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Aug. 28, 1945. L. H. BROWN 2,383,466

MUZZLE MOUNTED BORE SIGHT

Filed Dec. 20, 1943

Fig. 1.

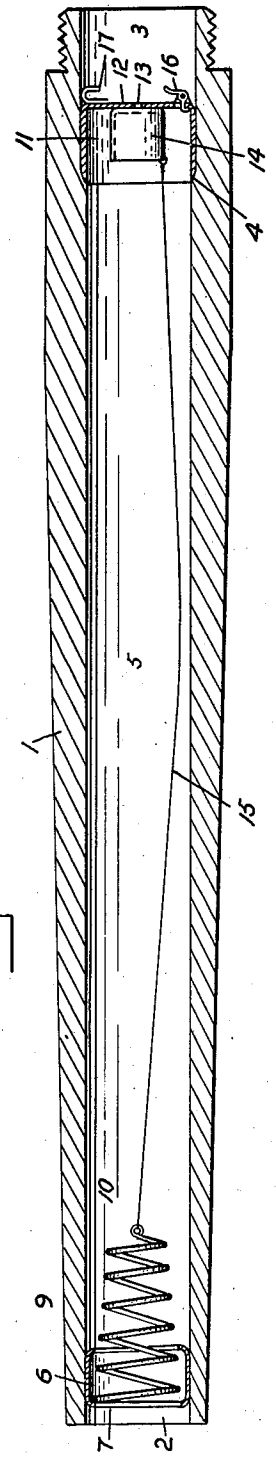


Fig. 3.

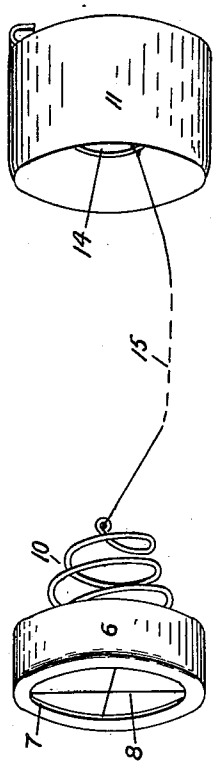
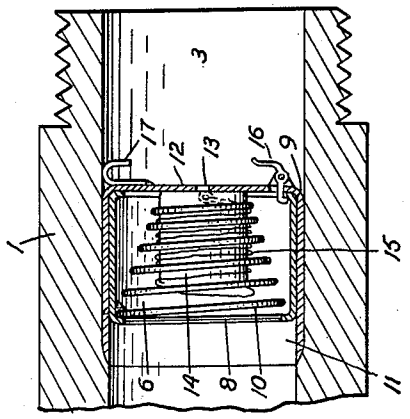


Fig. 2.



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UNITED STATES PATENT OFFICE

2,383,466

MUZZLE MOUNTED BORE SIGHT

Leo H. Brown, Glenville, Conn.

Application December 20, 1943, Serial No. 514,992

12 Claims. (Cl. 33—46)

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

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.

In the operation or bore sighting a gun, it is customary to support cross wires over the muzzle. Various devices for this purpose are known in the art. The bore sighting operation consists generally in sighting both the gun axis and an externally mounted sighting instrument on a distant object, such as a star, for the purpose of truing the instrument with respect to the gun axis. The distant object or target is sighted on the projected axis of the gun barrel by reason of the fact that the cross wires are so located that they intersect on the gun barrel axis.

The particular object is to provide a mechanical means for mounting the cross wires in the muzzle, together with a bore sight inserted in the chamber of the gun, both parts being assembled as a compact unit when not in use. The cross wires are carried by a ring adapted for insertion in a cup which carries the sighting aperture. One of the parts carries a coil spring which is compressed between the part in the assembled condition. The ring is retained under tension within the cup by means of a latch or trigger carried by the latter. In use, the assembly is inserted in the chamber of the gun and the latch or trigger then released, whereupon the ring is projected by means of a spring into the muzzle. Thus the operator need not expose himself to enemy fire while applying the cross wires to the muzzle.

An illustrative embodiment of the invention, is disclosed in the following description and in the accompanying drawing in which:

Figure 1 is a longitudinal section of a gun barrel and of the device mounted therein in its operative condition;

Figure 2 is a similar section on a larger scale, showing the device in its assembled condition, and

Figure 3 is a perspective view showing the parts in their operative position.

In Figure 1 is shown a conventional gun barrel 1 having at its forward end a muzzle 2, at its rear end a chamber 3, and a forcing cone 4 between the chamber and the bore 5. The device for supporting the cross wires in the muzzle, for the purpose of bore-sighting, is a ring 6 adapted to fit accurately in the muzzle 2 as clearly shown in Figure 1. The forward end of the ring may be flanged inwardly at 7 to carry the cross wires 8 which are so positioned that they intersect at the axis of the gun barrel for centering the bore-sighting target as stated above. The rear end of the cup 6 is also flanged inwardly at 9 for a purpose that will presently be described. A coil spring 10 has one end fixed to the ring 6 while the remainder of this spring, when unrestrained, lies outside of the ring. The purpose of the spring will also be described hereinafter.

