Jan. 30, 1923. 1,443,677

G. H. CHALLENGER.
MOUNTING FOR SMALL CALIBER GUNS.
FILED JULY 6, 1917.

Fig. 3.

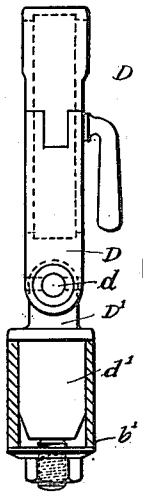
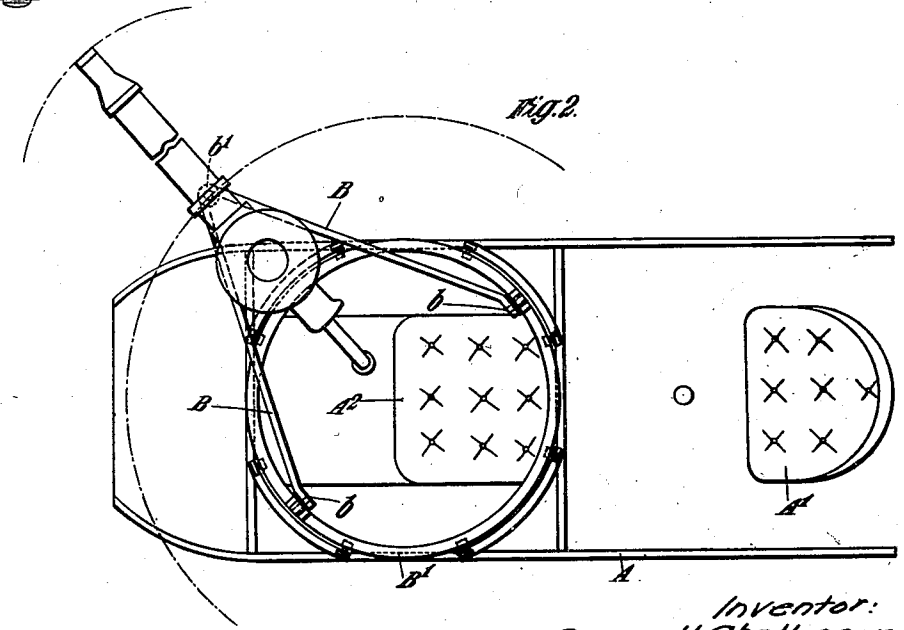


Fig. 1.

Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE HENRY CHALLENGER, OF WESTMINSTER, LONDON, ENGLAND, ASSIGNOR TO VICKERS LIMITED, OF WESTMINSTER, ENGLAND.

MOUNTING FOR SMALL-CALIBER GUNS.

Application filed July 6, 1917. Serial No. 179,075.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, GEORGE HENRY CHALLENGER, a subject of the King of Great Britain, residing at Vickers House, Broadway, Westminster, in the county of London, England, have invented certain new and useful Improvements in or Relating to Mountings for Small-Caliber Guns, (for which I have obtained a patent in Great Britain, No. 9,389, of 1915, filed June 26, 1915), of which the following is a specification.

This invention relates to mountings for small caliber guns particularly those carried by an arm or frame which is pivoted to enable the angle of elevation of the gun to be varied and is rotatably carried, to enable the gun to be trained, by an aeroplane or other aircraft.

According to the invention the pivoted frame carrying the gun is rotatably mounted at the upper part of a well or chamber in which the gunner is accommodated preferably in a sitting position. The gun frame may be pivoted to a ring and is trained by rotating the ring by hand either directly or through gearing; the gun is elevated by displacing the frame about its pivots by hand either directly or through gearing. The gun may be pivoted to the frame in such a manner that it can be moved relatively to the frame both vertically and laterally to enable accurate pointing of the gun to be effected after the ring and frame have been dispaced to bring the gun approximately into the desired firing position.

In order that the said invention may be clearly understood and readily carried into effect, the same will be described more fully with reference to the accompanying drawings, in which:—

Figure 1 is a diagrammatic side elevation of the forward part of an aeroplane fuselage provided with a form of the improvements,

Figure 2 is a plan of Figure 1 with the frame for the gun in a different position, and

Figure 3 is an enlarged sectional side elevation showing the means for supporting the gun on the aforesaid frame.

A is part of the fuselage, A′ is the pilot's seat and A^2 is the gunner's seat. B, B are the side members of the frame that carries the gun and B′ is the rotatable ring to which these side members are pivoted. C is the well or chamber within which the gunner is accommodated and at the upper end of which the ring B′ is mounted.

