US 20090113778A1

(19) **United States**

(12) **Patent Application Publication**

Paterson

(10) **Pub. No.: US 2009/0113778 A1**

(43) **Pub. Date: May 7, 2009**

(54) **REDUCED EYE RELIEF, CO-WITNESSING SIGHT MOUNT**

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(21) Appl. No.: **11/934,632**

(22) Filed: **Nov. 2, 2007**

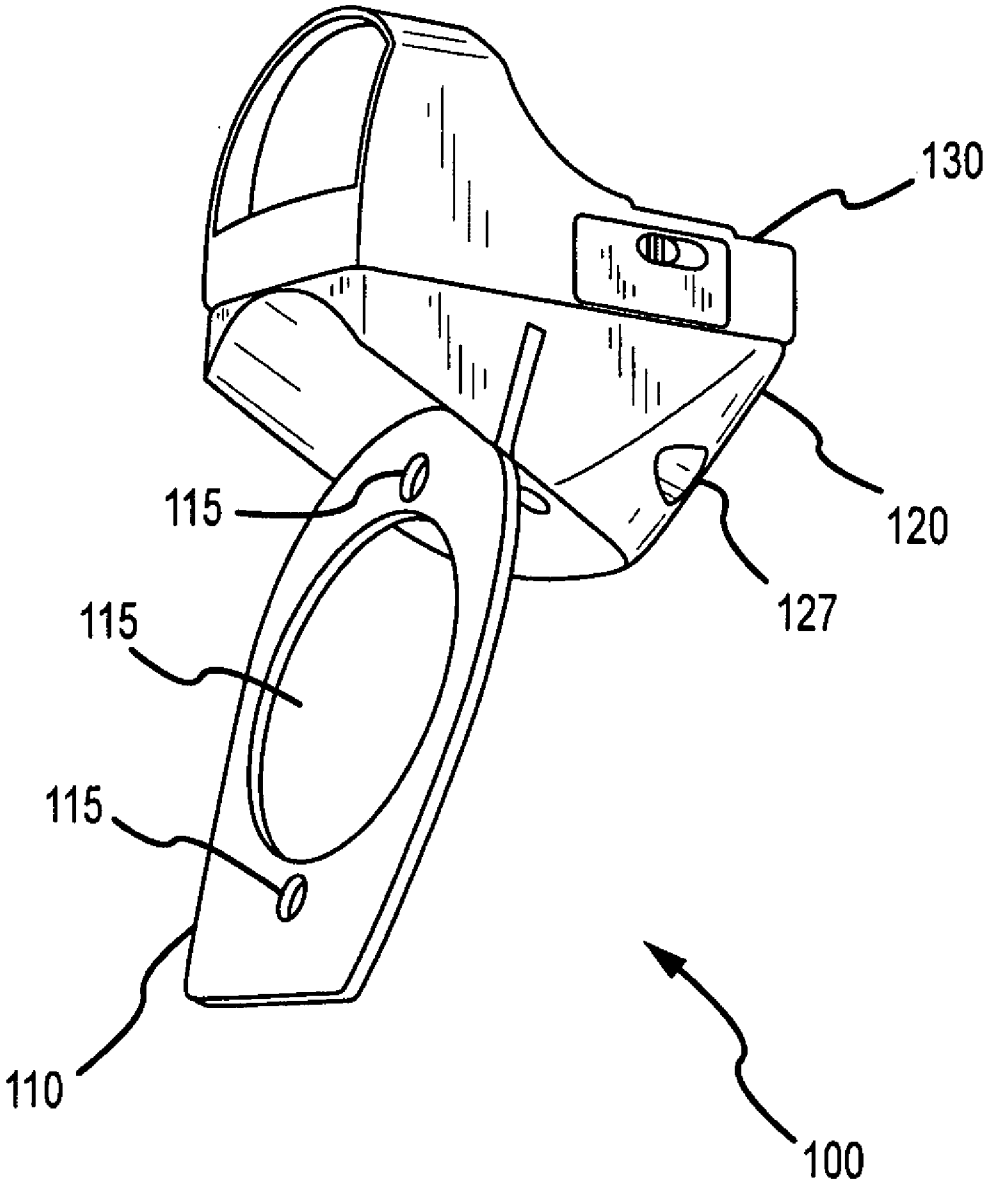
Publication Classification

(51) **Int. Cl.**
F41C 27/00 (2006.01)

(52) **U.S. Cl.** **42/90**

(57) **ABSTRACT**

Embodiments of the present invention relate to a mounting assembly for mounting a reticle type sight on a long gun. The mounting assembly includes a mounting plate for securing the mounting assembly to a rearward portion of a long gun, and a mounting block coupled to a top portion of the mounting plate. The mounting plate has one or more connection elements to enable a reticle type sight to be coupled to the mounting block.



