33-256. OR 1,340,996 SR

F. A. WILLIAMS.

GUN SIGHT.

APPLICATION FILED SEPT. 19, 191.

1,340,996.

Patented May 25, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

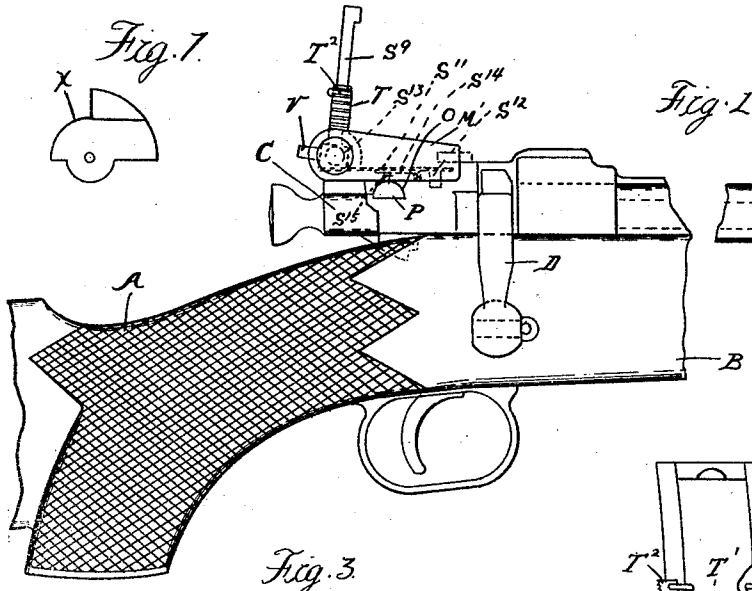


Fig. 1

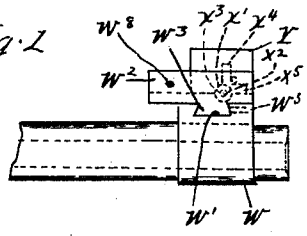


Fig. 2

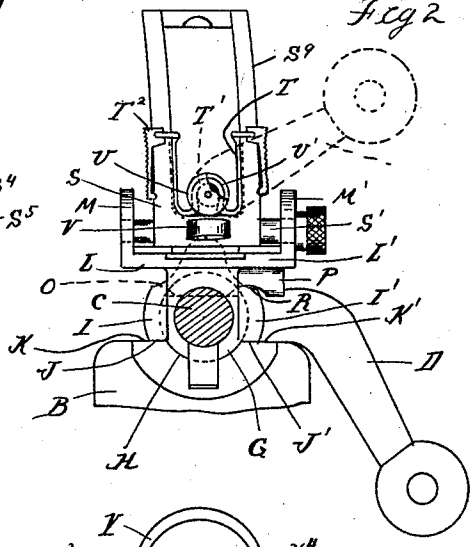


Fig. 3

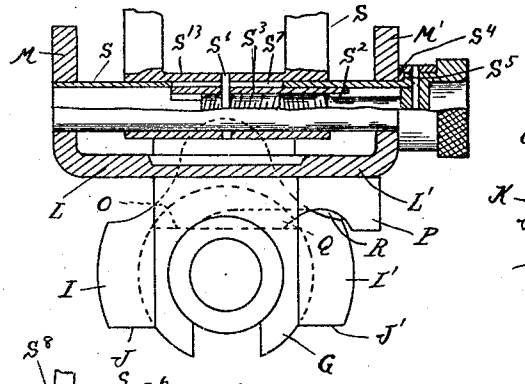


Fig. 4

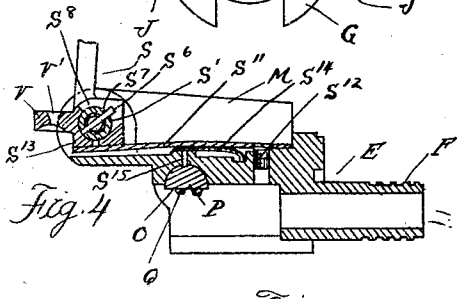


Fig. 5

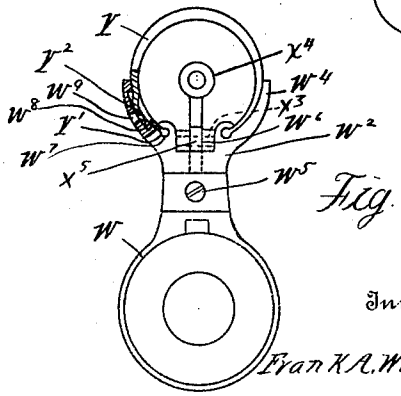
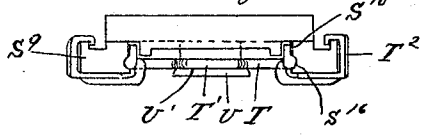


Fig. 6.



Inventor

Frank A. Williams

By Whittemore Hulbert & Whittemore

Attorneys

1415

2

F. A. WILLIAMS.

GUN SIGHT.

APPLICATION FILED SEPT. 19, 1918.

1,340,996.

Patented May 25, 1920.

2 SHEETS—SHEET 2.

Fig. 8

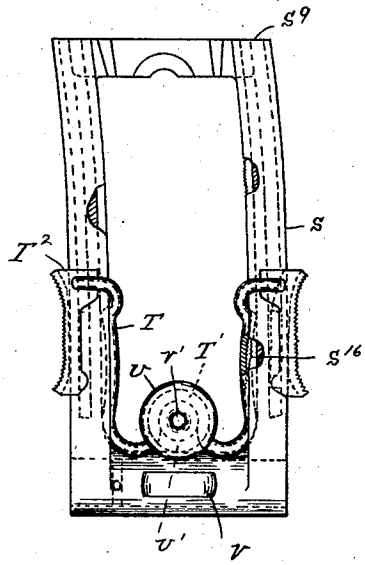
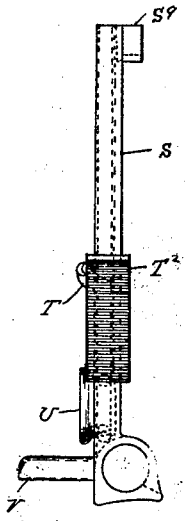


Fig. 9.



Inventor

Frank A. Williams

By Whittemore Hulbert & Whittemore

UNITED STATES PATENT OFFICE.

FRANK A. WILLIAMS, OF DETROIT, MICHIGAN.

GUN-SIGHT.

1,340,996. Specification of Letters Patent. Patented May 25, 1920.

Application filed September 19, 1918. Serial No. 254,711.

To all whom it may concern:

Be it known that I, FRANK A. WILLIAMS, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Gun-Sights, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to gun sights and has particular reference to a construction which is applicable to guns of the bolt action type. It is the object of the invention to obtain a construction which has many advantages over constructions that have heretofore been applied to guns of this type, and it is a further object to provide a replacement construction which may be readily attached to standard constructions of guns having other kinds of sights.

With certain standard constructions of guns of the bolt action type the rear sight is mounted on the frame of the gun forward of the bolt action. This location makes a considerable distance between the eye and the sight and also decreases the distance between the rear and forward sights, thereby diminishing the sensitiveness and accuracy of the aim. With my improved construction the rear sight is differently located and is at a point in close proximity to the eye, which also increases the distance between it and the forward sight. It is necessary, however, in so locating the sight to provide a rigid and accurate mounting and one which will not interfere with the mechanism of the gun. This is a difficult problem inasmuch as the bolt occupies a greater part of the space above the frame and together with its operating handle or lever sweeps all of the frame on which the sight might be conveniently located. I have solved the difficulty by mounting the sight upon a portion of the bolt but have secured accuracy in positioning of bearings on the frame. Thus while the sight is rigid and accurately positioned when in use, it is freely movable with the bolt and does not therefore interfere with the operation of the mechanism. Other features of my improvement will be referred to hereinafter.