In the example shown the members B, B are in the form of arms which are pivoted to the ring B′ at points *b*, *b* diametrically or approximately diametrically opposite each other, these arms being so arranged as to constitute the sides of an isosceles triangle or similar figure whose base extends through the pivots *b*, *b* of the arms B, B and whose apex *b′* carries the gun. The means shown for carrying the gun comprise a clip D encircling the casing of the gun, which clip is pivoted at *d* for elevating movements to a member D′ having a spigot *d′* which is rotatably mounted in the apex *b′* of the arms B, B for training movements. By reason of this arrangement of mounting, the gun can readily be brought to any desired angle of elevation and training and when employed on aircraft as shewn can also be depressed to a degree which is limited only by the contour of the car or fuselage on which the gun is mounted. Thus in the example shewn the ring B′ is made of approximately the same diameter as the width of the fuselage and the arms B, B are made of such length that their apex *b′* can be caused to project beyond the sides of the fuselage, (see Figure 2) so that the gun can then be fired vertically downwards if desired, the gunner in this case standing between the said arms. The ring is arranged at such a height above the gunner's seat A^2 that it is approximately level with the gunner's shoulders or head when he is in the sitting position, and the said ring may be suitably padded around its inner and upper surface to minimize or prevent injury to the gunner if he should be thrown against the ring. The seat A^2, instead of being fixed as shewn, may be connected to the ring B′ so that it moves in training therewith.

The aforesaid arms B, B may be provided with counterbalancing springs or weights so that they can be readily raised and lowered and readily releasable means may be employed for locking the arms and the ring B′ in any desired position.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a gun mounting, the combination with a well or chamber in which the gunner

is accommodated, of a ring rotatably mounted at the upper part of said well, a frame supporting the gun, means for pivotally connecting said frame to the ring so that it can be displaced to vary the angle of elevation of the gun, and means for connecting the gun to said frame in such a manner that the gun can be elevated and depressed with respect to said frame.

2. In a gun mounting, the combination with a well or chamber in which the gunner is accommodated, of a ring rotatably mounted at the upper part of said well, a frame pivotally connected to said ring so that said frame can be displaced to vary the angle of elevation of the gun, and means for connecting the gun to said frame in such a manner that the gun can be elevated, depressed and trained with respect to said frame.

3. In a gun mounting, the combination with a well or chamber in which the gunner is accommodated, of a ring rotatably mounted at the upper part of said well, a frame composed of two arms connected together at their outer ends and pivoted to said ring at their inner ends, and means for connecting the gun to the outer ends of said arms in such a manner that the gun can be elevated and depressed with respect to said arms.

4. In an aeroplane gun mounting, the combination with the fuselage of the aeroplane, of a well or chamber in said fuselage for accommodating the gunner, a horizontal ring rotatably mounted at the upper part of said well, said ring being made of approximately the same diameter as the width of the fuselage, a frame composed of two arms connected together at their outer ends and pivoted to the ring at their inner ends, said arms being made of such length that their outer ends can by moving the arms about their pivots be caused to project beyond the sides of the fuselage, and means for supporting the gun on said outer ends of the arms.

5. In an aeroplane gun mounting, the combination with the fuselage of the aeroplane, of a well or chamber in said fuselage for accommodating the gunner, a horizontal ring rotatably mounted at the upper part of said well, said ring being made of approximately the same diameter as the width of the fuselage, a frame composed of two arms connected together at their outer ends and pivoted to the ring at their inner ends, said arms being made of such length that their outer ends can by moving the arms about their pivots be caused to project beyond the sides of the fuselage, and means for supporting the gun on said outer ends of the arms in such a manner that the gun can be elevated and depressed with respect to said arms.

6. The combination, with an aerial craft, having a platform of a frame revoluble horizontally thereon, a support horizontally pivoted to said frame, to swing through opposite vertical arcs of equal extent, said support carrying a gun, and means of axial rotation for said support, whereby the gun may revolve about the longitudinal axis of said support.

7. The combination, with an aerial craft, having a platform, of a gun mount comprising a frame horizontally revoluble upon said platform, and a gun support, also including means for swinging said support through opposite vertical arcs, to train the gun both upwardly and downwardly, auxiliary means of adjustment for the gun in the vertical plane of said arcs, and means of rotation for said gun about the longitudinal axis of said support.

In testimony whereof, I affix my signature.

GEORGE HENRY CHALLENGER.