No. 787,855. PATENTED APR. 18, 1905.

H. C. MUSTIN.

TELESCOPIC ORDNANCE SIGHT.

APPLICATION FILED APR. 26, 1904.

4 SHEETS—SHEET 1.

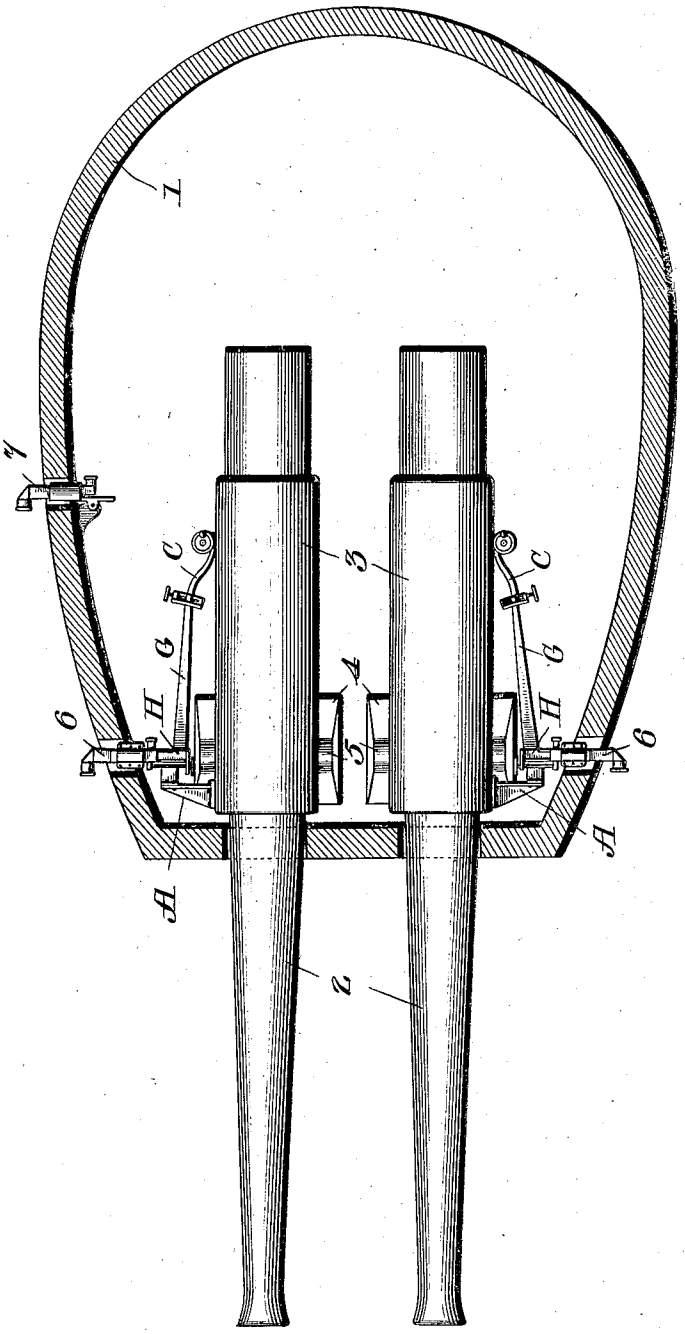


Fig. 1.

Witnesses
Geo. H. Bruce.
J. Stephen Kinsler.

Inventor
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by Wiseman & Fisher
his Attorneys.