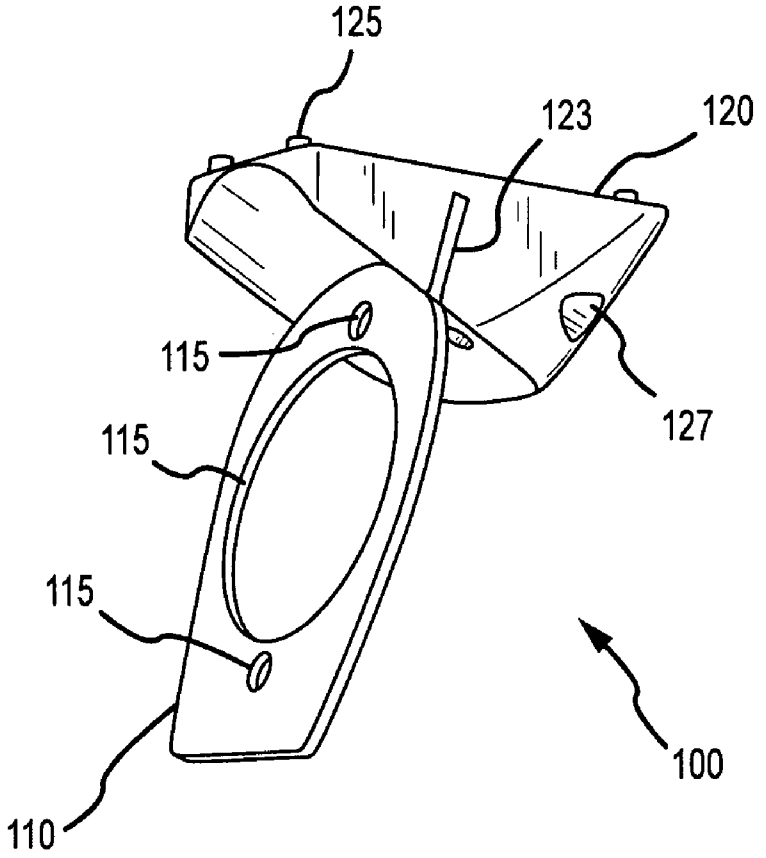


FIG.1

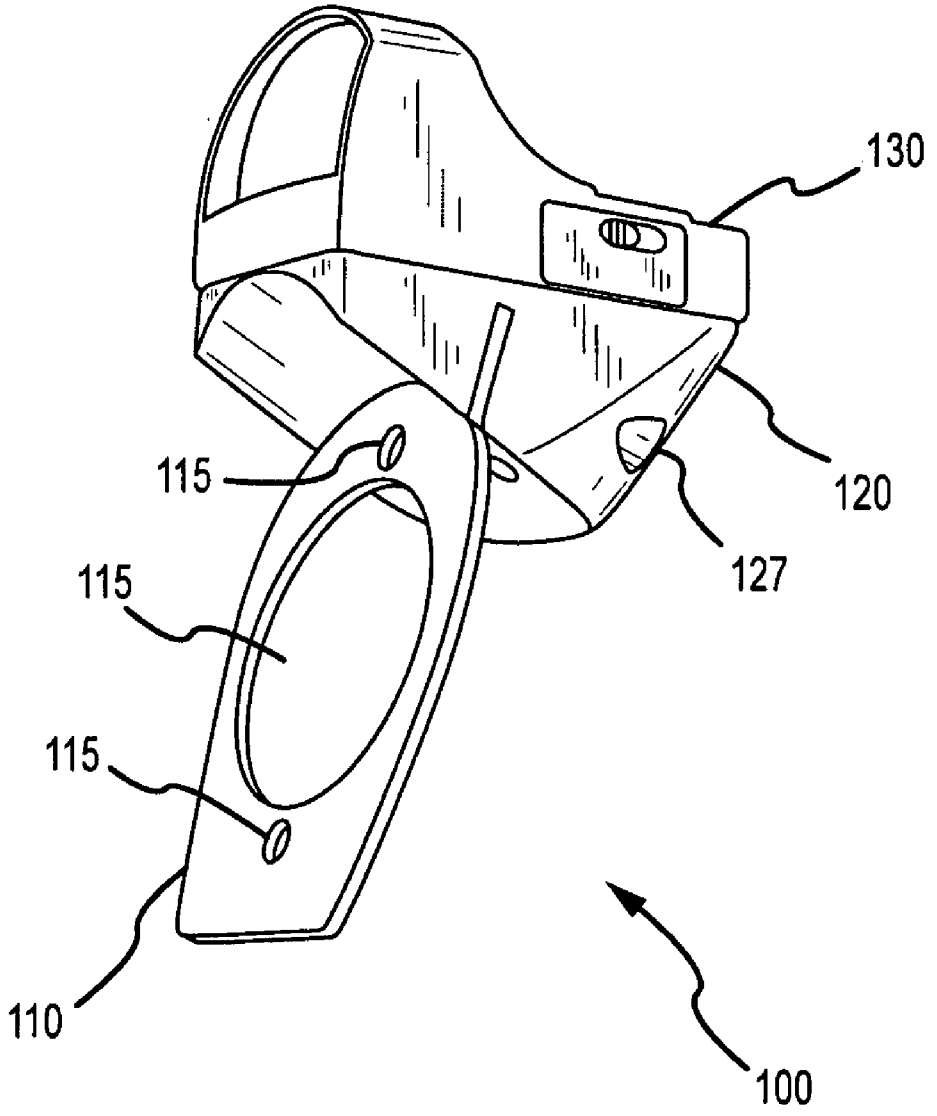


FIG.2

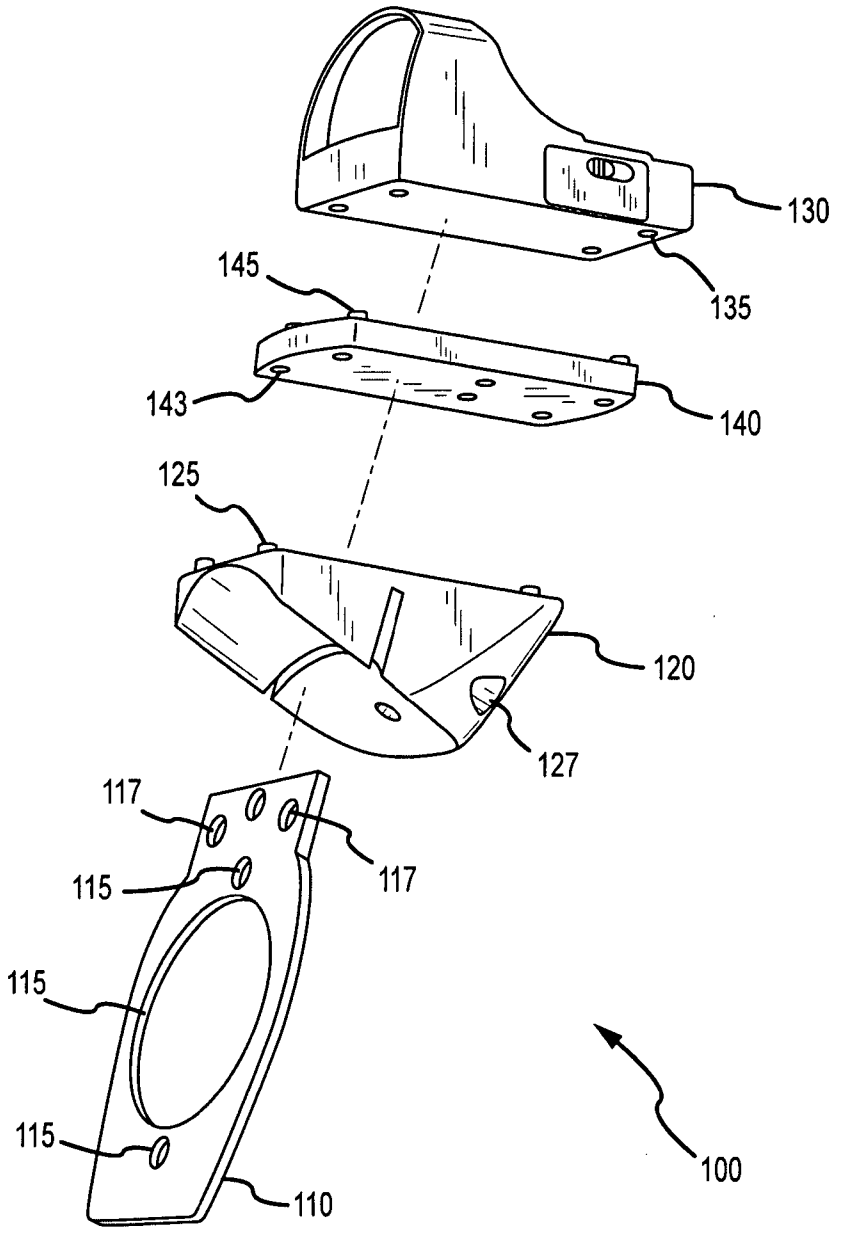


FIG.3

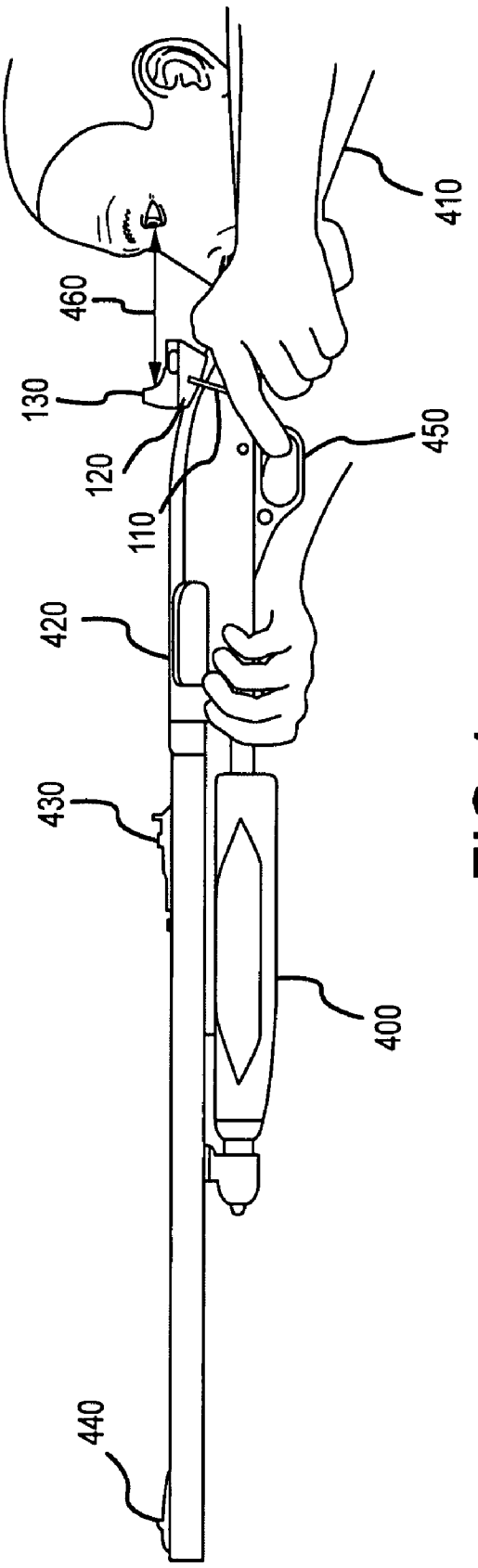


