

D. C. McDOUGAL.

RIFLE SIGHT.

APPLICATION FILED MAY 18, 1921.

1,407,208.

Patented Feb. 21, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

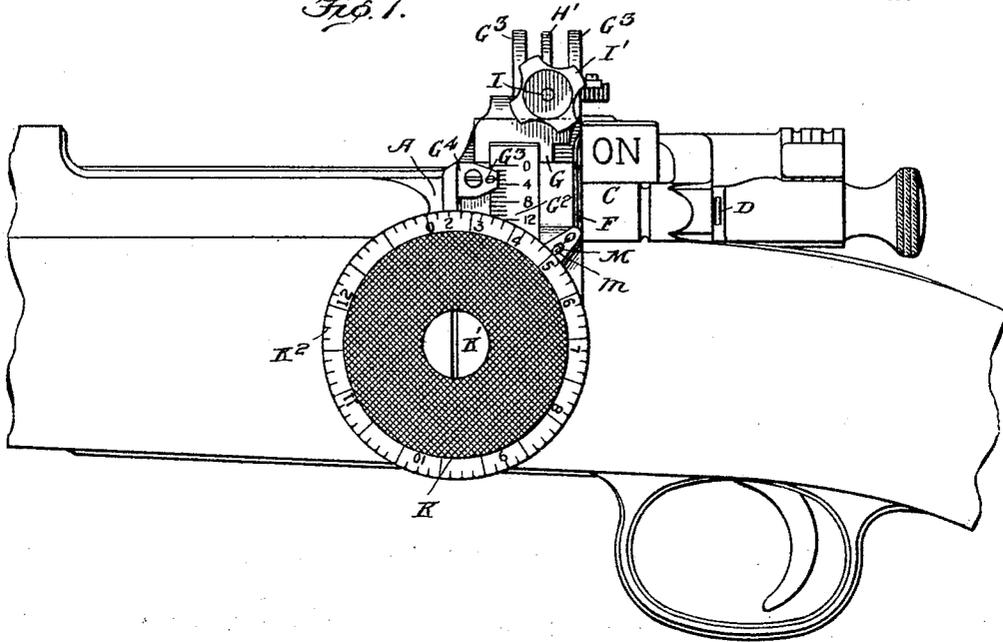
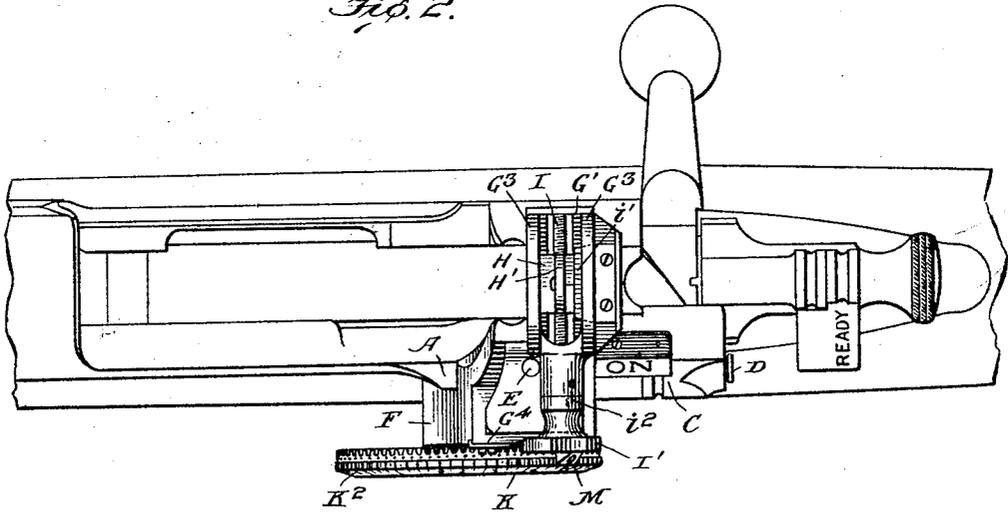


Fig. 2.



