line representation **50'** of the coupler shown in FIG. **8**). In the preferred embodiment, then, this second offset orientation or angular displacement of the longitudinal axis b from the longitudinal axis a is approximately 90° (to the right) from the previously described first offset orientation or angular displacement.

For incrementally affecting yet another or third offset orientation or angular disposition of the light source housing longitudinal axis b with respect to the battery housing longitudinal axis a, the coupler **50** is unfastened from the battery housing **40** by removing the screw **108** from the threaded bore **98**A if the coupler is in the first orientation or from the threaded bore **98**B if the coupler is in the second orientation. The coupler **50** is longitudinally withdrawn from the battery housing **40** until the projection **90** is no longer received by the recess **100**, and the coupler **50** is manually rotated about the longitudinal axis a, counterclockwise or upwardly as schematically indicated in FIG. **8** by the dashed line representation **50**" of the coupler, and the coupler **50** is then longitudinally replaced to the battery housing **40** such that the square projection **90** is received within the square recess **100** with the projection lateral surface **96**A engaging the recess lateral surface **102**B, projection surface **96**B engaging recess (discontinuous) surface **102**C, projection surface **96**C engaging recess surface **102**D, and projection surface **96**D engaging recess surface **102**A. At such third orientation, the coupler bore (indicated by the dashed line representation **106**" in FIG. **8**) is **8**) is longitudinally aligned with threaded bore **98**D, and the threaded screw **108** is inserted through the bore **106** for threadably engaging the threaded bore **98**D. The engagement of such projection lateral surfaces **96** with such recess lateral surfaces **102** restrains the coupler **50** against rotational and lateral movement with respect to the battery housing's longitudinal axis a, while the coupler **50** is longitudinally secured to the battery housing **40** by the screw **108**/bore **98**D combination, with the light source housing longitudinal axis b spaced from the battery housing longitudinal axis a by the distance D and vertically downwardly disposed therefrom (dashed line representation **50**" of the coupler shown in FIG. **8**). In the preferred embodiment, then, this third offset orientation or angular displacement of the longitudinal axis b from the longitudinal axis a is approximately 90° (to the left) from the previously described first offset orientation or angular displacement.

Either of the second or third offset orientations or angular dispositions of the longitudinal axis b with respect to the longitudinal axis a places the light source housing **44** a greater distance away from the firearm barrel **16** than does the first offset orientation or angular disposition of the longitudinal axis b with respect to the longitudinal axis a. Such greater distance would permit a greater diameter light source housing to be used in the light beam projection apparatus **32** of the present invention, as well as permitting the light beam projection apparatus **32** to be used on firearms equipped with accessories ordinarily blocking a light beam generated from a non-offset light beam generator. Such accessories may include, for example, a large diameter noise suppressor attached to the forward end of the firearm barrel **16**.

It may be appreciated that the distance of the light source housing longitudinal axis b from the firearm barrel **16** may be even further increased, by modifying or decreasing the major diameter of the wire storage aperture **74** in the battery housing front end **66** and placing a fourth threaded bore **98** in the projection **90** opposite the bore **98**A, for permitting the coupler **50** to be secured to the battery housing **40** in a horizontal position directed away from the firearm barrel **16**, i.e. for affecting a fourth incremental offset orientation or angular disposition of the light source housing longitudinal axis b with respect to the battery housing longitudinal axis a.

A laser sight assembly may replace the previously discussed lamp assembly **46**, within the light source housing **44**' of the laser sight module **114** shown in FIG. **9**, adapted for being secured the coupler **50** with its longitudinal axis b parallel to the firearm barrel **16**. Such laser sight modules **114** are well known in the firearms art, such as those manufactured and distributed by SureFire, LLC and its predecessor-in-interest Laser Products Ltd. (both of Fountain Valley, Calif.).

Thus, there has been described a preferred embodiment of an apparatus and method for incrementally adjusting orientation offset of a light beam generator adapted to be mounted to a firearm. Although the preferred embodiment includes a longitudinal projection on the battery housing front end and a longitudinal recess on the coupler rear end for fittingly receiving the projection, other embodiments may include the longitudinal projection on the coupler rear end and the longitudinal recess on the battery housing front end. Other embodiments of the present invention and variations of the embodiment described herein may be developed without departing from the essential characteristics thereof. Accordingly, the invention should be limited only by the scope of the claims listed below.

I claim:

1. In a light beam generator apparatus for a firearm having a barrel, the combination comprising:

a battery housing having a first longitudinal axis and adapted to be secured to the firearm with said first longitudinal axis parallel to said barrel;

a light source housing having a second longitudinal axis;

a coupler secured to said light source housing, said coupler and said battery housing adapted for longitudinally placing said coupler to said battery housing with said second longitudinal axis parallel to said first longitudinal axis and spaced from said first longitudinal axis along one or another of at least two angular dispositions of said second longitudinal axis with respect to said first longitudinal axis, successive ones of said at least two angular dispositions being separated by predetermined angles respectively; and

a fastener fastening said coupler to said battery housing when said coupler is placed to said battery housing with said second longitudinal axis along one or another of said at least two angular dispositions.

