J. A. ROCHÉ.

GUN MOUNT FOR AIRPLANES.

APPLICATION FILED MAR. 10, 1919.

1,385,755.

Patented July 26, 1921.

2 SHEETS—SHEET 1.

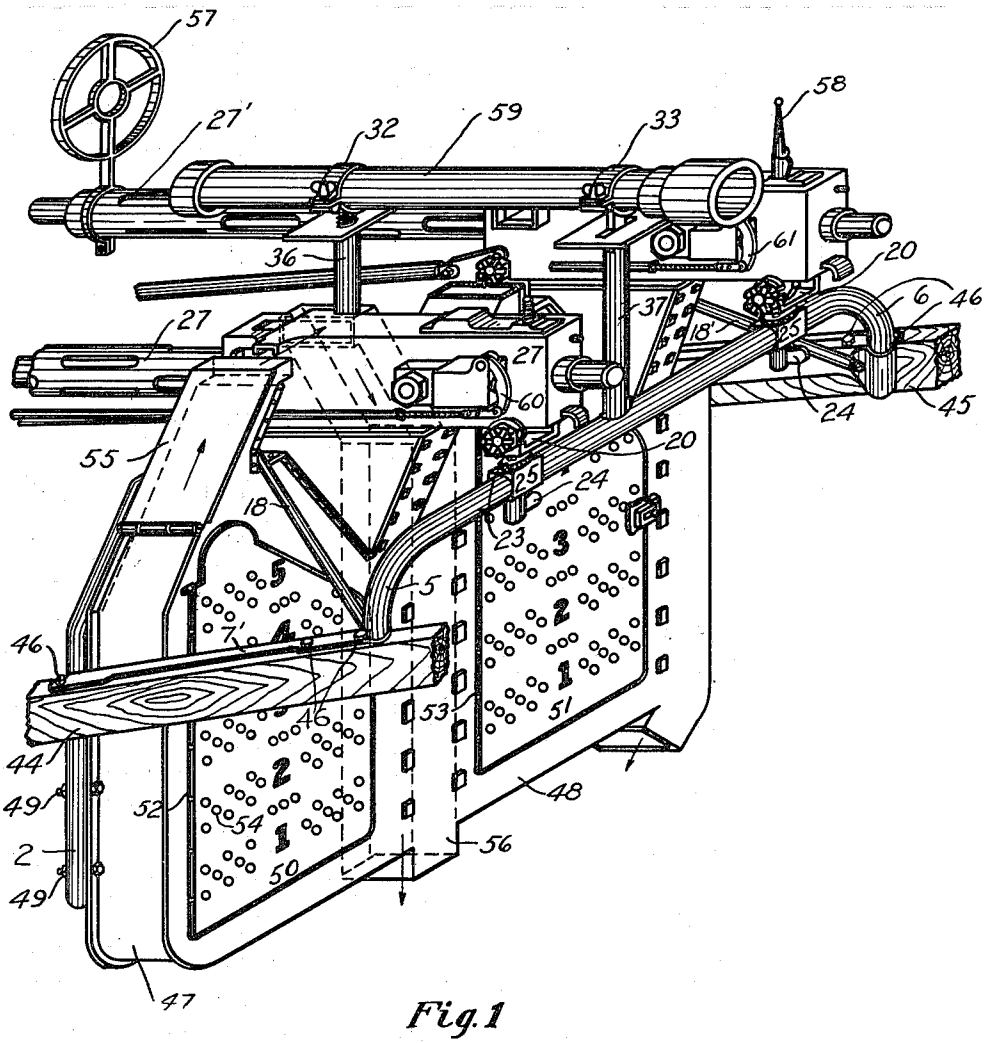


Fig. 1

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2 SHEETS—SHEET 2.

