UNOBTRUSIVE REAR SIGHT

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ABSTRACT

An unobtrusive rear gun sight includes a fixed base for rigid attachment to a gun, and a fixed elongated stem which has a sight aperture integrated at the end farthest away from the base. The elongate stem slides in a groove or path located within the fixed base. A cam device, having a manually rotatable member, is mounted on the fixed base for retaining and driving the elongated stem along a fixed longitudinal path so as to allow a shooter to sight his weapon. The base and stem are robustly built so as to survive a drop onto a hard surface.
UNOBTRUSIVE REAR SIGHT

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to gun sights and, more particularly, to adjustable rear sights for firearms such as rifles when such sights are intended for use with non magnified optics, and the method of using such sights.


[0004] Guns, including rifles, shotguns and pistols, often have a pair of sights, with one located near the front, and the other disposed toward the rear thereof. Sometimes, the front sight is a fixed member, and the rear sight is a blade, which may be raised or lowered, to conform to a desired line of sight relationship of the sights and target to the gun barrel. The rear sight blade may be notched, or contain an aperture, to enable the user to align the rear sight with the front sight, along the barrel of the firearm. With the proliferation of optics found on the weapons of modern militaries, new features previously not considered in regards to rear sights are needed.

[0005] Adjustability of the rear sight is often desirable, in order to permit the user to compensate for undesirable characteristics in the ballistic flight of the projectile. Such undesirable characteristics frequently result from manufacturing variations, or even defects. Moreover improper or imprecise handling of the firearm can cause misalignment among the front and rear sights and the gun barrel.

[0006] While the front sight still needs to maintain adjustment capabilities to compensate for bullet flight characteristics such features on the rear sights have become an anachronism. Modern warfare typically occurs at distances less than 300 meters and most often at distances less than 150 meters. With the flight characteristics of modern ammunition and the extensive use of optics, iron or fixed sights are now of secondary importance. The optic is expected to allow for the delivery of accurate fire at long range, not the adjustable iron sights of the past. Even with the extensive use of optics the use of sights on a firearm are still considered necessary because batteries and electronics can and will fail.

[0007] It is recognized that, because there is often a great distance between the gun and the target, even minor variations in the position of the gun sight can have significant effects on the course of the bullet. As a result, adjustability of the rear sight is highly desirable to permit precise aiming alignment of the firearm at the target, and predictability in use thereof. Frequently, conventional firearms, such as rifles, are equipped with rear sights, which are manually adjustable for windage.

[0008] In addition to precision of adjustment, the location and size of adjustable rear sights are very important considerations. In general, conventional rear sight adjustment mechanisms are located on the top of the gun barrel. As a result, such mechanisms must be compact in size and have a low silhouette design so as to permit a clear, unobstructed line of sight between the rear sight, optics, and the front sight. Because of these factors, firearm rear sight adjustment mechanisms are generally intricate, complicated and expensive to manufacture. Strength is compromised when the sights housing is diminished to make it smaller. In order to reduce cost cheaper materials or processes of manufacturing are used in order to reduce cost. Therefore, it would be highly desirable to have a sight which minimally obstructs the users view through an optic, is fixed in an upright position, has a rear sight adjustment mechanism which would be relatively uncomplicated in design, capable of precise adjustment, and yet sufficiently durable to perform reliably under field conditions. At the same time, such a precisely adjustable gun sight should have a low silhouette, be extremely durable and should be relatively easy to adjust manually in field conditions.

[0009] Another important consideration in rear sight adjustment mechanism design relates to the effects of rough handling of the gun in the field. Because of such handling, adjustment mechanisms must be securely mounted to the firearm so as not to become dislodged or inadvertently jarred out of proper adjustment during use. Frequently, modern sights are designed to interface with a 1913 Picatinny rail which is the preferred method of mounting sights and optics on firearms. Such a mounting method does not require any special knowledge of firearms and is extremely resistance to being jarred out of alignment. In view of the need for precise windage adjustment of firearms, it would be highly advantageous to have a rear gun sight which would have a windage adjustment capability, and which would be reliable, inexpensive to manufacture and capable of convenient, and yet sensitive windage adjustment under field conditions. Such a gun sight should be readily and conveniently adjustable for windage compensation purposes. It is also pertinent that such a readily adjustable rear sight not be so sensitive to adjustment that the user inadvertently adjust zero by snaggling the knob of said rear sight on clothing or other common gear. Therefore, it would be highly desirable to have an adjustment knob which is secured by sufficient force as to require the exertion of moderate force to actuate adjustment.

[0010] With further regard to field use, it is sometimes necessary for windage adjustments to be made in cold or wet weather conditions. In such conditions, it is desirable for the user to perform the adjustment while wearing gloves. It would be highly desirable to have such a gun sight which has the above mentioned characteristics, and which permits reliable and precise adjustment under adverse weather and lighting conditions. By using a loaded .223 cartridge or other pointed object, the windage knob of the presented invention may be actuated. Sufficient pressure from the hand when applied correctly will also move the windage adjustment knob.

