May 19, 1931. G. IRONSIDE 1,805,547

MACHINE GUN MOUNT

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Fig. 1

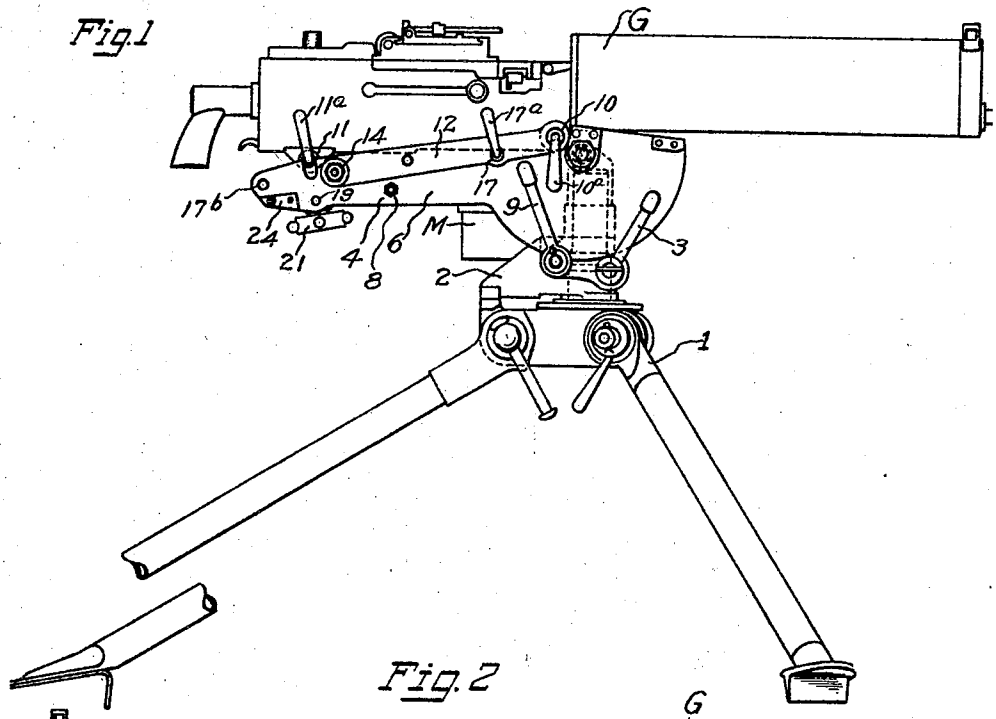


Fig. 2

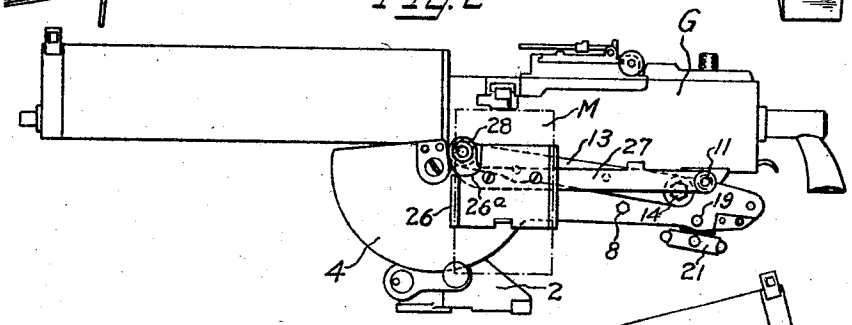
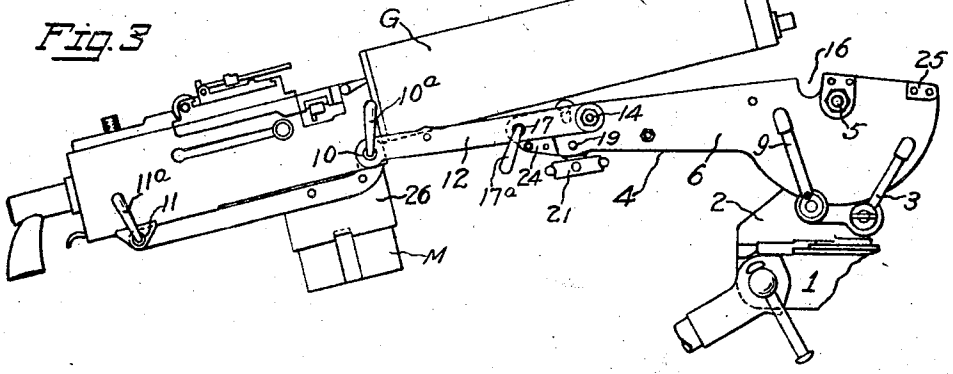


