

Dec. 19, 1933.

C. F. HOFSTETTER

1,939,699

GUN MOUNT

Filed Nov. 30, 1931

3 Sheets-Sheet 1

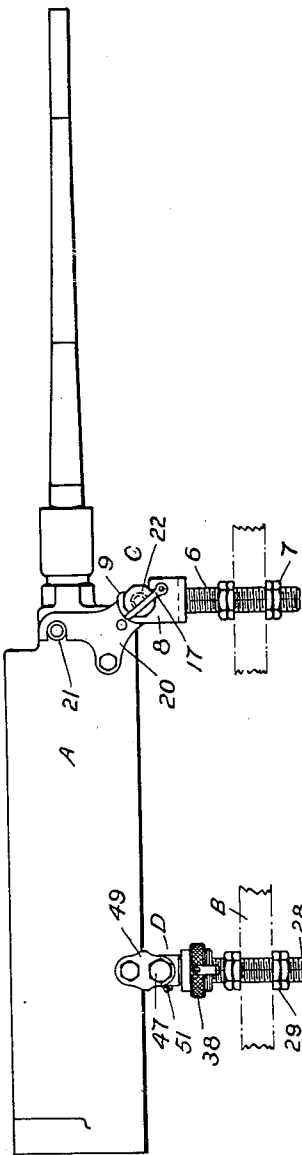


FIG. 1-

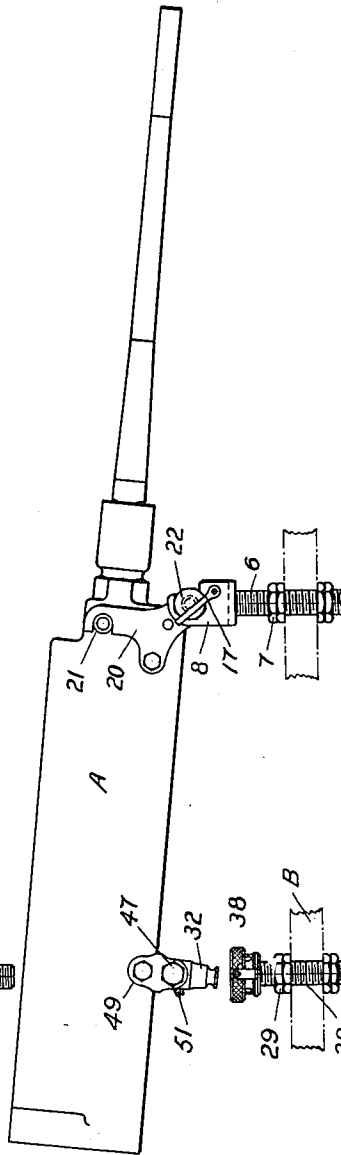


FIG. 2-

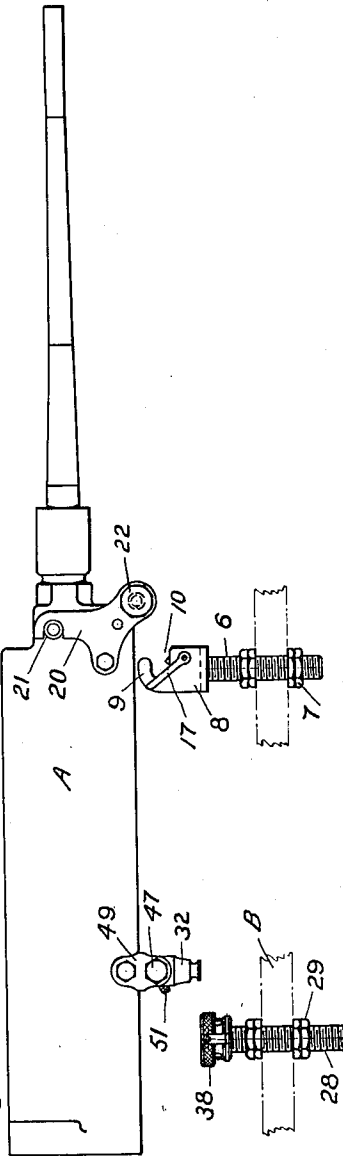


FIG. 3-

INVENTOR
Clarence F. Hofstetter
BY *W. N. Roach*
ATTORNEY

Dec. 19, 1933.

