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J. H. ROBERTSON.

SIGHTING DEVICE.

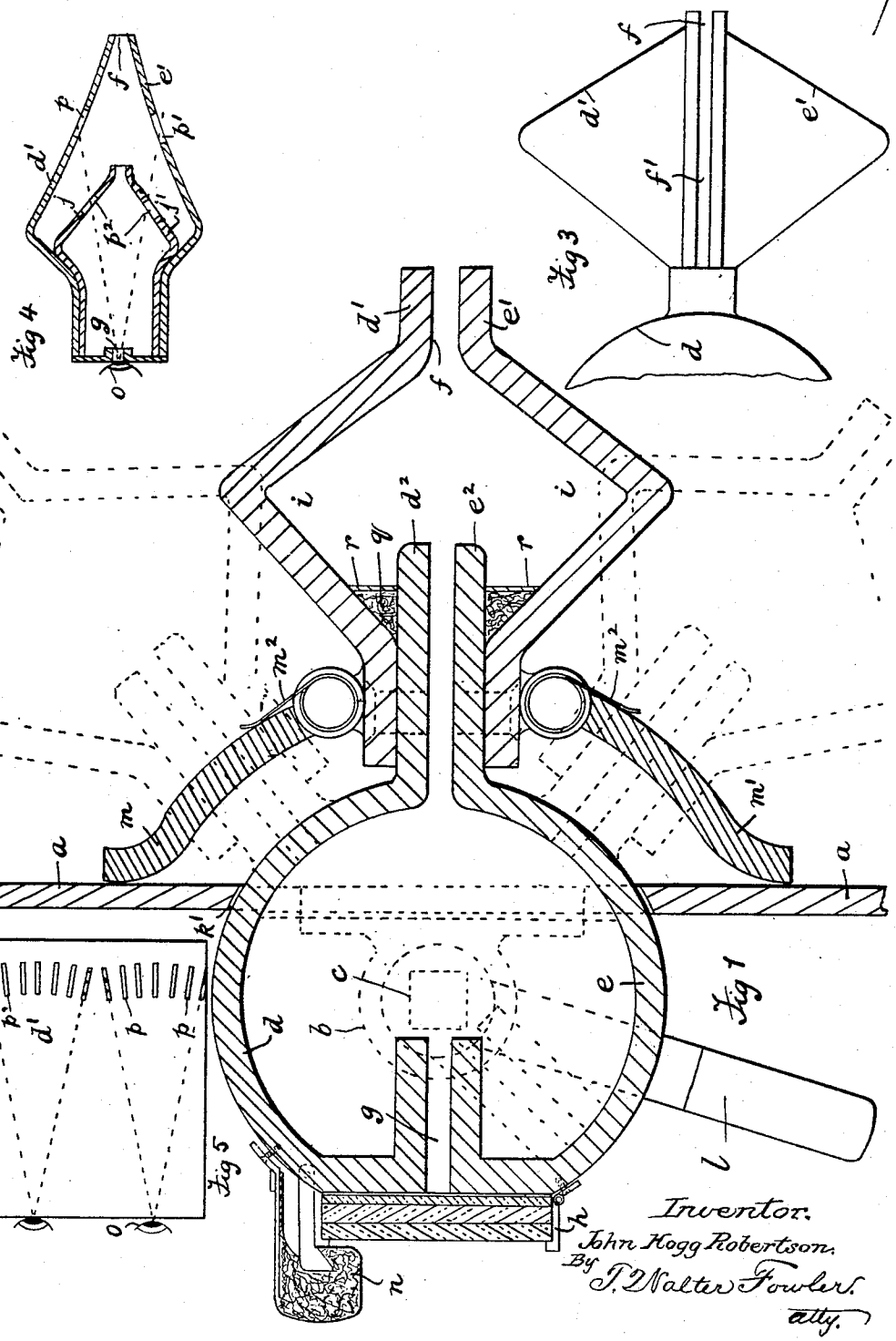
APPLICATION FILED JULY 30, 1918.

1,301,502.

Patented Apr. 22, 1919.

2 SHEETS—SHEET 1.

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2 SHEETS—SHEET 2.