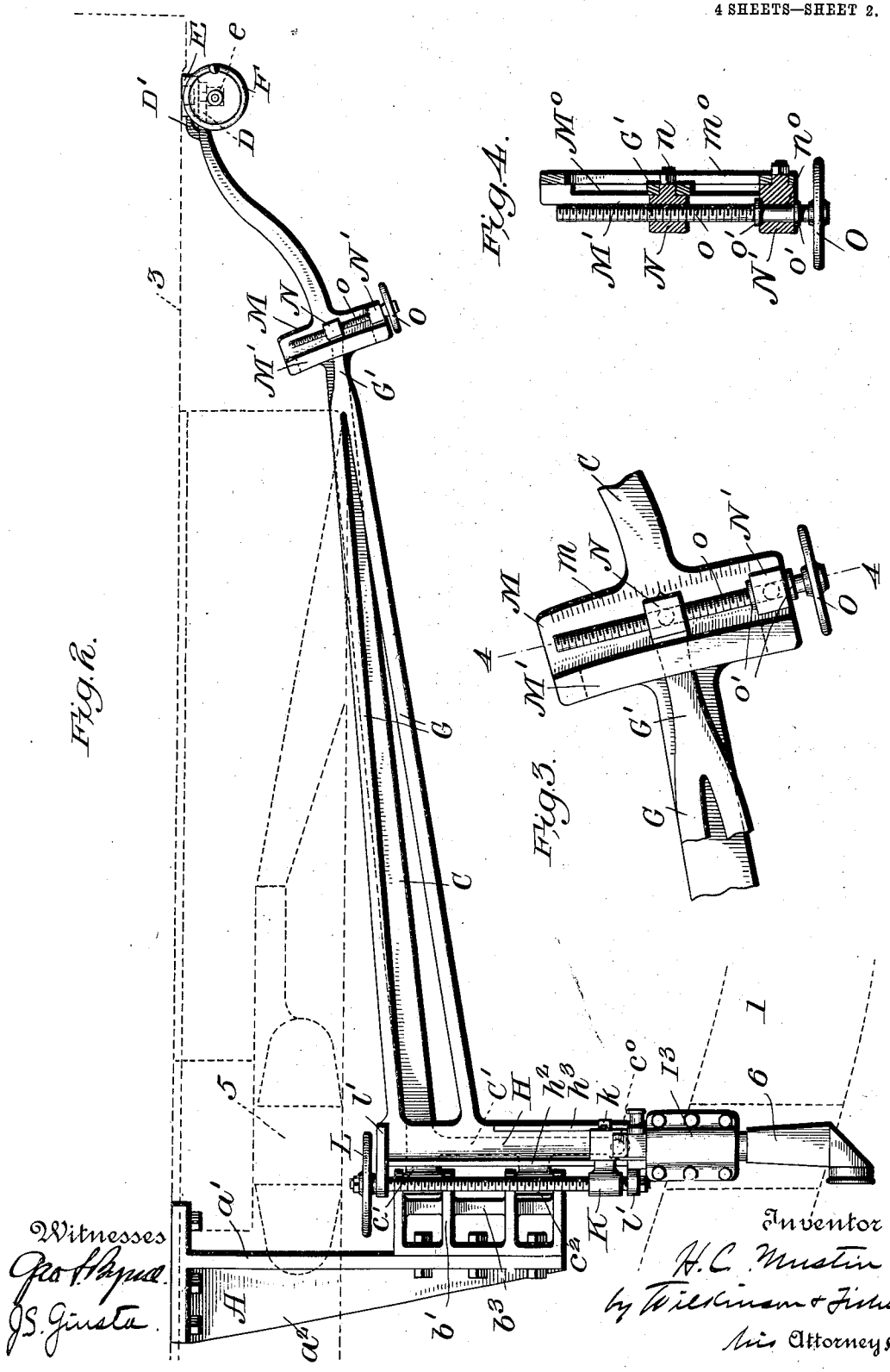
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

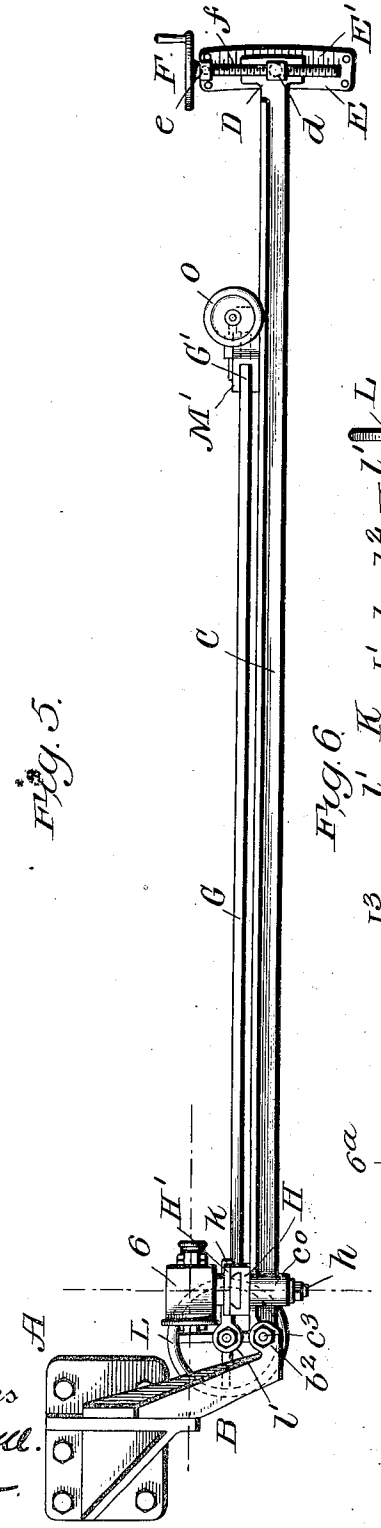


Fig. 5.

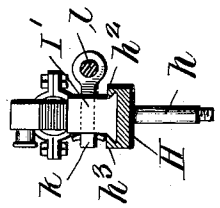


Fig. 8.