Fig.2

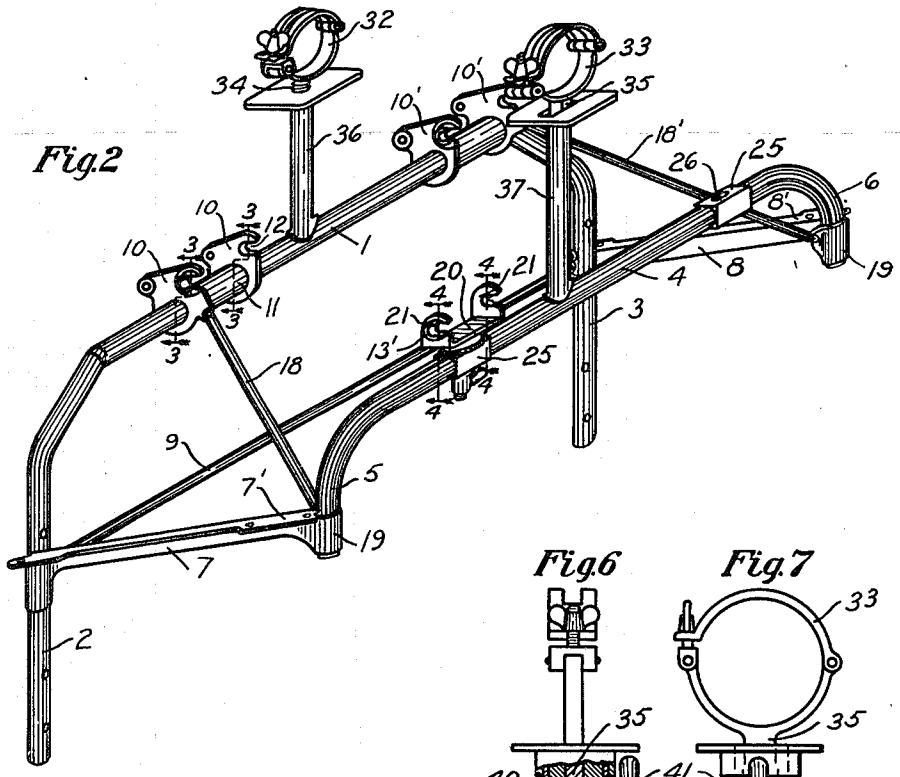


Fig.6

Fig.7

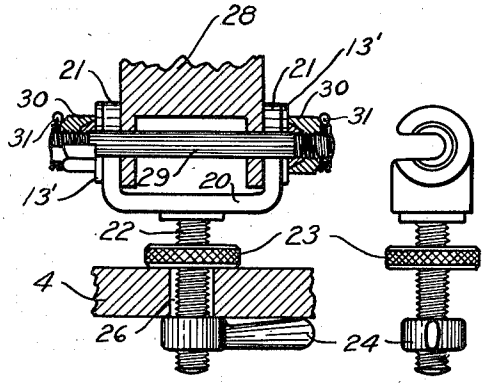


Fig.4

Fig.5

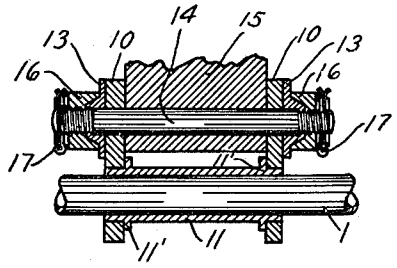


Fig.3

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UNITED STATES PATENT OFFICE.

JEAN A. ROCHÉ, OF DAYTON, OHIO.

GUN-MOUNT FOR AIRPLANES.

1,385,755. Specification of Letters Patent. Patented July 26, 1921.

Application filed March 10, 1919. Serial No. 281,667.

To all whom it may concern:

Be it known that I, JEAN A. ROCHÉ, a citizen of the United States, residing at 18 Almirwin Terrace, Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Gun-Mounts for Airplanes, of which the following is a specification.

This invention relates to an airplane gun mount of the fixed type, that is to say, a mount in which the gun is not movable for aiming purposes, the gun or guns being aimed by steering the airplane itself at the target.

The principal object of the invention is to provide a gun mount which carries at least one gun and one sight and which is removable in its entirety from the airplane fuselage. Heretofore it has been customary to fasten the gun to the fuselage and then to fasten a sight along side it, there being no fixed relation between the gun and its sight. In the case of injury to either the gun or the sight it was rather a lengthy process to replace the injured element and to readjust the same. However, by providing a gun and its coöperating sight on a readily removable frame, in case of injury to either or both parts, the whole unit may be quickly removed, a new one substituted, and the airplane so kept out of commission for a minimum length of time.

In combat work, two guns are commonly carried, fixed with respect to the fuselage, and two types of sights also used for these guns, the Aldis or unit sight, and the ring sight. It is a further object of my invention to provide a gun mount in which these two guns and these two sights are mounted thereon, the whole constituting a unit that is readily removable from the fuselage.

