

Feb. 5, 1929.

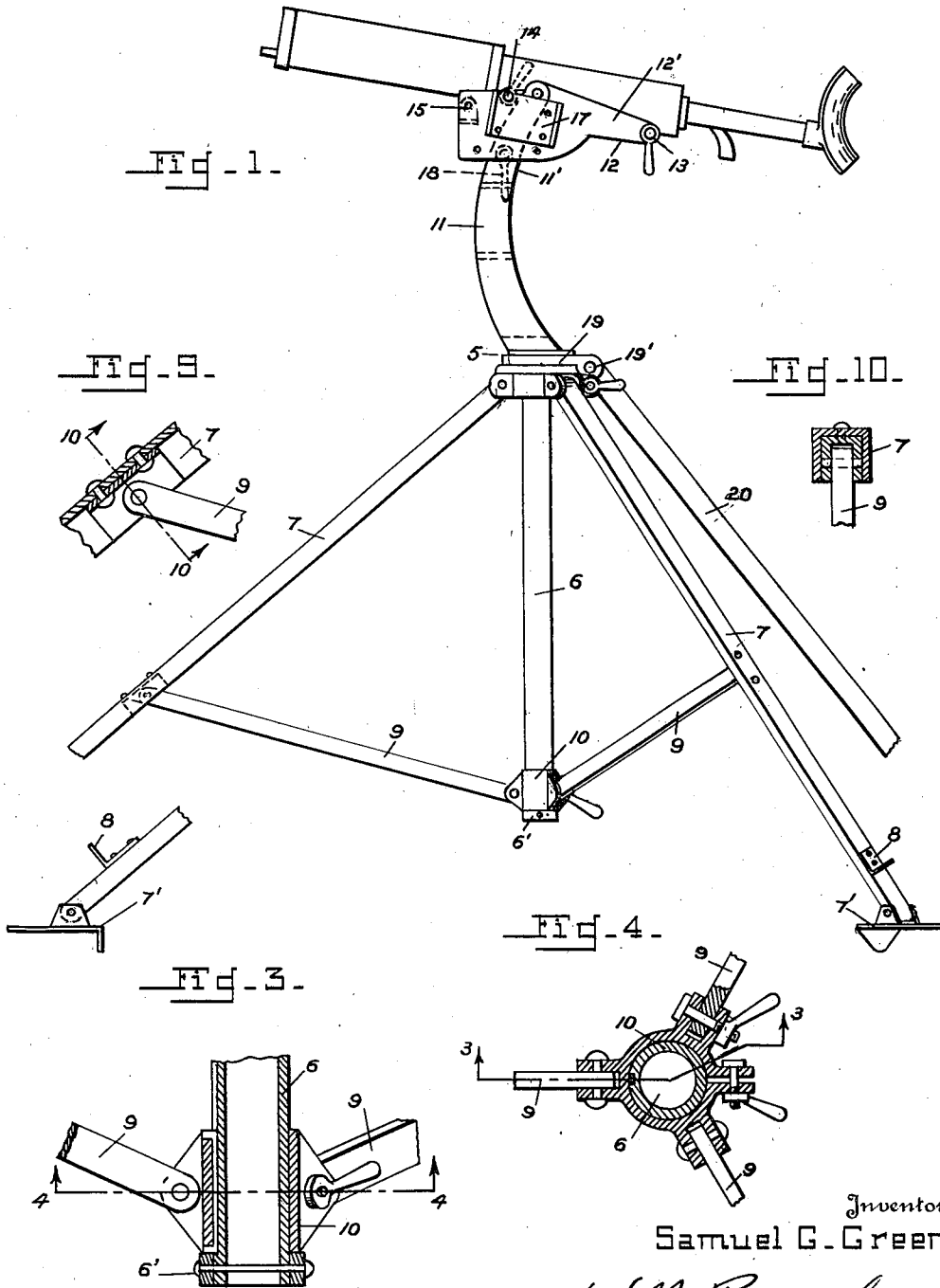
1,701,153

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TRIPOD MOUNT FOR ANTI-AIRCRAFT MACHINE GUNS

Filed Oct. 9, 1925

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

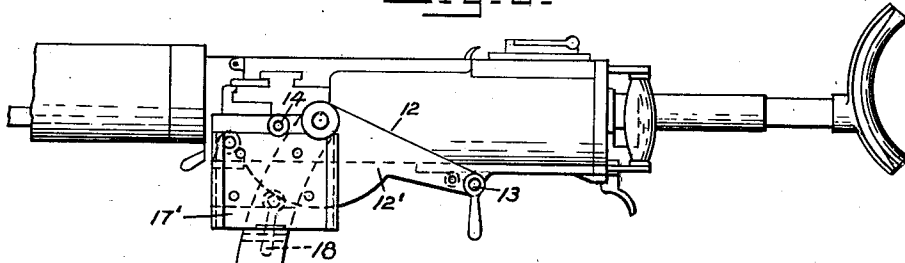


Fig. 7.

