

Using the M1905 Sights on the M1903 Rifle

Objective:

The objective of this document is to provide a reference document about how to use the M1905 sight found the Model of 1903 rifle. Shooters new to this rifle are often confused about how to use the various aiming options available on the sight assembly. As time progresses, fewer and fewer people at local ranges are familiar with the rifle sights, thereby leaving new shooters frustrated and misinformed.

This document isn't intended to be a collector's guide or a history lesson. Nor is it meant to extol the benefits or detriments of the sight compared to other systems. Hopefully it will give the new shooter the confidence to try the sights and perform with confidence and knowledge. This document will not discuss sight picture, hold, marksmanship, or other accurizing topics.

Identification:

Perhaps the best place to start is with the identification of the various aspects and features of the sight. It is important to note that in over 35 years of production of the M1905 sight, some small changes were made. Your particular sight might be missing some of the features or look slightly different than the illustrations here. Those differences are irrelevant to the operation and use the sight.

Figures 1 and 2 show the sight assembly in both the open (raised) and closed (lowered) positions. The rifle can be aimed with the sight in either configuration. Significant parts are labeled.

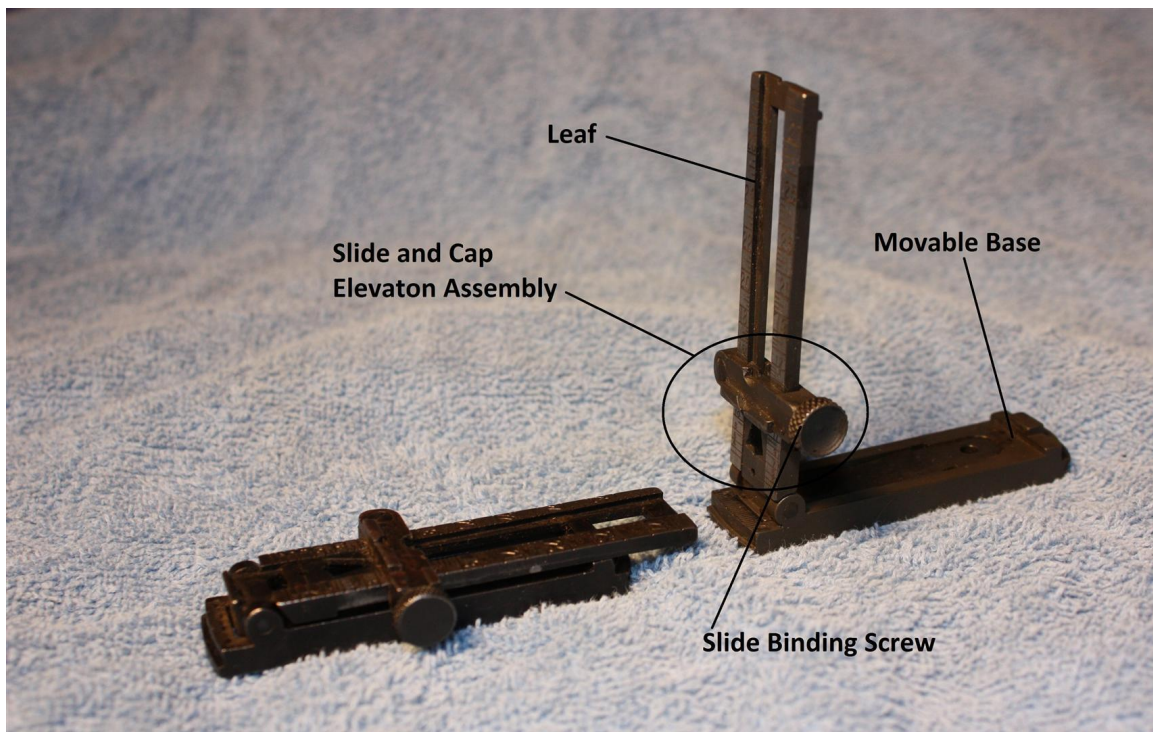
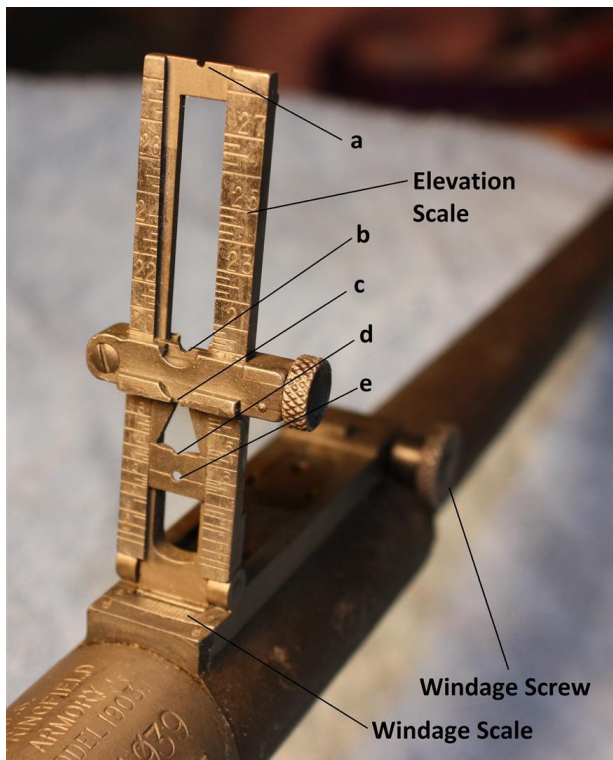


