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(54) **Sight mounting**

(57) Embodiments of the present invention relate to a mounting assembly for mounting a reticle type sight (130) on a long gun (400). The mounting assembly includes a mounting plate (110) for securing the mounting assembly to a rearward portion of said long gun (400), and a mounting block (120) coupled to a top portion of the mounting plate (110). The mounting plate has one or more connection elements (125) to enable a reticle type sight to be coupled to the mounting block (120).

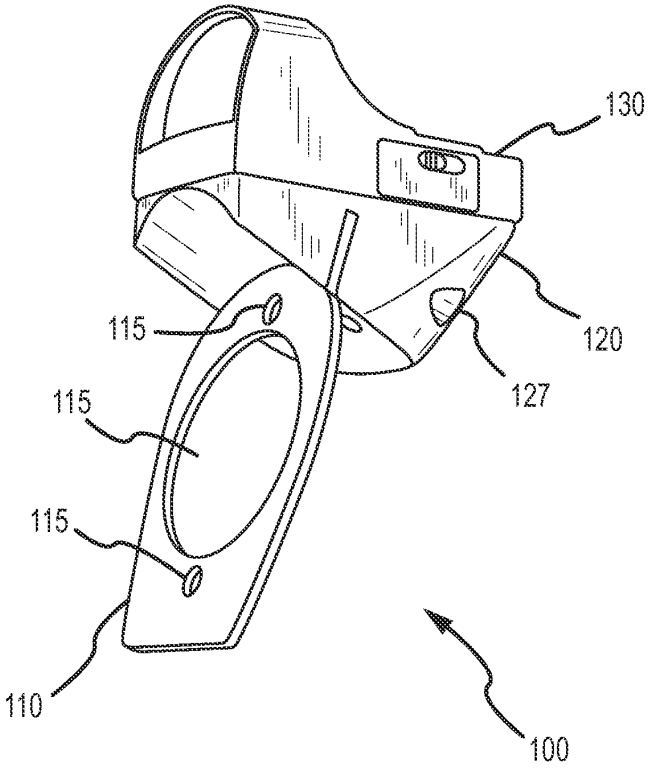

FIG.2

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Description

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.

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.

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.

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.

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

[0011] 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.

[0012] 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.

[0013] 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.

[0014] 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.

[0015] 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.

[0016] 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.

[0017] 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.

[0018] 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.

[0019] 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 trans-missive or reflective type OLED's may be used with the sights to illuminate the reticle.

[0020] 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.

[0021] 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.

[0022] 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 mount-

ing 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.

[0023] 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.

[0024] 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.

[0025] 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.

[0026] 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.

[0027] 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.

[0028] 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.

[0029] 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.

[0030] 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.

[0031] 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

[0032] 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.

[0033] 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.

Claims

1. A mounting assembly (100) for mounting a reticle type sight (130) on a long gun (400), the mounting assembly comprising:

a mounting plate (110) having a body portion for securing the mounting plate on a rearward portion of the long gun; and
a mounting block (120) 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 (410) and a receiver (420) of the long gun.

3. The mounting assembly of claim 1, wherein the mounting block is configured to enable a reticle type sight (130) to be coupled to a top portion of the mounting block.

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 (460) while keeping the head of the shooter at an appropriate place on a comb of the long gun.

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 (430) and a distal iron sight (440) 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 (140) coupled between the mounting block and the reticle type sight.

8. A long gun (400) with a removable mounting assembly (100), wherein the removable mounting assembly comprises:

a mounting plate (110) having at least one bore (115) to couple the mounting plate to a rearward portion of the long gun; and
a mounting block (120) 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 (130).

9. The long gun of claim 8, wherein the mounting plate of the removable mounting assembly is coupled between a receiver (420) and a stock (410) 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 (430) and a distal iron sight (440) of the long gun.

12. The long gun of claim 10, further comprising removable spacers (140) 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 (460) while keeping the head of the shooter

on an appropriate place on a comb of the long gun.

14. A method of mounting a reticle type sight (130) on a long gun (400) for effectively increasing a field of view through the reticle type sight, the method comprising:

securing a mounting assembly (100) to a rear portion of the long gun, wherein the mounting assembly comprises a mounting plate (110) coupled between a stock (410) and a receiver (420) of the long gun, and a mounting block (120) 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 (460) while keeping the head of the shooter at an appropriate position on a comb of the long gun.

