



### THE LYMAN No. 2 TANG SIGHT

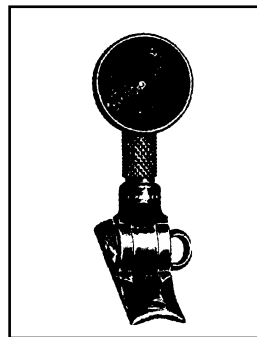
The Lyman Gun Sight Company was founded in 1878 on the invention of William Lyman. That invention was the Tang-mounted Peep Sight, unequalled on the target range or in the field. Its introduction not only created a company, but set the standard for shooting accuracy for years to come.

#### History of the Aperture Sight

Most shooters probably think of the rear aperture sight as a development of the last eighty or ninety years. In fact, the rear aperture sight was first used by the ancient Romans on their cross bows.

When firearms first came into use, sights of any kind were more or less superfluous, especially on weapons such as the blunderbuss, and it is for this reason that guns were pointed rather than aimed. With improvements in the barrels, especially with the introduction of rifling and the ability to shoot accurately at comparatively long ranges, came either a resurrection or re-discovery of the rear aperture sight and in the last century some crude attempts were made at an elevating rear aperture sight. These usually consisted merely of screws flattened on the end with a small hole drilled in this flat portion. The elevation was obtained by turning this screw in the stock, one-half rotation giving an elevation equal to one-half the pitch of the thread. Later, sights were manufactured with the base that screwed to the tang and to which perpendicular slides were attached on which the aperture rode. This type of sight was not positive in adjustment, and in fact, could not be said to be superior to the crude screw mentioned above.

The rear aperture sight was in this condition up to the latter part of the eighteen sixties and early part of the eighteen seventies. At this time, through our Civil War and through the European wars, the art of gun and ammunition making received great impetus at the range as well as the accuracy of the weapons was



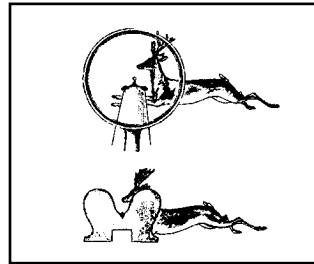
greatly increased. The old long barreled rifles were replaced with the shorter and more modern ones. This entailed a reduction of the sight radius; i.e., the distance between the front and rear sights, which naturally did not tend to increase accuracy of aim, for it is well known that decreasing the sight radius increases the error of holding a proportionate amount.

Accordingly, several hunters set to work to discover some way of increasing the sight radius. The v-notch sight was eliminated, because it was found impossible to use it much nearer than 12 or 14 inches from the eye, and attention was turned to the rear aperture sight.

#### **The Lyman Combination Rear Tang Sight**

Several models of rear aperture sights were made which were more or less successful, but it remained for William Lyman to develop and perfect the celebrated Combination Rear Tang Sight that became the standard for all rear aperture sights. Shooters and hunters should note that the principle of the rear aperture sight is as valid today, as it was when it was invented in 1878.

The optical principle involved in these sights was entirely new in its application, and is more easily seen than explained.



When aiming, the sight has the appearance of a ring or hoop, which shows the front sight and the object aimed at without blocking the view of the target. This figure gives an approximate idea of how the sight appears when aiming. It will be noticed that the top of the rifle barrel and the front sight are seen as distinctly as if no rear sight was used. It shows how the common open sight appears when aiming. The most important part of the view is shut out and

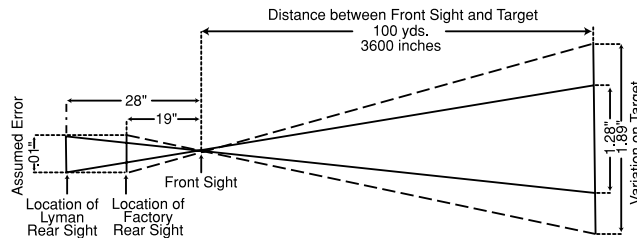
the shooter has great difficulty quickly getting the front sight in the notch of the rear sight. The aperture of the Lyman Tang Sight, being very near the eye, is greatly magnified as compared with the notch in the common open sight mounted a foot or more away. This feature gives the impression that an aperture that looks so large cannot allow an accurate aim.