In the drawings:

Figure 1 is a side elevation of a portion of a gun to which my improved sight is applied;

Fig. 2 is a cross-section;

Fig. 3 is an enlarged cross-section in the plane of the leaf pivot;

Fig. 4 is a longitudinal section through the sleeve;

Fig. 5 is an end elevation, partly in section, showing the forward sight;

Fig. 6 is a plan view of the leaf and vertical adjustment means for the sight;

Fig. 7 is an elevation of a blade for the forward sight, detached;

Fig. 8 is an enlarged sectional elevation of the leaf showing the peep sight in its lowest position of adjustment;

Fig. 9 is a side elevation thereof.

A is the stock of a gun of standard construction, B is the frame, C is the bolt and D the operating arm or lever therefor. As these parts are all of standard construction it is unnecessary to describe the same in detail, excepting so far as they coöperate with the elements of my improved sight construction. The bolt C is formed of several parts including an element which may be termed a sleeve and which has an axial bore for receiving the firing pin. This element E performs a number of functions, being a mounting for the "safety", having a threaded portion F for engagement with a coöperating element of the bolt, and also for other uses which are unnecessary to describe. However, as usually formed, this member is free from the frame of the gun with sufficient clearance to permit of a slight oscillatory movement. Consequently it would not provide an accurate mounting for a gun sight. I have, therefore, provided a replacement member which is similar to the standard construction but is modified to secure accurate positioning on the frame. It is further modified to provide a mounting for the sight and still further to receive a different construction of "safety" which will not interfere with the sight.

In detail G is a segmental cylindrical portion of the member E which accurately fits within a grooved guide H on the frame. On opposite sides of this portion G are the wing portions I and I′ which have lower bearing faces J and J′ adapted to accurately seat upon guide faces K and K′ on the frame. The arrangement is such that the segment G exactly positions the member E laterally and as to its longitudinal axis, while the bearings J and J′ prevent any rotative or oscillatory movement around the axis of the bolt. In its upper portion the member E is

laterally extended upon opposite sides, as indicated at L and L′, which extensions terminate in upwardly extending flanges M and M′. O is an aperture extending through the member E transversely thereof and below the portions L and L′ forming a bearing for the "safety" P. This member is in the form of a slidable pin which may be adjusted into different positions by pressure upon its opposite ends. The lower portion of the pin has the cam members Q thereon for engagement with coöperating bearings on the firing pin (not shown) to lock the latter. These cams operate in the same manner as the cams upon the standard construction of "safety" which is replaced, and to release engagement the pin has a cut-away portion R at one end beyond the cams.

The sight proper includes a leaf member S which is pivotally mounted on a tubular shaft S′ extending between and engaging bearings in the flanges M and M′. The leaf may be adjusted laterally for windage compensation by means of an adjusting screw S^2 and having a threaded sleeve S^3 slidable within the tubular shaft S′. The screw S^2 is held from longitudinal movement by a collar member S^4 at its outer end engaging a flange S^5 on the end of the shaft S′. The sleeve S^3 is also provided with a pin S^6 which projects through a longitudinal slot S^7 in the tubular shaft member S′ and engages a segmental slot S^8 in the leaf member S. Thus an adjustment of the screw S^2 will effect a lateral adjustment of the leaf member without in any way interfering with its rotation upon the shaft member S′.