15. The method of claim 14, further comprising:

raising a sightline of the reticle type sight by adding at least one spacer (140) 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 (430) when the reticle type sight (440) is coupled to the mounting block.

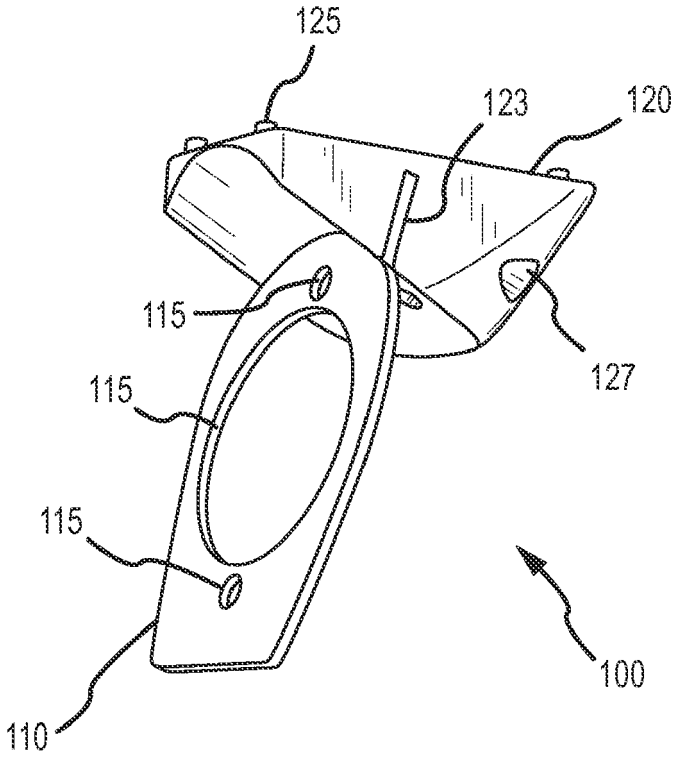

FIG.1

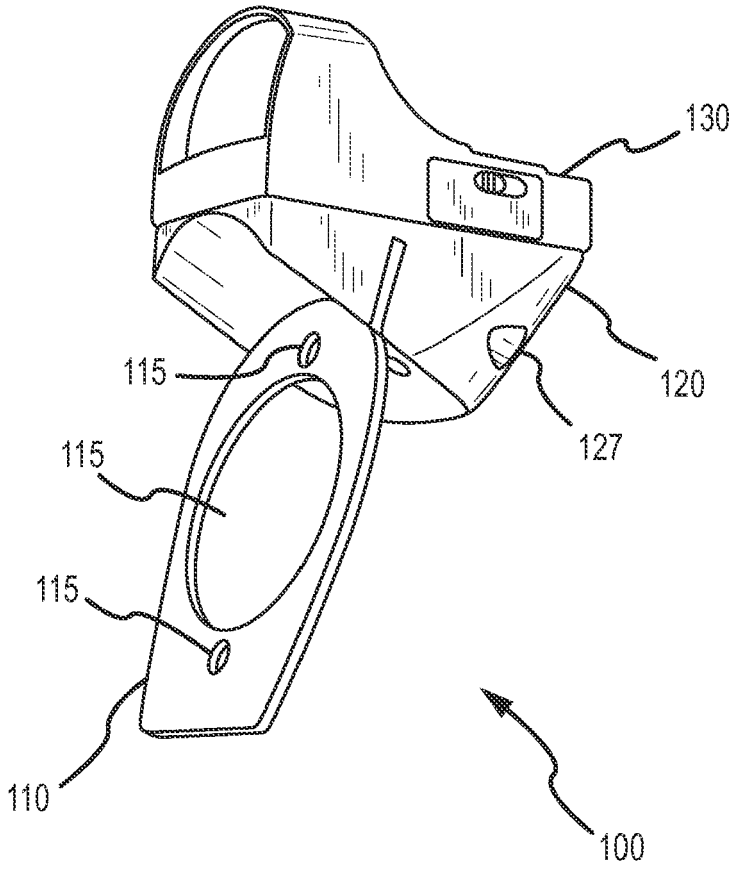

