33-240. OR 1,430,193 SR

R. SCHÜRMANN.

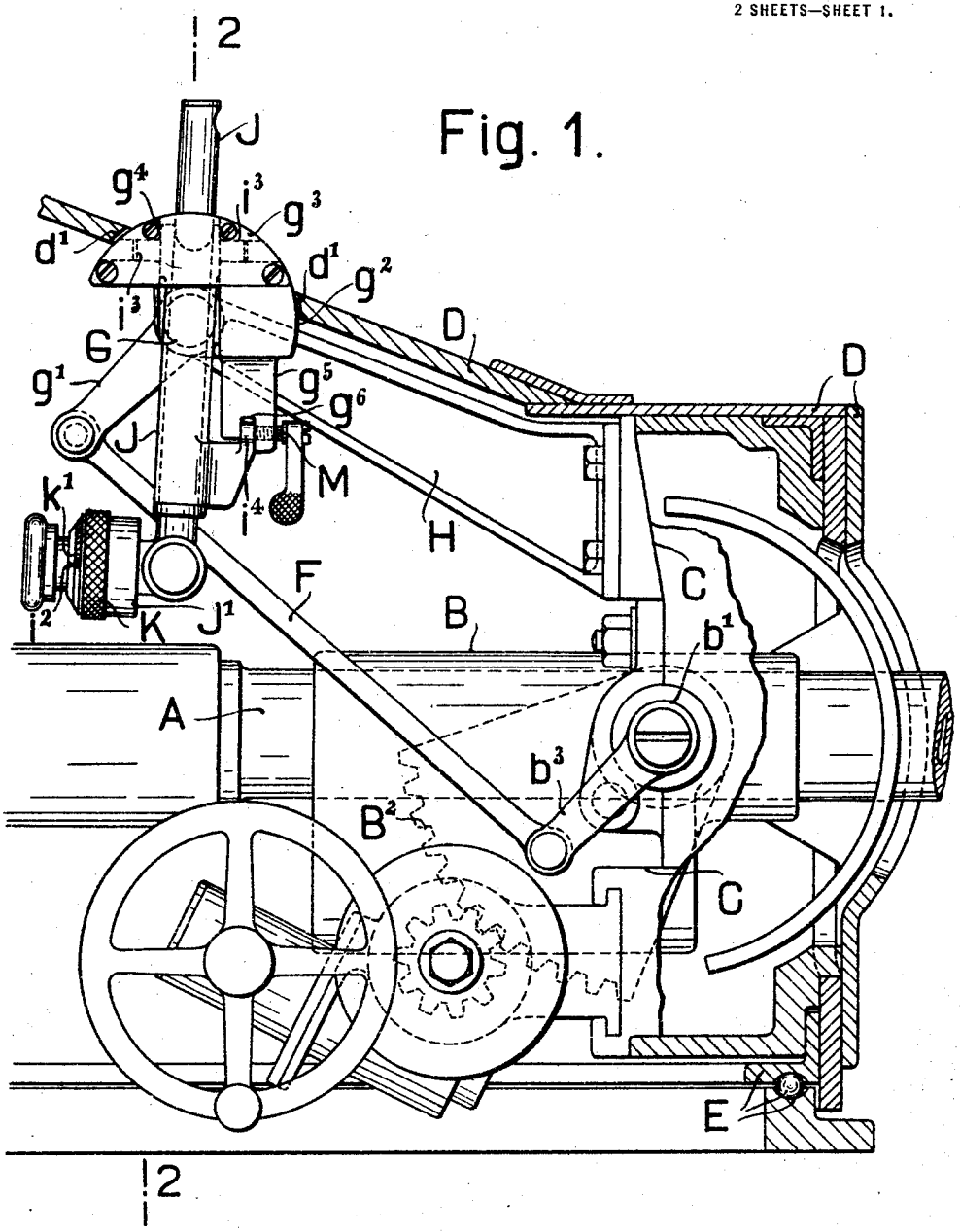
SIGHTING DEVICE FOR ARMORED PORTABLE GUNS.

