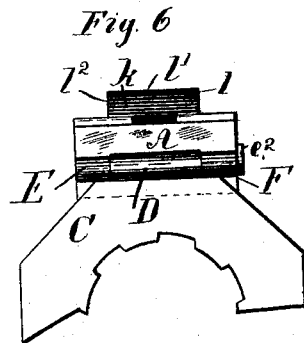
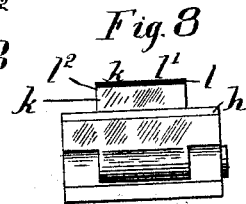
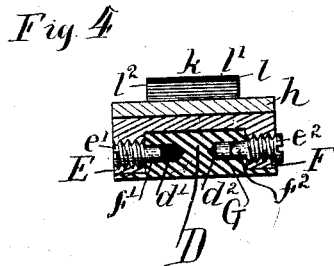
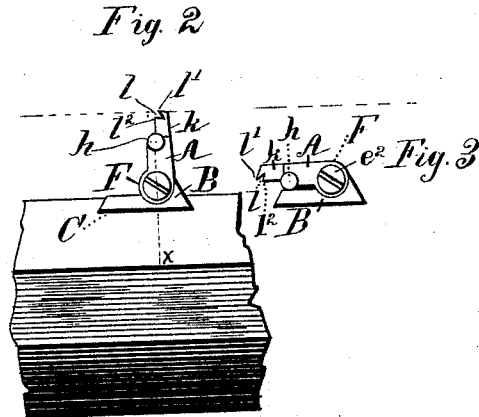
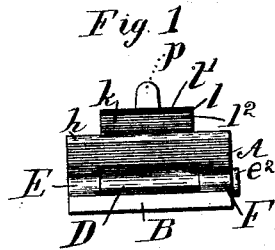


(No Model.)

W. LYMAN.  
SIGHT FOR FIRE ARMS.

No. 455,911.

Patented July 14, 1891.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM LYMAN, OF MIDDLEFIELD, CONNECTICUT.

## SIGHT FOR FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 455,911, dated July 14, 1891.

Application filed February 24, 1891. Serial No. 382,614. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LYMAN, a citizen of the United States, residing at Middlefield, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Sights for Fire-Arms, of which the following is a specification.

My invention relates to sights for fire-arms, and has for its object to provide a rear leaf-sight of the class known as "bar-sights," having a horizontal top adapted to insure accuracy of aim, and facilitates sighting by dim or imperfect light, and for alternate use in combination with a tang or peep sight.

To this end the invention consists in the novel friction-hinge adapted to hold the folding leaf in any position, and in the novel combination and arrangement of the horizontal light and dark colored devices for guiding the eye in sighting, as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of my improved sight detached from the gun-barrel. Fig. 2 is a side elevation of the sight mounted upon a rifle; and Fig. 3 is a side elevation showing the folding leaf depressed or folded down to permit the use of other sights—as, for instance, a peep-sight attached to the tang of the barrel. Fig. 4 is a vertical cross-section through the sight on the line *x*, Fig. 2. Fig. 5 is a side elevation of the base of the sight. Fig. 6 is a front elevation of a modified form of the sight mounted on a rifle-barrel, and Fig. 7 is a view of the ivory reflecting device adapted for the modification shown in Fig. 7. Fig. 8 is a modification.

Referring to the drawings, A designates the "leaf" of my improved sight, and B denotes the base or plate upon which it is mounted or hinged, the requirements of the sight being that it shall be adapted to fold down from the erect position and lie flat upon the gun-barrel, entirely out of the line of vision when not in use. The said base is of dovetailed shape in cross-section, as shown, and adapted to be received in a corresponding transverse slot C on the upper side of the barrel in the usual manner of inserting sights

of that class, or it may be secured to the gun in any well-known manner.

On the base is a hinge-ear D, having its axis transverse to the barrel and horizontal or parallel with the flattened upper surface thereof. Axial bearings or perforations  $d'$   $d^2$  are drilled into the ear at each end thereof, and one of the said perforations  $d^2$  receives a hardened steel plug G, tightly fitted at the bottom thereof, for the purpose hereinafter described.