Figure 1

These terms should allow you to converse easily with other shooters with good consistency of understanding.

Figure 2 details the various aiming apertures and other features. The key gives more detail about each.



KEY: a) Volley notch for 2850 yd
b) "U" notch 1400 to 2750 yd
c) Battle sight notch 547yd
d) "U" notch 100 to 2475 yd
e) Peep sight 100 to 2375 yd

It is important to note that the battle sight notch is only usable in the down or closed position of the sight leaf.

The windage screw is really a worm gear that meshes with teeth cut into the movable base. The windage scale provides reference marks for windage adjustments. Each line is referred to as a "Point" and represent about 4 minutes of angle each.

The elevation scale is marked in hundreds of yards of distance to the target. The scale approximates the bullet drop of M2 ball ammunition.

Figure 2

Use of the sight apertures:

Choosing the aiming aperture is a function of both need and preference. Battle sight "c" can only be used with the leaf down and its elevation cannot be adjusted as the leaf lies perfectly flat in the down position such that moving the slide cap elevation assembly has no effect on shot placement when using the battle sight. It is conducive to quickly placing shots on tall targets at many distances by aiming in the middle of the target.

When the sight leaf is open or up, there are as many as 4 aiming apertures. "a" is a fixed sight and is not commonly used nor present on many sights. Notch "b" is adjustable but its adjustment range is still significantly further than most public ranges can accommodate. This leaves "d" and "e" as the most frequently used aiming points. Peep hole "e" is considered to be the most precise and is most similar to modern iron sights using the peep and post. (The post is the front sight blade) Sometimes persons with poor vision struggle with the peep, and prefer to use the notch "d"

Adjusting the Sights:

The M1905 sight differs from many sights of the period and those that came after it. Specifically, it lacks detent positions, or "clicks". This attribute can be an advantage or detriment depending on your point of view. This will be discussed at a later point in the advanced use section.

Windage adjustments are made via the Windage Screw and turning it controls the point of impact from left to right. Turning the knob in the clockwise direction will shift the point of impact to the left.

Turning the opposite direction will move the point of impact right. The adjustment is quite sensitive in that a very slight turn of the windage screw will move the bullet strike point quite a bit. Adjustments in windage are done the same way for any aperture a, b, c, d, or e.

Elevation adjustments for “b, d, and e” are made by loosening the Slide Binding Screw counter clockwise and then moving the entire Slide and Cap Elevation Assembly up or down and then re-tightening the screw. If the sight is in good repair, the binding screw does not need to be over tightened. Going up will raise the point of impact. The elevation scale is particular to M2 ball ammunition as mentioned before, but most any modern 30-06 ammunition between 145 and 168 grains will be fairly close for an as issued M1903. Simply align the aperture of choice with the desired distance and then fine tune the elevation as needed. Both the “d” and “e” sights have horizontal lines that extend to the edge of the scale to help with alignment.

Advanced Sight Use:

The preceding sections have illustrated that the M1905 sight for the M1903 rifle is really not too difficult to use. This section will provide more detail about aspects of the sight and how to achieve more precise sight settings.