Fig. 3



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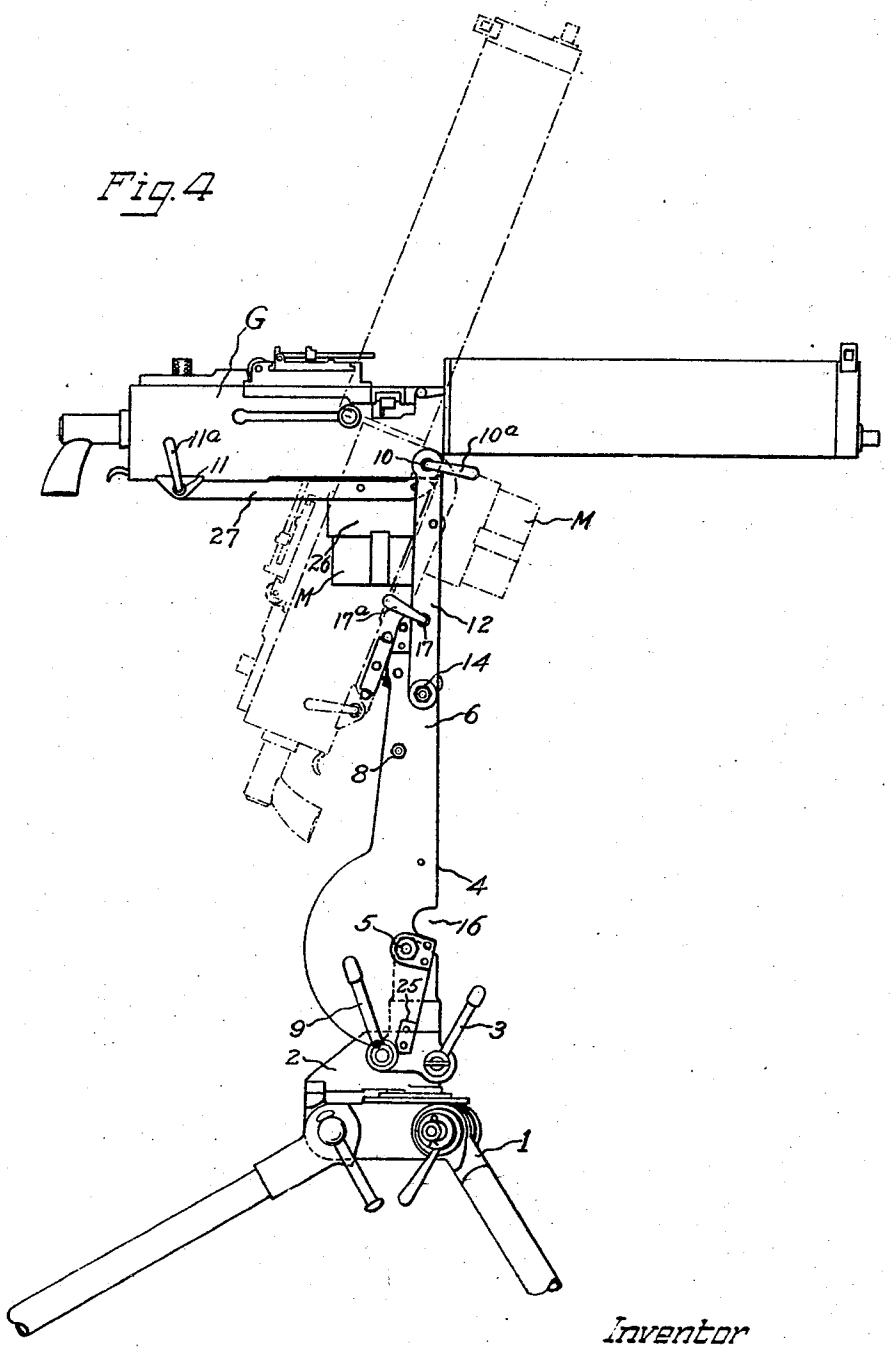
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Fig. 4