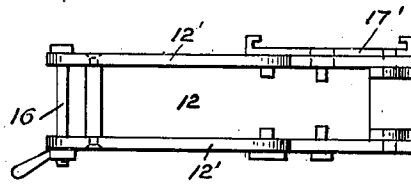


Fig. 8.

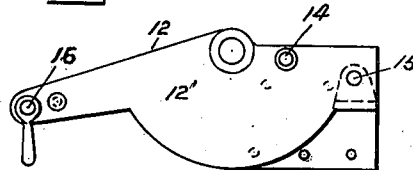
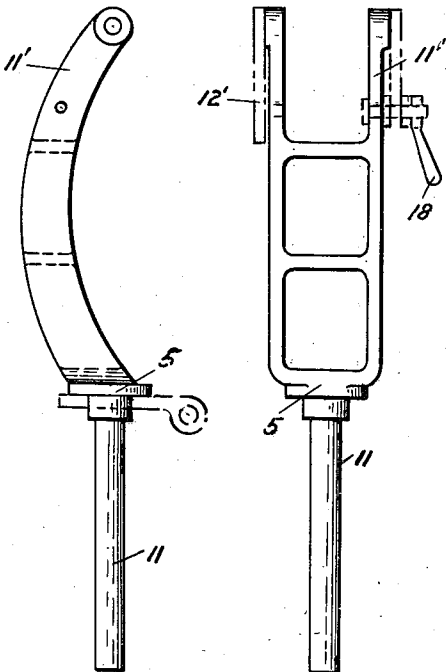


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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TRIPOD MOUNT FOR ANTI-AIRCRAFT MACHINE GUNS.

Application filed October 9, 1925. Serial No. 61,613.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757.)

The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

5 This invention relates to a tripod mount for anti-aircraft machine guns.

In directing a gun for high angle fire against rapidly moving aerial targets, it is desirable that the mount be sufficiently elevated to provide for proper aiming and manipulation of the gun. The mount should be portable and capable of rapid adjustment to its elevated and folded position, and it is therefore necessary to reduce its weight to a minimum without sacrifice of stability, rigidity and compactness.

In tripods of this character, the legs are generally maintained in spaced relation by means of braces connected to a standard slidable with respect to the tripod head so that the tripod and the standard are adjusted in unison to their highest position. The braces are thus disposed substantially parallel to the tripod legs and the mount is extremely in-

25 secure. Inasmuch as the utmost rigidity should be provided in the maximum elevation of the mount, I provide a fixed central post from which the braces extend to the legs, the attachment of the braces being so located as to form substantially equi-lateral triangles with their sustaining members when the mount is in its highest position. In the further interest of stability the cradle, which provides for alternate attachment of guns of different calibers, is trunnioned above the center line of bore, coincident with the axis of traverse and in rear of the center of gravity of the gun and cradle assembly. This condition obtains irrespective of the caliber of the gun and produces a slight tendency to depress rather than elevate the gun during its operation. This is offset by the natural inclination of the gunner to bear down on the breech end of the gun. The standard in which the cradle is trunnioned is an arcuate member whose weight is disposed forwardly of the cradle trunnions so as to tend to compensate for the rearward thrust transmitted to the mount due to the force of recoil and also to accommodate the cradle when the gun is elevated to a practically vertical position.

To establish additional support for the heavier type of gun a fourth leg may be read-

ily attached to a freely rotatable collar on the tripod head.

Ease of manufacture is made possible by use of commercial stock material, channel irons, angle irons, T-irons and castings. Furthermore this construction affords greater rigidity and enables the mount to be folded in a bundle of minimum size.

To these and other ends, my invention consists in the construction, arrangement, and combination of elements, described herein after and pointed out in the claims forming a part of this specification.

A practical embodiment of the invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is a view in side elevation of a mount constructed in accordance with the invention and adjusted to its maximum elevation;

Fig. 2 is a fragmentary view showing the alternate mounting of a heavier type of gun;

Fig. 3 is a vertical sectional view of the sliding clamp on the line 3—3 of Fig. 4;

Fig. 4 is a cross section of the sliding clamp on the line 4—4 of Fig. 3;

Fig. 5 is a detail view in side elevation of the standard;

Fig. 6 is a detail view in front elevation of the standard;

Fig. 7 is a detail plan view of the cradle;

Fig. 8 is a detail view in side elevation of the cradle;

Fig. 9 is an enlarged sectional view showing the manner of securing the braces; and

Fig. 10 is a sectional view taken on the line 10—10 of Fig. 9.