[0011] Gun sights are known which are capable of minutely obstructing the users view by folding the sight down to the contour of the firearm while not in use. In this regards, reference may be made to U.S. Pat. No. 5,533,292 which discloses a gun sight which folds down when not in use. Unfortunately, sights such as these require the user to take his hands of the host weapon in order to flip the sight into a firing position. This movement renders the user inperable for those moments. Another disadvantage to flip up style sites is that they are not as resilient as a fixed sight to damage resulting from a fall or other direct bludgeoning effect. Fixed rear sights are well known in the prior art. The durability of fixed rear sights if constructed properly is well known. Unfortunately most designs rely on a robust profile and large geometries to provide strength and rigidity. Designs such as the one presented in U.S. Pat. No. 5,063,677 is inferior to the presented invention because the designs strength relies on its overall size. Designs such as the one depicted in U.S. Pat. No. 7,181,882 relies on a housing which surrounds the aiming aperture for durability. This housing results in unnecessary
obstruction of the user's view when said sight is used in conjunction with an electronic optic.

OBJECTS AND ADVANTAGES

Accordingly, several objects and advantages of the present invention are

(a) To provide a fixed rear sight which minimizes obstruction of the user's view through an electronic optic.

(b) To allow for a rear sight mounting system which will be robust enough to not lose zero or break as a result of field use.

(c) To provide rear sight adjustment capability that is capable of precise adjustment.

(d) To allow for adjustment of windage during low light or poor weather conditions.

Still further objects and advantages will become apparent from a consideration of the ensuing description and drawings.

SUMMARY

The present invention provides an apparatus which will securely mount to a 1913 Picatinny rail, minimally obstruct a user's view through an electronic gun sight, and allow for precise windage adjustment. The base of the proposed apparatus is designed to interface with a Picatinny spec rail. A screw which runs perpendicular to the length of the mounting rail and a clamp which follows its longitudinal path provide a means for securing the present apparatus. Precise adjustment of the rear sight blade is achieved via an external adjustment knob which requires moderate pressure from the user to turn and affect an adjustment. Such a knob does not protrude conspicuously from the base of the rear sight. Atop the rear sight blade is a circular opening or aperture which is used for aiming the associated firearm. The sight blade slides back and forth in a channel which is designed to prevent movement forward or rearwards. A screw which acts as a cam is attached to the adjustment knob located on the base drives the sight blade the desired direction. The rear sight blade is machined from hardened steel allowing it to survive a drop on a hard surface.

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 shows an exploded view of the preferred embodiment rear sight;

FIG. 2 shows a frontal view of the rear sight assembly;

FIG. 3 is a horizontal side view of the proposed mount rotated 90 degrees from its position in FIG. 2;

FIG. 4 shows a top sectional view of the proposed unobtrusive rear sight;

FIG. 5 shows a horizontal side view of a rifle with the proposed rear sight mounted;

FIG. 6 shows a view of a roll pin, spring and detent.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in detail wherein like elements are indicated by like numerals, there is shown in FIG. 1, and exploded side view of the proposed unobtrusive rear sight. The site assembly 10 is comprised primarily of the aperture 12, support flange 13, and an adjustment point 14. The rear site assembly 10 is designed to interface with the site housing 30. The site housing 30 consists primarily of the travel site 33, detent location 34. Integral to the assembly is the receiver clamp 31, clamp screw 32 and the site adjustment screw 11.

In FIG. 2 there is shown an assembled view of the disclosed device. Shown is an assembled front sectional view illustrating how all of the parts interact when the device is assembled.

In FIG. 3 there is shown a horizontal side view of the rear site assembly 1. Shown are the site assembly 10, site adjustment screw 11, and the housing 30.

FIG. 4 shows a cut away top view of the rear site. Illustrated is how the roll pin 19 interfaces with the site adjustment screw 11 to prevent the screw from backing out of the housing 30. The internal void where the site assembly travels is also illustrated for clarity.

As may be clearly seen in FIG. 1 thru 3 the rear site assembly begins with its housing 30. The housing is designed to interface with a 1913 spec Picatinny rail which is well known in the prior art. The receiver clamp 31 will be received by both a Picatinny rail and the housing 30. A clamp screw 32 enters the housing 30 via a screw hole 35. After passing through a hole 35 the screw may be threadedly secured to the receiver clamp 31. The clamp screw 32 places pressure on both the housing 30 and the receiver clamp 31 to secure the rear site assembly 1 to a Picatinny base.

