March 7, 1944. C. E. RODNEY 2,343,802

GUN SIGHT

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Fig. 1.

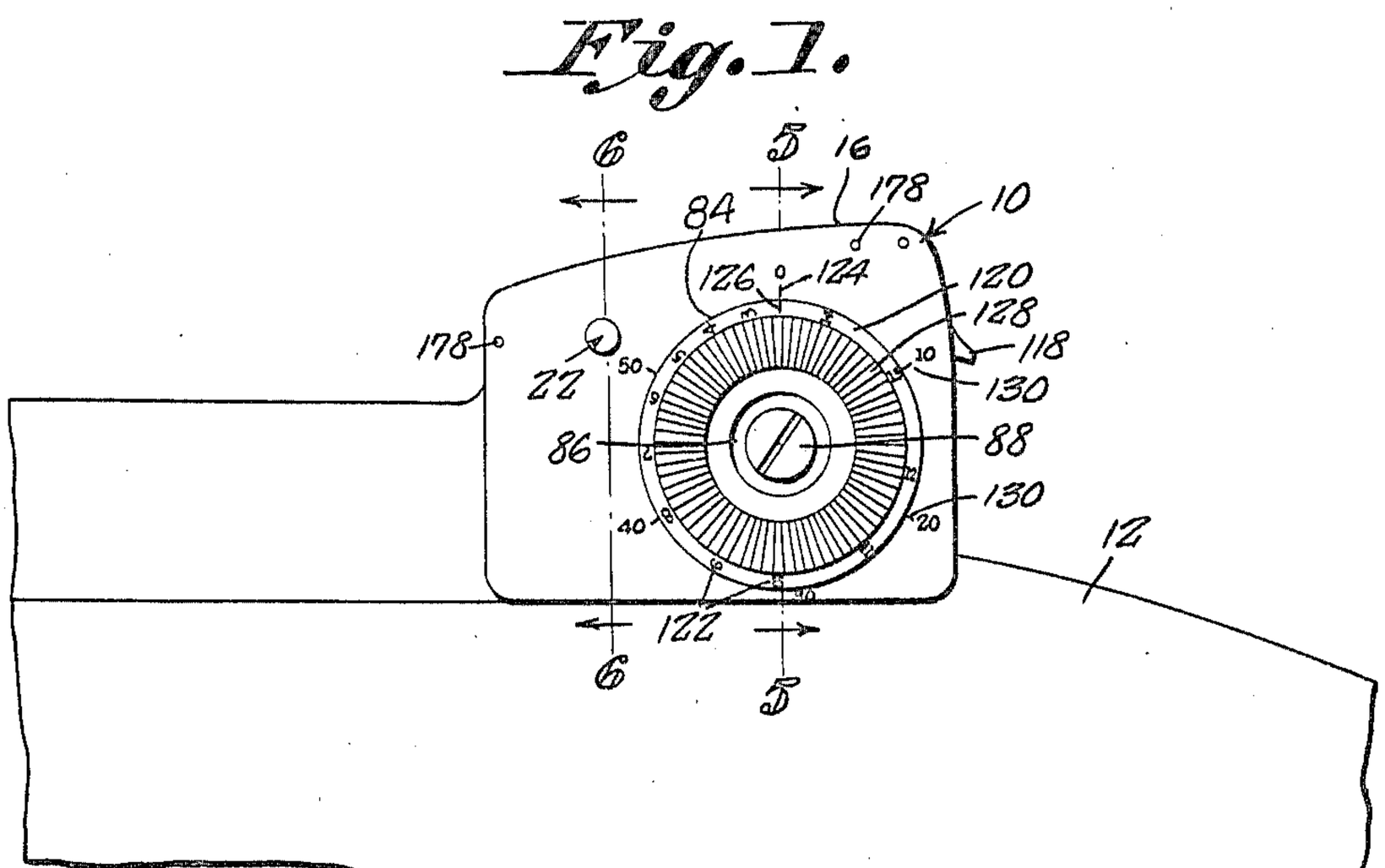


Fig. 2.