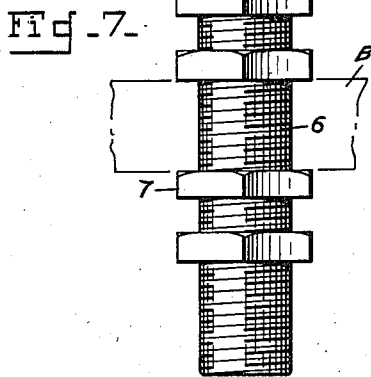
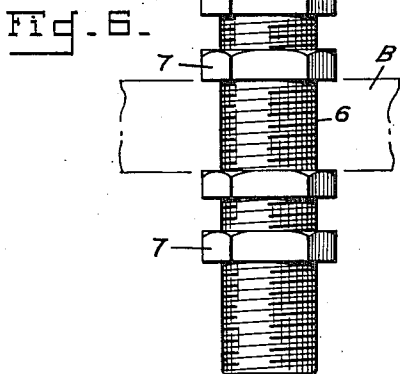
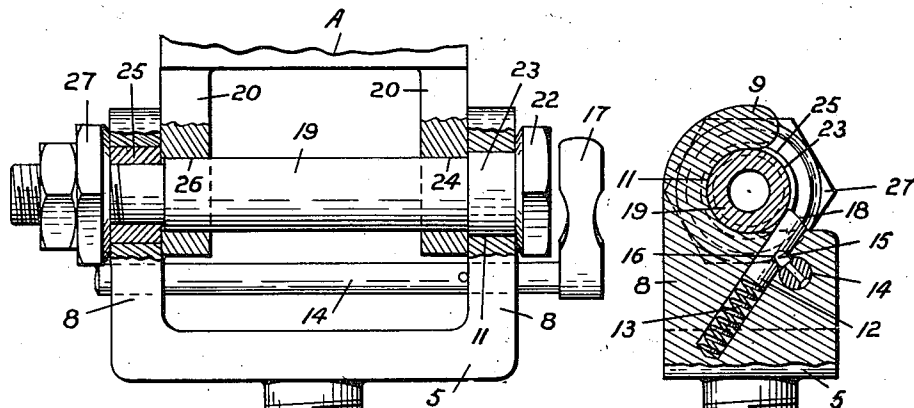
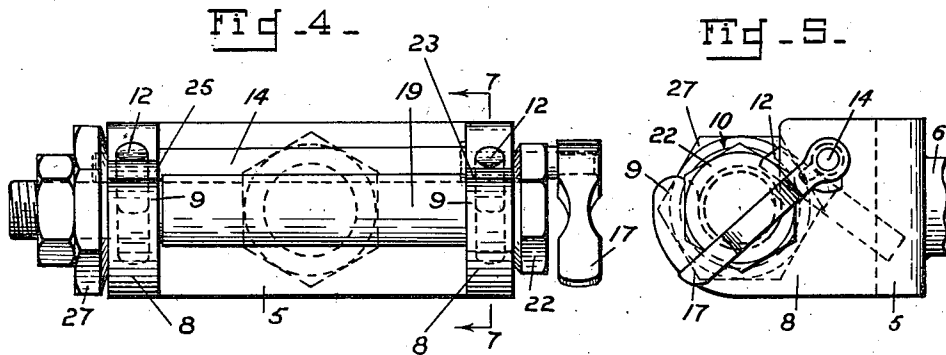
C. F. HOFSTETTER

1,939,699

GUN MOUNT

Filed Nov. 30, 1931

3 Sheets-Sheet 2



INVENTOR.
Clarence F. Hofstetter
BY *W. N. Roach*
ATTORNEY.

Dec. 19, 1933.

C. F. HOFSTETTER

1,939,699

GUN MOUNT

Filed Nov. 30, 1931.

3 Sheets-Sheet 3

Fig. 8.