In fact, the reverse is true. The larger this aperture looks, the more accurate the aim. The aperture could be made larger and still be accurate; in fact some shooters prefer the Large aperture reamed out to 5/32" for wing shooting. The center of this large aperture allows the same degree of light to reach the eye as the light present outside of the sight. The light slightly, but gradually, diminishes as the rim of the aperture is approached. This center of stronger light partly explains the fact that the eye takes care of itself when no attention is paid to the sight, and naturally centers itself on the strongest light, the center of the aperture. With this sight it is possible to keep both eyes open. It takes a little practice, but when both eyes are open the right eye does the aiming while the left eye sees everything except the rear sight. The great feature is that the eye is guided without any change in focus or effort. The reason is that the pupil of the eye is about the same diameter. With ordinary sights the eye has to look at three things, i.e., the rear sight, the front sight and the target, and when aiming it must change its focus at least once. The eye can see only one of these objects distinctly at a time, but as it has the power of accommodation, i.e., changes its focus by flattening or thickening its lens at will, it first observes the relation of the front sight with the rear sight. Then it must look ahead, changing this focus to observe the front sight and the target. When in this last position the front sight and the rear sight are seen together more or less indistinctly against the object which then has the eye focus.

The following are some of the advantages of this sight over all other rear sights. With this sight almost instantaneous aim can be taken, for the object is sighted as if only the front sight were used. This sight cannot shut out the view of the front sight, nor the object to be aimed at; while with any other rear sight the chief difficulty in aiming is to bring the sights and the object quickly into line without interfering with the view of the front sight or the object. This sight can be used when the light becomes too dim to use any other rear sight, hence its great value in the woods or late in the day. Old eyes that can no longer use the v-notch sights can use this sight and shoot better than they ever could with a common sight.

### GREATER SIGHT RADIUS—GREATER ACCURACY

The accuracy of rifles is in a large measure controlled by the distance between front and rear sights. It is evident that a Lyman Rear Tang Sight placed on the tang of the rifle instead of in the usual position of the factory sight, i.e., on the barrel, will greatly increase the distance between the front and rear sights. This distance is sometimes known as the "Sight Base" or "Sight Radius". This principle, which is utilized in all Lyman Rear Tang Sights, greatly increases the accuracy of the rifle and decreases the inaccuracy due to over or under shooting as well as lateral variation, to which the shooter is liable when using open sights.



The diagram above shows how a longer "Sight Radius" affects the accuracy of your shooting. An average increase of 11" in "Sight Radius" translates into 32% greater inherent accuracy at 100 yards. This greater inherent accuracy is proportional to the target range, i.e., 32% at 100 yards, 64% at 200 yards, 128% at 300 yards etc. It is easy to understand why all match target rifles use a rear aperture sight mounted as far to the rear as possible.

### DIRECTIONS For Installing and Using the Lyman Combination Rear Tang Sights

#### **WINCHESTER MODELS 94, 1894, 1866, 1885, 1890, 1892, 62, 62A**

Some older model 94's and the newer 1894 centennial rifles are drilled and tapped for the upper tang screw. Other model 94's will have to be drilled and tapped for the 10-32 upper mounting screw. This can easily be accomplished by

your gunsmith. After drilling and tapping, remove the lower stock screw. Place the sight on the tang over the screw holes. Replace the lower stock screw with the longer screw through the lower tang mounting hole. Do not tighten. Screw in the short upper tang screw and tighten both screws evenly. **Does not fit pistol grip models.**

**Note: Imported copies of Winchester models often use metric threads and will not accept the long tang screw supplied with this sight. Such imports would include Rossi, Navy Arms, and others. On some rifles, the original tang screw will be long enough to use. If not, longer metric screws are not available from Lyman, and the sight cannot be used.**

The loop on the side of the sight is made to duplicate the appearance of the original #2 Tang Sight. It is a cosmetic feature only.