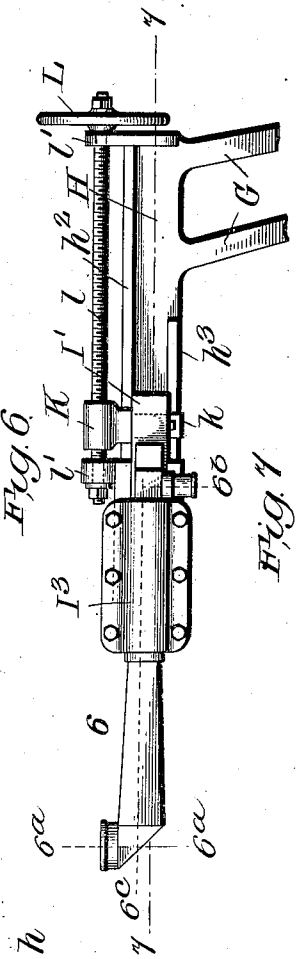


Fig. 6.

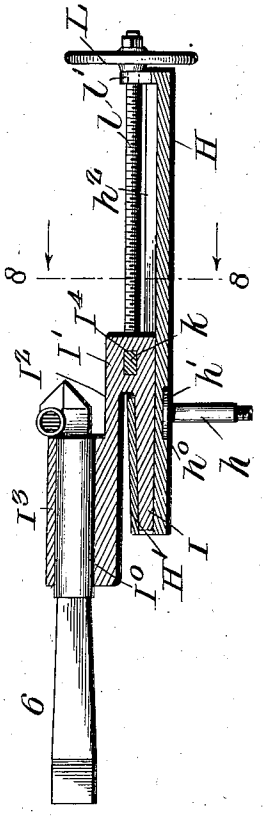


Fig. 7.

Witnesses
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4 SHEETS—SHEET 4.

Fig. 9.

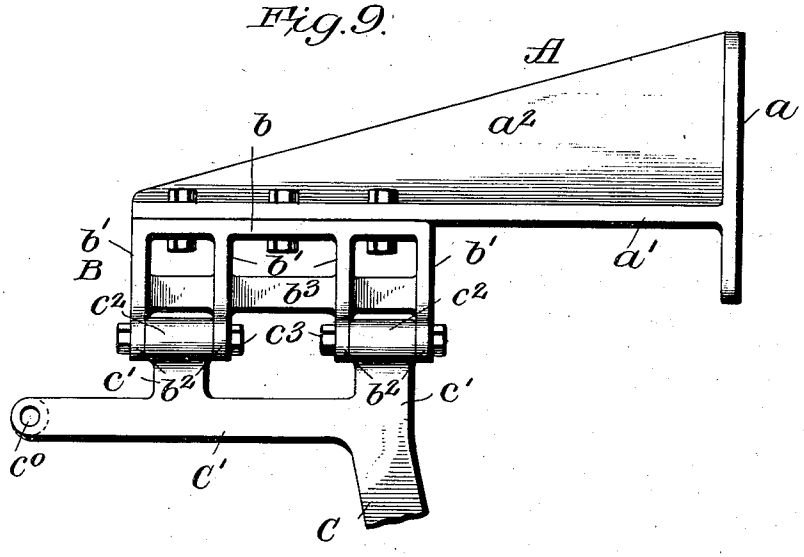


Fig. 10

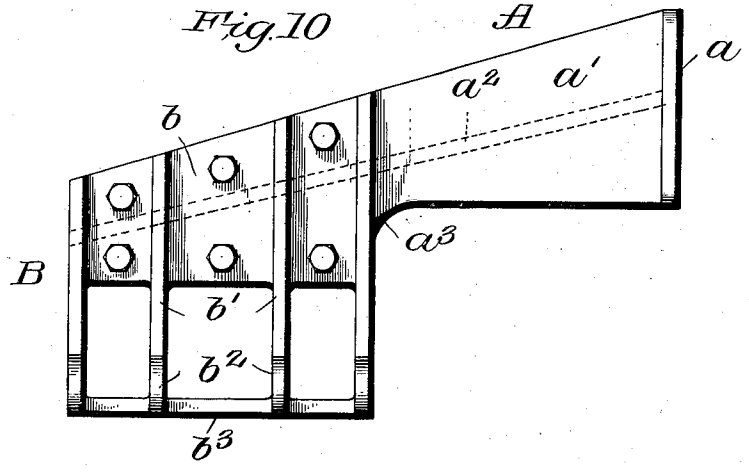
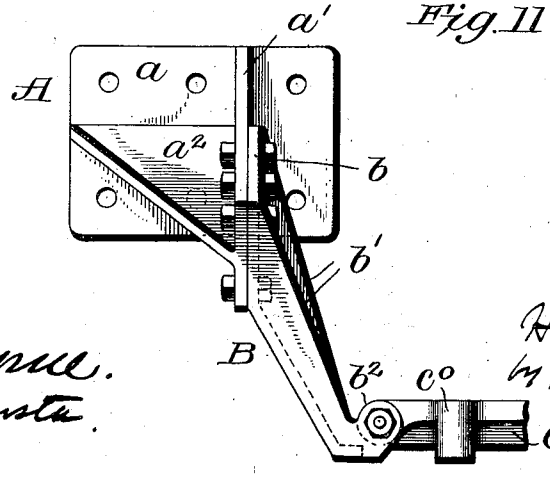


Fig. 11.



