May 22, 1945. J. C. TROTTER 2,376,835

MOUNTING DEVICE FOR FIXED MACHINE GUNS

Filed Oct. 3, 1940 3 Sheets-Sheet 1

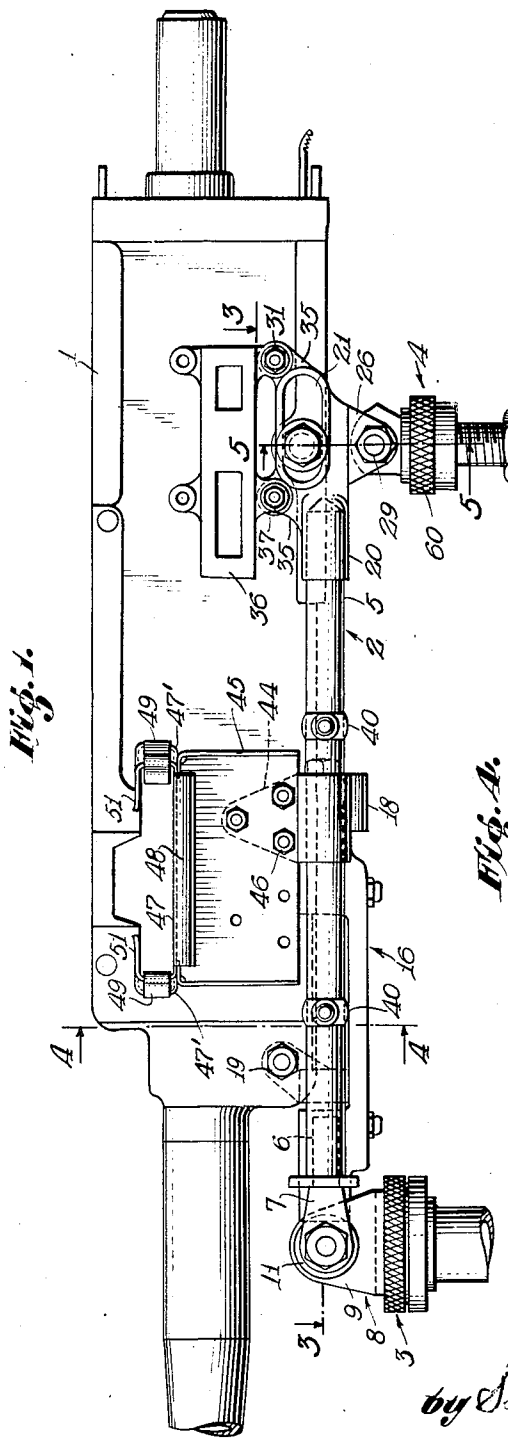


Fig. 1.

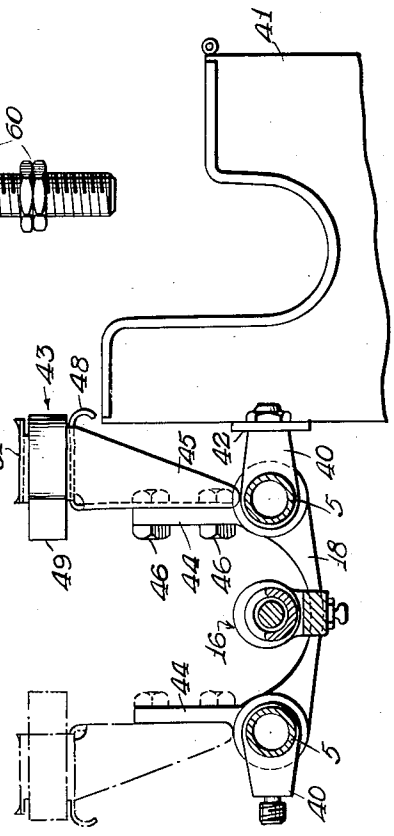


Fig. 4.

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Fig. 2.