It is a further object of my invention to provide adjustable mounting means for one or more guns, and adjustable mounting means for one or more sights, whereby the guns may be lined up substantially parallel to the longitudinal axis of the fuselage, and whereby the sights may be lined up properly in relation to the guns.

It is a further object of this invention to provide mounting means for an ammunition box or boxes, assembled so as to be readily removable with the already described removable gun and sight unit.

Other objects and advantages will appear as the description proceeds.

In the drawings illustrating a preferred embodiment of my invention, Figure 1 is a perspective view of the fixed gun mount and associated parts. Fig. 2 is a perspective view of the frame of the gun mount separate from its associated parts. Fig. 3 is a section, on an enlarged scale, taken on the line 3—3 of Fig. 2. Fig. 4 is an enlarged section taken on the line 4—4 of Fig. 2. Fig. 5 is a side view of the same, Fig. 6 is an enlarged view, partly in section, of one of the sight mounts, Fig. 7 is a side view of the same.

Referring now to Fig. 2, the frame of the gun mount is composed of a transversely extending, substantially U-shaped front framing element 1, comprising downwardly extending legs 2 and 3. The distance between the legs 2 and 3 is substantially equal to the width of the fuselage. This element 1 may be a rod or a tube and may be built up of several pieces welded or brazed together, the exact details of its manufacture not being of the gist of this invention.

The rear framing element of the gun mount comprises a substantially U-shaped rod or tube 4 extending transversely of the fuselage, the legs of this framing element being indicated at 5 and 6, said legs being spaced apart a distance substantially equal to the width of the fuselage.

These two main framing elements are held in fixed relation to one another by the longitudinally extending braces 7 and 8, provided with horizontal flanges 7′ and 8′. Legs 2 and 3 may be additionally braced by the rod or tube 9.

The means for mounting a gun on the front framing element will now be described. Two brackets 10 are mounted on the spacer tube 11, which tube is provided with flanges 11′. The brackets 10 are slipped over the ends of the tube 11 into close contact with the flanges 11′ and are then brazed or welded in position. Each of the brackets 10 is provided with a rearwardly extending notch 12. Welded on the outside of each of the brackets 10 is a conical notched lug 13, the notch of which registers with the notch 12. The gun is pivotally mounted in the brackets 10 by means of a bolt 14 passing through a suitable aperture in a downwardly extending lug 15 carried by the gun. The bolt 15 is seated in the notches 12 and is held in proper position by nuts 16 that engage with the conical lugs 13. Cotter pins 17 may be used if desired.

Where two guns are used a precisely similar set of brackets 10′ and coöperating parts may be provided.

Diagonal framing elements 18 and 18′ may be interposed between one each of the brackets 10 and 10′, and a collar 19 carried by each of the longitudinally extending braces 7 and 8.

The mounting for the rear end of the gun comprises a U-shaped bracket, consisting of a horizontally extending portion 20, which carries vertically disposed notched lugs 21. Welded on these lugs 21 are conical notched lugs 13′ similar to the lugs 13 already described. The U-shaped bracket is carried by a threaded shaft 22 which extends downwardly therefrom and carries thereon threaded adjusting nuts 23 and 24.

The tube 4 carries a block 25 mounted thereon in any suitable manner and provided with a vertically disposed transversely extending slot 26.

The gun itself indicated by 27 is provided with a downwardly extending perforated element 28, which is adapted to the position between the lugs 21. A mounting bolt 29, engaged in the notches in the lug 13′ and in the apertures in the lug 28 serve to mount the rear end of the gun. Vertical adjustment of the gun is had by manipulation of the nuts 23 and 24, which engage tightly against the top and bottom of the framing element 4. During this adjustment the gun pivots about the bolt 14.

Lateral adjustment of the gun is had by movement of the threaded shaft 22 in the slot 26. When both lateral and vertical adjustments have been made the gun is held rigidly in its final position by the nuts 23 and 24. The amount is so designed that the amount of vertical and lateral adjustment required to be made is rather small. It has not been found necessary to make any particular provision for lateral movement with respect to the front pair of brackets 10. The elasticity of the metal of the brackets readily takes care of the slight lateral movement.

Bolt 29 may be held in position by nuts 30 and cotter pins 31.

On Fig. 2 the rear right hand mounting brackets have not been shown, but it should be understood that a pair of these brackets is used in coöperation with the block 25, shown on the right hand side of this figure.

