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Aug. 20, 1946. J. C. GARAND 2,406,011

SIGHT

Filed March 17, 1944

Fig. 1.

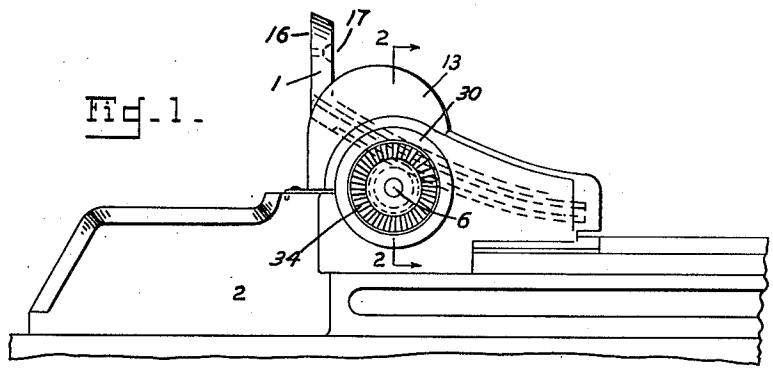


Fig. 2.

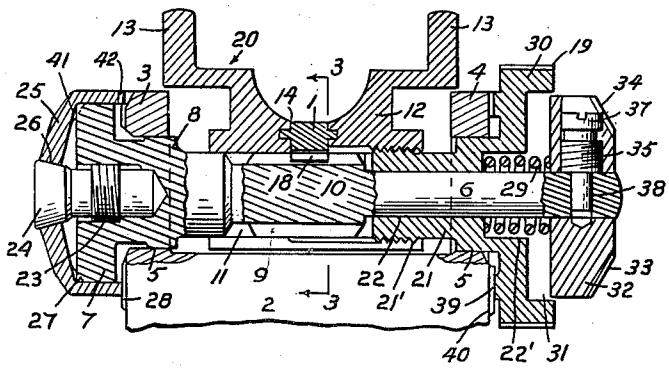


Fig. 4.

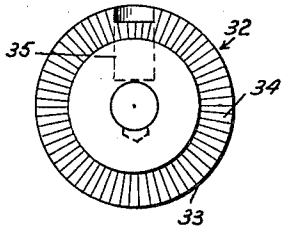


Fig. 5.

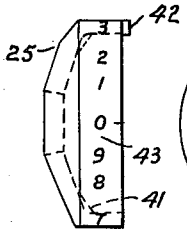


Fig. 6.

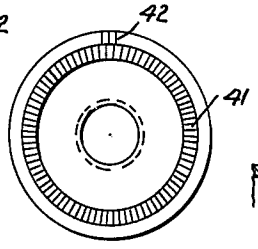
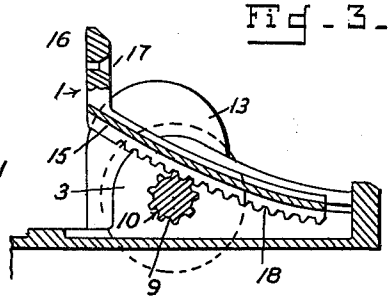


Fig. 3.



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Fig. 7.

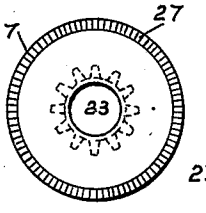
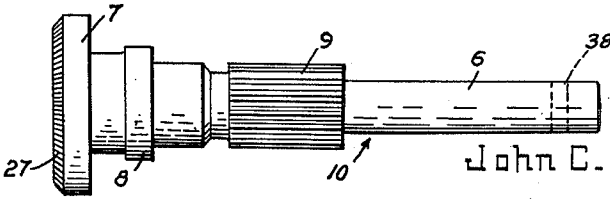


Fig. 8.



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UNITED STATES PATENT OFFICE

2,406,011

SIGHT

John C. Garand, Springfield, Mass.

Application March 17, 1944, Serial No. 526,955

2 Claims. (Cl. 33—56)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This invention relates to a rear sight for a firearm.

The windage and elevation adjusting knobs or dials of sights for most firearms are generally separated so that rapid adjustment for either elevation or windage cannot conveniently be made. When the adjusting means are so separated the rifleman must frequently use both hands to make such adjustments. It is obvious that when the rifleman has to use both hands to adjust such a sight the rifle must be removed from the shoulder and such sights will therefore no longer be aligned with the target. Hence both windage and elevation adjustments should be placed in juxtaposition on one side of the sight where they could be readily adjusted by one hand of the rifleman and the rifle sights could then be maintained in substantial alignment with the target.