FIG.4

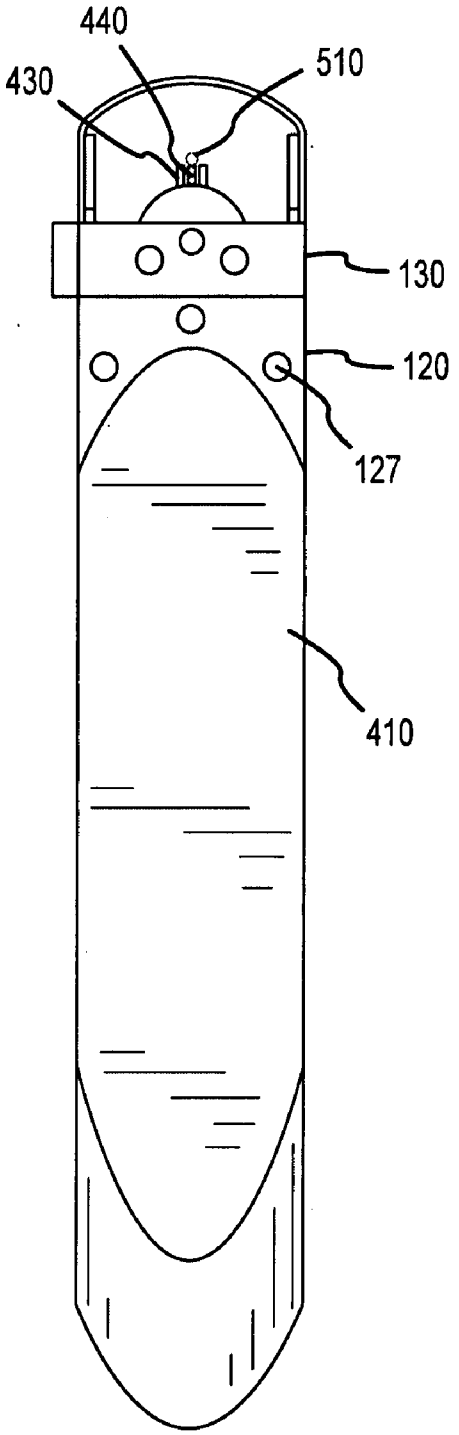


FIG.5

REDUCED EYE RELIEF, CO-WITNESSING SIGHT MOUNT

TECHNICAL FIELD

[0001] The invention relates generally to a mounting assembly for use on a long gun. More particularly, the invention relates to a mounting assembly for mounting a reticle type sight on a long gun to give minimal eye relief while enabling co-witnessing.