The leaf A is provided with a pair of similar ears E F, between which the ear D is adapted to fit freely, and said ears E F are each perforated axially throughout and threaded to receive suitable pivot-screws  $e'$   $e^2$ , having the pointed pivotal journals  $f'$   $f^2$ , adapted to fit into the said holes or bearings in the ear D. One of the screws  $e'$  is adapted to screw tightly and flush into the ear of the leaf without bottoming the journal  $f'$  in the bearing in the ear, and the other screw  $e^2$  is adapted to bottom its pointed end against the flat surface of the hardened plug G, while having its outer end projecting considerably beyond the face of the ear E, thereby being adapted for adjustment to take up the wear of the pivotal journal  $f^2$  and plug G and the joint between the ear D and opposite ear as those parts are worn by folding the leaf down or erecting it, as required. It will be seen that the friction caused by the thrust or pressure of the screw  $e^2$  is brought upon the pointed end of the screw and the hardened plug and upon the opposite ear E of the leaf and contiguous end of the bearing D. By tightening the screw  $e^2$  the friction can easily be made sufficient to hold the leaf in any position, and when it is once adjusted there will be no tendency for it to work loose in the ordinary operation of folding the leaf, as the greater diameter of the threads of the screw insures more friction thereon than there is upon the point or reduced area of the end of the pivotal journal, and consequently as the leaf is turned on its bearing the said screw  $e^2$  will turn with the leaf the same as if it were an integral part thereof, and the journal-point of much lesser diameter than the screw-thread will readily turn upon the hardened plug G without causing

the screw to start or slip in the ear F. If desired, the relation of the ears may be reversed, the single ear being upon the leaf and double ears upon the base, as shown in Fig. 8. This construction provides an excellent friction-joint, which will always hold the parts wherever set, and is not liable to get out of order or require frequent adjusting and wholly dispenses with the use of springs.

Arranged horizontally through the leaf above the ears E F is a cylindrical ivory bar *h*, inserted in a cylindrical seat drilled entirely through the leaf transversely to the gun-barrel. In the construction of the leaf said cylindrical seat is first drilled in the leaf-blank, and then the metal of the leaf is milled away, as shown in the figures, to expose the top of the bar along its whole length on the side toward the breech of the gun, or about one-fourth of its circumference from an upper vertical radial plane to a horizontal radial plane on the side of the axis toward the breech, and at the ends of the leaf the metal is cut away entirely above the bar and just below its top on the side toward the muzzle of the gun, as shown, leaving the central part *k* or the bar-sight proper projecting above the ivory bar on the side toward the muzzle. Through said central part the bar has a bearing around three-quarters of its circumference, and is thereby held very firmly in place, and can be further fastened by setting the thin edges of the metal into the ivory, or by prick, punch, indentations, or cemented in place.

In the upper edge of the central part *k*, on the side toward the breech, a V-groove *l* is milled, having its lower side inclined slightly downward from the face of the leaf, so that no portion of it can be seen when sighting, and the upper side of the groove extends from the rearward edge of the top of said central part, as shown, forming a knife-edge *l'* at that point. The top of said central part is beveled away downward from said knife-edge, as shown, and is therefore not exposed to the eye in sighting, whereby the effect of the groove *l* is to form a definite shade-line or non-reflecting device that appears dark at all times, because the direct rays of light cannot reach the upper surface of the groove, and in operation the said shade-line contrasts sharply with the ordinary sight *p* at the muzzle of the gun. Said grooved device obviates effectually the difficulty which is ordinarily experienced in that class of sights by the top of the sight wearing smooth and brightly reflective, and thereby blending or merging indistinctly with the front sight *p*, as the groove or space beneath the said knife-edge always shows dark. The knife-edge is preferably set back or away from the face of the plate, as shown, whereby the shoulder *l''*, formed by the lower side of the groove, projects beyond the said knife-edge and obstructs the light from reaching the groove from beneath, besides forming a guard which effectually prevents