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MACHINE GUN MOUNT

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Fig. 5

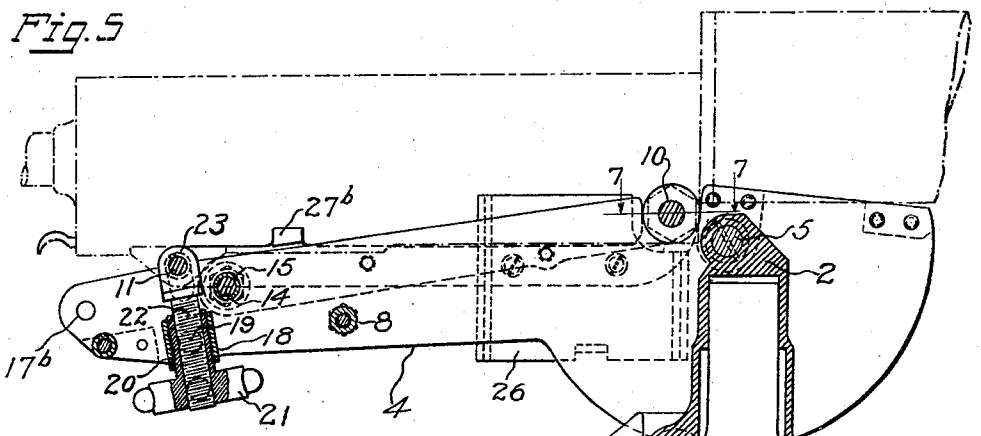


Fig. 7

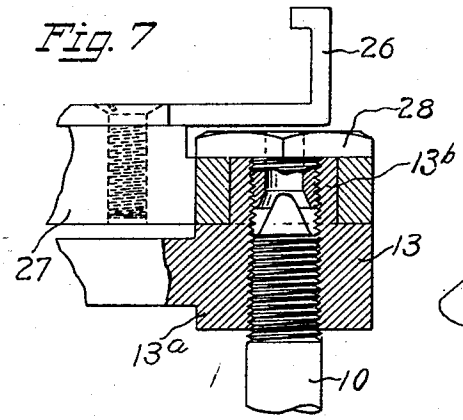
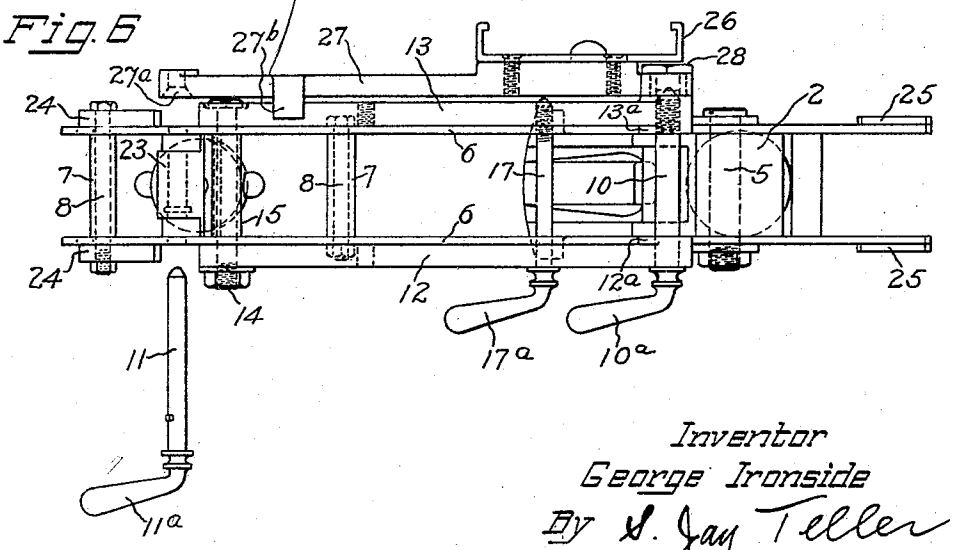


