No. 785,894. PATENTED MAR. 28, 1905.

H. A. VON KRETSCHMAR & J. KRONE.

SIGHTING TELESCOPE.

APPLICATION FILED OCT. 17, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

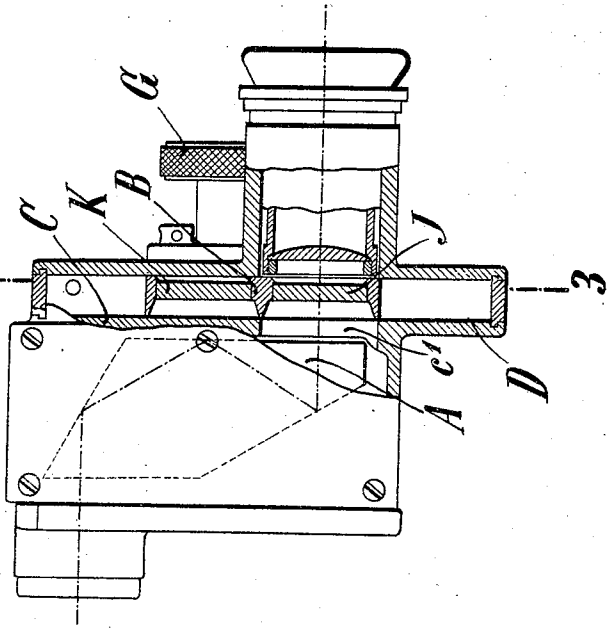


Fig. 2.

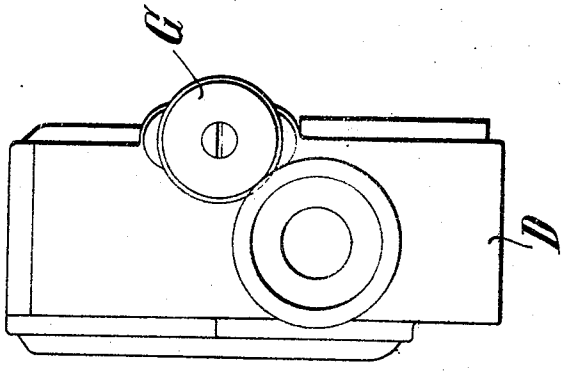
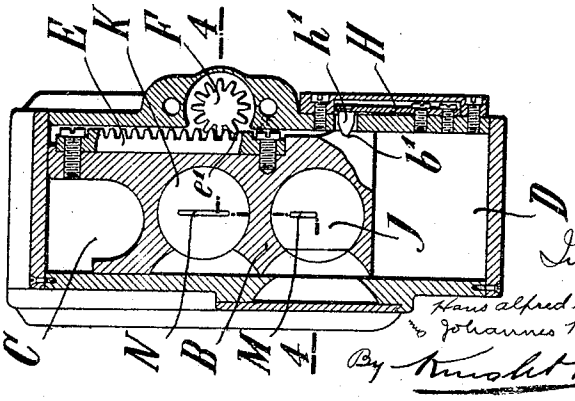


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

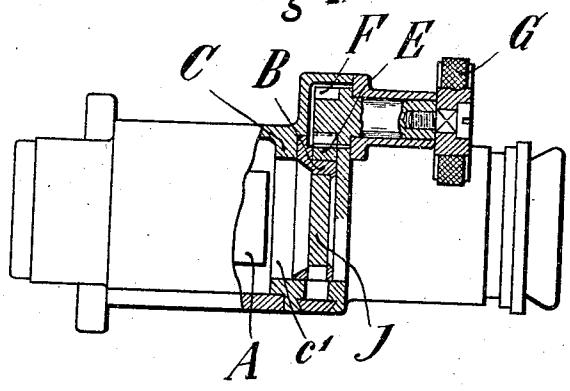

Fig. 5.

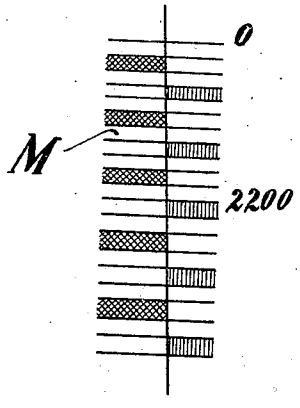

Fig. 6.