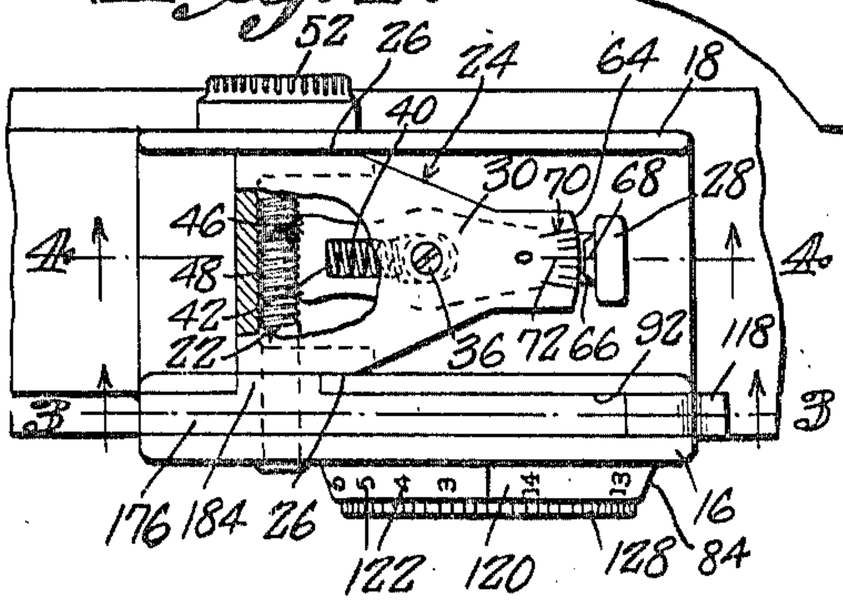
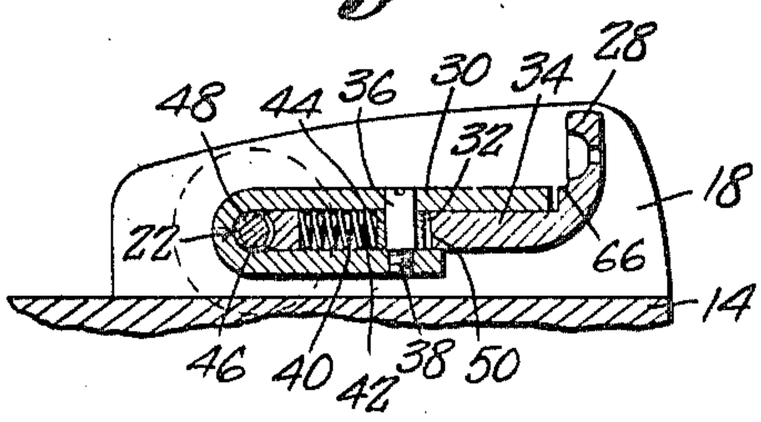


Fig. 4.



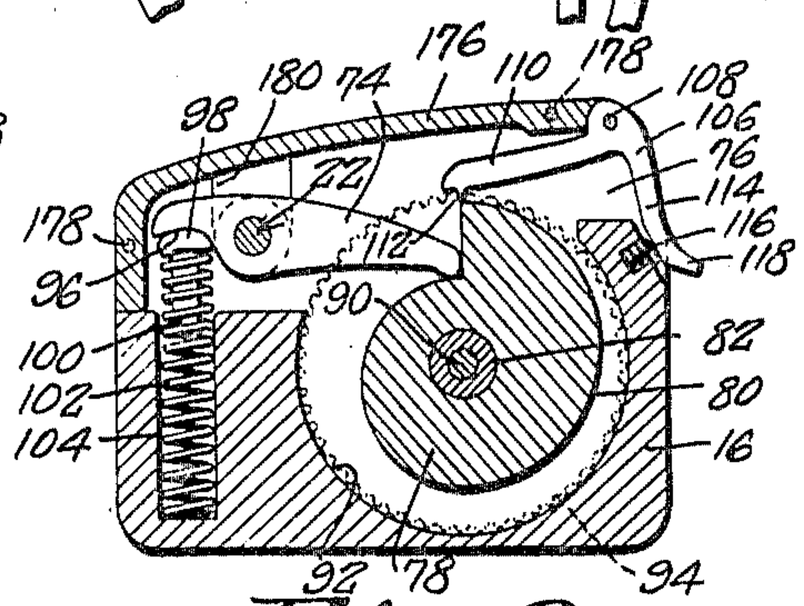


Fig. 3.