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Witness

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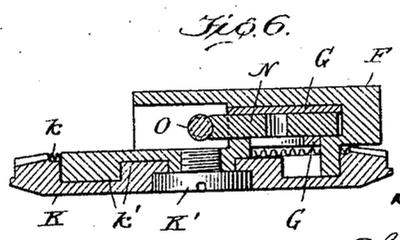
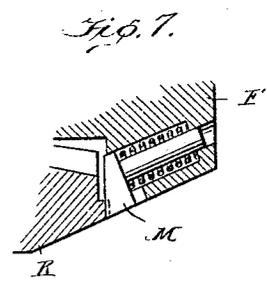
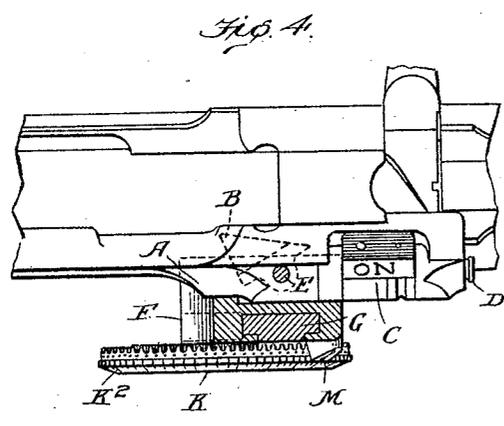
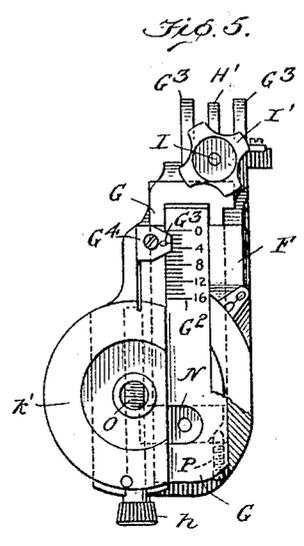
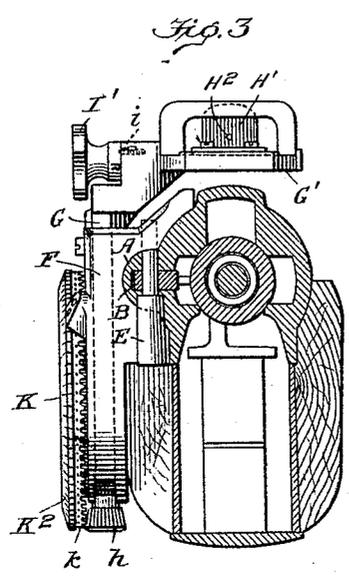
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RIFLE SIGHT.

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UNITED STATES PATENT OFFICE.

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RIFLE SIGHT.

1,407,208.

Specification of Letters Patent. Patented Feb. 21, 1922.

Application filed May 18, 1921. Serial No. 470,547.

To all whom it may concern:

Be it known that I, DOUGLAS CASSEL McDOUGAL, an officer of the United States Marine Corps, stationed at Port au Prince, Haiti, have invented certain new and useful Improvement in Rifle Sights; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to rifle sights and, while features of the invention are applicable to sights designed for application to any style or make of rifle, the embodiment of the invention adopted for illustration is especially adapted to the United States rifle model of 1903, commonly known as the Springfield rifle. The objects are not only to provide a sight having superior features of control and adjustment for elevation and windage, but one which may be easily and readily secured in accurately proper position on any standard rifle of the type mentioned, without alteration of the metal parts of the rifle or special fitting of the sight frame for each rifle, whereby sights made to a common standard may be interchangeably placed on any standard rifle with the assurance that the position will be correct.

Other objects of the invention are to bring the adjustment control into convenient position for manipulation and to so construct and arrange the parts as to afford the maximum safety against accidental breakage or injury and at the same time permit of the setting both for elevation and windage to be made quickly and in exact accord with any range table or computation, predetermined by the officer and orders issued to the firing line or individual.

In the accompanying drawings,—

Figure 1 is a side elevation of the breech portion of a Springfield rifle having the sight of the present invention mounted thereon.

Fig. 2 is a top plan view of the parts shown in Fig. 1.

Fig. 3 is a sectional view of the rifle in a transverse plane intersecting the ejector pivot and with the parts of the sight in rear elevation.

Fig. 4 is a detail top plan of a part of the rifle with the parts of the sight in section on a horizontal plane at about the level of the ejector.

Fig. 5 is a side elevation of the sight with the wheel or disk for adjusting elevation removed.

Fig. 6 is a section through the sight in a horizontal plane through the center of the adjusting wheel or disk.

Fig. 7 is a detail section showing a preferred form of adjusting wheel retainer and click.