Fig 6

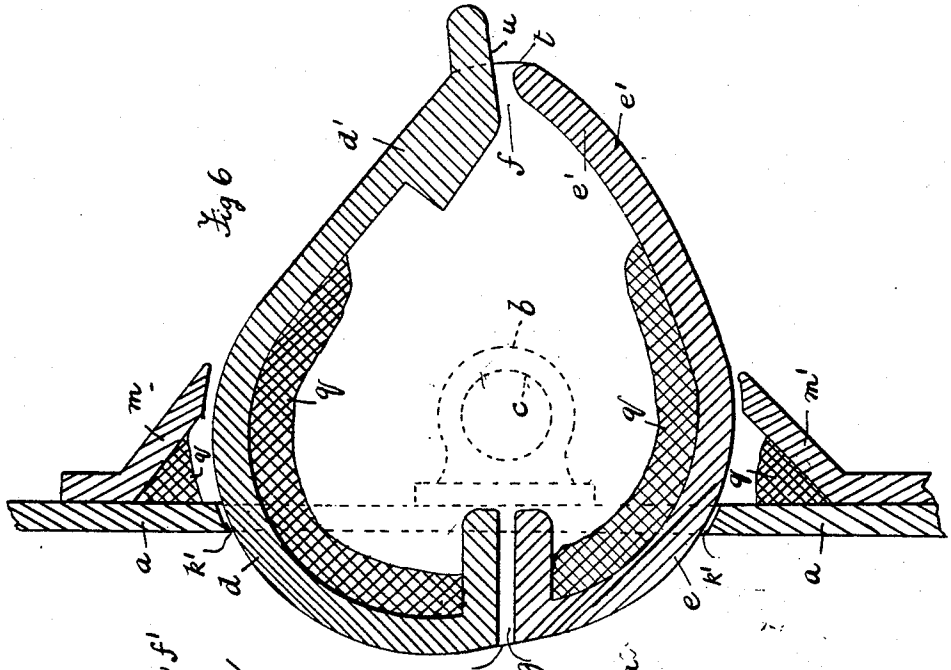
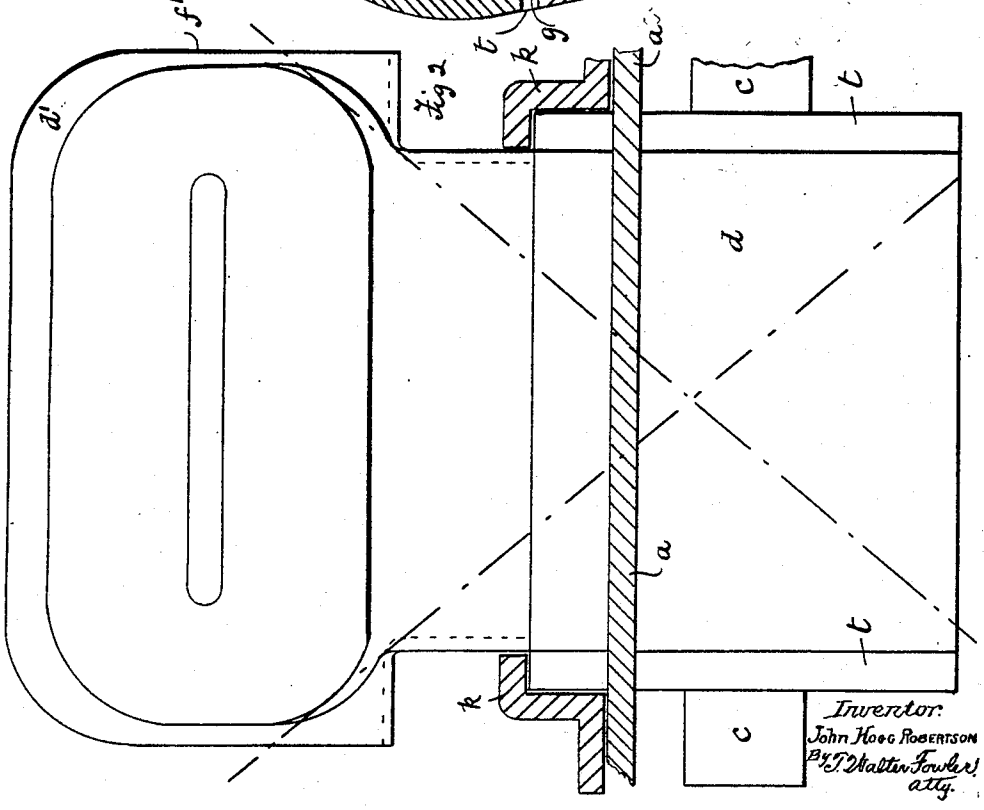


Fig 2



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON

UNITED STATES PATENT OFFICE.