Witnesses

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H. C. Mustin

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No. 787,855. Patented April 18, 1905.

UNITED STATES PATENT OFFICE.

HENRY C. MUSTIN, OF THE UNITED STATES NAVY.

TELESCOPIC ORDNANCE-SIGHT.

SPECIFICATION forming part of Letters Patent No. 787,855, dated April 18, 1905.

Application filed April 26, 1904. Serial No. 204,980.

To all whom it may concern:

Be it known that I, HENRY C. MUSTIN, a citizen of the United States and lieutenant in the United States Navy, residing at Germantown, in the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Telescopic Ordnance-Sights; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in ordnance-sights, especially to that class known as "telescopic" sights, and is particularly applicable for use with guns protected by a turret, barbette-hood, or shield. The principal disadvantage of sights of this character now in use is that great difficulties are experienced with the adjustment of parallel motions necessary heretofore in sight connections for maintaining the line of bore relatively to the line of sight when the range has been determined. It is evident that the slightest wear or distortion of the gearing or parts of a parallel-motion arrangement will result in grave errors, particularly at long ranges. Another disadvantage is that by the parallel-motion connections now commonly used if the sight proper (the telescope) is hit the parallel-motion mechanism is more or less affected, which necessarily compels careful readjustment and generally a complete installation of new mechanism, an item of considerable moment in time of action. Other disadvantages occurring from the use of parallel-motion sights are also obvious to those experienced in the art of gunnery—such, for instance, as the error experienced at Morris-tube and Dotter practice.

It is the principal object of my invention to overcome these disadvantages in a simple way by the employment of suitable form of telescope so mounted and arranged relatively to the gun and turret that none of its connecting mechanism is exposed to the fire of the enemy and but a small portion of the objective end of the telescope itself. In the preferred embodiment of the invention it is desirable to use a telescope having an angular line of sight. By the term "angular line of sight" is meant that class of telescopes wherein are arranged prisms or reflecting-surfaces for deflecting the optical axis, the optical axis of the objective and eyepiece being disposed at angles to the optical axis proper, extending longitudinally of the telescope-tube, as illustrated, respectively, in dotted lines at 6^a, 6^b, and 6^c, Figure 6.

Another feature of the invention resides in the particular manner of mounting the telescope, whereby a change in the angle of inclination of the line of sight to the horizon is caused by the turning of the telescope substantially about its longitudinal optical axis or about a pivotal axis in proximity to and disposed in a plane substantially parallel to its optical axis, the normal longitudinal disposition of the telescope being substantially in line with the axis of the trunnions of the gun and the objective end being adapted to project through the side armor of the turret or beyond a similar protecting-guard, the expression "through the turret" being intended to also convey the idea that the telescope projects beyond the protecting-guard when a guard other than a turret proper is employed. Many advantages are obtained by mounting the pointer's telescope in this position and projecting through the side of the turret instead of being located above the gun. As long as the gun is trained on the enemy the opening in the turret, hood, or shield, beyond which the telescope extends, is in such a position that the mechanism of the gun and mount and the person aiming the gun and those serving the gun are not exposed to injury by the enemy's fire; second, in this position the aperture in the turret (or hood or shield) need be but a little larger than the diameter of the telescope and is in a line perpendicular to the direction of the enemy as long as the gun is trained on the enemy; third, this position of the telescope permits the eye of the pointer to be close to the axis of the trunnions, and the closer the eye of the pointer is to the axis of the trunnions the less is the amount of motion that he is required to give to his eye as he elevates or depresses the gun;

fourth, this position of the pointer's telescope is much better for observing the flight of the projectile than a position above the gun, for the greater part of the smoke of discharge rises above the muzzle.

Another feature of the invention resides in the means for adjustably mounting the telescope, whereby the same may be readily extended or withdrawn for obvious reasons or a new telescope installed without great delay and without disturbing the adjustment of its main support, so that the fire of the gun will not be materially diminished.

The manner of adjustably mounting the telescopes on the azimuth-leaf possesses many advantages, as being easily and quickly changed different powers of telescopes may be kept at hand, each mounted on its separate support, so that a high-power telescope may be used at day and a low-power one at night, or the telescopes may be readily withdrawn in the turret for wiping of the objective-glass, which may become smoked up or dampened by rain or spray or a broken telescope replaced by a new one, the method of mounting each telescope on a separate support allowing them to be quickly replaced and shoved home in their proper position.