The rifle illustrated is the standard Springfield rifle model of 1903 caliber 30, and inasmuch as the construction is well known, no detail description is necessary for an understanding of the present invention. In order, however, that the invention may be fully appreciated, attention is directed to the fact that, while the exterior surface of the front end of the receiver into which the barrel fits, as well as a large part of the rear end and side surfaces, are dressed by grinding with a wide range of tolerance and, therefore, cannot be successfully used as a base or gage surface for the attachment of a sight without fitting to suit the individual rifle, there is one part, the exterior surface of which is dressed by milling and with a tolerance well within the permissible variation for a sight locating or gaging surface. This particular part is the projection on the left hand side of the receiver and having in it the internal slot for the ejector, the vertical bore for the ejector pin and the bearings for the cut-off spindle and cut-off. This particular part of the receiver may conveniently be called the ejector-lug and it is indicated in the drawings by the reference letter A. The letter B indicates the ejector, C the cut-off and D the cut-off spindle.

The ejector B is pivotally held in place by a pin inserted from the under side in a vertical bore in the ejector lug and in accordance with the present invention the usual pin is removed and a pin E of sufficient length to project above and below the lug is substituted to serve the double function of a pivot for the ejector and as the fastener for securing the sight frame rigidly in place with its gaging or positioning face firmly against that surface of the ejector lug which has been dressed by milling. The pin E is of two diameters with the larger diameter at the bottom, as heretofore, and for the accommodation of the lower end together with the projection of the sight frame held by it, the wood stock of the rifle is notched or cut

away slightly, this being the only change made in any part of the standard rifle to effect the perfect attachment of the sight. This change may be made by one even

though comparatively unskilled in the art. The sight itself comprises what may be well termed a sight frame F having a recessed gaging surface for the accommodation of the ejector lug A, and parts extending above and below said lug for the reception of the upper and lower ends of the pin E, whereby the sight frame and receiver are locked firmly together in a certain and predetermined position.

An elevator frame or sight carriage has an arm G mounted in vertical ways in the sight frame and a horizontal arm G' extending over the bridge near the rear end of the receiver or at a point in rear of the magazine opening. The two arms of the carriage are rigidly connected, suitable strengthening flanges and webs being employed for this purpose to make the parts rigid and rugged enough to withstand rough wear and tear. The arm G and the ways in the sight frame in which it works extend to the bottom of the frame to give long accurate bearing surfaces, and vertical adjustment is effected by a half nut N mounted in a mortise in the arm and meshing with a vertical screw O journaled in the frame parallel with the ways. At its lower end the screw carries a bevel pinion *h* meshing with a bevel gear *k* formed on the rear face of a relatively large hand wheel or disk K removably journaled on the frame by means of a central securing screw K' and annular bosses and recesses *k'* on the frame and inner face of the wheel disk respectively.

The beveled marginal face of the wheel or disk is graduated or provided with a scale of graduations K² indicating a vertical adjustment of the sight and adapted to register with an angularly fixed graduation *m*. The graduation *m* is conveniently formed on a spring-pressed click and retaining pawl M shown in detail in Fig. 7, said click being adapted to co-operate with a series of depressions in the edge of the wheel disk K to indicate the adjustment as well as to prevent accidental change in the adjustment of the wheel disk.

In addition to the graduated scale on the wheel-disk, the upper part of the vertical arm G is provided with a scale or set of graduations G² adapted to register with a fixed graduation G³ preferably formed on a small removable and slightly adjustable plate G⁴, whereby accurate calibration of the graduations on the wheel-disk and arm may be effected. In the preferred construction the graduations of one scale, the wheel-disk, for example, is in minutes and the other in mills, whereby the sight may be set in accord with a range table figures by either system.

The horizontal arm G' of the sight carriage extends across the gun in rear of the clip slots where it will not interfere with the loading operation and forwardly of the path of movement of the bolt handle where it will not interfere with the manipulation of the breech mechanism. This arm of the sight carriage is formed with ways for the windage or drift carriage H (Fig. 2) upon which is mounted or formed the upright H' having the peep sight opening H² therein. Windage adjustment is effected by a screw I journaled in the sight carriage and having a thread connection with the windage or drift carriage. A knurled or quadriform head I' on the end of the screw serves as the means for turning the screw and if desired a click or spring-pressed plunger (dotted lines *i*) may be located in the bearing hub for co-operation with depressions in the hub of the head to hold the parts in adjusted position as well as to indicate by the sense of feeling the extent of any change in adjustment. For visual indication of adjustment an adjustable scale *i'* is provided on the arm G' and this is supplemented by graduations *i*² on the bearing of the screw and hub of the head I'. The latter graduations and indications by the click *i* may serve to indicate transverse movement of the sight less than can be readily observed on the direct scale *i'*.