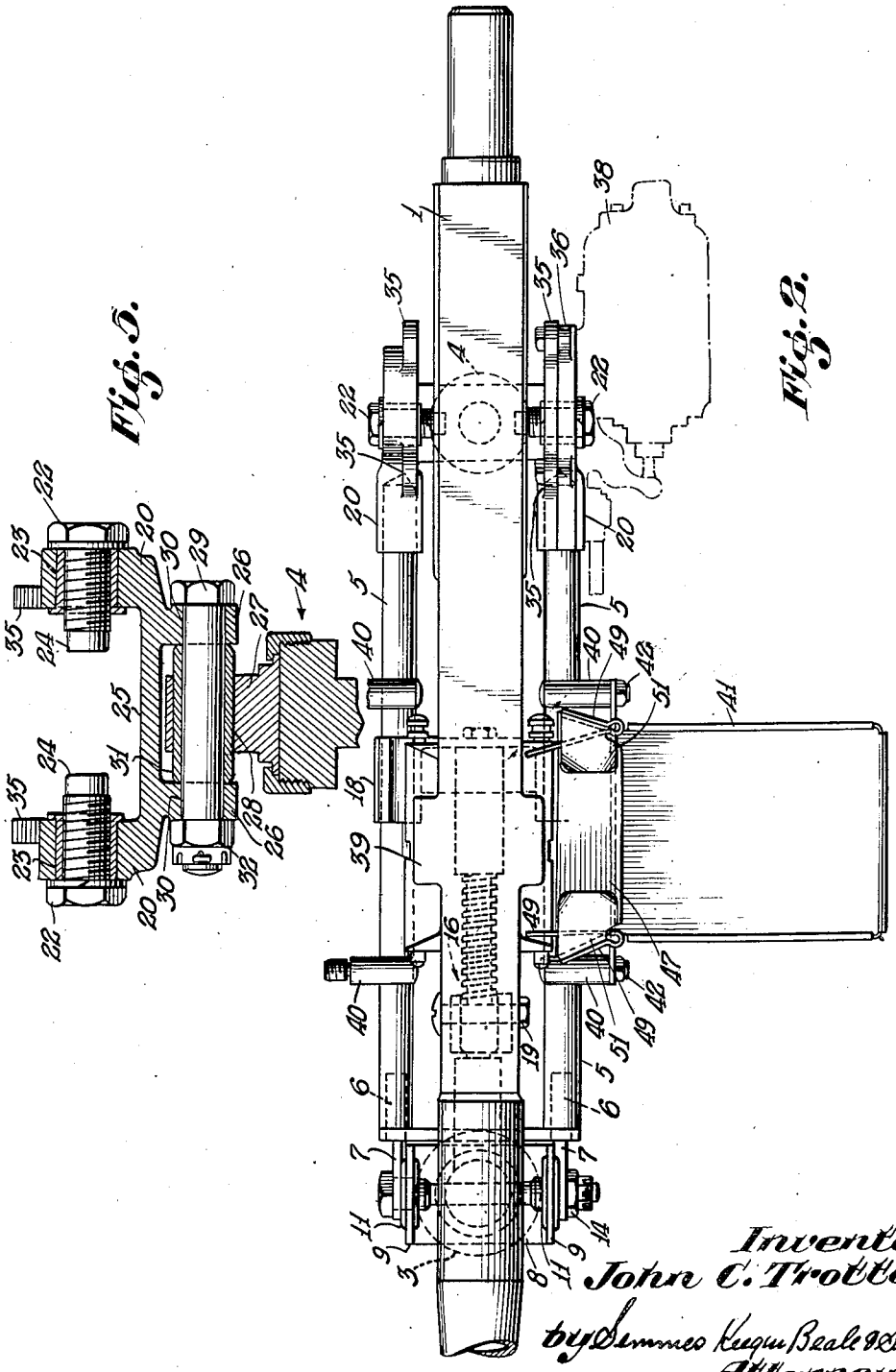


Fig. 3.