JOHN HOGG ROBERTSON, OF LONDON, ENGLAND.

SIGHTING DEVICE.

1,301,502. Specification of Letters Patent. Patented Apr. 22, 1919.

Application filed July 30, 1918. Serial No. 247,392.

To all whom it may concern:

Be it known that I, JOHN HOGG ROBERTSON, engineer, a subject of the King of England, residing at London, England, have invented certain new and useful Improvements in Sighting Devices, of which the following is a specification.

This invention relates to improvements in sighting apertures or sighting devices for armored vehicles, turrets, observation posts, gun shields and the like.

Hitherto sighting slits, generally horizontal, have been used for this purpose, provided in some cases with an adjustable shielding hood. Where a periscope is employed, the reflecting mirrors are not only liable to be soiled and so rendered ineffective, but even to be smashed by a bullet and in the latter case the viewer or user is liable to be injured by the bullet or the fragments of the mirror. Moreover, a ricochetting bullet down a periscope tube is liable to wound the observer.

The present invention has for its object to enable a direct view to be taken with the minimum of risk (from bullets, shell splinters or the like) to the viewer or to the sighting device itself.

According to the present invention, a sighting slit-aperture is afforded by an elongate chamber formed of upper and lower halves made of bullet-resisting material and having openings at each end in the form of slot apertures through which a sight can be taken, with protection for the user above and below said slit and preferably in the form of angularly inclined plates from the front of the chamber, one upwardly and the other downwardly to the support for the rear of the sighting chamber. The rear of said tubular member or elongate chamber is also provided with a corresponding slit and when such front and rear slits are in register with the eye of the observer, a direct view ahead can be taken through the slits. A suitable transparent medium such as the well-known triplex safety glass is also preferably arranged to the rear of the chamber for greater protection to the user.

The support is secured to the armored vehicle or other protective shield in such a way that the observer behind the shield looks through the length of the member or elongate chamber.

The inclined plates are made of armor-plate or the like, and the slit or slot is preferably of less height than the diameter of an average bullet. Thus a bullet striking the sighting slit in the chamber will not be able to pass along the chamber, and a bullet striking the body of the chamber will be deflected by the upper or lower inclined plates.

The sighting device may be made adjustable as to position relatively to its support. Thus by suitable pivotal mountings the sighting chamber may be elevated or depressed.

In some cases, in addition to the direct view ahead, I may provide for views above or below the direct view slot. For this purpose vertical slots may be formed in the upper and lower inclined plates. I may also cut away the sides of the forward portion of the elongate chamber so as to extend the front slot around part of the sides with a view to affording flank vision.

Upon the accompanying drawings, Figure 1 is a longitudinal section of the device. Fig. 2 is a plan of the device on a somewhat smaller scale. Fig. 3 is a side elevation showing the laterally extended slot for flank vision. Figs. 4 and 5 are diagrams showing the vertical slots for upward or downward vision in the case of a non-adjustable construction. Fig. 6 is a sectional elevation of another form of the sighting device.