The leaf member S forms a mounting for a peep sight member which may be adjusted to different elevations in accordance with range markings upon the leaf. It is usual to make provision for correcting drift or the tendency of the projectile to deflect from a straight line, due to its rotational movement. In constructions heretofore used for this purpose the slideways in the leaf are straight but slightly inclined toward one side, but this is only approximately correct and the true form is a curve. With my construction the true drift-curve can be used by reason of the fact that the sliding member is not provided with straight sides but is of the following construction: T is a loop of substantially U-shaped form and having a reverse U-portion T′ at the lower end thereof, being preferably formed of resilient wire. T^2 are end portions projecting laterally from the legs of the main loop, being preferably sheet metal stampings and fashioned to embrace guide members S^9 at opposite sides of the leaf S. These guide members are formed by cutting away the central portion of the leaf and they are longitudinally of a contour corresponding to the true drift curve. The loops T frictionally engage grooves S^{16} in the guide members S^9 and are provided with a serrated laterally projecting portion S^{10} for engaging corresponding serrations on one of the guide members S^9. Thus by pressing upon the end portions T^2 the loop T will be sprung inward sufficiently to disengage the serrations, thereby permitting of raising or lowering the sight to different points of adjustment. Upon releasing pressure from the end portions T^2 the serrations will again engage, holding the loop from accidental shifting. In each position of adjustment the proper compensation for the drift is provided by the curvature of the leaf.

To retain the leaf in either of its two positions of adjustment a flat spring S^{11} is secured by a screw S^{12} to the member E, its free end projecting into contact with a substantially rectangular hub portion S^{13} of the leaf S. The tension of the spring will thus hold the leaf either in its raised position or in laid-down position and used as battle sight. A second spring S^{14} is arranged beneath the spring S^{11}, being in engagement with a recess in the member E and having a rounded pin S^{15} which passes through an aperture into the recess containing the "safety" P. The spring S^{14} is curved and will therefore exert a downward tension against the pin, which latter operates as a latch or detent for holding the "safety" in either of its two positions of adjustment.

U is a peep sight in the form of an apertured disk which is peripherally grooved at U′ to engage the reverse U-portion T′ of the member T. The arrangement is such that the peep sights having different sized apertures may be exchangeably engaged with the member T and when in position will be accurately located and will expose not only the aperture to unobstructed vision, but also the periphery of the disk. This is of advantage as in finding the aim it is desirable to see the target outside of the peep.

It is usual with leaf sights to provide a notched sight for use when the leaf is laid down, this being commonly termed the "battle" sight. I have substituted for such construction another peep sight formed by a disk member V which projects laterally from the leaf and has a peep aperture V′ therein.

With the construction as thus far described it will be understood that in loading and otherwise operating the bolt mechanism of the gun the sight will be carried by the bolt without interference with the operation. When, however, the gun is "ready" the sight is exactly located and if it has been properly adjusted it will exactly determine the course of the projectile. Adjustments can be quickly effected by the operation of aiming as facilitated by a clear vision provided around the peep sight. The

construction is also one which may be exchanged for the construction used upon standard makes of guns without the requirement of skill on the part of the operator or the necessity for any tools. Therefore it is particularly adapted for army use.

The rear sight as above described may be used with any construction of front sight but I preferably employ it in connection with a particular construction which is as follows: W is a collar on the front of the gun barrel having a transversely extending dovetail groove W′. W^2 is a member which has a dovetail tongue W^3 for engaging the groove W′, said member W^2 being also provided with segmental flanges W^4. The member W^2 is locked in position on the member W by a pin W^3 which engages alined apertures in the tongue member and in the member W on opposite sides of the groove. Between the segmental flanges W^4 the member W^2 is longitudinally slotted at W^6 to receive and accurately position the sight proper X. This may be either a blade sight, as shown in Fig. 7, or a peep sight or a combined peep and blade sight. The latter construction is illustrated in Fig. 5 and comprises the flange X′ for engaging the groove W^6 and having a central aperture X^2 for engaging a pin passing transversely through the member W^2 and the slot W^6. This pin X^3 forms a pivot for the sight member and permits of turning of either the peep sight arm X^4 or the blade arm X^5. To shield the sight a segmental hood member Y is provided which detachably engages the segmental flanges W^4 and is locked by the engagement of beads Y′ on its opposite ends with corresponding grooves W^7 in the member W^2. There is also provided a spring tongue Y^2 for engaging a recess W^8 in one of the segmental flanges W^4 so as to hold the hood from longitudinal displacement.