BACKGROUND

[0002] It is becoming more and more common to mount reticle type sights, or dot type sights, (i.e., Red dot sights) on shotguns and rifles (i.e., long guns). Red dot sights use refractive or reflective optics to generate an image of a reticle, typically a red dot, that appears to be projected onto a target. Red dot sights typically have no magnification. As such, they have unlimited eye relief. Thus, the image will be clear when viewed within a few inches, to a few feet, behind the sight.

[0003] Generally, a field of view through a sight or scope is dependent on eye relief. Therefore, the farther back a shooter's eye is from the Red dot sight, the smaller the field of view. Conversely, the closer the shooter's eye to the Red dot sight, the larger the field of view.

[0004] A Red dot sight is usually mounted on receiver or barrel of a long gun. Mounting the sight on the receiver typically gives a shooter between seven and sixteen inches of eye relief. When mounted on the receiver, the Red dot sight is usually mounted either above and/or behind the gun's iron sights. Because the eye relief is usually between seven and sixteen inches, the shooter's field of view is significantly smaller than it would be if the sight were mounted closer to the shooter and providing less, but adequate, eye relief. In addition, because the sight is typically mounted either above and/or behind the gun's iron sights, the sight line of the shooter is higher than if the shooter were to use the traditional iron sights. The higher sightline may prohibit the shooter from co-witnessing and/or using the Red dot sight.

[0005] Thus, there is a need to provide a mounting assembly for mounting a reticle type sight on a long gun that gives minimal eye relief and enables co-witnessing.

SUMMARY OF THE INVENTION

[0006] Embodiments of the present invention provide for a mounting assembly for mounting a reticle or optical type sight on a long gun. The mounting assembly includes a mounting plate for securing the mounting assembly on a rearward portion of a long gun. The mounting assembly includes a mounting block that may be coupled to a top portion of the mounting plate.

[0007] Another embodiment of the present invention is a removable mounting assembly for a long gun. The mounting assembly contains a mounting plate having at least one bore to couple the mounting plate to a rearward portion of the long gun. A mounting block is coupled to a top portion of the mounting plate and is configured to secure a reticle type sight.

[0008] Yet another aspect of the present invention provides for a method of mounting a reticle type sight on a long gun for effectively increasing a field of view through the reticle type sight. The method includes securing a mounting assembly between a removable or detachable stock and a receiver of the long gun. The mounting assembly consists of a mounting block coupled to a top portion of the mounting plate. A reticle type sight may be coupled to a top portion of the mounting plate to give a shooter less than five inches of eye relief while the head of the shooter remains appropriately positioned on the comb.

[0009] This summary is provided to introduce a selection of concepts in a simplified form that are further described in the Detailed Description. This summary is not intended to identify key or essential features of the claimed subject matter, nor is it intended to be used in any way as to limit the scope of the claimed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** is an isometric view of a mounting assembly according to an embodiment of the invention.

[0011] FIG. **2** is an isometric view illustrating the mounting assembly of FIG. **1** with a reticle type sight coupled to a mounting block of the mounting assembly according to an embodiment of the invention.

[0012] FIG. **3** is an exploded view of the mounting assembly and reticle type sight illustrated in FIG. **2**, combined with an optional spacer according to an embodiment of the invention.

[0013] FIG. **4** is an illustration of the mounting assembly and the reticle type sight of FIG. **2** positioned on a long gun to give a shooter less than five inches of eye relief according to an embodiment of the invention.

[0014] FIG. **5** is an elevated rear view of the mounting assembly and reticle type sight positioned on the long gun as shown in FIG. **4** to enable co-witnessing according to an embodiment of the invention.

DETAILED DESCRIPTION

[0015] This disclosure will now more fully describe exemplary embodiments with reference to the accompanying drawings, in which specific embodiments are shown. Other aspects may be embodied in many different forms and the inclusion of specific embodiments in the disclosure should not be construed as limiting such aspects to the embodiments set forth herein. Rather, the embodiments depicted in the drawings are included to provide a disclosure that is thorough and complete and which fully conveys the intended scope to those skilled in the art. When referring to the figures, like structures and elements are shown throughout are indicated with like reference numerals.

[0016] As used herein, the term "rearward" describes a location on a long gun that is behind the trigger of the gun, such as for example, a location on a stock or butt of the gun, or between a detachable stock and receiver.

[0017] The term "comb" describes the top of a gun's stock, where a shooter places or rests his cheek when mounting a gun. As used herein, placing a shooter's head on an appropriate place or position on the comb describes the shooter's head or cheek resting on the comb without "climbing the comb" or moving the head forward along the stock to decrease eye relief.