In the example shown in Fig. 1, *a* represents a protective shield such as the wall of a tank or similar armored vehicle, fitted with brackets *b* upon the rear of said wall and in which brackets the trunnions *c* of the sighting device are journaled. The sighting device is represented in Fig. 1 as an elongate chamber formed of a rear portion *d e* of part-circular shape connected to a front portion *d' e'*; both portions are shown composed of upper and lower halves closed at the sides by end plates *t* and secured together by rivets, bolts, welding or in any other suitable manner. This part-circular portion *d, e*, passes through an aperture *k'* in the wall *a*. At the front this elongate chamber is slotted to afford a horizontal slot *f* and at rear a similar slot *g* is formed. To the rear of the slot *g* is a detachable frame *h* carrying a pane, strip or eye-piece of transparent protective material such as triplex glass. When the observer looks through the frame *h* and slots *g* and *f* he obtains a straight ahead

view. The interior of the elongate chamber may be provided with inclined baffle plates *j j'* (see Fig. 4) to afford a slot between their converging ends in register with slots *f* and *g* so as not to impede the vision through the tubular sight, but I prefer, as shown in Fig. 1, to form pockets or splash-chambers *i i* above and below the axis of the tubular passage to prevent chance splinters or "splashes" from bullets passing along the whole length of the tubular passage. These pockets are respectively above and below the projecting forward ends d^2 e^2 of the rear portion of the tubular member forming deflector plates. I have shown plastic composition (such as rubber compound) at *q* retained by an aluminium plate *r*, to afford a cushioning or deadening medium for bullet splashes.

The elongate chamber is made of armor plate of any desired thickness and its halves *d' e'* at front are inclined upwardly and downwardly respectively to afford bullet-deflecting faces, and rounded off so that a bullet striking the front will be diverted upwardly or downwardly. At the rear of the elongate chamber part-circular caps *k k* are provided which are seated upon the front of the wall *a* to afford a bearing for the part-circular member *d e*. The device is adjusted as to angle of elevation around the trunnions *c* by means of a controlling handle *l* so that the sighting device can be elevated or depressed, as shown by the dotted lines in Fig. 1. In order to cover the aperture *k'* in the wall *a* at all times, plates *m m'* are hinged to the upper and lower halves of the tubular chamber and bear at their outer ends against the wall *a*. These plates ride up or down the wall, as shown in dotted lines, during the vertical movements of the sighting device, and may be spring-provided as shown at m^2.

A cushioning head-piece *n* is shown in Fig. 1 above the frame *h*, and the eyes of the observer are represented (in Figs. 4 and 5) at *o o*.

To provide for flank vision, the slot *f* may be extended laterally on each side as shown at *f' f'* in Fig. 3, so that as represented by the dotted lines in Fig. 2, lateral views may be obtained from the same position.

In some cases, more especially in the case of a fixed and non-adjustable sighting device where the trunnions *c* and aperture *k'* can be dispensed with, I may provide vertical slots *p p'* in the upper and lower members *d' e'*. These slots would permit of sights being taken above or below the main sight (through slots *g* and *f*), and where intermediate inclined baffle plates, such as *j j'* were employed, corresponding slots p^2 (Fig. 4) would be made therein. The slots *p p'* p^2 would be arranged in two groups upon curves struck from the position of the eyes as centers, to facilitate observation with the narrowest possible upright slits. The arrangement will be understood from the radius lines shown in Fig. 5.

In Fig. 6 I show a simplified chamber *d e* of pear-shape section. This is provided with end plates *t* which carry the trunnions or pivots as *c* supported in brackets as *b* secured upon the protective shield *a*. Sighting is effected through slots *g f* as in Fig. 1. The aperture *k'* in the wall *a* is here shown provided with fixed guard plates *m m'* overlapping said aperture. Cushioning medium *q* is provided in the angular space between the wall *a* and the guards *m m'*. Above the front slot *f*, the underside of the upper part *d* is provided with a deflector face *u* downwardly inclined. The front end or nose of the lower part *e* is curved up to approach the face *u*. Bullets striking the face *u* will be deflected into the lower part *e* and be "killed" by the cushioning medium *q*.

Although described and shown in its application to an armored vehicle or tank, the present invention can be applied to other protective shields such as turrets, observation posts, gun shields or other similar constructions where observations must be made and it is necessary to protect the observer against attack by bullets, shell splinters and the like, such as would be made against ordinary sighting slots or periscopes.

What I claim is:—

1. A sighting device for armored vehicles, gun shields, turrets and the like, comprising upper and lower members of bullet-resisting material, said members being arranged to form a passage affording a narrow horizontal slot at its front end, bullet-deflecting faces upon said members to afford protection for the user and arranged above and below said slot, the rear end of the passage being also in the form of a narrow horizontal slot, and a supporting base for said members, said members projecting from said base and being arranged to allow an observer to look for sighting purposes through the length of the passage.