injury of the person by contact with the said sharp knife-edge *l'* in handling the sight. The knife-edge also furnishes a convenient hold for the thumb-nail in the act of raising the leaf from the horizontal position, which action would otherwise be attended with difficulty, it being required that the leaf shall be very tightly adjusted and adapted to turn upon the base only with considerable friction. The object of the ivory bar is to insure centralization of the front sight, particularly when sighting at dusk or in a dim and imperfect light, at which time the dark central part *k* is hardly distinguishable, and the bar also insures holding the gun in a level position. When it is desired to employ a tang-sight, the said rear leaf-sight can be folded down entirely out of the line of vision, as shown in Fig. 3, permitting unobstructed view from the tang or peep sight.

Besides the cylindrical configuration shown, other forms of the ivory bar *h* may be used, if desired; but the cylindrical form is preferable. If required, the said bar may be cut away at its middle portion, as shown in Figs. 6 and 7, leaving only the ends exposed to view.

The friction-hinge may be applied to swinging mechanism other than sights which it is desired to hold in various positions about the pivotal center without the use of clamping-screws.

I claim and desire to secure by Letters Patent—

1. In a friction-hinge for leaf-sights or other folding devices, the combination of a base or stationary part, and a leaf or swinging part hinged thereto, one of said parts being provided with a pair of ears perforated in alignment and screw-threaded, and the other part being provided with an ear adapted for reception between said pair of ears and having holes or pivot-bearings in the ends thereof and in alignment, screws fitting said threaded perforations and provided with teats, and pivotal points or journals adapted to be received in said pivot-bearings of the ear with one of said pivotal points impinging against or in contact with the bottom of its seat or bearing, as and for the purpose specified.

2. In a friction-hinge for leaf-sights, the combination of the leaf provided with a pair of ears perforated in alignment and screw-threaded, the base provided with an ear fitting between said ears of the leaf and having holes or pivot-bearings in the ends thereof and in alignment, a hardened plug fitted at the bottom of one of said bearings, screws fitting the threaded perforations of the leaf and provided with teats, and pivotal points or journals received in said bearings, one of said screws bearing at its pivotal point upon said hardened plug, as and for the purpose specified.

3. In sights for fire-arms, the combination, with a base, of a folding leaf hinged thereto and having a groove at its upper edge on the side exposed to the eye in sighting, forming

a knife-edged rim or flange at the upper edge of the leaf adapted to expose a dark or shaded surface beneath the edge, substantially as specified.

5 4. In sights for fire-arms, the combination, with a sight leaf or plate, of a knife-edged rim or flange projecting from the plate at the upper edge on the side adapted for exposure to the eye in sighting, and a projecting shoulder or guard below said knife-edged rim, forming therewith a darkened groove or shaded space at the top edge of the sight, as and for the purpose specified.

10 5. In a sight, the combination of a base leaf or plate, a horizontal bar of ivory or similar colored material embedded therein with its upper surface exposed toward the breech of the gun, and a dark or shaded part projecting or mounted above the ivory bar, substantially in the manner and for the purpose specified.

15 6. The combination, in fire-arm sights, of a base adapted to be attached upon the barrel of the arm, a folding leaf hinged thereto, a

bar of ivory or similar colored material embedded in the leaf with its upper surface exposed toward the breech of the gun, and a plate projecting above the bar, having a shade-groove at its upper edge on the side exposed to the eye in sighting, substantially in the manner and for the purpose specified.

25 7. In a sight, the combination of the base B, adapted for attachment to the gun-barrel and provided with an ear having the opposite bearings  $d'$   $d^2$ , the hardened plug G, fitted in one of the bearings, the folding leaf provided with the ears E F, each perforated and screw-threaded and provided with a central vertical plate or dark surface  $k$ , the bar  $h$ , embedded in said leaf, and the screws fitting said ear and provided with the pivotal journals or teats  $f'$   $f^2$ , adapted to be received in the bearings in the ear, substantially in the manner and for the purpose set forth.

30 35 40 WILLIAM LYMAN.

Witnesses:

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