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Fig. 5.

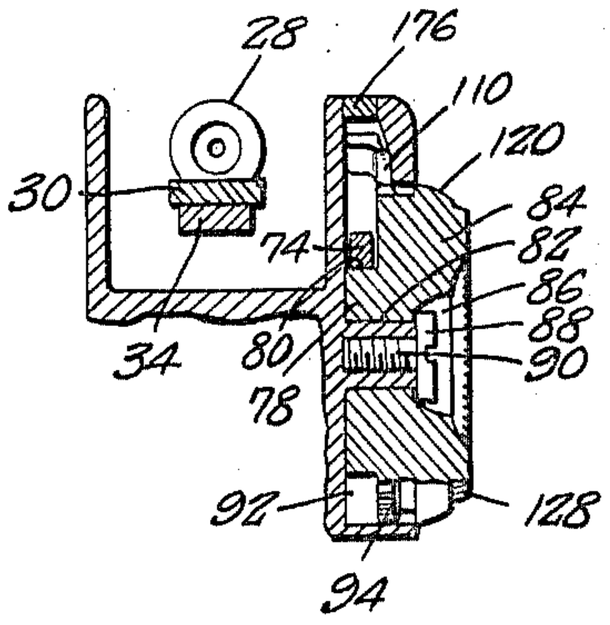


Fig. 6.

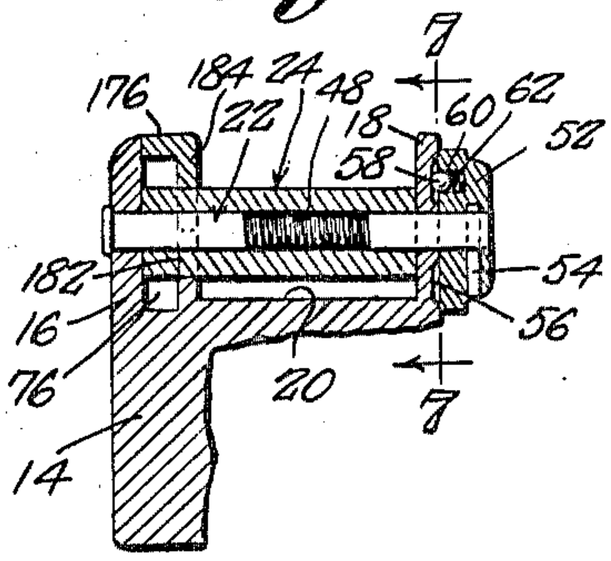


Fig. 7.

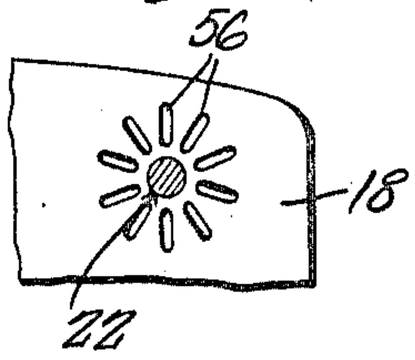


Fig. 8.

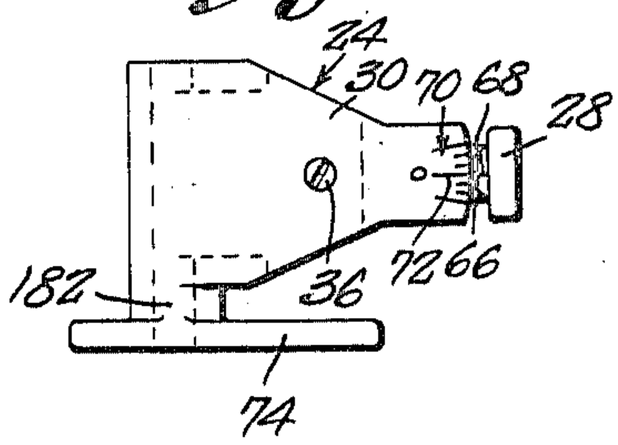


Fig. 9.

