

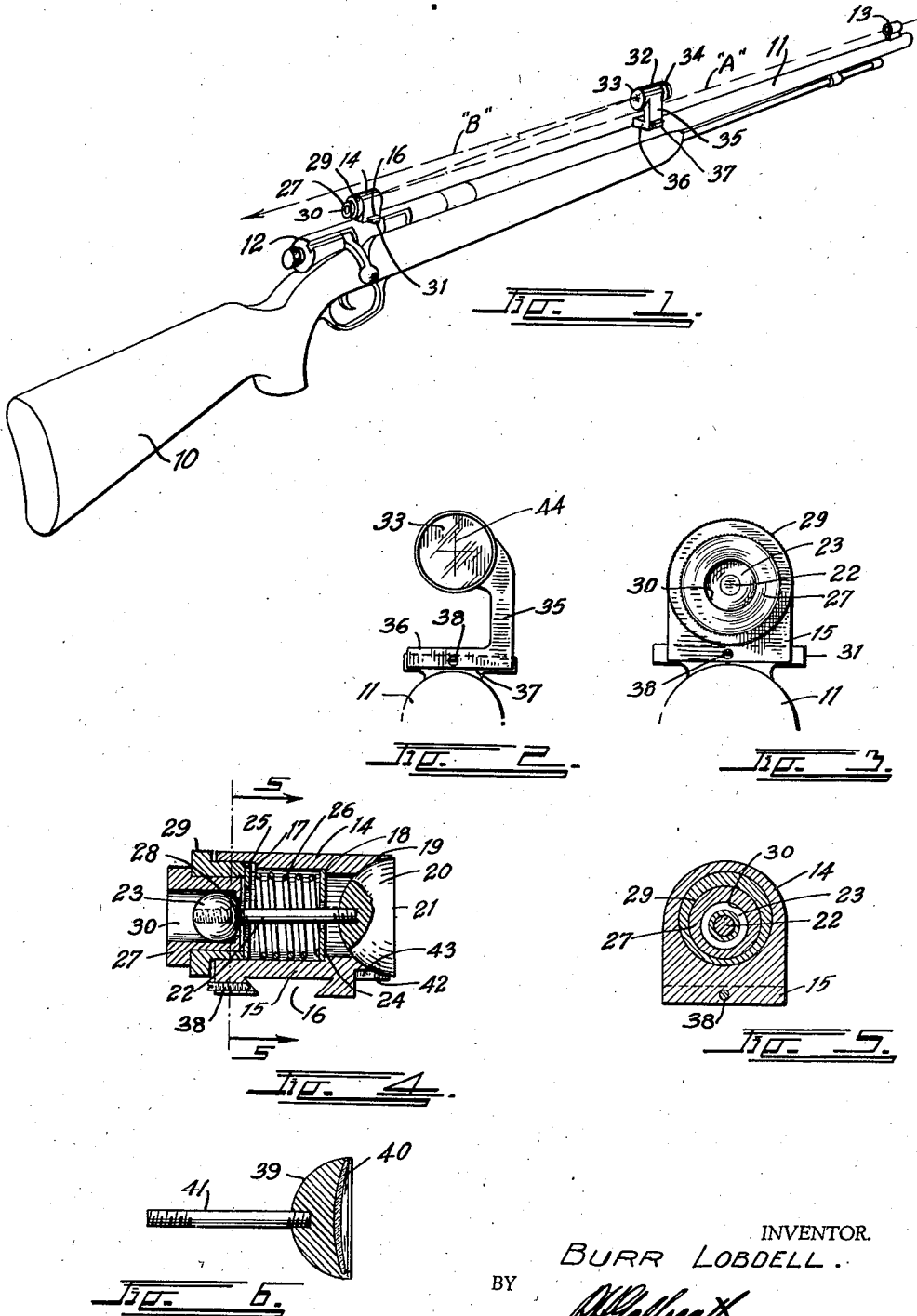
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GUN SIGHT

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## GUN SIGHT

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8 Claims. (Cl. 88—97)

This invention relates to a gun sight and has for its principal object the provision of a device which will increase the apparent length between the sights on a rifle so that much more accurate shooting may be had.

The usual rifle has a front and rear sight. The greater the distance between these two sights, the greater will be the accuracy of shooting. Attempts have been made to place the rear sight on the stock of the rifle close to the shooter's eye in order to obtain greater distance, but in any event, this distance has been limited by the length of the rifle. With this invention, however, the effective distance between the rear and front sights can be increased far beyond the rifle length without any projecting attachments.