APPLICATION FILED JAN. 17, 1921.

1,430,193. Patented Sept. 26, 1922.

2 SHEETS—SHEET 1.

Fig. 1.



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1628

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33 GEOMETRICAL INSTRUMENTS.
48

Draftsman

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SIGHTING DEVICE FOR ARMORED PORTABLE GUNS.

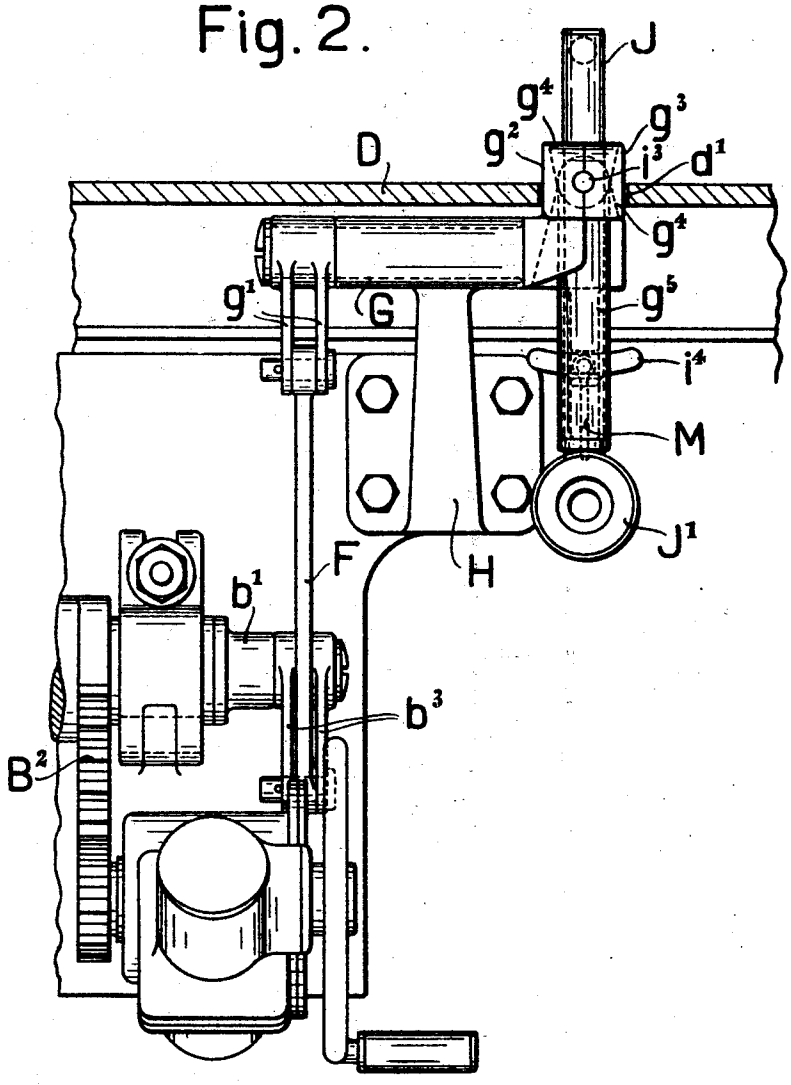
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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SIGHTING DEVICE FOR ARMORED PORTABLE GUNS.

Application filed January 17, 1921. Serial No. 437,886.

To all whom it may concern:

Be it known that I, RICHARD SCHÜRMANN, residing at Essen, Germany, a citizen of the German Republic, have invented a certain new and useful Improvement in Sighting Devices for Armored Portable Guns, of which the following is a specification.

This invention relates to sighting devices for armored portable guns, the telescope sight of which extends through an aperture in the armour. More particularly, it is the object of this invention to provide the telescope sight with a device for eliminating the effect produced by an oblique position of the horizontal trunnions of the gun in such a manner that said aperture will remain completely closed in any annular position assumed by the telescope.