Accordingly, it is an object of this invention to provide an improved rear sight for a firearm having both elevation and windage adjustments in juxtaposition for ease and convenience of adjustment thereof.

A particular object of this invention is to provide an adjustable rear sight for a firearm such as disclosed in my prior U. S. Patent No. 1,892,141.

Still another object of this invention is to provide a rear sight for a firearm having windage and elevation adjustments that will positively maintain any desired setting against displacement by firing or accidental shocks.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

Fig. 1 is a right side elevational view of the sight shown mounted on the receiver of a firearm.

Fig. 2 is a cross sectional view of Fig. 1 taken along the plane 2—2.

Fig. 3 is a longitudinal section view taken along the plane 3—3 of Fig. 2.

Fig. 4 is a right end elevational view of the elevation knob.

Fig. 5 is a side elevational view of the detent.

Fig. 6 is a view showing the interior of the detent.

Fig. 7 is a left end elevational view of the pinion.

Fig. 8 is a front elevational view of the pinion.

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There is shown in Fig. 1 a rear sight for a firearm embodying this invention which comprises a movable sight base 20 adjustable laterally by a windage knob 30 and a sighting member 1 supported by the sight base and arranged to be elevated or depressed by a pinion 10.

The elements of the sight are shown mounted on the receiver 2 of a firearm such as disclosed in my prior U. S. Patent No. 1,892,141. It should be understood however that the sight to be described herein can be readily adapted to any other firearm by obvious adaptations.

On receiver 2 there are provided two upstanding integral oppositely disposed pinion supports 3 and 4. A horizontal hole 5 is provided in each support 3 and 4 to mount pinion 10 and the windage knob 30. Pinion 10 comprises a shaft 6 and an integral cylindrical head portion 7. A plurality of serrations 27 are provided on the left face of head 7 as shown in Figs. 2, 7, and 8 for a purpose to be described. Adjacent head 7 a reduced diameter portion 8 is provided which engages hole 5 in pinion support 3 in bearing relation. Pinion teeth 9 are provided approximately in the center of pinion 10 to engage corresponding teeth 18 on sighting member 1 as will be described. The right end of shaft 6 adjacent the teeth 9 as shown in Fig. 2 is of reduced diameter to receive windage knob 30 as will be presently described.

Movable base 20 comprises a body portion 12 and two upstanding sighting member guards 13 integrally formed on the top of the body portion 12. A transverse hole 11 is provided in the lower part of body portion 12 to mount movable base 20 on shaft 6 of pinion 10. The right end of hole 11 in body portion 12 of movable base 20 is threaded to receive the end of windage knob 30. An arcuate T slot 14 is provided in the center of body 12 of base 20 to receive the sighting member 1. Sighting member 1 (Fig. 3) comprises an arcuate body portion 15 terminating in a vertical rounded end 16 in which is provided a sighting aperture 17. On the underside of body portion 15 a plurality of teeth 18 conforming in size and shape to teeth 9 are provided which engage pinion teeth 9 of pinion 10.

Windage knob 30 comprises a cylindrical knurled head 19 and an integral axial stem 21. An axial hole 22 is provided in windage knob 30 to mount such knob on the reduced diameter end of pinion 10. The right end of hole 22 as shown in Fig. 2 is counterbored as shown at 22' to receive a spring 29 for a purpose to be described. Knob 30 is horizontally mounted within hole 5 in support 4. The end of stem portion 21 is pro-

vided with exterior threads 21' to engage the threaded end of hole 11 of movable base 20 to obtain lateral adjustment of such base.

To hold the sighting member 1 in any one of a plurality of positions a cup-shaped detent 25 is placed over the head 7 of pinion 10 and is secured thereto by a screw 24. The screw 24 passes thru a hole 26 in detent 25 and is screwed into a threaded axial hole 23 in head 7. About the inside of detent 25 as shown in Fig. 6, there are provided a plurality of serrations 41 which engage the corresponding serrations 27 provided on the face of head 7 of pinion 10. A wedge shaped detent 42 provided on the edge of detent 25 yieldingly engages any one of a plurality of serrations 28 provided on the face of support 3. Suitable elevation graduation marks 43 as shown in Fig. 5 are provided on the outer periphery of detent 25.

A circular recess 31 is provided in the end of knob 30 to accommodate an elevating knob 32 secured to the end of shaft 6. Knob 32 is a cylindrical member provided with a beveled edge 33. The edge 33 is provided with serrations 34 to afford a non-slipping surface for manual operation of knob 32. A counterbored threaded radial hole 35 is provided in knob 32 to receive a set screw 37. The set screw 37 is provided with one end of reduced diameter which when inserted into hole 35 enters a transverse hole 38 in the end of shaft 6 of pinion 10 thereby locking knob 32 to pinion 10. A plurality of integral detents 39 are provided on the inside face of windage knob 30 concentric with respect to axial hole 22 and engage correspondingly shaped notches 40 in the pinion support 4 provided on the outside face thereof.