The gun mount also carries mounting means for an Aldis sight, also known as a unit sight. The sight is mounted in front and rear brackets 32 and 33, respectively carried by shafts 34 and 35, carried respectively by brackets 36 and 37, that in turn are mounted on the framing elements 1 and 4, respectively. Shaft 34 may be threaded for vertical adjustment.

The rear sight mounting has means for both vertical and lateral adjustment. The standard 37 carries at its upper end the element 38 provided with a slot 39, in which slot 39, shaft 35 may move vertically and laterally. The shaft 35 has cut therein a vertical slot 40. A clamping screw 41 threaded as at 42 to engage with the element 38 is used to clamp the shaft 35 in its final position. This clamping screw 41 is provided with a shoulder 43, which is large enough to extend beyond the edges of the slot 40. It is apparent then, that when the screw 41 is tightened the shoulder 43 will bear against the sides of the slot to hold it in final position.

Referring now to Fig. 1 the gun mount is mounted in the fuselage, on the two upper longérons 44 and 45, thereof. Flanges 7′ and 8′ rest on these longérons and are bolted thereto by a plurality of bolts 46, here shown as three in number on each side. These six bolts constitute the entire connection between the gun mount and the fuselage. It is therefore apparent that in case any part of the outfit is injured, the whole mount, including guns, sights and so on may be quickly removed and a new mount substituted, thereby keeping the airplane out of commission a minimum amount of time.

The gun mount also carries two ammunition boxes 47 and 48, which are bolted to the legs 2 and 3 of the front framing element by a plurality of bolts 49. These ammunition boxes may be provided with doors 50 and 51 hinged at 52 and 53 and provided with perforations 54, so that the amount of ammunition left in the boxes at any given time may be readily perceived by looking through these perforations 54. The cartridges are fed to the gun through the feed chutes 55. The empty shells are ejected through the chutes 56.

The guns themselves are indicated at 27 and 27′, guns of the Browning type being shown. Gun 27′ may carry thereon a ring sight 57 and bead sight 58. The Aldis or unit sight mounted in the clamps 32 and 33 is indicated at 59. Connections to the synchronizer firing mechanism are indicated at 60 and 61.

The ready removability of the gun mount and associated parts, as a unit, said unit comprising adjustable guns, an adjustable sight, and ammunition boxes, is of particular advantage in military work, because if any part of the unit is injured, the airplane is not out of commission while that unit is being repaired, but a new unit may be quickly substituted.

The ready adjustability of the guns and sight, after the unit is mounted in place in the fuselage, makes it an easy matter to line up the guns and sights. As good combat pilots check up on the alinement and accuracy of fire of their guns after every flight,

this feature of ready adjustment becomes an important one.

While I have illustrated my invention in considerable detail it should be understood that the invention may be carried out in other embodiments, as falling within the scope of the following claims.

I claim:—

1. An airplane fixed gun mount, comprising a frame adapted to engage with two longérons of the fuselage, a gun holding means carried by said frame for holding a gun, adjustable means carried by said frame independently of the gun holding means for holding a gun sight.

2. In an airplane fixed gun mount, the combination of a frame, a gun mounted on said frame and a sight mounted on said frame independently of the gun holding means, all of said parts constituting a unit removable in its entirety from the fuselage.

3. In an airplane fixed gun mount, the combination of a frame, a gun adjustably mounted on said frame and a sight mounted on said frame, independently of the gun holding means, all of said parts constituting a unit removable in its entirety from the fuselage.

4. In an airplane fixed gun mount, the combination of a frame, a gun mounted on said frame and a sight adjustably mounted on said frame independently of the gun holding means, all of said parts constituting a unit removable in its entirety from the fuselage.

5. In an airplane fixed gun mount, a pair of framing elements extending transversely of the fuselage, a second pair of framing elements, connecting said transversely extending framing elements, and gun engaging means carried by each of said transversely extending framing elements.

6. The combination as claimed in claim 5, in combination with sight engaging means carried by one of said transversely extending elements.

7. The combination as claimed in claim 5, in combination with means associated with said second pair of framing elements for engagement with the fuselage.

8. The combination as claimed in claim 5, said second pair of framing elements being provided with means to engage with the two upper longérons of the fuselage.

In testimony whereof I affix my signature.

JEAN A. ROCHÉ.