As a convenience in accurate manufacture the half nut N is mounted in a mortise in the sight carriage, but this construction has an added advantage in that it permits of provision for adjustment in case of wear on the threads or half-nut by adjustment of the half nut forwardly. Adjustment may be conveniently effected by a set screw P, the end of which co-operates with the inclined inner face of the half nut as shown in Fig. 5.

To prevent injury to the peep sight or windage carriage the arm G' is provided with guards G³ which arms extend above the level of the windage carriage and may be arranged either parallel with the barrel or at right angles thereto, as shown.

In applying the sight to a Springfield rifle, it is only necessary to drive out the ejector pin, place the sight in position and insert a new pin which is similar to the ejector pin save that both the smaller and larger parts are made longer. It is also necessary to recess the wooden stock to provide space for the lower portion of the sight frame where it passes around the ejector lug. Escape of the ejector pin is prevented by the stock in the present instance just as in the standard rifle.

What I claim is:

1. A sight for "Springfield" rifles, embodying a sight frame having a gaging surface formed to fit the ejector lug on the receiver of the rifle and an aperture in align-

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ment with the ejector pin aperture for the reception of the projecting end of a long pin substituted for the original ejector pin, said sight having vertically and laterally adjustable members carried by the sight frame for elevation and windage adjustment.

2. A sight for "Springfield" rifles embodying a sight frame having a concavity formed to fit around the ejector lug on the receiver of the rifle and apertures in alinement with the ejector pin aperture for the reception of top and bottom extensions of a long pin substituted for the original ejector pin, said sight having vertically and laterally adjustable members carried by the frame for elevation and windage adjustment.

3. A sight for application to the left hand side of the receiver of a rifle embodying a sight frame having its right hand surface recessed to fit the external contour of the receiver and with a vertical aperture there-through in alinement with the ejector pin aperture for the reception of extensions of a long pin substituted for the original ejector pin, a slide vertically movable in said frame, a screw with which the slide co-operates, a pinion on the screw, and a wheel disk journaled on the left hand side of the frame and having gear teeth thereon meshing with the said pinion.

4. The combination with a rifle having a receiver provided with an ejector lug apertured for the passage of the ejector pin, of a sight embodying a sight frame having its inner surface recessed to embrace the ejector lug and apertured in line with the ejector pin aperture, and a single pin seating in said apertures to lock the sight in place and form the pivot axis for the ejector.

5. In a rifle sight, a sight frame recessed on one side to fit the receiver of a rifle, and a disk journaled on the opposite side of the

frame and having gear teeth thereon, in combination with a sight carriage vertically movable in the frame, an adjusting screw journaled in the frame and engaging the carriage, a pinion on the screw and in mesh with the teeth on the disk, a transversely movable sight slide on the carriage, and means for adjusting the same.

6. In a rifle sight the combination with the sight frame recessed on one side to fit the side of the receiver of the rifle and a wheel disk journaled on the opposite side of the frame, of a sight carriage mounted to slide vertically in the frame, a screw for moving and holding the carriage in adjusted position, a pinion on the screw, a series of gear teeth on the wheel disk in mesh with the pinion, a transversely movable sight slide on the carriage, a screw for adjusting the slide and an operating head on the screw located above the wheel-disk and in proximity thereto.

7. In a rifle sight, the combination with the sight frame adapted to be secured to the receiver of the rifle, a sight carriage movably mounted in the frame, and a wheel disk journaled on the frame and operatively connected with the carriage and having a series of marginal depressions and corresponding graduations, of a spring-pressed click mounted in the frame and co-operating with said depressions to indicate adjustment and to hold the wheel disk in adjusted position.

8. In a rifle sight, the combination with the sight frame, sight carriage and screw for adjusting the carriage, of a half nut movably mounted in the carriage to co-operate with the screw, and means for adjusting said half-nut to compensate for wear comprising a set screw and inclined face on the half nut for co-operation therewith.

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