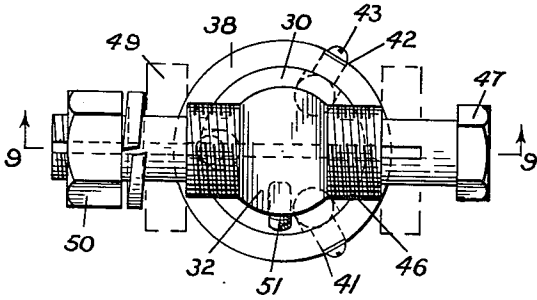


Fig. 10.

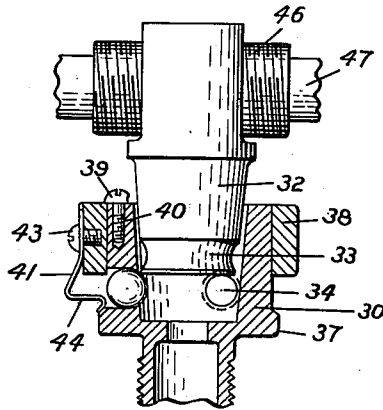


Fig. 9.

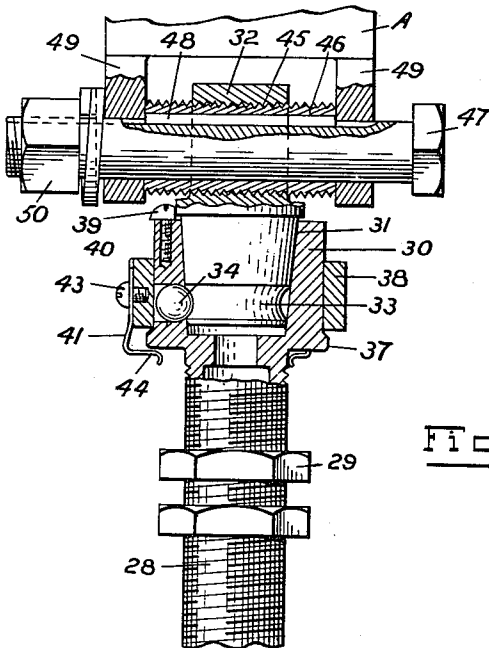


Fig. 11.

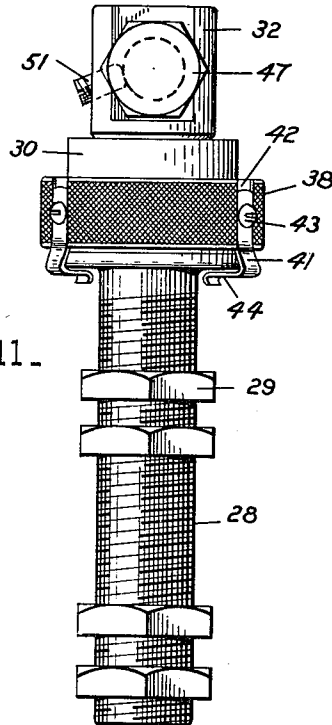
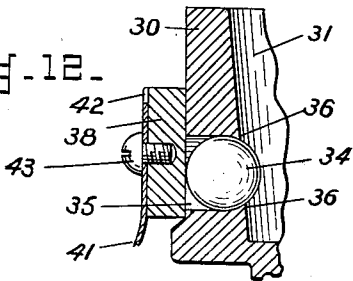


Fig. 12.



INVENTOR.
Clarence F. Hofstetter
BY *W. N. Roach*
ATTORNEY

UNITED STATES PATENT OFFICE

1,939,699

GUN MOUNT

Clarence F. Hofstetter, United States Army, Dayton, Ohio

Application November 30, 1931
Serial No. 578,037

4 Claims. (Cl. 89—40)

(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 The subject of this invention is a gun mount especially applicable to a machine gun mounting.

The principal object of the invention is to provide a coupling arrangement whereby a gun may be quickly and easily emplaced and removed from its mount without the use of tools and without disturbing the lateral and vertical adjustment of the parts.

5 With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

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

5 Fig. 1 is a view in side elevation showing the improved means for coupling a gun to its mount.

Fig. 2 is a similar view showing one step in effecting the mounting.

10 Fig. 3 is a similar view showing the preliminary relative position of the members to be coupled.

Fig. 4 is a plan view of the front coupling.