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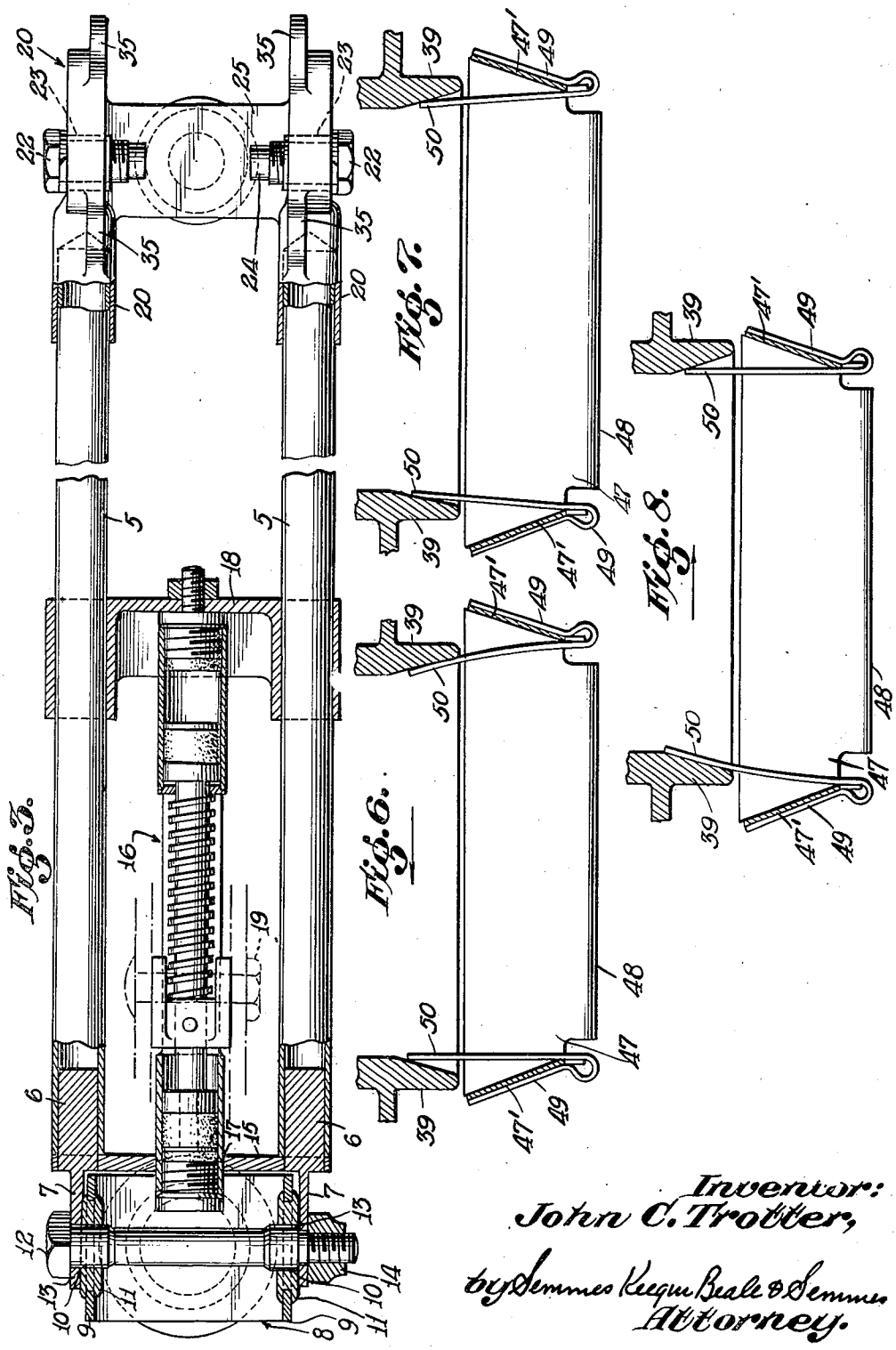


Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE

2,376,835

MOUNTING DEVICE FOR FIXED MACHINE GUNS

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Application October 3, 1940, Serial No. 359,596

2 Claims. (Cl. 89—33)

The present invention relates to machine guns, and more particularly to a mounting device for a fixed machine gun to be used in confined quarters, such as, aircraft, tanks, or the like.

A fixed machine gun is usually mounted directly on the airplane structure and is not provided with a recoil dampening unit. Consequently, during firing, the loads applied to the airplane structure are high and the structure deflects considerably in various directions. As a result, the machine gun does not remain on the target which means of course that the shots are spread over a relatively large area. On the other hand, my fixed mount is provided with a recoil dampening unit that causes the gun to recoil along a path parallel to the barrel. Since the recoil forces are reduced, the airplane structure does not deflect any appreciable amount and the spread of shots is greatly reduced.