Another feature of the invention is the particular construction and arrangement of the sight-bar and azimuth-leaf relatively to each other and their operative association with the telescope for turning the latter in elevation as well as in azimuth.

The expression "azimuth-leaf" may be defined as the bar, plate, or similar support employed for turning the telescope in azimuth.

To secure these and other desirable ends, therefore, the invention consists in the construction and arrangement of parts hereinafter more fully described, and particularly specified in the claims, and to more clearly understand the invention reference is had to the accompanying drawings, illustrating same, in which like characters of reference designate the same parts in the several views, and in which—

Fig. 1 is a plan view of the guns with my sighting attachments applied thereto, the turret being shown in horizontal section; Fig. 2, a detail plan view of my improvements, illustrating manner of mounting same, parts of the gun-mounts, sleeve, and turret being designated by dotted lines; Fig. 3, a fragmentary detail view showing the connection between the azimuth-leaf and sight-bar; Fig. 4, a sectional view on line 4 4 of Fig. 3, the operating-screw being shown in elevation; Fig. 5, a view of the telescope and connections in side elevation; Fig. 6, a fragmentary plan view of the azimuth-leaf, illustrating the manner of adjustably mounting the telescope thereon; Fig. 7, a vertical section on line 7 7 of Fig. 6, the telescope being shown in elevation; Fig. 8, a vertical section on line 8 8 of Fig. 7; Fig. 9, a detail plan view of the bracket-casting and the inner end of the sight-bar; Fig. 10, a detail side elevation, and Fig. 11 a detail end view of same.

1 is the turret; 2, the guns; 3, the sleeves of the guns; 4, the deck-lugs; 5, the trunnions; 6, the prismatic or other suitable form of telescopes for the use of the pointer of the guns, and 7 a similar suitable telescope for the trainer.

A designates a casting comprising the transverse web a, the elongated vertically-disposed inclined web a', and the laterally-disposed inclined strengthening-web a^2. The transverse web a is adapted to be suitably secured to the sleeve of the gun at its forward end, as by bolts, and to the outer end of the web a', which is slightly enlarged, as at a^3, is suitably secured a depending bracket or hanger B.

The hanger B comprises the base-plate b, bolted to a^3, provided with spaced depending arms b', the ends of which project, as at b^2, and are apertured to form bearings for pivot-pins hereinafter referred to. The lower ends of the depending arms are braced transversely by the cross-bar b^3.

C is the longitudinal arm of the sight-bar and is provided at one end with the transverse arm C', carrying the lugs c', provided with sleeves c^2, adapted to be disposed between the spaced arms b' and be pivotally supported therebetween by the pivot-pins c^3 passing through the apertured ends b^2 thereof. The outer end of the transverse arm C' is provided with the vertical socket c^0. The opposite end of the longitudinal arm of the sight-bar is adjustably connected to the rear end of the gun-sleeve. This is preferably accomplished by bending the end of the sight-bar inwardly toward the sleeve and providing thereon a shoe formed by a curved projection D', extending parallel to an enlarged head D, vertically disposed on the end of the sight-bar. The sleeve of the gun is provided with a segmental member E, spaced therefrom and provided on its face with a computed scale E', the object of which is to set the sight-bar with respect to the line of fire, dependent upon the range to be shot at. The head D and projection D' of the shoe are disposed on opposite faces of the segmental member E. The segmental member E is provided with a swiveled collar e, and the head D is similarly provided with a swiveled nut d. f is a feed-screw journaled in the collar e, provided at one end with a hand-wheel F and adapted at its screw-threaded surface to engage the nut d. By this arrangement the sight-bar may be readily adjusted vertically and held locked in its adjusted position.

The azimuth-leaf comprises the longitudinal arms G, provided with the transverse arm H, pivotally supported, preferably, on the arm C' by the pin h, passing through the socket c^0 and having a rounded head h' countersunk

in a circular recess h^0 in the bottom face of the arm H. The arm H is provided with a channeled guideway, preferably of dovetail construction, (see Fig. 8,) and at the outer end is provided a top plate H′, spaced from the arm H and forming a socket for the detachable telescope-support when in its extended position. The plate H′ preferably inclines outwardly, as shown at Fig. 7, for forming a snug connection with the base-plate of the telescope-support. The telescope-support comprises the base-plate I, beveled on its upper face and having an enlarged rear portion I′ and an outwardly-projecting arm I^2, spaced from the base-plate I and forming therewith a recess for the reception of the top plate H′ of the transverse arm H, the proportions being such that the edge of the enlarged portion I′ between the plates I I^2 abuts against the inner edge of the plate H′ when forced home. The outer end of the plate I^2 is enlarged and longitudinally recessed, as at I^0, for the reception of the telescope, which may be held in position by a similarly-recessed cover I^3. The enlarged portion I′ is transversely apertured, as at I^4, for the reception of a lug k, carried by an internally-screw-threaded sleeve K. A screw-threaded spindle l, mounted in suitable bearings l', carried by the arm H, passes through the sleeve K and is provided at one end with a hand-wheel L for rotating same and operating the telescope-support along the plate H. The rib h^3 extends only part of the way from the outer end of the arm H, leaving a space at the inner end of the arm sufficiently long to allow of the ready transverse removal of the telescope-support when withdrawn to its innermost position. (See Figs. 2 and 6.) By this arrangement it will be perceived that the telescope proper is bodily operative (as contradistinguised from being pivotally swung) laterally of the gun independently of the azimuth-leaf.