[0018] FIG. **1** illustrates a mounting assembly **100** according to an embodiment of the invention. Mounting assembly **100** consists of a mounting plate **110** and a mounting block **120**. According to an embodiment, the mounting block **120** is coupled to a top portion of mounting plate **110**. The mounting block **120** preferably contains a recess **123** positioned approximately midway between a front end and a rear end of the mounting block **120**. Recess **123** allows the top portion of

the mounting plate **110** to slide into the mounting block **120**. As described in greater detail below with respect to FIG. **3**, one or more bores **127** enable a fastener, such as a screw, to secure the mounting block **120** to the mounting plate **110**. In alternative embodiments, the mounting block **120** may be secured to the mounting plate **110** by other means, such as, for example, welding the mounting block **120** to the mounting plate **110**.

[0019] In one embodiment, mounting block **120** includes one or more connection elements **125** on a top planar portion of the mounting block **120**. The connection elements **125** are preferably used to secure a reticle type sight or other scope to the top of mounting block **120**. According to an embodiment, a bottom portion of the reticle type sight may have one or more sockets or recesses to enable the sight to be coupled or mounted to the mounting block **120**.

[0020] Although connection elements **125** are shown and described, there are various ways in which a reticle type sight may be secured to the mounting block as described herein. For example, the sight may be coupled and secured to the mounting block **110** using clasps, screws, and other types of fasteners. Other embodiments may provide that the sight may be welded, or similarly secured, to the mounting block.

[0021] Mounting plate **110** preferably contains one or more bores **115** (FIG. **1**) to enable the mounting plate **110** to be secured between a removable stock and a receiver of a long gun. According to an embodiment, each of the bores **115** or sockets may be of varying diameters to enable the mounting assembly **100** to be used secured to a variety of different long guns with detachable/removable stocks. The mounting plate **110** may be inserted to align with a socket of a receiver of a long gun (not shown) and secured between the stock and receiver when the stock is mounted to the receiver. In another embodiment, bores **115** may align with one or more pins, and/or the receiver socket, used to mate the receiver and stock together.

[0022] Use of the bores **115** as described above allows the mounting plate to fit between the stock and receiver of the long gun without substantially increasing the overall length of the gun. For example, the width of the mounting plate **110** may be wide enough to provide a sturdy base for the mounting assembly **100**, yet small enough to not noticeably increase stock or gun length. In addition, the mounting plate **110** also allows the mounting assembly **100** to be coupled to many different types of guns without modifying any gun parts.

[0023] FIG. **2** shows the mounting assembly **100** of FIG. **1** with a reticle type sight **130** coupled to a top planar portion of the mounting block **120**. According to an embodiment, the reticle type sight may be an electronic type sight, an optical type sight, a holographic type sight, a fiber optic type sight, or a Red dot type sight. Each of the sights may be closed or open frame. It is also contemplated that the use of LED's and either transmissive or reflective type OLED's may be used with the sights to illuminate the reticle.

[0024] According to an embodiment, the reticle type sight **130** may fitted with recesses or sockets (not shown) on a bottom planar portion of the sight **130** to enable the reticle type sight to mate with the connection elements **125** of the mounting block **120**. As mentioned, other fasteners, such as screws, clips or clamps may also be used to secure the sight **130** to the mounting block **120**. Other embodiments provide that a rear portion of a traditional or telescopic type scope may be secured to the mounting block to give the scope additional security.

[0025] FIG. **3** is an exploded view of the mounting assembly **100** according to an embodiment of the invention. As mentioned with respect to FIG. **1**, mounting assembly **100** includes a mounting block **120** that may be coupled to a mounting plate **110**. In an embodiment, mounting plate **110** may contain a second set of bores **117** to secure the mounting block **120** to the mounting plate **110**. When the mounting block **120** is coupled to the mounting plate **110**, the second set of bores **117** align with the bores **127** of the mounting block **120**. Such an alignment permits insertion of screws, or other types of fasteners, to secure the mounting block **120** to mounting plate **110**.

[0026] Using screws or other fasteners enables the mounting block **120** to be easily coupled and removed from the mounting plate **110** either before or after the mounting plate has been coupled to the long gun. For example, the mounting plate **110** may be secured between the stock and receiver of the long gun before the mounting block **120** is attached. Once the mounting plate **110** has been secured, the mounting block **120** can be coupled to the mounting plate **110**. Such an implementation not only provides for ease of assembly, but also enables one mounting block, configured to fit a first type of a reticle type scope, to be switched for a second mounting block, configured to fit a second type of reticle type scope, without disassembling the entire long gun. Accordingly, the mounting plate **110** may be configured to universally fit mounting blocks **120** of different sizes and shapes.