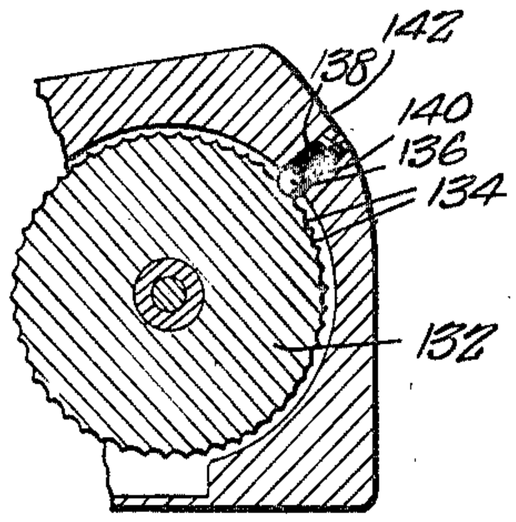
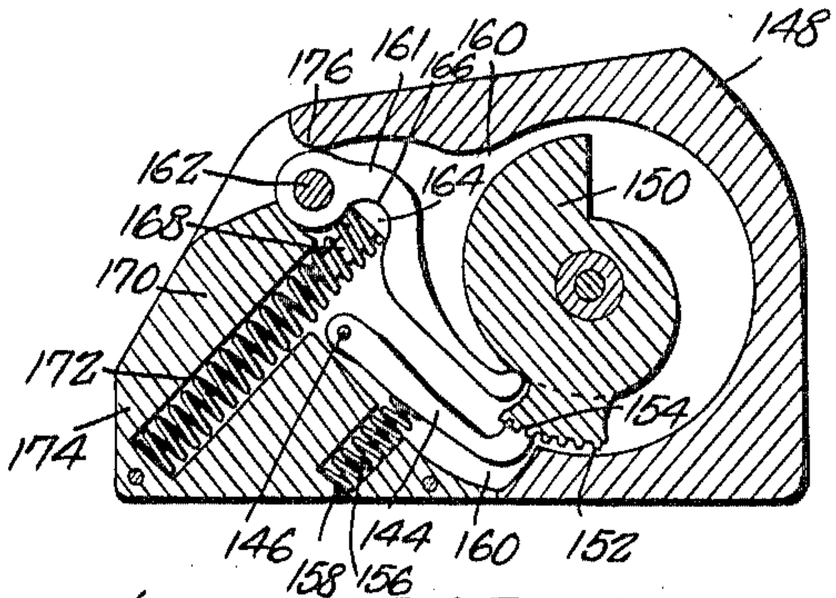


Fig. 10.



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GUN SIGHT

Carl E. Rodney, Millet, Alberta, Canada

Application November 13, 1941, Serial No. 418,999

10 Claims. (Cl. 33—56)

My invention relates to rifles, and has among its objects and advantages the provision of an improved sight embodying novel adjustments for elevation and windage.

In the accompanying drawings:

Figure 1 is a side elevational view of a portion of a rifle illustrating my invention applied thereto;

Figure 2 is a top plan view;

Figure 3 is a sectional view taken along the line 3—3 of Figure 2;

Figure 4 is a sectional view taken along the line 4—4 of Figure 2;

Figure 5 is a sectional view taken along the line 5—5 of Figure 1;

Figure 6 is a sectional view taken along the line 6—6 of Figure 1;

Figure 7 is a view taken along the line 7—7 of Figure 6;

Figure 8 is a top plan view of a portion of the sight structure;

Figure 9 is a sectional view of a modified form of elevation latch; and

Figure 10 is a sectional view illustrating a further modification in the elevation adjustment mechanism.