In the drawing affixed to this specification and forming part thereof, a gun embodying this invention is illustrated by way of example. In the drawing—

Fig. 1 is a side elevation, partly in section, of the gun and

Fig. 2 is a sectional view on line 2—2 in Fig. 1, looking from the left.

Referring to these drawings, A denotes the gun barrel, adapted when fired to be displaced within a cradle B. This latter is pivoted within the carriage C by means of two horizontal trunnions b^1 and may be adjusted together with the gun barrel A by means of an elevating gear B^2 comprising a toothed arc. The carriage C is fitted with an armour D and is lodged to rotate on the vehicle by aid of a ball bearing E in order to enable the lateral training of the gun. With the one of the two trunnions b^1 there is rigidly connected a bifurcated rocker arm b^3 in communication with a link F. This link F is in its turn articulated to a bifurcated rocker arm g^1 rigidly connected with a shaft G located in parallel to the axis of the horizontal trunnions b^1; the parts being so contrived that as a result of the connection established between the two rocker arms, a linked quadrilateral will come to be formed. The shaft G is mounted to rotate within a bearing bracket H fixed to the armour D of the carriage, and is rigidly connected with a two-part element g^2 g^3 within which the telescope sight is lodged. The element g^2 g^3 forms a portion of a cylinder and projects through an aperture d^1 provided in the armour D beyond the outer surface thereof.

The telescope sight is fitted with an upright reflector casing J, adjoining which there is arranged, at right angles thereto, the tube J^1 containing the eyepiece, and has an adjusting device by means of which in the manner known per se the centre of the crosswires may be displaced in the altitudinal direction for the purpose of adjusting the angle of sight, corresponding to the distance of the object to be fired at, within the field of view of the telescope. A revoluble bushing K, arranged co-axially to the axis of the eyepiece, and which is provided at its edge with a distance division k^1 co-operating with a fixed index i^2 serves as the driving means for the adjusting device. The reflector casing J of the telescope sight projects through a double-wedge shaped cavity g^4 of the element g^2 g^3 (shown more clearly in Fig. 2) and is lodged to rotate within said element by means of two pivots i^3. The arrangement devised is such that the common axis of the two holes of the element g^2 g^3 and serving for receiving the pivots i^3, will be disposed at any angular position assumed by this element, in parallel to the axis of the bore of the gun barrel, so that by swinging the telescope about the axis of the pivots i^3, the influence exerted by the oblique position of the horizontal trunnions may be eliminated in the known manner. On the casing J there is in addition arranged a ledge i^4 curved like the arc of a circle co-axially to the pivots i^3 and adapted to engage a slot g^6 formed in an extension g^5 of the supporting element g^2 g^3, and relatively to which extension said ledge may be fixed by a clamping screw M. For the purpose of determining the angular position at which, in order to eliminate the influence of the oblique position of the horizontal trunnions, the telescope sight is to be fixed by the clamping screw M, use is made in the known manner of a spirit level arranged across in the telescope and visible through this latter.

When using this improved sighting device, the manner of operation of which will require no further explanation, the cylindrical portion of the element g^2 g^3 maintains the aperture d^1 of the armour completely closed in any angular position assumed by the telescope sight.

Claims:

1. In a transportable gun having an armored carriage and trunnions about the axis of which the gun barrel may be elevated, a sighting device arranged on said carriage and comprising a sighting telescope, a supporting member for said telescope mounted on the carriage to rotate about an axis disposed in parallel to the gun trunnions and carrying an arc-shaped head surrounding the telescope, the armour having an opening through which said head and telescope project, means for fixing the sighting line of the telescope in different angular positions to correspond to the range of the target, pivotal means for connecting the telescope to said supporting element, the axis of said pivotal means being arranged at right angles to the axis of rotation of said supporting element and adjustable in unison with said supporting element parallel to the direction to be given the bore of the gun barrel, and means for fixing the telescope in different angular positions with respect to the axis of said pivotal means whereby the influence exerted by an oblique position of the trunnions may be eliminated, the arc-shaped head of said supporting element closing the opening in said armour in any position imparted to the supporting element.