With the construction of front sight as above described the operator may use alternatively an apertured sight or a blade sight and also may use either sight with or without the enveloping hood. To remove the hood an aperture W^9 is formed in the flange W^4 in registration with the recess W^8 so that any suitable instrument may be inserted therein to spring the tongue Y^2 out of engagement; for instance the point of a bullet will be a suitable instrument for performing this operation. However, normally the hood is firmly locked in position and cannot be accidentally disengaged. The hood Y when disengaged need not be completely removed, but may be slid backward upon an extension of the member W^2 and locked in the second recess W^8. In this position the sight blade will be exposed to the light without shielding the hood, while the presence of the hood upon the extension W^2 will in no way interfere.

What I claim as my invention is:—

1. In a gun of the bolt action type, a frame, a sight on the bolt assembly, and a mounting for said sight exactly positioned on the frame and permitting freedom of operation of the bolt.

2. In a gun of the bolt action type, a frame, a sight mounted on the bolt assembly, and means for exactly positioning said sight in relation to the frame permitting freedom of action of the bolt.

3. In a gun of the bolt action type, a bolt having a sleeve axially apertured for the passage of the firing pin, and a sight mounted on said sleeve.

4. In a gun of the bolt action type, the combination with a bolt, of a sleeve therefor axially apertured for the passage of the firing pin, a sight mounted on said sleeve, and means on said sleeve coöperating with the frame for exactly positioning said sight.

5. In a gun of the bolt action type, the combination with a bolt and a frame on which it is mounted, of a sleeve for said bolt axially apertured for the passage of the firing pin, a sight mounting upon said sleeve, and coöperating bearings on said sleeve and frame for exactly positioning the sight.

6. In a gun of the bolt action type, the combination with a bolt and the frame on which it is mounted, of a sleeve for said bolt axially apertured for the passage of the firing pin, a sight mounting integral with said sleeve, and coöperating bearings on said sleeve and frame for accurately positioning the sight.

7. In a gun of the bolt action type, the combination with a bolt and the frame on which it is mounted, of a sleeve forming a bearing for the firing pin slidably engaging a groove in the frame, bearings on said sleeve on opposite sides of the groove for slidably engaging coöperating bearings on the frame and holding said sleeve from oscillation when the bolt is stationary, and a sight mounted on said sleeve.

8. In a gun of the bolt action type, a sleeve bolt having a bifurcated upward extension, and a sight mounted on said sleeve and laterally adjustable between the furcations thereof.

9. In a gun of the bolt action type, a sleeve for the bolt, a bifurcated upward extension of said sleeve, a cross shaft mounted in the furcations of said extension, a leaf sight pivotally mounted on said cross shaft, and means for adjusting said leaf sight laterally upon said shaft.

10. In a gun sight, the combination with a leaf member, of an apertured disk forming a peep sight, and means for adjusting said peep sight on said leaf exposing the periphery as well as the aperture to clear vision.

11. In a gun sight, a leaf member cen-

trally cut away, an apertured disk forming a peep sight, and an adjustable mounting for said disk upon said leaf exposing the periphery of the disk as well as the aperture to clear vision through the cut away portion of said leaf.

12. In a gun sight, a pivotal leaf member, a peep sight resilient clip mounting adjustable on said leaf member, and a plurality of peep sights exchangeably engageable with said resilient clip mounting.

13. In a gun sight, the combination with a leaf member centrally cut away, of a peep sight mounting adjustably engaging said member and offering slight obstruction to vision through said cut away portion, and an apertured disk forming a peep sight detachably engaging said mounting and exposing its periphery as well as its aperture to clear vision.

14. In a gun sight, the combination with a leaf member centrally cut away, of a peep sight mounting comprising a resilient loop adjustably engaging said leaf, and an apertured disk constituting a peep sight detachably engaging said resilient loop and exposing its periphery as well as its aperture to clear vision.