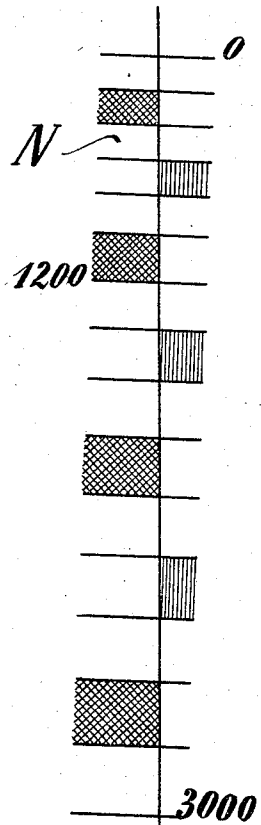

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PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK

No. 785,894. Patented March 28, 1905.

UNITED STATES PATENT OFFICE.

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SIGHTING-TELESCOPE.

SPECIFICATION forming part of Letters Patent No. 785,894, dated March 28, 1905.

Application filed October 17, 1904. Serial No. 228,834.

To all whom it may concern:

Be it known that we, HANS ALFRED VON KRETSCHMAR, residing at Essener Hof, and JOHANNES KRONE, residing at 56 Bismarckstrasse, Essen-on-the-Ruhr, Germany, subjects of the Emperor of Germany, have invented a certain new and useful Sighting-Telescope, of which the following is a specification.

This invention relates to sighting-telescopes by means of which targets at different distances can be observed with the correct angle of elevation without necessitating the adjustment of the telescope relatively to the gun-barrel. In sighting-telescopes of this kind as heretofore known a plurality of points are fixed in the rear focus-plane of the objective, the height of which with reference to the optical axis of the telescope corresponds to the angles of elevation of the gun-barrel required for different distances.

The object of the present invention is to provide these telescopes with an arrangement which renders it practicable to employ a sighting attachment provided with such a telescope, as well as an attachment provided with an ordinary telescope, and in firing a gun with different charges, (service charges and practice charges.) The invention attains this object by providing in addition to the several points serving as a sighting-mark of the telescope a second sighting-mark so arranged that by the adjustment of one sighting-mark in the sight-field the other disappears.

One embodiment of the subject of the present invention is shown by way of illustration in the accompanying drawings, in which—

Figure 1 is a side elevation of the telescope, partly in section. Fig. 2 is a rear elevation of the same. Fig. 3 is a section on the line 3 3 of Fig. 1 seen from the right. Fig. 4 is a plan view, partly in section on the line 4 4 of Fig. 3. Figs. 5 and 6 illustrate the sighting-marks on an enlarged scale.

The construction and optical operation of the telescope in itself, in the present case illustrated by a prismatic telescope, are well known, and therefore do not need to be described.

Upon the side of the prism A lying toward the ocular a frame B is so arranged in the telescope that it is movable perpendicularly to the optical axis of the ocular and objective. For this purpose a partition C is provided in the telescope, on the one hand, which is provided with a recess c' in line with the ocular, and, on the other hand, the telescope-housing is furnished with a box-like extension D. Upon the frame B a toothed rod E is secured, and in engagement with this toothed rod and mounted in the telescope-housing is an attached wheel F. The latter is provided with a hand-wheel G. Secured beneath the attached wheel F of the telescope-housing is a spring H, Fig. 3, the free end of which carries a spur-tooth h'. This is designed to engage either a rest b' of the frame B or the tooth-space c' of the toothed rod E.

Secured in the frame B are two glass plates J K. Upon the surface of these plates directed toward the prism A are located the sighting-marks M and N. These sighting-marks, which are merely indicated in Fig. 3, are more clearly shown on a larger scale in Figs. 5 and 6. They consist of a plurality of horizontal lines and one line crossing these. One of the sighting-marks, M, is designed for shots with service charges and the other, N, for shots with practice charges. The relative arrangement of the lines of the sighting-marks is so selected that with a given relation of the sighting-mark to the optical axis of the telescope and with a given relation of the telescope to the gun-barrel the elevations of the several points of intersection between the horizontal lines and the line which crosses them assume a relation to the optical axis corresponding to the angles of elevation of the gun-barrel required for different distances.