In the embodiment selected for illustration, the rear sight 10 is mounted in the usual place on the rifle 12. The sight structure comprises a body or support 14 having upstanding wings 16 and 18 spaced to provide a channel-shaped groove 20 extending longitudinally of the rifle. A pin 22 extends through openings in the wings 16 and 18 transversely of the groove 20. Upon the pin 22 is pivotally mounted the sight member 24, which member has engagement with the wings 16 and 18, as at 26 in Figure 2, so as to be restrained from relative longitudinal movement on the pin 22.

Sight member 24 carries the sighting element 28 and includes a body 30 provided with a slot 32 within which the right angular shank 34 of the sighting element 28 is loosely positioned to pivot about a pin 36 threadedly secured in the body 30, as at 38. Thus the sighting member 28 may be adjusted about the axis of the pin 36 for windage.

A slot 40 is provided in the shank 34 for the reception of a compression spring 42 having one end bearing against an abutment 44 mounted loosely on the pin 36 and its other end abutting the shank 34. The inner end of the shank 34 is provided with screw threads 46 meshing with screw threads 48 on the pin 22 intermediate its ends. The screw threads 46 curve concentrically about the axis of the pin 36 when viewed according to Figure 2 so that pivotal motion may be imparted to the shank 34 through rotary motion of the pin 22. In view of the spring 42, the screw threads 46 are held firmly in engagement with the screw threads 48 and provide compensation for any wear which may take place on the two sets of threads. A slight space 50 is provided between the abutment 44 and the shank 34, see Figure 4, so that the screw threads 46 may be held in firm engagement with the screw threads 48 by reason of the spring 42.

Means for imparting rotation to the pin 22 comprises a knob 52 fixedly secured to the pin by a key 54, see Figure 6. A series of grooves 56 is provided in the outer face of the wing 18 for selective reception of a latch ball 58 yieldingly pressed against the wing 18 by a compression spring 60 housed in a bore 62 in the knob 52, which bore also freely receives the latch ball 58.

In Figure 2, the body 30 is provided with an end 64 curving concentrically about the axis of the pin 36 and substantially contacting a shoulder 66 on the sighting element 28 provided with a position indicating line 68. A scale 70 is provided on the body 30 for coaction with the position indicating line 68, which scale is provided with a zero line 72 with which the line 68 is registered with firing under normal conditions which require no adjustment for windage. The scale 70 is graduated in minutes of angle.

Rotation of the knob 52 causes the latch ball 58 to be depressed against the tension of the spring 60 and snaps into the next groove 56 upon predetermined rotation of the knob. Thus the latch ball 58 clicks into position so as to provide a yielding stop as an aid to the user in rotating a knob predetermined amounts. Rotation of the knob pivots the setting element 28 to shift the line 68 relatively to the windage scale 70.

Member 30 is provided with an arm 74 operating freely in a groove 76 in the wing 16. One end of the arm 74 is arranged in engagement with a cam 78 having a cam face 80 engaging the arm 74 and spirally arranged with respect to a pivot or post 82 on which the cam 78 is mounted. The pivot 82 has a large bearing face engageable with the cam so as to provide a sturdy and good wearing pivot for the cam. Cam face 80 is also a durable one. The cam 78 is formed integrally with a knob 84 recessed at 86 for accommodating the head 88 of a screw 90 threaded into the post 82 for holding the cam against relative longitudinal movement on the pivot 82.

The wing 16 is recessed at 92 to receive the

cam 78 and a toothed flange 94 arranged concentrically of the axis of the pivot 82.

The pin 22 passes through the arm 74 intermediate the ends of the arm, with the arm end opposite the cam 78 provided with a concaved bearing face 96 engaged by a convexed head 98 on a pin 100 extended into a coil spring 102 of the compression type. A bore 104 is provided in the wing 16 for the reception of the greater length of the spring 102. Thus the arm 74 is yieldingly pressed against the spiral cam face 80.

Since the member 30 has a pivot connection only with the pin 22, the member 30 may be pivoted about the axis of the pin 22 without altering the normal or windage adjustment of the sighting element 28 with respect to the windage scale 70. This is also true of the windage adjustment. Rotation of the windage adjustment knob 52 imparts pivotal motion to the sighting element 28 independently of the elevation adjustment.