Referring particularly to Figs. 2 to 5, the sight-bar C is provided with a transversely-disposed enlarged portion M, provided on its upper face with a computed scale m, coöperating with the azimuth-leaf for adjusting the telescope relative to the line of bore of the gun to compensate for the lateral deviation of the line of fire necessitated from obvious causes, such as speed of movement of the target, the gun-platform, &c. This adjustable connection between the azimuth-leaf and sight-bar is made by the inner end of the longitudinal arms G of the azimuth-leaf merging into a tongue G′, adapted to be guided laterally in a slot M^0, formed between the portion M and a cross-piece M′. The portion M is also slotted, as at m^0, forming a guideway for the pivot-pin n of a swiveled nut N, carried by the tongue G′. N′ is a swiveled lug carried by the portion M, apertured, as at n^0, to form a bearing for one end of the feed-screw o, provided with shoulders o' on each side of the lug N′ and with a hand-wheel O, the screw-threaded portion being adapted to engage the nut N and feed the same and the tongue G′ transversely of the sight-bar.

From the foregoing statement of objects and advantages and description of the parts the operation will be apparent, but will be further briefly described. When the line of fire is point blank, the index-mark on the azimuth-leaf and sight-bar will be opposite the zero-mark on the respective scales m and E′. Assuming now that the range has been determined as two thousand yards, the rear end of the sight-bar is adjusted according to the computed scale E′, in which position the line of sight and the line of bore have been moved from their parallel disposition and diverge at the proper angle, so that when the line of sight has been brought to bear on the target the gun is at the proper elevation for the range, the sight-bar being fixed to the sleeve of the gun, and upon firing the recoil of the gun in its sleeve will not materially affect the telescope, which may be immediately trained on the target and refiring commenced without any further adjustment of the sight-bar relative to the gun. If the ship or the target is in motion and their relative speeds determined, the azimuth-leaf is similarly adjusted according to the computed scale m, and the line of sight is laterally displaced with reference to the line of bore without disturbing their vertical disposition for firing ahead of the target and compensating for the relative speed of the target to the gun with reference to the distance to be traveled by the projectile.

It is obvious that although I have shown the trainer's telescope as being mounted in the side of the turret, it may with greater advantage extend through the top thereof. Indeed, many changes might be made in the construction and arrangement of the various parts without departing from the spirit of my invention, and I do not wish to limit myself to the precise details as illustrated; but

What I claim is—

1. The combination with a gun, of a telescope, having an angular line of sight substantially as described, operatively connected with said gun and longitudinally disposed laterally of same, and means for adjusting said telescope relatively to the line of bore of the gun.

2. The combination with a gun of a telescope, having an angular line of sight substantially as described, operatively connected therewith and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope relatively to the line of bore of the gun.

3. The combination with a gun of a telescope having an angular line of sight substantially as described, operatively connected therewith and longitudinally disposed substantially along the line of axis of the trun-

nions, and means for adjusting said telescope vertically with respect to the line of bore of the gun.

4. The combination with a gun of a telescope, having an angular line of sight substantially as described, operatively connected therewith and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope vertically and laterally with respect to the line of bore of the gun.

5. The combination with a gun, of a support so pivotally mounted substantially at the axis of the gun-trunnions as to be capable of vertical and lateral swing, and operatively connected at its free end with said gun, means for adjusting said support around its pivotal axis, and a telescopic sight carried on said support at its pivoted end, with the eyepiece of the telescope disposed in alinement with the trunnion-axis.

6. The combination with a gun, of a pivoted support operatively connected at its free end therewith, means for adjusting said support around its pivotal axis, and a telescope having an angular line of sight substantially as described, carried by said support and longitudinally disposed substantially along the line of axis of the trunnions of the gun.