[0027] Mounting assembly **100** may also include a removable spacer **140** to affect a higher sightline for a shooter. Multiple spacers **140** may be used and stacked on top of one another to enable a shooter to achieve a desired sightline. According to various embodiments, the spacer **140** may have a fixed height or the height of the spacer **140** may be adjustable. In addition to adding one or more spacers to the mounting assembly to change the sightline, the reticle type sight **130** may be equipped with an elevation screw that may be used separately, or in conjunction with, the spacer **140**.

[0028] Spacer **140** is preferably configured to be placed between the mounting block **120** and the reticle type sight **130**. Spacer **140** may contain one or more sockets or recesses **143** to enable the spacer **140** to be coupled to mounting block **120** via the connection elements **125**. Spacer **140** may also have one or more connection elements **145** to enable one or more recesses **135** of the reticle type sight **130** to be coupled to the spacer **140**. It is also contemplated that various other fasteners could be used to couple the spacer **140** to the mounting block **120** and reticle type sight **130**.

[0029] FIG. **4** illustrates the mounting assembly **100** of FIG. **1** including the reticle type sight **130** of FIG. **2** on a long gun **400** according to an embodiment of the invention. The long gun **400** preferably includes a stock **410** that is detachable from the receiver **420**. According to an embodiment, the mounting plate **110** of mounting assembly **100** may be inserted in between the stock **410** and the receiver **420**. As the width of the mounting plate **110** may be relatively small, the overall length of the gun **400** is only slightly increased when the mounting plate **110** is inserted versus when it is removed.

[0030] According to an embodiment, and as shown in FIG. **4**, once the mounting plate **110** has been secured between the stock **410** and the receiver **420**, a top portion of the mounting block **120** may be located below a top portion of the receiver **420**. As a result of the relatively low mounting position, a shooter has a lower sightline than if the reticle type sight were mounted atop the receiver. Mounting the reticle type sight

with a lower sightline enables co-witnessing with a proximal iron sight **430** and a distal iron sight **440** of the long gun **400**, as described below with respect to FIG. **5**.

[0031] In addition to enabling co-witnessing, placement of the mounting assembly between the stock **410** and the receiver **420** offers the shooter less eye relief than would otherwise be given if the reticle type sight **130** was secured to the receiver **420**. Typically, when the mounting assembly **100** is secured between the stock **410** and the receiver **420**, the shooter may have an eye relief **460** of five inches or less. As a result, the shooter's field of view may increase to double of what the shooter may have had if the reticle type scope **130** was mounted directly to the receiver **420** (typically providing an eye relief range of between seven and sixteen inches, and a subsequently smaller field of view). Increasing the field of view typically allows the shooter engage a target more quickly than is possible with a smaller field of view.

[0032] In addition to increasing the shooter's field of view, safety concerns are also addressed by the present invention. For example, mounting the assembly **100** between the stock **410** and the receiver **420** increases the shooter's field of view while still keeping the shooter's trigger hand between the sight and the shooter's face and eyes. Thus, the shooter's face will come in contact with his thumb before hitting the sight. Such placement also discourages the shooter's head from "crawling the comb" (i.e., moving the head closer to a scope or other type of sight in an attempt to increase the shooter's field of view). Therefore, the shooter is able to keep the head properly positioned on the comb, where the cheek rests against the comb. Because the reticle type sight **130** is positioned on a rearward portion of the long gun according to the described embodiments, the shooter's field of view may be increased based solely on the location or placement of the mounting assembly **100**.

[0033] Another advantage of the mounting assembly **100** of the present invention is that a reticle type scope may be added to a rearward portion of the long gun without altering any of the gun parts. As described, the mounting assembly **100** may be configured to fit various types of long guns, with or without removable stocks.

[0034] FIG. **5** is a rear view of the long gun of FIG. **4** with the attached mounting assembly **100** and reticle type sight **130**. As shown in FIG. **5**, the reticle type sight **130** may be configured to rest directly on top of the stock **410** of the long gun **400**. The reticle type sight **130** may be coupled to the mounting block **120** or, alternatively, coupled directly to the stock **410**. According to an embodiment, the reticle type sight **130** may be a Red dot type sight, although other types of sights and scopes may be used in various other embodiments. The Red dot type sight may project a dot **510** or other indicator to give the appearance that the dot **510** is projected onto the target.

[0035] As described above, the top of the mounting block **120** may be lower than a top portion of the receiver **420** (FIG. **4**) when the mounting assembly is attached to the long gun **400**. As a result, the shooter has a lower sightline than would normally be provided if the reticle type sight **130** was coupled to the receiver **420**. As a result, the shooter may use either the dot **510** projected by the reticle type sight **130**, the iron sights **430**, **440**, or a combination thereof, to engage the target. According to another embodiment, one or more spacers **140** (FIG. **3**) may be placed in between the mounting block **120** and reticle type sight **130** to increase the sightline of the shooter. As a result, the shooter may increase the sightline so as to exclude the possibility of co-witnessing.