#### **MARLIN MODELS 336, 30, 1895, 1894**

**Installation of the Tang Sight on Marlin Lever Action Rifles must be precise so that the Tang Sight is perfectly centered in the cutout in the rear of the bolt when the bolt is in the full open position.**

It is necessary to use the supplied adapter block so that the serial number on the upper tang is not damaged and the height is correct. Three screws are supplied with this model. All Marlin lever actions must be drilled and tapped for the middle adapter screw. Remove the lower stock screw, insert the new longer stock screw to align the adapter on the tang. Mark the location of the center adapter screw on the tang. It should be drilled and tapped for one of the short 10 - 32 screws supplied. Once drilled and tapped, align the adapter with the long rear stock screw. Tighten the adapter in place with the center adapter screw. Remove the stock screw used for alignment. Place the tang sight on top of the adapter, insert the stock screw in place and tighten slightly. Insert the front tang screw. Tighten both the front and rear tang screws evenly.

#### **ALIGNMENT & SIGHTING**

After screwing the sight to the tang, turn the sight up so that the spring in the joint holds it in position for shooting. If the tang is not true and allows the sight to lean to one side, loosen the screws and put a strip of thick paper under the side of the base to align the sight with the front bead. The front sight can also be moved slightly to assist in alignment of the sights. **Notice - on some rifles a taller front sight may be required.**

**MARLIN MODEL 1895-** The Marlin model 1895 has a heavy barrel which increases the height of the front sight. When sighting raise the Tang Sight 5 notches or approximately .200. This will effectively zero the rifle.

The rear open sight should always be removed from the rifle barrel. A large proportion of those using the tang sight fail to receive half the benefit from it that they should because they will not take off the middle sight which stands directly in the way of a large part of the view. This open rear sight can be replaced by the Lyman No. 16 folding leaf sight or the slot on the barrel can be filled with a Lyman No. 12 blank.

Sight the rifle at a target by adjusting the front sight sideways and the rear sight by its elevation.

#### **Adjusting Sight for Elevation**

To adjust the sight for elevation, turn both knurled sleeves at the same time. Turning the sleeves clockwise will raise the sight, counter-clockwise will lower the sight. Once the correct elevation is found, turn the sleeves in opposite directions so they lock against each other. This will lock the elevation post in place and prevent any movement.

The graduated scale which is on the sight stem does not indicate particular distances and therefore can be used only after the gun had been tried. Shoot first at nearly point-blank range, say 50 yards, noting the graduated marks on the scale; then shoot at 75, 100, 150 and 200, noting each distance on the sight, and if necessary putting on additional marks, so that the scale will be understood.

Use the large aperture for most shooting, and for quick work shoot with both eyes open. In hunting it is seldom necessary to change the elevation of the sight, for the front sight can be held a trifle high on the object when taking a long shot. When shooting at running game such as deer, the sight can be elevated by a turn of the knurled sleeve without removing the eyes from the game or the rifle from the shoulder. This gives one a great advantage when using a magazine rifle.

After adjusting the sights carefully, turn down the rear sight and shoot at some near object, using only the front sight, as one would with a shotgun. It will become apparent at once how easy rifle shooting would be if one had to use only the front sight, but of course to hit the mark one must use the rear sight.

Now turn up the rear sight with large aperture and continue shooting, only giving attention to the front sight and the object, and it will be found that aiming is as easily done as it was with the front sight alone. You are now capable of using your rifle accurately as well as rapidly.

**Note: The small set screw holds the elevation pod assembly together and has been factory set: DO NOT ATTEMPT TO LOOSEN.**

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