Fig. 5 is a view in side elevation of Fig. 4.

Fig. 6 is a view in end elevation of Fig. 4 parts in section.

15 Fig. 7 is a sectional view on the line 7—7 of Fig. 4.

Fig. 8 is a plan view of the rear coupling.

Fig. 9 is a view in end elevation of Fig. 8, parts being in section on the line 9—9 of Fig. 8, and the coupling being shown in the locked position.

Fig. 10 is a fragmentary view in longitudinal section showing the coupling in unlocked position.

Fig. 11 is a view in side elevation of the structure shown in Fig. 9.

15 Fig. 12 is an enlarged detail sectional view of a portion of Fig. 9.

Referring to the drawings by character of reference.

20 In Fig. 1 a supported member A, which in the present instance is a gun, is fixed to a base or supporting member B by means of a front coupling C and a rear coupling D.

Referring especially to Figs. 4 to 7, one element of the front coupling consists of a yoke 5 fast on a post 6 which extends through the base B

and is firmly clamped thereto by the nuts 7—7. Each of the arms 8 of the yoke terminates in a hook 9 providing a front entry 10 to a half-bearing 11. A plunger 12 mounted in each arm 8 tangential to the trace of the bearing 11 is accordingly disposed in the entry 10 where it is held by a spring 13. A rod 14 journaled in the arms 8 adjacent the plunger carries a radially projecting stud 15 for each plunger and the studs limit rotation of the rod by engaging the walls of the arms 8. Each stud 15 fits in a slot or recess 16 in the plunger and serves to limit extrusion of the plunger under the action of the spring 13 as well as to withdraw the plunger from the entry when the rod 14 is rotated by means of the lever 17 fixed to one end thereof. The outer end face 18 of each plunger is beveled to facilitate its withdrawal when struck by a bolt 19 moved through the entry into the bearing. The bolt is retained in place by the normally extruded plungers.

As seen more clearly in Fig. 3, the bolt 19 is carried by a bracket 20 on each side of the gun. The brackets in reality comprise an adapter whereby the bolt is a substitute for the normal gun trunnions 21 and it is to be understood that the adapter could just as readily be incorporated in the yoke 5 by increasing the height of the arms 8.

Referring to Fig. 6 the bolt 19 is provided with a head 22 and an adjoining collar 23 adapted to fit in the bearing 11 and having a diameter in excess of the opening 24 in the right bracket 20. On the other end of the bolt a bushing 25 larger than the opening 26 in the left bracket cooperates with the collar 23 in preventing lateral movement of the bolt relative to the brackets. The bushing 25 is retained by a nut 27. The inner edges of the bushing and the head 22 and the outer rear edges of the brackets 20 are beveled to facilitate disposition of the bolt 19 in the bearings 11.

The rear coupling D, includes a hollow post 28 clamped to the base B by nuts 29. On the upper end of the post and integral therewith is an enlarged member 30 formed with a tapered bearing or socket 31 which is in communication with the hollow post to enable foreign material entering the socket to have a ready exit. The socket is adapted to receive a tapered plug 32 carried by the supported member or gun A. The lower or outer end portion of the plug is formed with an annular groove 33 whereby it is engaged and retained by balls 34, three being shown mounted in apertures 35 in the wall of the socket

member and capable of projecting into the interior thereof to exactly fit in the groove.

The apertures 35 have an inside rim 36 (Fig. 12) of reduced diameter which limits the inward movement of the ball to a minor projection and thereby assures that they will not go beyond a point where they cannot be cammed outwardly by the plug as it is inserted in the socket member. The wall of the socket member is of such thickness that when the ball is in contact with the groove of the plug the outer face of the wall of the socket member will be exactly tangent to the ball.

The socket member 30 is externally cylindrical and has a flange 37 on its lower extremity to act as a stop for limiting downward movement of a locking ring 38 embracing the socket member. The locking ring serves to confine the balls 34 in the apertures of the socket member and to hold them in contact with the plug.