2. A sighting device for armored vehicles, gun shields, turrets and the like, comprising an elongate chamber of bullet-resisting material formed of upper and lower halves, said halves being separated at front and rear by means of narrow slots to afford a sighting passage by reason of the registration of said slots, and means carried by the armored vehicle or the like for supporting said elongate chamber.

3. A sighting device for a protective shield, comprising an elongate chamber formed of bullet-resisting material and made in upper and lower halves, said halves being separated at front and rear by means of narrow slots to afford a sighting passage along said chamber, means for supporting said

elongate chamber upon said shield, an aperture in said shield, said elongate chamber extending through said aperture, a removable frame at the rear of said sighting passage and a pane of transparent protective material mounted in said frame.

4. A sighting device for a protective shield, comprising an elongate chamber formed of bullet-resisting material, said chamber having at front and rear a narrow horizontal slot to afford a sighting passage through said elongate chamber, bullet-deflecting faces above and below said front slot, an aperture in said shield, said elongate chamber being mounted on a support upon said protective shield so as to project through said aperture and means for adjusting the elevation of said chamber.

5. A sighting device for a protective shield, comprising an elongate chamber formed of bullet-resisting material, and having at front and rear a narrow horizontal slot to afford a sighting passage through said elongate chamber, bullet-deflecting inclined faces upon the front of said chamber above and below said front slot, trunnions upon the rear of said chamber and brackets to carry said trunnions, said brackets being mounted on the rear of said shield and said chamber projecting through an aperture in said field.

6. A sighting device for a protective shield, comprising an elongate chamber formed of bullet-resisting material, and having at front and rear a narrow horizontal slot to afford a sighting passage through said elongate chamber, bullet-deflecting inclined faces upon the front of said elongate chamber above and below said front slot, trunnions upon the rear of said chamber and brackets to carry said trunnions, said brackets being mounted on the rear of said shield and said chamber projecting through an aperture in said shield, pockets in the chamber above and below said sighting passage, said pockets being arranged behind the inclined faces upon the chamber, and cushioning material as a lining to said pockets.

7. A sighting device for a protective shield, comprising an elongate chamber of bullet-resisting material formed of upper and lower halves having convergent front portions and said halves being separated at front and rear by means of narrow slots to afford a sighting passage by reason of the registration of said slots, and means carried by the shield for supporting said elongate chamber, and plate members arranged inside said upper and lower halves, said plate members affording a slot which registers with the front and rear slots of the said chamber.

8. A sighting device for a protective shield, comprising an elongate chamber formed of bullet-resisting material, and having at front and rear a narrow horizontal slot to afford a sighting passage through said elongate chamber, bullet-deflecting inclined faces upon the front of said chamber above and below said front slot, trunnions upon the rear of said chamber and brackets to carry said trunnions, said brackets being mounted on the rear of said shield, and said chamber projecting through an aperture in said shield, and plates adapted to overlap and cover the aperture in said shield.

9. A sighting device for a protective shield, comprising an elongate chamber of bullet-resisting material and having at front and rear a narrow horizontal slot to afford a sighting passage through said elongate chamber, bullet-deflecting inclined faces upon the front of said chamber above and below said front slot, an aperture in said shield through which said chamber projects, means for supporting said chamber in such projecting position, said means being carried by the shield and said front slot being extended radially in the forward portion of the elongate chamber to allow of flank vision.

10. A sighting device for a protective shield, comprising an elongate chamber formed of bullet-resisting material, and having at front and rear a narrow horizontal slot to afford a sighting passage through said elongate chamber, bullet-deflecting inclined faces upon the front of said chamber above and below said front slot, trunnions upon the sides of said chamber and brackets to carry said trunnions, said brackets being mounted on the rear of said shield and said chamber projecting through an aperture in said shield, the upper portion of said elongate chamber having upon its underside immediately above the front slot, a downwardly inclined face, and cushioning material as a lining to the lower part of said chamber.

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

JOHN HOGG ROBERTSON.

Witnesses:
VICTOR F. FEENY,
FREDERICK FRASER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."