FIG.2

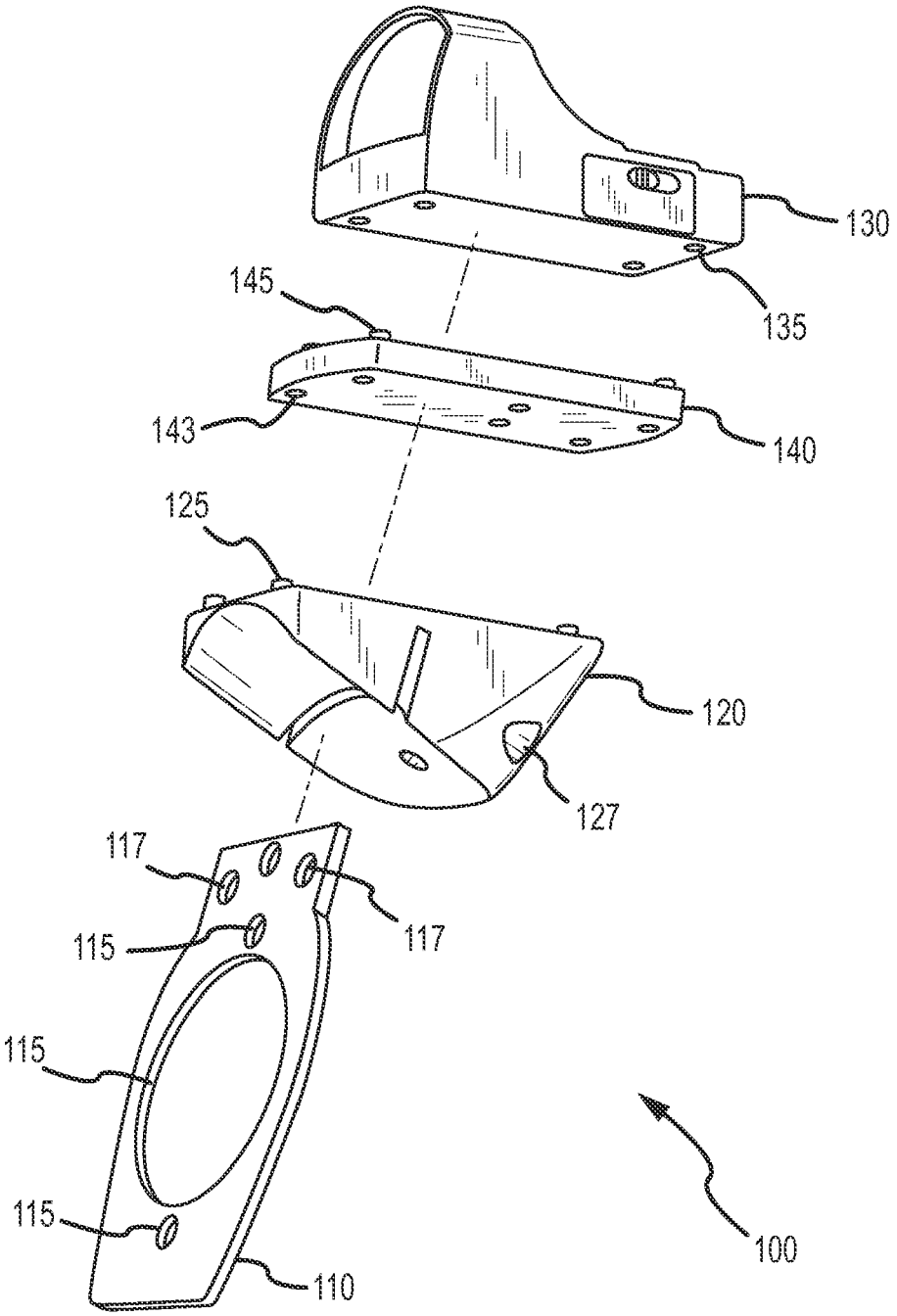

FIG.3

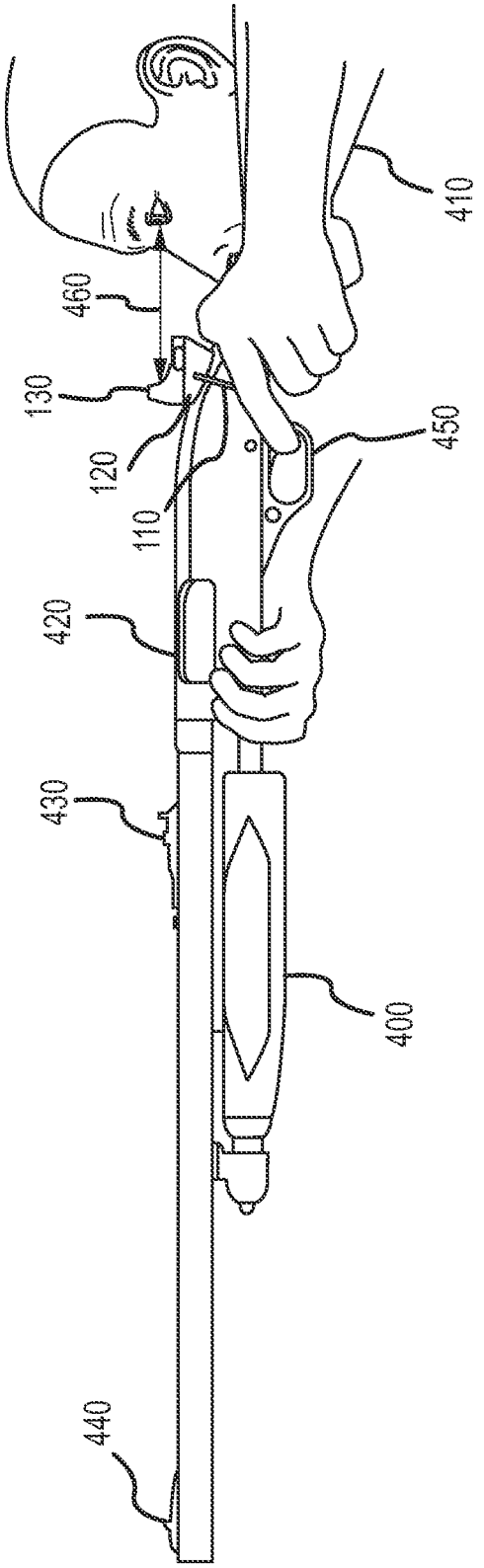

FIG.4

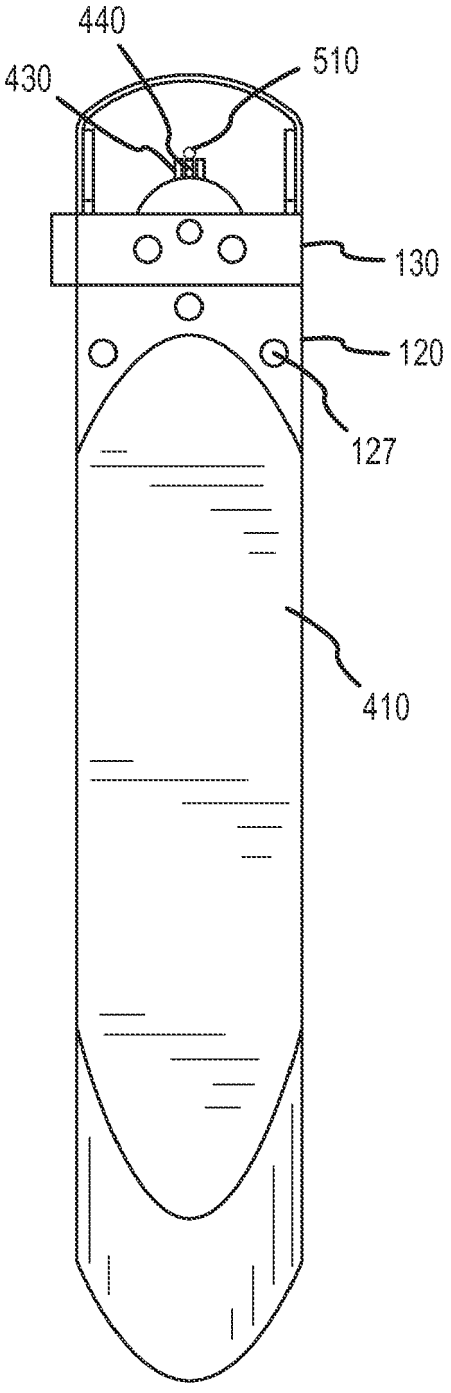

FIG.5