15. In a gun sight, a leaf member, a sight member adjustable upon said leaf, guiding means for said adjustable sight on said leaf having a true curve for drift compensation and spring means for holding said sight member variously adjusted upon the guiding means.

16. In a gun sight, a leaf member centrally cut away and having interior guides at the opposite sides of said cutaway portion of a corrective curve for drift compensation, a sight member adjustable on the guides of said leaf, and spring means for holding said sight member variously adjusted upon the guiding means.

17. In a gun sight, a leaf member centrally cut away and having guides on the opposite sides thereof of a corrective curve for drift compensation, a sight member, a resilient clip mounting for said sight member adjustable on said guides and moving said sight member through an orbit for the alining of the same with said curve, and spring means for holding said sight member variously adjusted upon the guiding means.

18. In a gun sight, a leaf member centrally cut away and having guides on the opposite sides thereof, a sight mounting in the form of a substantially U-shaped resilient clip engaging said guides, and a sight member in the form of an apertured disk detachably engaging a loop in said clip.

19. In a gun sight, a leaf member centrally cut away and providing guides on opposite sides thereof, a sight mounting in the form of a resilient clip adjustably engaging said guides and centrally provided with a looped portion, and a sight member in the form of an apertured disk peripherally grooved to engage said loop.

20. In a gun of the bolt action type, the combination of a bolt sleeve, means for exactly positioning said sleeve with respect to the gun frame, and a sight mounted on said sleeve adjustable for range windage and drift compensation.

21. In a gun of the bolt action type, the combination with a sleeve for the bolt, of means for exactly positioning said sleeve with respect to the gun frame, and a leaf sight pivotally mounted on said sleeve to be adjustable for vertical and horizontal position.

22. In a gun sight, the combination with a leaf, of an apertured disk adjustably mounted on said leaf and exposing its periphery as well as its aperture to clear vision when the leaf is in upright position, and a second peep sight in the form of an apertured disk extending laterally from said leaf and raised to vertical position when the leaf is laid down.

23. In a gun of the bolt action type, the combination with a sleeve for the bolt, of a bifurcated upward extension of said sleeve, a tubular shaft extending transversely between the furcations and longitudinally slotted, a leaf sight pivotally mounted on said tubular shaft and slidable thereon, a member within said tubular shaft having a projecting pin extending through the slot thereof and engaging a segmental slot in said leaf member, and a screw engaging said member within the shaft rotatively adjustable from the end of the shaft to shift said leaf member upon said shaft.

24. In a gun sight, a leaf member centrally cut away and providing guides on opposite sides thereof, a resilient clip for a peep sight slidably engaging grooves in said guides and having a serrated portion engaging complementary serrations on said guide, and an operating member for said clip extending outside of said guide and adapted to disengage said serrations to permit sliding in said grooves.

25. In a gun sight, a leaf member centrally cut away and providing guides upon opposite sides thereof, a sight member in the form of an apertured disk, and a mounting for said sight member comprising a resilient U-shaped clip having its sides engaging grooves in said guides, one of said sides having a lateral extension serrated to engage complementary serrations in the guide, a reverse loop in said clip for peripherally engaging said apertured sight, and an extension outside said guide for springing said clip to disengage said serrations and permit sliding adjustment in said grooves.

26. In a gun sight, a leaf member cen-

trally cut away and providing guides on opposite sides thereof longitudinally grooved on their inner faces, a sight member in the form of an apertured disk peripherally grooved, and a mounting for said sight comprising a U-shaped resilient clip having its side portions engaging said grooves and its central portion provided with a reverse loop for engaging the peripheral groove in said sight, and an extension of one of the sides of said loop passing to the outer side of said guide and forming an operating means for releasing the clip to permit vertical adjustment.

27. In a gun sight, a leaf member centrally cut away and providing guides upon opposite sides thereof, a sight member in the form of an apertured disk, and an adjustable mounting for holding said sight member within the cut away portion of said leaf providing a substantially unobstructed vision around the periphery of the disk.