To the wing 16 and inside the slot 76 is arranged a latch member 106 in the nature of a bell crank pivotally connected to the wing at 108. The arm 110 of the latch member 106 is provided with a blade 112 engageable in the notches in the toothed flange 94 for positively latching the cam 78 against accidental rotation. Between the arm 114 of the latch member 106 and the wing 16 is interposed a compression spring 116 which yieldingly holds the latch member in the position of Figure 3, the toothed flange 94 being illustrated therein in dotted lines to more clearly show the coacting relationship between the flange and the blade 112. The extreme end of the arm 114 is shaped to provide an extension 118 projecting beyond the contour of the wing 16 to be accessible for manipulation of the latch member 106. Thus the latch member 106 may be moved to an unlatching position with respect to the toothed flange 94 by exerting pressure on the extension 118, after which the sight structure may be adjusted for elevation through rotation of the knob 84 for rotating the cam 78 in a clockwise direction when viewing Figures 1 and 3.

The knob 84 is provided with a circumferential face 120 provided with numerals 122 spaced to indicate yardage adjustment or position of the sighting element. A zero line 124 is provided on the wing 16 adjacent the face 120 so that the user may determine adjustment of the sight structure for elevation by noting the reading on the face 120 with respect to the line 124. For example, alignment of the numeral 5 of the 122 series with the zero line 124 indicates the proper sight adjustment for a range of five hundred yards. A zero line 126 is also provided on the face 120 which registers with the line 124 in the normal position of the sight structure 24 with respect to elevation. The notches in the toothed flange 94 are arranged in accordance with the spacing relation between the numerals 122 so that the blade 112 will accurately latch the cam 78 in the position to which the knob 84 is turned. The knob 84 is provided with a roughened surface 128 to facilitate an effective grip thereon.

The wing 16 is also provided with lines 130 coacting with the zero line 126 on the knob 84 to indicate sight adjustment in minutes of angle. The lines 130 may be spaced for indicating one hundred, two hundred, etc., yardage positions of the sight structure with respect to elevation.

Figure 9 illustrates a modification wherein an annular member 132 is provided with depressions 134 for selective reception of a latch ball 136 for latching the member against accidental rotation, the member 132 corresponding to the toothed flange 94. The ball 136 is yieldingly pressed against the recessed face of the member 132 by a compression spring 138 housed in a bore 140 in a wing 142 corresponding to the wing 16. Because of the latch ball 136, the member 32 may be rotated by merely exerting predetermined rotary forces on the knob attached to the member to eliminate the necessity for a latching device which must be manipulated before the knob can be turned.

Figure 10 illustrates a further modification wherein a latch arm 144 is pivoted at 146 to the wing 148 corresponding to the wing 16. The spiral cam 150 is provided with a notched flange 152 in the same manner as the cam 78, the greater part of the flange being broken away in Figure 10. The free end of the arm 144 is provided with a blade 154 selectively receivable in the notches in the flange 152.

One end of a compression spring 156 bears against the arm 144 for pressing the blade 154 into selected notches in the flange 152. The spring 156 is housed in an opening 158 in an insert 159 slipped into the slot or chamber 160.

An arm 161 corresponding to the arm 74 is loosely mounted on a pin 162 corresponding to the pin 22. Arm 161 is, of course, a fixed part with the sight structure (not shown). A convexed head 164 lies in engagement with a concaved face 166 on the arm 161. Head 164 is carried by a pin 168 inserted in a coil spring 170 of the compression type positioned in a bore 172 in the insert 159. The cam 150 and the arms 144 and 161 are located in the chamber 160.

In operating the latch structure of Figure 10, downward pivotal movement of the sight structure of the gun presses the arm 161 against the arm 144 for moving the blade 154 out of latching engagement with the notched flange 152. Thus the sight may be adjusted for elevation by depressing the gun sight with one hand and rotating the knob (not shown) attached to the cam 150.

In Figures 2 and 3, the slot 76 is closed by a cover plate 176 attached to the wing 16 by pins 178. The wing 16 is cut out at 180 for receiving the sleeve-like part 182, see Figure 8, on the body 30 which fixedly connects the arm 174 with the body. Figure 2 illustrates a projection 184 on the cover 176 which fits into the cutout or opening 180 so as to provide a complete closure for the slot 76, which communicates with the slot 92.