The upward movement of the locking ring is limited by the projecting head 39 of a screw 40 threaded into the socket member. When in this position as shown in Fig. 10 its lower edge covers the upper portion of the apertures 35 and prevents escape of the balls while permitting them to move outwardly a sufficient distance to clear the plug. The locking ring when moved downwardly will strike the balls and force them inwardly into the groove of the plug.

A plurality of spaced springs 41 are carried by the locking ring and each of them is fitted into a slot 42 in the periphery of the ring and secured by means of a screw 43. The free end of each spring is bent inwardly as at 44. In the lowered position of the locking ring (Fig. 9) the bent portion 44 engages underneath the lower end of the socket member while in the raised position of the ring (Fig. 10) the extremity of the portion 44 bears against the outer surface of the socket member. In either position the springs serve to hold the locking ring in place.

The upper portion of the plug 32 is formed with an internally threaded aperture 45 receiving an externally threaded sleeve 46. The sleeve is secured to a bolt 47 by means of a spline 48 so that it may be laterally adjusted relative to the plug upon rotation of the bolt. Brackets 49 on the rear end of the gun are apertured to receive the bolt which is secured by a nut 50. The brackets are positioned one on each side of the sleeve so that the gun will partake of lateral movement with the sleeve. The bolt 47 is held in position of lateral adjustment by a set screw 51 in the upper portion of the plug 32.

As shown in Fig. 3 the relative positioning of the members to be coupled involves holding the gun forwardly of its ultimate position so that when it is moved axially and rearwardly in the plane of the base the bolt 19 will enter the half-bearing 11, depressing the plungers 12 which automatically return to hold the bolt against removal. The rear end of the gun is then lowered, being swung about the bolt 19 as a pivot and the plug 32 by virtue of its tapered shape will enter the socket 31. The locking ring 38 which has been raised is now lowered, forcing the balls 34 to engage the plug 32.

In dismounting the gun this procedure is re-

versed, the locking ring being first raised to release the rear coupling and the lever 17 being acted on to rotate the rod 14 and depress the plungers, thereby permitting the bolt 19 to be removed from the yoke. The act of mounting and dismounting the gun can thus be quickly effected without disturbing the vertical adjustments of the posts 6 and 28 of the front and rear coupling and lateral adjustment of the sleeve 46.

While the invention is illustrated in connection with a fixed mounting of a gun it is to be clearly understood that either one of the couplings may serve independently and equally as well to support the gun on a free mounting, that is on a single pivot. In the latter case the base 5 would be mounted for rotation in azimuth.

It is also to be understood that the front and rear couplings are interchangeable, that is the gun or other supported member may be reversed, and that such interpretation is to be placed on the words "front" and "rear" wherever appearing in the claims.

I claim:

1. In a mount for a gun, a vertically adjustable front support, a vertically adjustable rear support, bearings in the front support having a horizontally directed entry, a tapered bearing on the rear support, having a vertically directed entry, the gun being insertable between the front bearings, a pin projecting laterally from the gun and receivable in the bearings of the front support, means for holding the pin in the bearings, a tapered plug on the gun receivable in the tapered bearing of the rear support, means for holding the plug in place and means for moving the plug laterally relative to the gun.

2. In a mount for a gun, a vertically adjustable front support, a vertically adjustable rear support, bearings in the front support having a horizontally directed entry, a tapered bearing on the rear support having a vertically directed entry, the gun being insertable between the front bearings, a pin projecting laterally from the gun and receivable in the bearings of the front support, means for holding the pin in the bearings, a tapered plug on the gun receivable in the tapered bearing of the rear support, and means for holding the plug in place.

3. In a mount for a gun, a vertically adjustable front support, a vertically adjustable rear support, bearings in the front support having a horizontally directed entry, a tapered bearing on the rear support having a vertically directed entry, the gun being insertable between the front bearings, a pin on the gun receivable in the bearings of the front support, means for holding the pin in the bearings, a tapered plug on the gun receivable in the tapered bearings of the rear support, and means for holding the plug in place.

4. In a mount for a gun, a front support having bearings with a horizontally directed entry, a rear support having a bearing with a vertically directed entry, the gun having means receivable in the bearings of the front support and means receivable in the bearing of the rear support, and means for moving said last named means laterally of the gun.

CLARENCE F. HOFSTETTER.