The device for providing a sighting aperture in the chamber 3 includes a cylindrical cup 11 adapted to fit accurately in the chamber 3 and preferably against the forcing cone 4, as shown in Figures 1 and 2. The bottom 12 of the cup is disposed rearwardly and is formed with a central sighting aperture or peephole 13. Against the bottom 12 is secured a guide tube 14 disposed centrally within the cup. A string or cord 15 has its ends fastened respectively to the guide tube and to the free end of the spring 10.

The ring 6 is of such size that it may be nested within the cup 11 in assembling the parts in this manner. The spring 10 is compressed and positioned around the guide tube 14. The assembly is maintained, against the pressure of the spring, by means of a latch or trigger 16 pivotally mounted in the cup bottom 12 and adapted to hook on the rear flange 9 of the ring 6, as shown in Figure 2. Since the flange 9 extends around the entire periphery of the ring 6, no circumferential alinement of the ring with the latch is necessary.

When the bore sighting apparatus is to be used, the assembled device is inserted in the chamber 3. The latch or trigger 16 is then released from the flange 9, whereupon the compressed spring 10 projects the ring with its cross wires into its operative position in the muzzle of the gun as shown in Figure 1. The outer cylindrical surface of the ring 6 alines this portion of the device accurately in the muzzle. A finger piece 17 may be fastened to the outer surface of the bottom 12 of the cup 11 for the purpose of pulling the entire device out of the gun.

By means of the apparatus herein described, the bore sighting operation may be performed from within the protective enclosure. The operator is not required to expose himself to enemy fire by going to the muzzle of the gun for mounting the cross wires in the conventional manner. This characteristic of the invention is especially valuable in tank warfare.

While the specific embodiment of the invention has been shown and described, it will be understood that various alterations may be made

without departure from the spirit of the invention as indicated by the appended claims.

What I claim is:

1. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring carried by one of said members and positioned to be compressed on insertion of the frame member into the cup member, and a latch carried by one of said members and engageable with the other member for retaining the inserted member against the pressure of the compressed spring.

2. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring carried by one of said members and positioned to be compressed on insertion of the frame member into the cup member, a latch carried by one of said members and engageable with the other member for retaining the inserted member against the pressure of the compressed spring, and a cord having its ends connected respectively to said members.

3. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring carried by one of said members and positioned to be compressed on insertion of the frame member into the cup member, a latch carried by one of said members and engageable with the other member for retaining the inserted member against the pressure of the compressed spring, and a guide for said spring carried by the member in which the spring is to be inserted.

4. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring having one end fastened to said frame member and adapted to be compressed on insertion of said frame member into said cup member, and a latch carried by said cup member and engageable with said frame member for retaining the latter against the pressure of the compressed spring.

5. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring having one end fastened to said frame member and adapted to be compressed on insertion of said frame member into said cup member, a latch carried by said cup member, and an inward flange on said frame member engageable by said latch for retaining said frame member against the pressure of the compressed spring.

6. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring having one end fastened to said frame member and adapted to be compressed on insertion of said frame member into said cup member, a latch carried by said cup member and engageable with said frame member for retaining the latter against the pressure of the compressed spring, and a cord having its ends connected respectively to said members.

7. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring having one end fastened to said frame member and adapted to be compressed on insertion of said frame member into said cup member, a latch carried by said cup member, an inward flange on said frame member engageable by said latch for retaining said frame member against the pressure of the compressed spring, and a cord having its ends connected respectively to said members.

8. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring having one end fastened to said frame member and adapted to be compressed on insertion of said frame member into said cup member, a latch carried by said cup member and engageable with said frame member for retaining the latter against the pressure of the compressed spring, and a guide for said spring carried by said cup member.

9. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, a cup member adapted to be fitted in the chamber of the gun and of such size as to receive said frame member, said cup having a sighting aperture through its bottom, a spring having one end fastened to said frame member and adapted to be compressed on insertion of said frame member into said cup, a latch carried by said cup member, an inward circular flange on said frame member engageable by said latch for retaining said frame member against the pressure of the compressed spring.

10. A bore sighting device comprising a frame member adapted to be fitted in the muzzle of a gun, cross-wires carried by said member, an apertured sighting member adapted to be fitted into the chamber of the gun, said members being shaped to be assembled one to the other, a spring carried by one of said members and positioned to be compressed when said members are assembled together, and a latch carried by one of said members and engageable with the other member for retaining said members in mutually assembled condition against the pressure of the compressed spring.

11. A bore sighting device comprising a front sight means constructed and arranged to fit within the muzzle end of a gun, a rear sight means constructed and arranged to fit within the chamber of the gun, said two sight means telescoping one within the other, and resilient

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means for biasing said sight means away from each other.

12. A bore sighting device comprising a member constructed and arranged to fit within the muzzle end of a gun, a second member constructed and arranged to fit within the chamber of the gun, both of said members being insertable into the chamber of the gun from the breech end thereof, means for pushing the said first mentioned member from the chamber to a position in the bore of the gun remote from the chamber of the gun while the said second member remains within the said chamber, and sighting means on each of said members which lie substantially in the axis of the gun when the said first mentioned member has been pushed away from the said second mentioned member.

LEO H. BROWN.