7. The combination with a gun, of a pivoted sight-bar operatively connected at its free end therewith, means for vertically adjusting said sight-bar, an azimuth-leaf operatively connected to said bar, means for adjusting said azimuth-leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

8. The combination with a gun, of a pivoted sight-bar operatively connected at its free end therewith, means for vertically adjusting said sight-bar, an azimuth-leaf pivotally mounted on said sight-bar, means for adjusting said azimuth-leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described, supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

9. The combination with a gun, of a telescope-support operatively associated therewith, means for adjusting said support in altitude and azimuth, and means independent of said adjusting means for bodily operating said telescope-support laterally of the gun.

10. The combination with a gun, of a telescope-support operatively associated therewith, means for adjusting said support in altitude and azimuth, and means independent of said adjusting means for bodily operating said telescope-support laterally of the gun substantially along the line of axis of the gun-trunnions.

11. The combination with a gun, of a detachably-mounted telescope-support operatively associated therewith, a telescope having an angular line of sight substantially as described carried by said telescope-support and extending laterally of the gun substantially along the line of axis of the gun-trunnions, means for adjusting said telescope and its support in altitude and azimuth, and means independent of said adjusting means for bodily operating said telescope and its support laterally of the gun.

12. The combination with a gun, of a pivoted sight-bar operatively connected therewith, and means for vertically adjusting the same, an azimuth-leaf mounted on said sight-bar, and means for laterally adjusting the same thereon, and a detachable telescope-support carried by said azimuth-leaf, and means for bodily operating said telescope-support laterally of the gun.

13. The combination with a gun, of a pivoted support operatively connected therewith, means for adjusting said support around its pivotal axis, a channeled guideway formed transversely of said pivoted support, a telescope-support carried thereby, and means for operating said telescope-support along said channeled guideway.

14. The combination with a gun, of a pivoted support operatively connected therewith, means for adjusting said support around its pivotal axis, an arm formed transversely of said pivoted support, a channeled guideway extending longitudinally of said transverse arm, a housing formed at the outer end of said transverse arm, a telescope-support carried by said transverse arm, and means for operating said telescope-support along said channeled guideway into said housing.

15. The combination with a gun, of a pivoted support operatively connected therewith, means for adjusting said support around its pivotal axis, an arm extending transversely of said pivoted support, a channeled guideway formed longitudinally of said transverse arm, a housing formed at the outer end of said transverse arm, a detachable telescope-support carried by said transverse arm, means for operating said telescope-support along said channeled guideway, a portion of said channeled guideway being broken away at the inner end of said transverse arm for removing said telescope-support when withdrawn from said housing.

16. The combination with a gun, of a vertically and laterally swinging support and means for adjusting the vertical and lateral disposition of said support relatively to the bore of the gun, a guideway carried by said support and normally disposed along the line of axis of the gun-trunnions, a telescope-support oper-

atively mounted in said guideway, and means for operating said telescope-support along said guideway.

17. The combination with a gun, of a pivoted sight-bar operatively connected therewith, an azimuth-leaf operatively connected with said sight-bar, a transverse arm on said azimuth-leaf provided with a channeled guideway, a telescopic support mounted in said guideway, means for operating said telescope-support along said channeled guideway, means for vertically adjusting said sight-bar and azimuth-leaf, and means for laterally adjusting said azimuth-leaf independently of said sight-bar.

18. The combination with a gun, of a sight-bar pivotally supported at one end adjacent the gun-trunnions, an azimuth-leaf pivoted to said sight-bar and having an arm extending transversely therefrom substantially along the line of axis of the gun-trunnions, a telescope-support carried by said transverse arm, means for operating said telescope-support along said transverse arm, and means for vertically adjusting said sight-bar and laterally adjusting said azimuth-leaf around their pivotal axes respectively.

19. The combination with a gun, of vertically and laterally swinging supports and means for adjusting said supports relatively to the line of bore of the gun, an arm formed on said laterally-swinging support and normally disposed substantially along the line of axis of the gun-trunnions, a guideway formed on said transverse arm, a telescope-support mounted in said guideway, and means for operating said telescope-support along said guideway, comprising a lug operative parallel to said guideway and adapted to engage said telescope-support, and means for operating said lug.

20. The combination with a gun and its sleeve, of a telescope, having an angular line of sight substantially as described, operatively connected with said sleeve and longitudinally disposed laterally of said gun, and means for adjusting said telescope relatively to the line of bore of the gun.

21. The combination with a gun and its sleeve, of a telescope, having an angular line of sight substantially as described, operatively connected with said sleeve and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope relatively to the line of bore of the gun.

22. The combination with a gun and its sleeve, of a pivoted support operatively connected with said sleeve, means for adjusting said support around its pivotal axis, and a telescope having an angular line of sight substantially as described, carried by said support and longitudinally disposed substantially along the line of axis of the trunnions of the gun.