Referring to the drawings by numerals of reference:

There is shown a tripod mount comprising a central head 5 to which is rigidly fixed a depending hollow post 6 formed at its lower extremity with a collar 6'. Pivoted to the head at equal intervals are the three legs 7, all of equal length, and preferably consisting of channel or T irons provided with a pivoted foot 7' and having a cleat 8 for retaining a sandbag. The legs are maintained in spaced relation by means of braces 9, either of T or channel iron, one being pivoted to each leg and to a sliding clamp 10 on the post 6. When the tripod is adjusted to its maximum elevation the clamp will be at the lower end of the post below the attachment of the braces to the legs, or in other words, the braces will

form their greatest angle with the legs. In this position, the braces will also form substantially equi-lateral triangles with the adjoining post and leg thus providing greater rigidity to the mount. By virtue of the fact that clearance must be maintained between the post and the ground to allow for lowering the tripod and also because the legs must be of sufficient length to establish a base of proper area, I have found it advisable in order to provide greater strength to the individual legs to slightly move the point of attachment of the braces and legs from a position of equilaterality.

In adjusting the tripod to its lowest position the clamp 10 is moved up on the post 6 until the braces are all in the same plane. Stability is not sacrificed because of the gain in spread.

A standard mounted for 360° rotation in azimuth by having its stem 11 in the tubular post terminates in a yoke 11' in which is trunnioned a cradle 12 consisting of spaced plates 12'. The cradle trunnions are positioned so that their axis has a point coincident with a point in the axis of the standard and also with a point in the center of gravity of the recoiling parts. The standard is formed as an arcuate member to allow for movement of the cradle to a vertical position and to dispose its weight forwardly of the trunnions to compensate for the rearward thrust transmitted to the mount.

The cradle is designed to mount a standard gun of either .30 or .50 caliber as shown respectively in Figures 1 and 2. For this purpose there are provided in the cradle plates aligned sets of apertures 13, 14 and 15, the first two serving to receive the attaching pins 16 when mounting a .30 caliber gun and the first and the last receiving the pins when mounting a .50 caliber gun. The cradle plates are also provided with two sets of apertures for mounting brackets 17 and 17' which receive the ammunition box, not shown.

Irrespective of which type of gun is mounted, the cradle trunnions are positioned in rear of the center of gravity of the gun and cradle assembly and above the center line of bore preferably between the center line of bore and the center line of acceleration. The trunnions are further located on the center of gravity of the recoiling parts. Theoretically, the center lines of bore and acceleration should coincide but due to weight limitations in small caliber guns such a coincidence is

impractical. The foregoing determination of the cradle trunnions produces a tendency to depress rather than to elevate the gun during its operation but this is offset by the natural inclination of the gunner to bear down on the stock of the gun.

For the purpose of securing the cradle in position of elevation, a clamp or lock 18 of any suitable type may be mounted on the standard.

In employing the caliber .50 gun, the thrust transmitted to the mount is considerable and it is therefore desirable to always have one leg of the tripod directly in line with the gun. As it is manifestly impractical to constantly shift the mount, I provide on the tripod head 5, a freely rotatable ring or collar 19 having an apertured lug 19' to which may be readily attached a fourth or auxiliary leg 20. A gun server may keep this leg lined up with the gun without interfering with the gunner.

In folding the mount the clamp 10 may be moved up adjacent the tripod head and the standard lifted from its socket.

While in the foregoing there has been illustrated and described such combination and arrangement of elements as constitute the preferred embodiment of my invention, it is nevertheless desired to emphasize the fact that interpretation of the invention should only be conclusive when made in the light of the subjoined claims.

I claim:

1. A mount for machine guns embodying a tripod, an arcuate standard rotatable therein, a cradle trunnioned in the standard coincident with the axis of rotation of said standard and having means for alternately mounting guns of different caliber, the cradle trunnions positioned above the center line of bore and in rear of the center of gravity of the gun and cradle.

2. A mount for guns embodying a tripod, a standard rotatable therein, and a cradle trunnioned in the standard and having means for alternately mounting guns of different calibers.

3. A mount for guns embodying a tripod and an arcuate standard mounted for rotation therein and having its extremity coincident with the axis of rotation.

4. A mount for guns embodying a tripod, means supported thereby for mounting a gun, a ring freely rotatable on the tripod head and an auxiliary leg attachable to said ring.

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