With further elaboration, the foregoing will so fully illustrate my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. In a gun sight, the combination of a support, a rotary pin carried by said support transversely of the line of sight, a body pivoted on said pin, a sighting element pivoted on said body for movement about an axis at right angles to the axis of said pin, said pin being provided with screw threads, threads on said sighting element engaging said screw threads to impart pivotal movement to the sighting element for windage adjustment through rotation of said pin, means for rotating said pin, and a rotary cam acting

on said body to pivot the body on said pin and adjust the sighting element for elevation.

2. A gun sight comprising a body having spaced wings, a pin rotatably journaled in said wings transversely of the line of sight, a second body pivoted on said pin and engaging said wings to be restrained from relative movement longitudinally on said pin, a sighting element pivoted on said second body for movement about an axis at right angles to the axis of said pin, said pin being provided with screw threads, threads on said sighting element engaging said screw threads to impart pivotal movement to the sighting element for windage adjustment through rotation of said pin, means for rotating said pin, and a rotary cam acting on said second body to pivot the second body on said pin and adjust said sighting element for elevation.

3. The invention described in claim 2 wherein said second body is provided with an arm yieldingly pressed against said cam, and a latch for releasably latching the cam in selected positions.

4. The invention described in claim 2 wherein said second body is provided with an arm yieldingly pressed against said cam, a latch for releasably latching the cam in selected positions, there being a chamber in one of said wings for housing said cam and said arm.

5. The invention described in claim 2 wherein said sighting element is slidably mounted on said second body, and resilient means acting on said sighting element for pressing the threads thereon against said screw threads.

6. The invention described in claim 2 wherein said cam is of spiral formation, an arm fixed to said second body, a spring yieldingly pressing said arm against said cam, a notched flange fixed to said cam, and a latch selectively engageable in the notches in the flange for latching the cam against accidental rotation.

7. The invention described in claim 2 wherein one of said wings is provided with a chamber and in which said rotary cam is located in the chamber, an arm fixed to said second body engaging said cam, said arm having an extension, spring means acting on said extension for pressing said arm against the cam, a notched flange fixed to said cam, and a latch having a blade selectively receivable in the notches in said flange for latching the cam against accidental rotation, said latch being in the nature of a pivoted bell crank spring pressed against the notched flange and having an element thereof constituting a pressure means for pivoting the blade out of holding engagement with the flange, said latch being mounted in said chamber.

8. The invention described in claim 2 wherein said cam is provided with a notched flange, a pivoted arm selectively receivable in the notches in said flange, a spring pressing against said arm, an arm fixed to said second body engaging said cam to pivot the arm through rotary motion of the cam, and a spring pressing against said second arm for yieldingly pressing the latter against said cam, said second arm being arranged to pivot in the path of said first arm to move said blade out of holding engagement with said flange upon predetermined pivotal movement of said second body.

9. The invention described in claim 2 wherein said second body is provided with a scale graduated in minutes of angle, a rotation line on said sighting element movable relatively to said scale through rotation of said pin, said means comprising a knob, a yielding latch acting on said knob and one of said flanges for releasably latching the knob in different positions, a notched flange on said cam, a latch acting on said notched flange to latch the cam against accidental rotation, an arm fixed to said second body engaging said cam, said arm having an extension, yielding means acting on said extension to press said arm against said cam, one of said flanges being provided with a pivot rotatably supporting said cam, a knob fixed to said cam, a scale on said knob graduated in minutes of angle, a mark on one of said flanges coacting with said scale to indicate the sight elevating position of said cam, and a yardage scale on one of said flanges coacting with said scale.

10. The invention described in claim 1 wherein there is provided a pin secured to said body for pivotally connecting said sighting element thereto, an abutment on said pin, a spring interposed between said abutment and said sighting element for urging the threads thereon into engagement with said screw threads, said body being provided with a slot loosely receiving a portion of said sighting element, and said sighting element being provided with a recess for the reception of said spring.

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