An object of the present invention is to provide a mount for fixed machine guns that carries a recoil absorbing unit that reduces the loads applied to the airplane structure and increases the rate of fire of the gun.

Other objects of my invention are:

(1) To provide a novel cartridge feeding device that is so mounted on the machine gun support as to allow the gun to recoil and yet feed the cartridges into the block properly;

(2) To provide a mount for fixed machine guns that is simple in construction and operation and that can be cheaply manufactured; and

(3) To provide a fixed machine gun mount that is provided with means for enabling the mount to be used with a synchronized gun.

To achieve the above and other objects, the invention briefly comprises a light weight cradle that is attached to any suitable portion of the airplane structure by forward and rearward trunnion posts. A recoil absorbing unit is carried by the cradle and the gun to compensate for the recoil. As a result, during firing of the gun the airplane structure does not deflect any appreciable amount and the shots are spread over a relatively small area. This not only increases the rate of fire of the gun, but it will also materially reduce the loads that are applied to the airplane structure.

In addition, a novel feed chute for the cartridges is carried by the cradle at a point adjacent to the feed block of the gun and the chute is so shaped as to permit the gun to recoil.

In the event the gun is to be used as a synchronized one, means are provided to permit a trigger motor to be mounted on a bracket attached to the cradle in a position close to the trigger mechanism of the gun.

In the drawings:

Figure 1 is a view in side elevation of my novel mount for a fixed machine gun.

Figure 2 is a top plan view of the construction shown in Figure 1.

Figure 3 is a sectional view taken along the line 3—3 of Figure 1, with the gun omitted.

Figure 4 is a view taken along the line 4—4 of Figure 1.

Figure 5 is a sectional view taken along the line 5—5 of Figure 1.

Figures 6 to 8 inclusive are longitudinal sectional views showing the positions of the cartridge feeding chute during the firing of the gun.

In Figure 1, it can be seen that a machine gun 1 is supported on a cradle 2 that is attached to any suitable location in the airplane by front and rear trunnions 3 and 4, respectively. The cradle 2 comprises a pair of parallel tube members 5 and as each of these members is identical in construction, the description will be limited to but one. The forward end of each tube 5 is closed by a plug 6 having integrally formed therewith an extension 7. As best shown in Figures 1 and 3, the front trunnion 3 carries at its upper end a bracket 8 provided with ears 9. Each ear 9 is formed with an aperture 10 into which is disposed a bushing 11. The bracket 8 is positioned between each extension 7 so that the bushings 11 are adjacent to the extensions. A bolt 12 extends through apertures in the extension 7 and through the bushings 11. It will be noted that the bolt is formed with a shoulder 13 at each point where it is in contact with the bushing, and a nut 14 is provided to hold the assembly in the proper position.

Positioned between the ends of the tubes 5 and the bracket 8 is a strap 15, and one end of a recoil unit 16 is attached thereto, as indicated at 17. The recoil unit 16 is identical in construction and operation to the unit covered in my copending application, Serial No. 336,286, filed May 20, 1940, now Patent 2,339,398 issued November 2, 1943, but it is to be understood that any type of dampening device can be employed. The rearward end of the unit 16 is attached to a bracket 18 that bridges the tubes 5 and is secured thereto in any suitable manner. The forward end of the gun casing is secured to the recoil unit, as indicated at 19.

The rearward end of each tube 5 is fitted into a casting 20 that is provided with an elongated slot 21. A bolt 22 is secured to a block 23 that

is adapted to slide in the slot 21. The inner end of the bolt 22 is reduced, as shown at 24, and is attached to the gun casing. By virtue of the above mode of attachment of the gun 1 to the cradle 2, it will be appreciated that upon firing, the recoil will be taken care of by the unit 16 and the gun is free to move rearwardly by virtue of the slot 21 and the sliding block 23. As a consequence, the recoil forces are reduced by the shock dampener and the structure to which the mount is attached does not deflect any appreciable amount, thus enabling the gun to be kept on the target.

In Figure 5, it will also be noted that each casting 20 is connected by a web 25 that is formed with downwardly extending lugs 26. The upper end of the rear trunnion 4 is formed with a reduced head 27 having a bore 28. A bolt 29 extends through a hole 30 in each lug 26 and through the bore 28, and a bushing 31 is positioned around the bolt 29 to reduce the wear. A nut 32 is threaded onto the bolt for enabling the rear portion of the cradle 2 to be securely attached to the rear trunnion 4.

