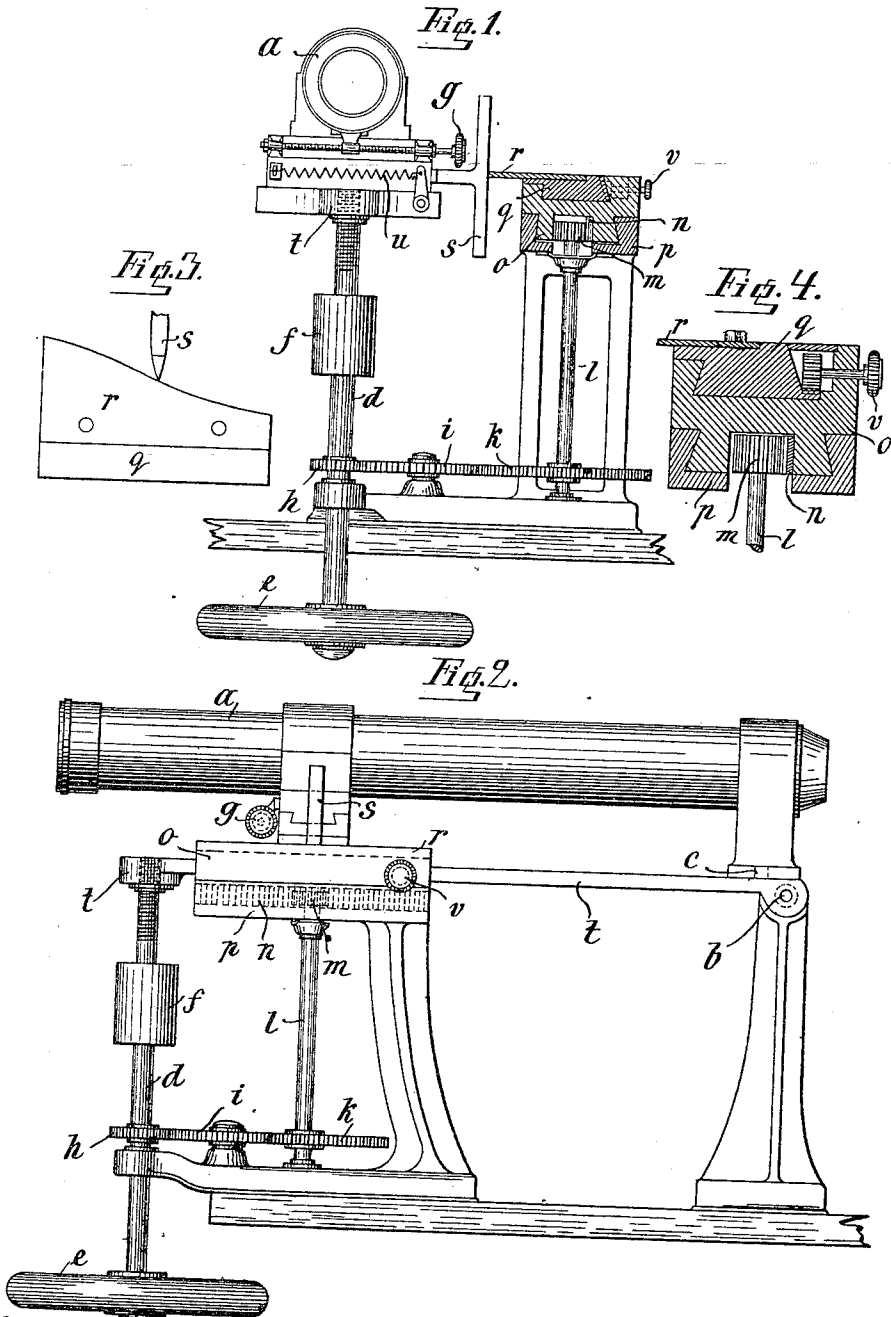


No. 834,552.

PATENTED OCT. 30, 1906.

J. ALLARDT.  
TELESCOPIC SIGHTING DEVICE FOR GUNS.  
APPLICATION FILED AUG. 10, 1906.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JULIUS ALLARDT, OF KIEL, GERMANY.

## TELESCOPIC SIGHTING DEVICE FOR GUNS.

No. 834,552.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed August 10, 1906. Serial No. 329,987.

*To all whom it may concern:*

Be it known that I, JULIUS ALLARDT, a subject of the German Emperor, residing at Kiel, Germany, have invented certain new and useful Improvements in or Relating to Telescopic Sighting Devices for Guns, of which the following is a specification.

In well-known telescopic sighting devices for coast defense and ships' turrets, in which the lateral laying of the guns is effected by turning the whole protected turret and the elevation is effected by the movement of the gun alone, the telescope is laid on the target, and in this way the distance is simultaneously ascertained. It is then necessary to ascertain lateral correction depending on the "twist" of the gun, the movement of the target and of the ship carrying the gun, as well as on certain atmospheric influences—such as, for instance, wind, refraction of light, or the like—whereupon this correction is imparted to the telescope by hand. Of course this lateral correction changes with the distance, so that it is necessary to make continuous corrections of the lateral direction of the telescope, which take up a great deal of time and are liable to error. Sighting devices for guns have therefore already been designed in such manner that lateral corrections, corresponding to the shooting-table, are automatically taken into account during the elevation of the gun. To that end the gear for the elevation of the telescope has been connected to that for the lateral laying, with the insertion of a guide or templet provided with a corresponding curve. As, however, in ascertaining the speed of the movement of the target and the atmospheric influences one is chiefly dependent on calculations, the lateral laying is generally subjected to certain errors which are corrected in accordance with the results of the first shots by the so-called "fork" process. For facilitating the correction of these errors according to the present invention the above-mentioned guide or templet is interchangeably arranged in a slide which can be moved independently of its automatic adjustment by the gear of the elevation device, also by a special gear by hand.