28. In a gun sight, a leaf member centrally cut away and providing guides upon the opposite sides thereof, a sight member in the form of an apertured peripherally grooved disk, and a mounting comprising a U-shaped resilient clip having its sides slidably engaging grooves in said guides, the bottom portion thereof having a reverse loop for engaging the peripheral groove of said sight, an extension of one of said sides serrated to engage complementary serrations in the guide, and operating members extending laterally from the sides beyond said clip embracing said guides and permitting of springing the serrated portion out of engagement with the guide for vertical adjustment.

29. A gun sight, comprising a bifurcated member, a tubular shaft extending transversely between the furcations thereof and longitudinally slotted, a leaf sight pivotally mounted on said tubular shaft and slidable thereon, a member within said tubular shaft having a projecting pin extending through the slot thereof and engaging a segmental slot in said leaf member, and a screw engaging said member within the tubular shaft rotatively adjustable from the end of the shaft to shift said leaf member.

30. In a gun, a sight comprising a bifurcated member, a tubular shaft extending between the furcations of said member, a leaf sight pivotally mounted on said tubular shaft, and means operable from outside said bifurcated member and extending through said tubular shaft for adjusting said leaf member laterally while permitting free pivotal movement thereof.

31. In a gun sight, a leaf member, a peep sight mounting adjustable upon said leaf member, guiding means for said adjustable mounting on said leaf member having a corrective curve for drift compensation, of a plurality of peep sights exchangeably engageable with said mounting.

32. In a gun sight, a leaf member, a peep sight mounting adjustable on said leaf member, a plurality of peep sights exchangeably engageable with said mounting, and a spring retaining means for said peep sights.

33. In a gun sight, a leaf member, a peep sight member adjustable on said leaf member, a plurality of peep sights exchangeably engageable with said mounting; said mounting comprising a spring member for retaining said peep sights and for retaining the mounting variously adjusted upon the leaf member.

34. In a gun sight, a leaf member, a sight member adjustable upon said leaf member, guiding means for said adjustable sight on said leaf having a corrective curve for drift compensation, and means for holding said sight member positively adjusted in various positions of vertical adjustment.

35. In a gun of the bolt action type, a frame, a bolt sleeve exactly positioned relative to the frame and permitting freedom of operation of the bolt, and a sight mounted on the bolt sleeve.

36. In a gun of the bolt action type, a frame, a bolt sleeve, a sight mounted on the bolt sleeve, and means for exactly positioning said sight in relation to the frame permitting of freedom of action of the bolt.

37. In a gun sight, a leaf member, a sight member adjustable upon said leaf member, guiding means for said adjustable sight on said leaf member, having a corrective curve for drift compensation, a sight member adjustable on said guiding means, and a resilient clip mounting for said sight member engaging the guiding means of the leaf member, said mounting having integral teeth engaging the leaf member for holding said sight member variously adjusted upon the guiding means.

38. In a gun sight, a leaf member centrally cut away and having interior guides at the opposite sides of said cut-away portion, said guides having a corrective curve for drift compensation, a sight member adjustable on said guides and a resilient clip mounting for said sight member sprung into engagement with the sight member and with the leaf member, said mounting having integral teeth engaging the leaf member for holding said sight member variously adjusted upon the guiding means.

39. In a gun sight, a leaf member having guide ways therein, and provided with serrations, of a disk shaped peep sight, a substantially U-shaped resilient clip mounted in said leaf member and having at its lower end a reverse open loop for engaging the peep sight, and having arcuate portions curved concentrically with said reverse loop

engaging the guide ways of the leaf member, the upper ends of said resilient clip being formed with teeth engaging said serrations of the leaf member, the leaf member being graduated adjacent its guide ways, and the resilient clip being provided with an index mark for registration with the graduations of the leaf member, and means for releasing the teeth of the resilient clip from the serrations of the leaf member to allow vertical adjustment of the clip.

In testimony whereof I affix my signature.

FRANK A. WILLIAMS.