The site assembly 10 interfaces with void left in the housing or the adjustment path for site 33. The support flanges 13 provide support for the site assembly 10. Once the site assembly 10 is in the housing 30 the screw site adjustment is inserted into screw location two 17 and passes through the screw hole 14 located at the bottom of the site assembly 10 until the head of the screw 15 stops against the housing 30. A detent 37 and detent spring 38 are placed into the detent location 34. With the site adjustment screw 11 and detent 37 in place a roll pin 19 is driven into the roll pin location 18 and uses the stop 20 located on the site adjustment screw 11 as a means to secure said screw.

The rear site assembly 1 is designed to secure to a 1913 spec Picatinny base through the use of the clamp screw 32 which prevents fore and aft movement of the site assembly 1, and the receiver clamp 31 which when fully secured to the 1913 Picatinny base prevents side to side movement. The receiver clamp 31 is secured by rotationally tightening the clamp screw 32 until resistance is felt. The clamp screw 32 is threadedly secured to the screw retention point 36 located on the receiver clamp 31.

When the housing 30 is secured to the Picatinny base the site assembly 10 is ready for use. Simplicity of operation is a key design element of this rear site 1. Windage adjustment is achieved by rotating the site adjustment screw 11 either clock wise or counter clock wise. Counter clock
wise will move the site assembly 10 left while clockwise will move the site assembly 10 right. The detent 37 provides a pivot point 51 which are located on the adjustment screw 11. This pivot point provides positive resistance against the impact of the detent stop 36 which is located on the adjustment screw 11. The housing 30 is constructed from 7075 T6 aluminum above the pivot point 51 which is located on the site assembly 10 from moving unless the user intentionally applies rotational force to the adjustment mechanism 15 located on the site assembly 11.

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As used herein, the word “front” or “forward” corresponds to the firing direction of the firearm (i.e., to the right as shown in FIGS. 5); “rear” or “rearward” or “back” corresponds to the direction opposite the firing direction of the firearm (i.e., to the left as shown in FIGS. 5); “longitudinal” means the direction along or parallel to the longitudinal axis a of the bore line; and “transverse” means a direction perpendicular to the longitudinal direction.

Thus, there has been described a preferred embodiment of a rear site assembly which minimally obstructs the user's view and is fixed upright for extreme durability. 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.

CONCLUSION, RAMIFICATION, AND SCOPE

Accordingly the reader will see that, according to the invention, I have provided a rear site assembly that is durable and small in profile. The proposed apparatus will minimally obstruct the user's view of the firearm while including the rigors of modern warfare.

While my above drawings and description contain many specifics, these should not be construed as limitations on the scope of the invention, but rather as an exemplification of one preferred embodiment thereof.

Accordingly, the scope of the invention should be determined not by the embodiments illustrated, but by the appended claims and their legal equivalents.

1. An adjustable rear sight comprising:
   a: a site base for rigid attachment to a firearm, and
   b: a means to removably secure said site base to said firearm, and
   c: a rear sight unit comprising a sight element with a means to move said rear sight element into operable position in a line of sight for aiming the firearm, and
d: said sight element is in a fixed, upright position with a support flange which prevents the sight element from moving except as provided by said means to move said rear sight element into operable position, and
e: said sight element is made with the strength of high strength alloys
   Whereby all components of said adjustable rear sight are machined from high strength alloys so that the devices profile might be diminished but retain sufficient structural strength to survive field use on a modern firearm.

2. The adjustable rear sight of claim 1, wherein said support flange prevents fore, aft, and all lateral movement, which is not resulting from the adjustment means provided, by placing a section of said rear site unit into said base to prevent fore and aft movement, and using the cross section or the section of said rear site element to prevent lateral movement.

3. The adjustable rear sight of claim 1, wherein the attaching means for securing said rear site base is a 1913 Picatinny fitting.

4. The adjustable rear sight of claim 1, wherein said sight element has a single circular aperture.

5. The adjustable rear sight of claim 1, wherein said rear sight element comprises a windage adjustment system which utilizes a cam device having a manually rotatable member mounted on said site base for retaining releasably said sight element in a given longitudinal path.

6. The adjustable rear sight of claim 4, wherein said rear sight element travels in a straight path that runs transverse to the bore line of the host firearm.

7. The adjustable rear sight of claim 4, wherein said windage adjustment system of the rear sight element comprises a threaded shaft adapted to rotate, to push, or pull said sight element along the allotted path.

8. The adjustable rear sight of claim 1, wherein said sight element is machined from a durable steel alloy.

9. The adjustable rear sight of claim 5, wherein said sight element is heated to increase the hardness of the durable steel alloy.

10. A method of adjusting the rear sight of claim 1, comprising:
   a: rotating manually said cam member about the fixed axis to move forcibly said sight element through a reciprocative path of travel; and
   b: terminating the manual rotation when said sight element is disposed at the adjusted position.

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