23. The combination with a gun and its sleeve, of a pivoted sight-bar operatively connected with said sleeve, means for vertically adjusting said sight-bar, an azimuth-leaf operatively connected to said bar, means for adjusting said azimuth leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

24. The combination with a gun and its sleeve, of a pivoted sight-bar operatively connected with said sleeve, means for vertically adjusting said sight-bar, an azimuth-leaf pivotally mounted on said sight-bar, means for adjusting said azimuth-leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described, supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

25. The combination with a gun and its sleeve, a pivoted support carried by said sleeve, means for adjusting said support around its pivotal axis, a telescope-support carried by said pivoted support, and means for operating said telescope-support laterally of said gun.

26. The combination with a gun and its sleeve, of a pivoted sight-bar carried thereby, means for adjusting said sight-bar around its pivotal axis, a detachably-mounted telescope-support carried by said sight-bar, and means for operating said telescope-support laterally of said sight-bar.

27. The combination with a gun and its sleeve, of a pivoted sight-bar carried thereby, means for adjusting said bar around its pivotal axis, a telescope-support carried by said sight-bar, and means for operating said telescope-support laterally thereof substantially along the line of axis of the trunnions.

28. The combination with a turret or similar protecting-guard, of a gun, and a telescope having an angular line of sight, operatively connected with said gun and projecting substantially transversely of the same beyond said turret or guard.

29. The combination with a turret or similar protecting-guard, of a gun, and a telescope, having an angular line of sight, operatively connected therewith and extending beyond said turret or guard substantially on the line of axis of the gun-trunnions.

30. The combination with a turret or similar protecting-guard, of a gun, a telescope, having an angular line of sight, operatively connected therewith and extending transversely of the gun beyond said turret or guard, and means for adjusting said telescope relatively to the line of bore of the gun.

31. The combination with a turret or simi-

lar protecting-guard, of a gun, a telescope having an angular line of sight, operatively connected therewith and extending transversely of the gun beyond said turret or guard, and means for adjusting said telescope vertically and laterally with respect to the line of bore of the gun.

32. The combination with a turret or similar protecting-guard, of a gun, a telescope, having an angular line of sight, operatively connected therewith and extending beyond said turret or guard substantially on the line of axis of the gun-trunnions, and means for adjusting said telescope relatively to the line of bore of the gun.

33. The combination with a turret or similar protecting-guard, of a gun, a telescope, having an angular line of sight, operatively connected therewith and extending beyond said turret or guard substantially on the line of axis of the gun-trunnions, and means for adjusting said telescope vertically and laterally with respect to the line of bore of the gun.

34. The combination with a turret or similar protecting-guard, of a gun, a pivotal support operatively connected therewith, means for adjusting said support around its pivotal axis, and a telescope, having an angular line of sight, mounted on said support and extending laterally, beyond said turret or guard, with respect to the bore of the gun.

35. The combination with a turret or similar protecting-guard, of a gun, a pivotal support operatively connected therewith, means for adjusting said support around its pivotal axis, and a telescope, having an angular line of sight, mounted on said support and extending laterally beyond said turret or guard substantially on the line of axis of the gun-trunnions.

36. The combination with a turret or similar protecting-guard, of a gun, a pivoted sight-bar operatively connected therewith, an azimuth-leaf operatively connected with said sight-bar, a telescopic sight mounted on said azimuth-leaf and extending transversely thereof beyond said turret or guard, and means for adjusting said sight-bar and azimuth-leaf vertically with respect to the line of bore, and means for adjusting said azimuth-leaf laterally, independently of said sight-bar.

37. The combination with a turret or similar protecting-guard, of a gun and its sleeve, a pivoted sight-bar carried by said sleeve, an azimuth-leaf pivotally supported on said sight-bar, a telescope, having an angular line of sight, mounted on said azimuth-leaf and extending transversely of said gun to the outside of said turret or guard, and means for vertically and laterally adjusting said sight-bar and azimuth-leaf respectively.

38. The combination with a turret or similar protecting-guard, of a gun and its sleeve, a pivoted sight-bar carried by said sleeve, an azimuth-leaf, pivotally mounted on said sight-bar, and having a transverse arm normally extending substantially on the line of axis of the trunnions, a telescope, having an angular line of sight, mounted on said transverse arm and normally extending laterally beyond said turret or guard, means for adjusting said sight-bar around its pivotal axis, and means for adjusting said azimuth-leaf around its pivotal axis independently of said sight-bar.

39. The combination with a turret or similar protecting-guard, of a gun and its sleeve, a pivoted sight-bar carried by said sleeve, an azimuth-leaf pivoted to said sight-bar and having a guideway thereon normally on the line of axis of the gun's trunnions, a telescope-support mounted in said guideway, means for operating said telescope-support along said guideway, a telescope having an angular line of sight carried by said telescope-support, means for adjusting said sight-bar around its pivotal axis, and means for adjusting said azimuth-leaf around its pivotal axis on said sight-bar.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY C. MUSTIN.

Witnesses:
A. M. HYER,
OSCAR OMEARA.