As hereinabove pointed out, this invention is provided with means whereby the support may be used with a synchronized gun. In Figure 1, it will be seen that the casting 20 is also formed with ears 35 to which is adapted to be attached a bracket 36, as indicated at 37. A trigger motor 38 shown in the dot dash lines in Figure 2 is affixed to the bracket 36. The firing trigger of the gun can be actuated through a lever and roller mechanism such as shown in my co-pending application, Serial No. 328,989, filed April 10, 1940, now Patent 2,352,870 issued July 4, 1944.

On opposite sides of the feed block 39 and suitably affixed to the tube members 5 are lugs or the like 40. An ammunition box 41 is attached to the lugs as shown at 42. A cartridge feeding chute indicated generally 43 is positioned adjacent to the feed block of the gun as indicated in Figures 1 and 4. With reference particularly to Figure 4, it will be noted that the bracket 18 is provided with an upstanding portion 44 to which is affixed a bracket 45 by means of bolts 46. The chute 43 comprises a base 47 which can be secured to the upper face of the bracket 45 in any suitable manner. Integrally formed with the base 47 are side walls 47'. The base is open at the front and rear ends and the rearward end or that end into which the cartridge links are fed from the ammunition box is flared downwardly as indicated at 48. To assist the feeding of the cartridge links into the feed block 39, it will be noted that leaf springs 49 are associated with the side walls and the inner end of each spring projects the short distance into the feed block as indicated at 50. Consequently the members 49 act as a resilient guide for the cartridge links and will insure proper feeding at all times.

The side walls are further provided with ears 51 which form a partial cover for the chute 43 under which the cartridge links move and these ears will tend to straighten out the cartridge belt and prevent the belt from buckling or otherwise impairing the proper feeding of the ammunition to the machine gun.

In view of the fact that the feed chute 43 is attached to the cradle 2 instead of to the gun itself, no additional load is imposed upon the gun. Furthermore, the chute is so formed that the cartridge links will always be fed properly into the feed block of the gun, and it will permit the gun to recoil. The chute can be attached to either side of the cradle, as the strap 18 carries a bracket 44 at each end.

The rear trunnion is provided with an adjustment device 60 so that the elevational position of the cradle 2 can be varied to permit the gun to fire in the desired position.

From the above description it will be apparent that I have provided a novel device for feeding cartridges into the feed block of a machine gun which can be attached to the cradle at a point adjacent to the feed block. In addition, the mount is provided with means to enable a trigger motor to be mounted on the cradle for actuating the trigger mechanism of the gun. The mount and its related parts are simple in construction and operation and can be cheaply and easily manufactured.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

I claim:

1. A machine gun mount comprising a gun provided with a feed block, a cradle for the gun having side portions, means for slidably securing and supporting the gun in the cradle, cartridge belt feeding means mounted adjacent the feeding block of the gun and supported wholly by one of the side portions of the cradle, said feeding means including a base, a portion of which is flared downwardly, side walls for said base to form a chute, and an ammunition box mounted adjacent the chute and secured to the said side portion which supports the belt feeding means, the said downwardly flaring portion of the base of the feeding means extending to a point above the ammunition box and serving as a bridge between the ammunition box and the said chute, and spring leaf extensions attached to the side walls forming the chute and extending into the feed block of the gun.

2. A machine gun mount comprising a gun provided with a feed block, a cradle for the gun having side portions, means for slidably securing and supporting the gun in the cradle, cartridge belt feeding means mounted adjacent the feeding block of the gun and supported wholly by one of the side portions of the cradle, said feeding means including a base, a portion of which is flared downwardly, side walls for said base to form a chute, an ammunition box mounted adjacent the chute and secured to the said side portion which supports the belt feeding means, the said downwardly flaring portion of the base of the feeding means extending to a point above the ammunition box and serving as a bridge between the ammunition box and the said chute, spring leaf extensions attached to the side walls forming the chute and extending into the feed block of the gun, and upstanding members carried by the side walls and forming a partial cover for the chute.

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