2. The apparatus according to claim **1**, wherein:

said predetermined angles are approximately 90°.

3. The apparatus according to claim **1**, wherein:

said light source housing houses a lamp assembly for illuminating a target.

4. The apparatus according to claim **1**, wherein:

said light source housing houses a laser assembly for assisting aiming of the firearm.

5. The apparatus according to claim **1**, wherein:

said battery housing includes a front end; and

said coupler includes a rear end interfacing with said front end when said coupler is longitudinally placed to said battery housing.

6. The apparatus according to claim **5** wherein:

one of said front end and said rear end includes a longitudinal projection and the other of said front end and said rear end includes a longitudinal recess for longitudinally receiving said projection, said projection and said recess configured for longitudinally placing said coupler to said battery housing with said second longitudinal axis along one or another of said at least two angular dispositions.

7. In a light beam generator apparatus for a firearm having a barrel, the combination comprising:

a battery housing having a first longitudinal axis and adapted to be secured to the firearm with said first longitudinal axis parallel to said barrel;

a light source housing having a second longitudinal axis;

a coupler secured to said light source housing, said coupler and said battery housing adapted for longitudinally placing said coupler to said battery housing with said second longitudinal axis parallel to said first longitudinal axis and spaced from said first longitudinal axis along one or another of at least two angular dispositions of said second longitudinal axis with respect to said first longitudinal axis;

a fastener fastening said coupler to said battery housing when said coupler is placed to said battery housing with said second longitudinal axis along one or another of said at least two angular dispositions;

said battery housing includes a front end;

said coupler includes a rear end interfacing with said front end when said coupler is longitudinally placed to said battery housing; and

said front end includes a longitudinal projection having at least two lateral surfaces spaced about said first longitudinal axis, said rear end includes a longitudinal recess having at least two lateral surfaces complementing said lateral surfaces of said front end when said projection is received by said recess, the angular dispositions of said surfaces about said first longitudinal axis corresponding to the angular dispositions of said second longitudinal axis with respect to said first longitudinal axis when said projection is received by said recess.

8. The apparatus according to claim **7** wherein said fastener includes:

a threaded screw;

a bore through said rear end for receiving said screw; and

at least two threaded longitudinal bores in said front end spaced about said first longitudinal axis such that said screw is threadedly received by one or another of said threaded bores corresponding to one or another of said at least two angular dispositions of said second longitudinal axis.

9. In a light beam generator apparatus for a firearm having a barrel, the combination comprising:

a battery housing having a first longitudinal axis and adapted to be secured to the firearm with said first longitudinal axis parallel to said barrel;

a light source housing having a second longitudinal axis;

a coupler secured to said light source housing, said coupler and said battery housing adapted for longitudinally placing said coupler to said battery housing with said second longitudinal axis parallel to said first longitudinal axis and spaced from said first longitudinal axis along one or another of at least two angular dispositions of said second longitudinal axis with respect to said first longitudinal axis;

a fastener fastening said coupler to said battery housing when said coupler is placed to said battery housing with said second longitudinal axis along one or another of said at least two angular dispositions;

said battery housing includes a front end;

said coupler includes a rear end interfacing with said front end when said coupler is longitudinally placed to said battery housing; and

one of said front end and said rear end includes a longitudinal projection having lateral surfaces respectively along sides of a polygon, the other of said front end and said rear end includes a longitudinal recess having lateral surfaces respectively along sides of a polygon, said lateral surfaces of said projection engaging said lateral surfaces of said recess when said projection is received by said recess for preventing rotation of said coupler about said first longitudinal axis with said second longitudinal axis along one or another of said at least two angular dispositions.

10. The apparatus according to claim **9** wherein said fastener includes:

a threaded screw;

a bore through said rear end for receiving said screw; and

at least two threaded longitudinal bores in said front end spaced about said first longitudinal axis such that said screw is threadably received by one or another of said threaded bores corresponding to said at least two angular dispositions of said second longitudinal axis.

11. The apparatus according to claim **9**, wherein:

said polygons are equilateral polygons, with said polygon of said front end centered along said first longitudinal axis.

12. The apparatus according to claim **9** wherein:

said polygons are squares.

13. The apparatus according to claim **12** wherein:

said fastener includes a threaded screw, a bore through said rear end for receiving said screw, and three threaded longitudinal bores in said front end spaced about said first longitudinal axis such that said screw is threadably received by one or another of said threaded bores corresponding to one or another of three angular dispositions of said second longitudinal axis with respect to said first longitudinal axis.