Any mechanical system, especially those that must move and slide together need sufficient clearances to move freely. Additionally, any manufactured component will have a tolerance of minimum and maximum dimensions that are deemed acceptable for proper function. These clearances and tolerances combine to produce backlash or “slop” in the system. In the M1905 sight the primary areas of tolerance fit as related to sight precision are in the windage screw worm gear, and the vertical play in the connection between the elevation slide plate and the boss that connects it to the Elevation Slide Cap Assembly. Luckily there are some simple techniques to minimize the effect of these variations and they are as follows:

Elevation: Vertical point of impact adjustments should be made by moving the Slide and Cap Elevation Assembly **up** to the new position. For example, if you are going to move the sight position from 100 yards to 200 yards, simply loosen the Slide Binding Screw and slide the Assembly to the new position and re-tighten the binding screw. However, if you need to move from 200 yards to 100 yards, move the Elevation Assembly down past 100, and then back up to 100 before re-tightening the screw. This simple procedure will make sure that any play in the sight is always accounted for in the exact same way.

Since the elevation adjustment isn’t controlled by specific detent increments, the shooter isn’t limited to a pre determined incremental move (1, ½, ¼,...MOA). The best method for taking advantage of this feature is to use a sight micrometer such as the one shown in Figure 3. Even though the micrometer shown has incremental clicks, it is possible to stop anywhere between the clicks and lock the sight in place. The scale resolution on the device shown is good enough to easily make ¼ min adjustments with relative ease.



Figure 3

Windage: One of the most frequent points of concern by new shooters is the “play” in the movable base. The movement specifically in question is exclusively in the R-L directions of windage adjustment. Pressing the movable base in the opposite direction shown in Figure 4 will cause the base to move to the right until the windage screw spring is fully compressed. A properly functioning sight will return to the starting windage setting when the pressure is released. This movement is by design and is indicative of a correctly functioning sight. Any other movements in the movable base or leaf are likely the result of the fit or condition of the components in the sight assembly and are not germane to this document.

Horizontal point of impact adjustments should be made by rotating the Windage Screw in the counter clockwise direction (P.O.I. will be moving left to right). If you need to move the P.O.I. the other direction, you should adjust past where you want to be and then adjust the bullet strike from left to right. However, it should be noted that there is an alternative method for making a right to left adjustment. Simply apply a very small clockwise turn on the Windage Screw and then nudge the moveable base near the scale to the left as shown in Figure 4. The nudge will make sure the Windage Screw Spring has overcome the friction in the rest of the mechanism to properly mesh the teeth.

As a closing point, you may have noticed that the milled recess in the sight leaf seems to drift to the left as the yardage scale increases as shown in figure 5. This ingenious feature automatically corrects for the natural procession to the right of the bullet as travels and significantly reduces the need for windage corrections at longer distances.



Figure 4

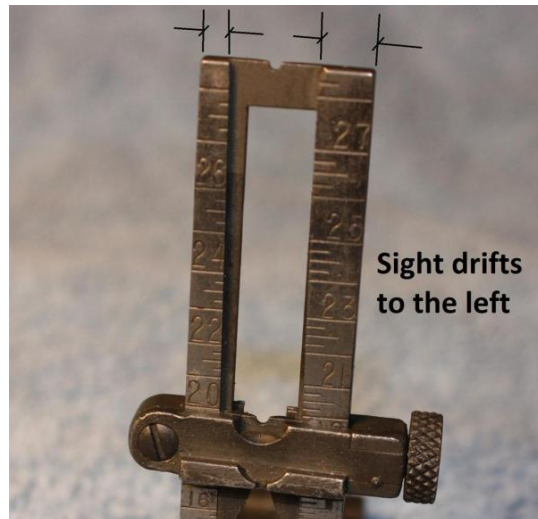


Figure 5

Appendix A: Reference Documents

Col. Moss, Jas. A. M1903 Private's Manual. Menasha, Wisconsin: George Banta Publishing Co., 1918

United States Rifle, Cal .30, Model 1903 Manual. 1904.

Colvin, Fred H; Viall, Ethan. United States rifles and machine guns: a detailed account of the methods used in manufacturing the Springfield, 1903 model service rifle; also descriptions of the modified Enfield rifle and 3 types of machine guns. New York: McGraw-Hill, 1917

Appendix B: Revisions

March 5, 2012 Draft

March 19, 2012 Corrected Slide Binding Screw nomenclature

April 9, 2012 Added paragraph about windage play being normal