2. In a transportable gun having an armored carriage and trunnions about the axis of which the gun barrel may be elevated, a sighting device arranged on said carriage and comprising a sighting telescope, a supporting member for said telescope mounted on the carriage to rotate about an axis disposed in parallel to the gun trunnions and carrying an arc-shaped head rigidly connected thereto and surrounding the telescope, the armour having an opening through which said head and telescope project, means for fixing the sighting line relatively to the telescope in different angular positions to correspond to the range of the target, pivotal means for connecting the telescope to said supporting element, the axis of said pivotal means being arranged at right angles to the axis of rotation of said supporting element and adjustable in unison with said supporting element parallel to the direction to be given the bore of the gun barrel, and means for fixing the telescope in different angular positions with respect to the axis of said pivotal means whereby the influence exerted by an oblique position of the trunnions may be eliminated, the arc-shaped head of said supporting element closing the opening in said armour in any position imparted to the supporting element.

3. In a transportable gun having an armored carriage and provided with horizontal trunnions, a sighting telescope projecting through said armour, a supporting element for said telescope projecting through said armour, means for pivotally mounting said supporting element upon said armored carriage about an axis disposed in parallel to the axis of the gun trunnions, said telescope being mounted in said supporting member by pivotal means having an axis adjustable parallel to the direction to be given the bore of the gun barrel, whereby the influence exerted thereupon by an oblique position of the horizontal gun trunnions is eliminated, said supporting element closing the aperture in the armour in any of the positions imparted to it.

4. In a transportable gun having an armored carriage and provided with horizontal trunnions and a sighting telescope, a two-part semi-circular supporting element for said sighting telescope, said armour being provided with an opening through which said supporting element projects, means for mounting said supporting element upon said armored carriage about an axis parallel with the gun trunnions and pivotal means for mounting said telescope within said supporting element, the axis of said pivotal means being adjustable parallel to the direction to be given the bore of the gun barrel, whereby the sighting telescope may be adjusted to eliminate the influence exerted by an oblique position of the horizontal gun trunnions, said supporting element closing the opening in said armour in any of the positions imparted to it.

5. In a transportable gun having an armored carriage and provided with horizontal trunnions, a sighting telescope, a two-part semi-circular supporting element for said sighting telescope, said armour being provided with an opening through which said supporting element projects, pivotal means for mounting said supporting element upon said armored carriage, the axis of rotation of which is parallel to the horizontal trunnions of the gun, pivotal means for supporting said sighting telescope within said supporting element, the axis of rotation of which is adjustable parallel to the direction to be given the bore of the gun whereby the influence exerted by an oblique position of the gun trunnions may be eliminated and an adjustable eye-piece upon said sighting telescope whereby the sighting line may be adjusted to correspond to the range of the target.

6. A sighting device for transportable guns having an armored carriage and provided with horizontal trunnions comprising a sighting telescope, a two-part semi-circular supporting element for said telescope, said armour being provided with an opening through which said supporting element and telescope project, pivotal means for mounting said supporting element upon said armored carriage the axis of rotation thereof being parallel with the axis of the horizon-

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tal gun trunnions, means connecting said supporting element to the gun trunnions for rotation therewith, said supporting element being provided with a double wedge-shaped cavity through which said telescope projects, and means for pivotally mounting said telescope within said supporting element, the axis of rotation thereof being parallel to the axis of the bore of the gun whereby the influence exerted by an oblique position of the horizontal gun trunnions may be eliminated and means for securing said telescope in its last mentioned position of adjustment comprising an extension provided with a slot, an arc-shaped ledge projecting from said telescope and projecting into said slot and a clamping screw for engaging said ledge.

The foregoing specification signed at Essen, Germany, this 7th day of December, 1920.

RICHARD SCHÜRMANN.

In presence of—
HANS GOTTSMANN,
JOHANN DECKERS.