14. In a light beam generator apparatus for a firearm having a barrel, the combination comprising:

a battery housing having a first longitudinal axis and adapted to be secured to the firearm with said first longitudinal axis parallel to said barrel;

a light source housing having a second longitudinal axis;

a coupler secured to said light source housing, said coupler and said battery housing adapted for longitudinally placing said coupler to said battery housing with said second longitudinal axis parallel to said first longitudinal axis and spaced from said first longitudinal axis along one or another of at least two angular dispositions of said second longitudinal axis with respect to said first longitudinal axis;

a fastener fastening said coupler to said battery housing when said coupler is placed to said battery housing with said second longitudinal axis along one or another of said at least two angular dispositions;

said battery housing includes a front end;

said coupler includes a rear end interfacing with said front end when said coupler is longitudinally placed to said battery housing; and

said front end includes a longitudinal projection having lateral surfaces respectively along sides of a polygon, said rear end includes a longitudinal recess having lateral surfaces respectively along sides of a polygon, said lateral surfaces of said projection engaging said lateral surfaces of said recess when said projection is received by said recess for preventing rotation of said coupler about said longitudinal axis with said second longitudinal axis along one or another of said at least two angular dispositions.

15. The apparatus according to claim 14 wherein said fastener includes:

a threaded screw;

a bore through said rear end for receiving said screw; and

at least two threaded longitudinal bores in said front end spaced about said first longitudinal axis such that said screw is threadably received by one or another of said threaded bores corresponding to said at least two angular dispositions of said second longitudinal axis.

16. The apparatus according to claim 14, wherein:

said polygons are equilateral polygons, and said polygon of said front end is centered along said first longitudinal axis.

17. The apparatus according to claim 11, wherein:

said polygons are squares.

18. The apparatus according to claim 17, wherein:

said fastener includes a threaded screw, a bore through said rear end for receiving said screw, and three threaded longitudinal bores in said front end spaced about said first longitudinal axis such that said screw is threadably received by one or another of said threaded bores corresponding to one or another of three angular dispositions of said second longitudinal axis with respect to said first longitudinal axis.

19. In a method of adjusting orientation offset of a light beam generator for a firearm having a barrel:

providing a light beam generator including a battery housing having a first longitudinal axis, a light source housing having a second longitudinal axis, and a coupler secured to said light source housing;

longitudinally placing said coupler to said battery housing with said second longitudinal axis parallel to said first longitudinal axis and spaced from said first longitudinal axis along one of at least two angular dispositions of said second longitudinal axis with respect to said first longitudinal axis, successive ones of said at least two angular dispositions being separated by predetermined angles respectively; and

fastening said coupler to said battery housing.

20. The method according to claim 19, further including:

unfastening said coupler from said battery housing;

longitudinally withdrawing said coupler from said battery housing;

longitudinally replacing said coupler to said battery housing with said second longitudinal axis along another of said at least two angular dispositions; and

fastening said coupler to said battery housing.

21. The method according to claim 19, wherein:

said battery housing has a front end and said coupler has a rear end, one of said front end and said rear end includes a longitudinal projection and the other of said front end and said rear end includes a longitudinal recess; and

when longitudinally placing said coupler, said projection is received by said recess with said second longitudinal axis along one of said at least two angular dispositions.

22. The method according to claim 21, further including:

unfastening said coupler from said battery housing;

longitudinally separating said projection and said recess;

longitudinally replacing said coupler to said battery housing with said projection received by said recess and with said second longitudinal axis along another of said at least two angular dispositions; and

fastening said coupler to said battery housing.

23. In a method of adjusting orientation offset of a light beam generator for a firearm having a barrel:

providing a light beam generator including a battery housing having a first longitudinal axis, a light source housing having a second longitudinal axis, and a coupler secured to said light source housing, said battery housing having a front end and said coupler having a rear end, said front end including a longitudinal projection having lateral surfaces respectively along sides of an equilateral polygon centered along said first longitudinal axis, said rear end including a longitudinal recess having lateral surfaces respectively along sides of an equilateral polygon;

longitudinally placing said coupler to said battery housing with said second longitudinal axis parallel to said first longitudinal axis and spaced from said first longitudinal axis along one of at least two angular dispositions of said second longitudinal axis with respect to said first longitudinal axis, and with said projection being received by said recess with said lateral surfaces of said projection engaging said lateral surfaces of said recess; and

fastening said couple to said battery housing.

24. The method according to claim 23, further including:

unfastening said coupler from said battery housing;

longitudinally withdrawing said recess from said projection;

longitudinally replacing said coupler to said battery housing with said lateral surfaces of said projection engaging said lateral surfaces of said recess and with said second longitudinal axis spaced from said first longitudinal axis along another of said at least two angular dispositions; and

fastening said coupler to said battery housing.

25. The method according to claim 24 wherein:

said polygons are squares; and

when longitudinally replacing said coupler, said one of said at least two angular dispositions is separated from said other of at least two angular dispositions by approximately 90°.

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