The invention is diagrammatically shown in the accompanying drawings as applied to a telescopic sighting device with a distance-measuring device—such, for instance, as is used on armored turrets.

Figure 1 is a front elevation of the com-

plete device, partly in cross-section. Fig. 2 is a side elevation. Fig. 3 shows the templet with guiding-rod in plan. Fig. 4 is a cross-section through the slide carrying the templet.

The sighting-telescope *a* with its table *t* is adjustable upward and downward about a horizontal spindle *b*. Its elevation is effected by means of a screw-spindle *d* with a hand-wheel *e*, which at the same time carries a distance-measuring device *f*, which indicates the distance of the target sighted. The construction of this distance-measuring device is immaterial for this invention. The telescope *a* can, moreover, be laterally adjusted by hand, by means of a set-screw *g*, about the vertical pin *c* of the table *t*, the movement of the target, of the ship carrying the gun, the wind, &c., having to be taken into consideration. On the screw-spindle *d* is mounted a toothed wheel *h*, which by means of an intermediate wheel *i* rotates a toothed wheel *k*, mounted on the spindle *l* of a pinion *m*. The pinion *m* engages with a toothed rack *n* of a slide *o*, which slides in a guide *p*. In the slide *o* slides also vertically to the surface of the drawing a second slide *q*, to which is secured a templet *r*. Against this templet *r* rests a rod *s*, mounted on a guide part arranged between the telescope *a* and the table *t* in such manner that the rod *s*, together with the guide part and telescope, is pulled against the templet *r* by means of a spring *u*, secured to the table *t*, and the telescope in addition to it can be moved laterally toward the guide part by means of the adjusting set-screw *g*.

The shape of the templet *r* is obtained from the shooting-table, the abscissæ being determined by the distances and the ordinates by the corresponding lateral corrections, depending on the twist of the gun, &c. A separate templet must be used for each kind of projectile and charge, for which reason the templet is secured to the slide *q* in an easily interchangeable manner.

It will be seen from the above that when the telescope *a* is laid to the elevation corresponding to the distance of the target it is automatically adjusted in the lateral position, as by the rotation of the elevation-device spindle *d*, by means of the toothed wheels *h i k* and the spindle *l*, the slides *o q*, and therefore the templet *r*, are moved, and their position, owing to the arrangement of the spring *u*, determines the position of the telescope *a*.

The arrangement of the two slides *o* *q* one in the other has for its object, as already stated, to facilitate getting at the target by "forking" the shots, an advance or retard on the distance-measuring device being produced for the templet for the purpose of taking into account errors of calculation. For that purpose it is only necessary to advance or withdraw the slide *q*, carrying the templet *r*, by means of the hand-wheel *v*, toward the other slide *o* to the distance of the fork, which results in an automatic lateral adjustment of the telescope *a* for the forking.

The commander of the turret estimates at first the movement of the target-ship, the speed of wind, &c., and adjusts the apparatus to the lateral correction thus obtained by means of the set-screw. This lateral correction remains constant independent of the remainder of the sighting process as long as the above estimations remain correct. By moving the templet *r* by means of the hand-wheel *v* the smaller errors of the lateral adjustment observed at the first shots are corrected.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a telescopic sighting device for guns and in combination, a telescope, means to control the elevation of the same, an interchangeable guide, an operative connection between the guide and the telescope, means automatically actuated by the telescope-elevation-controlling means, to give longitudinal movements to the guide, and independent lateral adjusting means for the telescope.

2. In a telescopic sighting device for guns and in combination, a telescope, means to vary the elevation of said telescope, a guide-

way, a slide in said guideway, means automatically actuated by the telescope-elevation-varying means, to reciprocate said slide in said guideway, a second slide slidably mounted on the first, means to adjust the position of the second slide relatively to the first, a templet, interchangeably mounted in said second slide, and an operative connection between the templet and the telescope so that movements of the templet give lateral correcting movements to the telescope.

3. In a telescopic sighting device for guns, the combination of a telescope, means for shifting the telescope to vary the elevation, means actuated by the said means to simultaneously adjust the telescope laterally, said lateral adjusting means including a templet actuated to vary its position, and means for adjusting the templet in a direction parallel to its said movement, whereby to further vary the horizontal position of the telescope.

4. In a telescopic sighting device for guns, the combination of a telescope, means for shifting the telescope to vary its elevation, means actuated by said means for shifting the telescope horizontally, said means including a templet that is shifted in a direction parallel with the axis of the telescope, and means for shifting the position of the templet on its actuating means in a direction parallel with the said movement.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JULIUS ALLARDT.

Witnesses:

HENRY HASPER,  
WILLIAM MAYNER.