ALTERNATIVE EMBODIMENTS

[0036] In an alternative embodiment of the present invention, the mounting assembly **100** may be mounted to a gun that does not have a removable stock. In such an embodiment, the mounting plate **110** may be removed from mounting assembly **100**. The mounting block **120** may be placed directly on the stock. One or more fasteners may be inserted into the bores **127** to secure the mounting plate directly to the stock. As with previous embodiments, a spacer **140** and/or a reticle type sight **130** may be secured to the top planar portion of the mounting block **120** as previously described. Such an embodiment would also give the shooter an eye relief of five inches or less while also enabling co-witnessing.

[0037] Although illustrative embodiments of the invention have been described in detail herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to those precise embodiments. As such, many modifications and variations will be apparent to practitioners skilled in this art. Accordingly, it is intended that the scope of the invention be defined by the following claims and their equivalents. Furthermore, it is contemplated that a particular feature described either individually or as part of an embodiment can be combined with other individually described features, or parts of other embodiments, even if the other features and embodiments make no mentioned of the particular feature. Thus, the absence of describing combinations should not preclude the inventor from claiming rights to such combinations.

1. A mounting assembly for mounting a reticle type sight on a long gun, the mounting assembly comprising:

a mounting plate having a body portion for securing the mounting assembly on a rearward portion of the long gun, wherein when the mounting assembly is secured on the rearward portion of the long gun, at least a portion of the mounting assembly is located behind a trigger of the long gun; and

a mounting block coupled to a top portion of the mounting plate.

2. The mounting assembly of claim **1**, wherein the mounting plate is secured between a detachable stock and a receiver of the long gun.

3. The mounting assembly of claim **1**, wherein the mounting block is configured to receive a reticle type sight, wherein the reticle type sight is coupled to a top portion of the mounting block when received.

4. The mounting assembly of claim **3**, wherein the mounting assembly and reticle type sight are positioned on the long gun to give a shooter less than five inches of eye relief without a head of the shooter moving forward along a comb of the long gun toward the mounting assembly.

5. The mounting assembly of claim **3**, wherein the mounting assembly and reticle type sight are positioned on the long gun to allow co-witnessing with both a proximal iron sight and a distal iron sight of the long gun.

6. The mounting assembly of claim **3**, wherein the reticle type sight is selected from a group of sights comprising: an electronic type sight, an optical type sight, a holographic type sight, a fiber optic type sight, and an open frame type sight.

7. The mounting assembly of claim **3**, further comprising a removable spacer coupled between the mounting block and the reticle type sight.

8. A long gun with a removable mounting assembly, wherein the removable mounting assembly comprises:

a mounting plate having at least one bore to couple the removable mounting assembly to a rearward portion of the long gun, wherein when the removable mounting assembly is secured on the rearward portion of the long gun, at least a portion of the removable mounting assembly is located behind a trigger of the long gun; and

a mounting block coupled to a top portion of the mounting plate, wherein a top portion of the mounting block is configured to secure a reticle type sight.

9. The long gun of claim **8**, wherein the mounting plate of the removable mounting assembly is coupled between a receiver and a stock of the long gun.

10. The long gun of claim **8**, wherein the mounting block of the removable mounting assembly is configured to secure a reticle type sight selected from a group of sights comprising: an electronic type sight, an optical type sight, a holographic type sight, a fiber optic type sight, and an open frame type sight.

11. The long gun of claim **10**, wherein the top portion of the mounting block is positioned below a top portion of the receiver when the mounting plate is attached to the long gun to allow co-witnessing with the reticle type sight and both a proximal iron sight and a distal iron sight of the long gun.

12. The long gun of claim **10**, further comprising removable spacers coupled between the reticle type sight and the mounting block.

13. The long gun of claim **10**, wherein the mounting assembly and reticle type sight are positioned on the long gun to give a shooter less than five inches of eye relief without a head of the shooter moving forward along a comb of the long gun toward the mounting assembly.

14. A method of mounting a reticle type sight on a long gun for effectively increasing a field of view through the reticle type sight, the method comprising:

securing a mounting assembly to a rear portion of the long gun, wherein the mounting assembly comprises a mounting plate coupled between a stock and a receiver of the long gun, and a mounting block coupled to a top portion of the mounting plate; and

coupling the reticle type sight to a top portion of the mounting block to give a shooter less than five inches of eye relief without a head of the shooter moving forward along a comb of the long gun toward the mounting assembly.

15. The method of claim **14**, further comprising:

raising a sightline of the reticle type sight by adding at least one spacer between the mounting block and the reticle type sight.

16. The method of claim **14**, wherein a top portion of the mounting block is positioned below a top portion of the receiver to enable co-witnessing with both a proximal iron sight and a distal iron sight when the reticle type sight is coupled to the mounting block.

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