Another object of the invention is to provide a reflecting sight in which an exceedingly accurate adjustment can easily be obtained and permanently maintained.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a perspective view of a typical rifle, illustrating the improved sight in place thereon;

Fig. 2 is a rear view of the front sighting member;

Fig. 3 is a rear view of the rear sighting member;

Fig. 4 is an enlarged, longitudinal section through the rear sighting member;

Fig. 5 is a cross section through the rear sighting member, taken on the line 5—5, Fig. 4; and

Fig. 6 is a detail view illustrating an alternate type of reflector.

In Fig. 1 a typical rifle has been illustrated with its stock at 10, its barrel at 11, its receiver at 12, and its front sight at 13. The front sight 13 may be any standard front sight. No change is made therein in adapting the rifle for this invention.

The improvement consists in placing a reflecting device at the receiver extremity of the rifle from which an image of the front sight and the target will be thrown to a second reflecting device positioned in an intermediate position on the

barrel. This image is projected from the second reflecting device to the eye of the shooter.

The interior construction of both sighting members is the same and this construction will be described with reference to the rear sighting member. The rear sighting member comprises a cylindrical shell 14 formed with a flat base 15. A dovetailed groove 16 is cut transversely of the base 15.

The rear sighting member is mounted on a suitable dovetailed block 31 secured to the barrel 11 or its receiver.

The shell is formed with two internal shoulders 17 and 18 so that it decreases in internal diameter as the rear extremity is approached. The front extremity of the shell is formed with a spherical concave seat 19.

The reflector comprises a hemispherical block 20 having a front reflecting surface 21. The block 20 seats perfectly in the spherical seat 19 of the shell 14. A threaded shaft 22 is tapped into the rear surface of the block 20 and extends rearwardly on a radial line therefrom through the shell 14 terminating in a ball nut 23.

A first retaining washer 24 is seated on the shoulder 18 and a second retaining washer 25, of larger diameter, is seated on the shoulder 17. Both of these washers have enlarged medial openings for the passage of the shaft 22. A compression spring 26 constantly urges the washer 25 away from the washer 24.

The ball nut 23 is seated within a ball socket 30 in a flanged inner bushing 27 having a ball seat 28. The inner bushing 27 is rotatable within a flanged outer bushing 29 against which the washer 25 is constantly forced by the expansion of the spring 26. This spring action constantly holds the outer bushing against the flange of the inner bushing.

It is desired to call attention to the fact that the inner bushing 27 is eccentrically mounted within the outer bushing 29 and that the ball socket 30 in the inner bushing is positioned eccentrically of the latter. Thus, rotation of either bushing 27 or 29 will swing the ball in a concentric circle about the axis of the shell 14 and by proper relative rotation of the two bushings the ball may be brought from a concentric position to any desired degree of eccentricity. The two bushings are preferably knurled, as illustrated, to facilitate turning and both are constantly frictionally retarded by the action of the spring 26 so that they can not be accidentally or unintentionally rotated.

The front sighting member comprises a shell

32 of smaller diameter than the rear shell 14. As before stated, the interior construction of the front sighting member is similar to that described with reference to Fig. 4. The rear face of the shell 32 contains a hemispherical, reflecting block 33, similar to but smaller than the block 20, and at its forward extremity is provided with two rotatable adjusting bushings 34, similar to the previously described bushings 27 and 29.

The shell 32 is supported on an arm 35, positioned to one side of the center line of the rifle and terminating at its bottom in a dovetailed base member 36. The base member 36 is secured in a dovetailed block 37 which in turn is secured to the rifle barrel 11. Both shells can be set in any desired position on their base members 31 and 37 by means of suitable set screws 38.

In use, the bushings 27 and 29 of the rear sighting member are adjusted so as to throw an image of the front sight onto the reflecting block 33, and the bushings 34 are adjusted to reflect the received image directly back over the top of the rear shell 14 to the shooter's eye. It can be readily seen that the length of the sighting line is increased by double the distance between the front and rear sighting members so that an exceedingly long sighting line may be obtained.

In the embodiments described, the reflectors are formed by highly polishing the flat faces of the hemispherical blocks 20 and 33. These blocks may be of plastic, stainless steel, or other suitable material which will take and maintain a high polish. The reflectors could be manufactured as illustrated in Fig. 6, in which a hemispherical block 39 is employed with a disc 40 of glass, lucite, or similar material inset, cemented or otherwise secured thereto. The surface of the disc 40 may be silvered, aluminumized, or otherwise treated to provide a reflecting surface. The block 39 is, of course, provided with a threaded shaft 41 to receive a ball nut to attach it to the sighting members. The reflecting surface of both types may be either plane, as shown in Fig. 4 to produce a natural image, or may be convex or concave as shown in Fig. 6, to produce a magnified image so as to give a telescopic effect if desired.