The spring 29 is disposed within the counterbored end of hole 22 and bears against the bottom of such counterbored portion and against the inside face of elevating knob 32. Spring 29 thus biases windage knob 30 against the face of support 4 and also biases elevating knob 32 outwardly away from windage knob 30 thereby bringing detent 42 forcibly into contact with one of serrations 28. Likewise one of the detents 39 on windage knob 30 will engage the corresponding notch 40 in the support 4. When windage knob 30 is rotated threads 21' on the end thereof engage the threaded portion of hole 11 and hence base 20 is laterally moved on pinion 10 in a right or left hand direction depending upon the direction of rotation of windage knob 30.

It should be mentioned that detents 39 on windage knob 30 may be so angularly spaced as to provide adjusting clicks when rotated in increments of one minute of angle of windage, or any finer or greater increments as may be desired. It is readily apparent that such windage adjustment is entirely independent of elevation adjustment of sighting member 1 as windage knob 30 surrounds pinion 10 in bearing relation.

Elevation adjustment of sighting member 1 is readily obtained by turning the elevating knob 32 to raise or lower sighting member 1 as desired. Serrations 28 on support 3 may likewise be so angularly spaced that increments of one minute of angle of elevation may be obtained. It should be appreciated however that greater or lesser increments of adjustment of sighting member 1 are readily obtainable by greater or lesser spacing of serrations 28.

The sight herein described is readily "zeroed" after the firearm on which such sight is mounted is properly targeted. Such adjustment is easily accomplished in the following manner: With sighting member 1 at the correct height for 100 yards, for example, as established by targeting, the detent 25 is loosened by unscrewing screw 24 and pushing inwardly on knob 32. This disengages serrations 41 on the bottom of detent 25 from serrations 27 on head 7 of pinion 10 and detent 42 from serrations 28 on support 3. Detent 25 may then be rotated until the numeral 2 of graduations 43 come opposite a suitable index mark (not shown) on support 3 without disturbing the setting of sighting member 1. Knob 32 is released and screw 24 again tightened. The serrations 41 again firmly engage serrations 27 so that detent 25 will not slip with respect to pinion 10 and detent 42 will yieldingly engage serrations 28.

Sighting member 1 is firmly held against accidental displacement by the bias of spring 29 which holds detent 42 and detents 39 tightly against corresponding serrations 28 and notches 40 respectively. Hence the position of sighting member 1 will not be disturbed by the shocks of firing or chance blows.

Thus it is apparent that a compact, rugged and dependable sight is provided having both windage and elevating adjusting knobs in juxtaposition at one end of such sight for rapid and convenient adjustment by the rifleman and requiring the use of only one hand for such adjustment. Further, accidental displacement of the sighting member 1 is obviated by the novel construction of the sight herein described thereby insuring that any setting of such sighting member will be securely maintained until manually reset.

I claim:

1. A firearm sight comprising a pair of spaced supports, a hollow windage knob journaled in one of said supports, an elevating pinion having one end journaled in said other support and the other end projecting thru said windage knob, an elevating knob secured to said projecting end, an annular cap having yardage graduations disposed about its periphery, means for securing said cap to said elevating pinion in any one of a plurality of angular positions with respect thereto, a sight base mounted between said supports and threadably engaged by said windage knob, whereby the position of said sight base may be varied transversely with respect to said supports, an aperture member slidably mounted in said sight base for movement along a path having a vertical component with respect to said sight base, and toothed means interconnecting said elevating pinion and said aperture member effective to move said aperture member along said path by rotation of said elevating knob.

2. A firearm sight comprising a pair of spaced supports, a hollow windage knob journaled in one of said supports, an elevating member comprising a head and a shank, said shank being insertable thru the other of said supports and thence thru the hollow portion of said windage knob, the end of said shank projecting thru said windage knob, an annular cap having yardage graduations disposed about its periphery, means for securing said cap to the head of said elevating member in any one of a plurality of angular positions with respect thereto, an elevating knob secured to said projecting shank end, a spring operative between said windage knob and said elevating knob whereby said windage knob is forced against one of said supports and the head

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of said elevating member forced against the other of said supports, a sight base mounted between said supports and threadably engaged by said windage knob, whereby the position of said sight base may be varied transversely with respect to said supports, an aperture member slidably mounted in said sight base for movement

along a path having a vertical component with respect to said sight base, and toothed means interconnecting said elevating member and said aperture member effective to move said aperture member along said path by rotation of said elevating knob.

JOHN C. GARAND.