In the drawings, Figs. 5 and 6, only a few elevation-numbers are indicated. The aforesaid points of intersection, as will be seen from the drawings, do not lie vertically beneath one another. This is to compensate for the circumstance that the shot, in consequence of the twist of the rifling, has a different extent of lateral deviation for different distances.

The arrangement of the several parts is so selected that, on the one hand, the sighting-marks M N lie in the rear focal plane of the objective and that, on the other hand, the uppermost points (designated in Figs. 5 and 6 by O) of the two sighting-marks are the same distance from each other as the rest b' of the frame B is from the tooth-space e'. Further results of the illustrated arrangement of the several parts are that by the introduction of one sighting-mark into the sighting-field the other disappears from the sighting-field.

The description of the use of the sighting-telescope will be based upon the positions in which the parts are illustrated in the drawings.

In use the telescope will be secured in such a position—for example, on a sighting-attachment head of an attachment-rod—that with the attachment run in—that is, set at zero—the sighting-line directed over the uppermost point of the sighting-mark M will lie parallel to the axis of the bore of the gun-barrel. In order to direct a shot fired with a service charge at a target, it is only necessary that the gun-barrel be elevated or depressed until the point of the sighting-mark M corresponding to the distance of the target rests upon the target. If, however, the gun is to be fired with a practice charge, the frame B is moved by turning the hand-wheel G, and spur-tooth h' drops into the tooth-space e'. The directing of the gun upon the target then follows through the assistance of the sighting-mark N in the same manner as described in connection with the aiming of the gun with the service charge. If the sighting-telescope is intended for those guns which are to fire but one and the same character of charge, (service charge,) then it would be desirable to arrange in place of the sighting-mark N another sighting-mark—for example, cross-hairs. The point of intersection of the cross-hairs must then bear the same relation to the optical axis of the telescope as the uppermost point of intersection of the sighting-mark N. A sighting attachment provided with such a telescope can be used by setting the cross-hairs in the sighting-field after the manner of known sighting attachments with sighting-telescopes.

In order to render the sighting-marks M N distinguishable—that is to say, to facilitate the repeated sighting at one and the same point—individual spaces divided off by the lines—for example, those which are cross-hatched in Figs. 5 and 6—may be transparently colored—as, for example, by the use of different colors.

Having thus described the invention, what is claimed as new therein is—

1. A sighting-telescope having a plurality of points fixed in the rear focal plane of the objective, the height of which with relation to the optical axis of the telescope corresponds to the angles of elevation of the gun-barrel required for different distances, and having in addition to the sighting-mark provided by these points, a second sighting-mark so arranged that with the introduction of one sighting-mark into the sighting-field the other disappears from said field.

2. A sighting-telescope having a plurality of points fixed in the rear focal plane of the objective, the height of which with relation to the optical axis of the telescope corresponds to the angles of elevation of the gun-barrel required for different distances, and having in addition to the sighting-mark provided by these points, a second sighting-mark so arranged that with the introduction of one sighting-mark into the sighting-field the other disappears from said field, both said sighting-marks consisting of a series of points.

3. A sighting-telescope having a plurality of points fixed in the rear focal plane of the objective, the height of which with relation to the optical axis of the telescope corresponds to the angles of elevation of the gun-barrel required for different distances, and having in addition to the sighting-mark provided by these points, a second sighting-mark so arranged that with the introduction of one sighting-mark into the sighting-field the other disappears from said field, both said sighting-marks consisting of a series of points, and the said points being obtained by the intersection of a line with a row of horizontal lines, and the spaces thus demarcated being distinguished one from another by transparent coloring.

The foregoing specification signed at Essen-on-the-Ruhr this 3d day of October, 1904.

HANS ALFRED VON KRETSCHMAR.
JOHANNES KRONE.

In presence of—
HARRY F. MEFFORD,
JOSEF KUNZ.