The reflecting blocks 20, 33, and 39 are each provided with a pin 42 or other projection which rides in a longitudinally extending guide slot 43 in the shell to prevent rotation of the blocks. The reflecting surface of the front block 33 is provided with cross lines 44 to be aligned with the front sight 13 of the rifle for sighting purposes.

It will be noted that the line of the sight between the front sight 13 and the rear reflector passes beneath the front shell 32, as indicated by the broken line A in Fig. 2 and that the line of the sight from the front reflector 33 passes over the rear shell 14, as indicated by the broken line B, in Fig. 1.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. In a reflecting gun sight, a tubular shell; a spherical seat in one extremity of said shell; a

hemispherical block having its spherical side resting in said seat; a flat, polished reflecting surface formed on the front on the exposed face of said block; a shaft secured to and extending rearwardly within said shell from said block said shaft being perpendicular to said flat surface; and means for swinging said shaft in a conical path about the axis of said shell to gyrate said block on its spherical seat to adjust the position of the reflecting surface.

2. In a reflecting gun sight, a tubular shell; a spherical seat in the forward extremity of said shell; a hemispherical block having its spherical side resting in said seat; a first reflecting surface on the forward face of said block; a shaft secured to and extending rearwardly within said shell from said block perpendicular to said surface; and eccentrically rotatable means for supporting the rearward extremity of said shaft so that the latter may be swung in a circle in said shell to oscillate said block on its seat to vary the position of the reflecting surface; and means for preventing rotation of said block.

3. In a reflecting gun sight, a tubular shell; a spherical seat in one extremity of said shell; a hemispherical block having its spherical side resting in said seat; a reflecting surface on the forward face of said block; a shaft secured to and extending rearwardly within said shell from said block; a ball on the projecting extremity of said shaft; and a rotatable bushing supporting said ball, said ball being positioned eccentrically of the bushing so that rotation of the latter will swing said shaft.

4. In a reflecting gun sight, a tubular shell; a spherical seat in one extremity of said shell; a hemispherical block having its spherical side resting in said seat; a reflecting surface on said block; a shaft secured to and extending rearwardly within said shell from said block; a ball on the projecting extremity of said shaft; a rotatable bushing supporting said ball, said ball being positioned eccentrically of the bushing so that rotation of the latter will swing said shaft; and an outer bushing supporting said first bushing, said first bushing being eccentrically mounted in the outer bushing.

5. In a reflecting gun sight, a tubular shell; a spherical seat in one extremity of said shell; a hemispherical block having its spherical side resting in said seat; a reflecting surface on the exposed face of said block; a shaft secured to and extending rearwardly within said shell from said block; a ball on the projecting extremity of said shaft; a rotatable bushing supporting said ball, said ball being positioned eccentrically of the bushing so that rotation of the latter will swing said shaft; and spring means for urging said bushing against said ball to force said block to its seat.

6. In a reflecting gun sight, a tubular shell; a spherical seat in one extremity of said shell; a hemispherical block having its spherical side resting in said seat; a reflecting surface on the exposed face of said block; a shaft secured to and extending rearwardly within said shell from said block; a ball on the projecting extremity of said shaft; a rotatable bushing supporting said ball, said ball being positioned eccentrically of the bushing so that rotation of the latter will swing said shaft; a retaining washer in said shell about said shaft; and a spring compressed between said washer and said bushing to draw said block into its seat.

7. A reflector mounting for gun sights of the

reflecting type comprising: a tubular shell;  
means for securing said shell to a gun; a plane  
reflector; a spherically rounded back on said re-  
flector fitting against one extremity of said shell;  
a threaded shaft extending radially from said  
rounded back into said shell; a nut on said shaft;  
and a spring acting against said nut to hold said  
rounded back resiliently against said extremity  
of said shell.

8. A reflector mounting for gun sights of the  
reflecting type comprising: a tubular shell;  
means for securing said shell to a gun; a plane

reflector; a spherically rounded back on said re-  
flector fitting against one extremity of said shell;  
a threaded shaft extending radially from said  
rounded back into said shell; a nut on said shaft;  
a spring acting against said nut to hold said  
rounded back resiliently against said extremity  
of said shell; and means on the other extremity  
of said shell for swinging said shaft to rotate  
said rounded back in the other extremity of said  
shell.

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