Fig. 6



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Patented May 19, 1931 1,805,547

UNITED STATES PATENT OFFICE

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MACHINE GUN MOUNT

Application filed February 24, 1930. Serial No. 430,736.

The invention relates particularly to a machine gun mount which is so constructed that the gun thereon may be conveniently held in a relatively low position for low angle firing or in a relatively high position for high angle firing in anti-aircraft service.

The primary object of the invention is to provide a mount of the class described wherein the transition from the low position to the high position, or vice versa, may be quickly and conveniently effected without removal of the gun from the mount. A machine gun mount constructed in accordance with the invention is adapted to support a machine gun of standard construction without any modification whatsoever in the gun itself; and the shifting of the gun from its low position to its high position may be effected without detaching the gun from the mount and without handling the forward hot portion of the gun.

A further object of the invention is to provide, in a machine gun mount of the class described, improved means for supporting the bracket which holds the cartridge magazine so that the said magazine is held in proper operative relationship with the gun for all positions thereof.

Further objects of the invention will be apparent from the following specification and claims.

In the accompanying drawings I have shown the embodiment of the invention which I now deem preferable, but it will be understood that the drawings are intended for illustrative purposes only and are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawings:

Fig. 1 is a right side view of a machine gun mount embodying the invention, this view also showing a machine gun in place on the mount.

Fig. 2 is a left side view of the upper portion of the mount and of the machine gun as shown in Fig. 1.

Fig. 3 is a fragmentary view similar to Fig. 1, but showing the parts in different relative positions.

Fig. 4 is a fragmentary view similar to Figs. 1 and 3, but showing the parts in still different relative positions.

Fig. 5 is a central longitudinal sectional view through the upper portion of the machine gun mount.

Fig. 6 is a plan view of the parts shown in Fig. 5.

Fig. 7 is an enlarged fragmentary sectional view taken along the line 7—7 of Fig. 5.

Referring to the drawings, 1 represents as an entirety a gun tripod which is or may be of any usual or preferred construction. Mounted upon the tripod 1 for rotation about a vertical axis is a head 2. A suitable clamping means controlled by a lever 3 is provided for clamping the head in any position of adjustment with respect to the tripod. Connected with the head 2 is a cradle 4 which is movable about a horizontal axis at 5 and which preferably comprises two side plates 6, 6 spaced apart and located at opposite sides of the head. Spacing tubes 7, 7 and tie bolts 8, 8 therethrough assist in maintaining the plates 6, 6 in proper spaced relationship. A suitable clamping means controlled by a lever 9 is provided for clamping the cradle at any desired position of angular adjustment. The parts as thus far described are of known construction and more detailed description is not necessary.

The mount is adapted for supporting a machine gun such as G. I have shown a machine gun of the type shown in the J. M. Browning Patent No. 1,293,021 dated February 4, 1919, but it will be understood that the present invention is not limited for use with a gun of this particular type. The main trunnion block of the gun (which is not separately shown in the drawings) is provided with a transverse hole adapted to receive a pivot pin 10 having a handle 10^a and the gun is proivded near the rear with lugs having transverse holes therein adapted to receive a retaining pin 11 having a handle 11^a. In ordinary service the gun is supported and held in place on the mount by means of the two pins 10 and 11.

In accordance with the present invention I provide a means relatively movable with

respect to the cradle 4 and adapted to engage the gun at the horizontal trunnion axis thereof at 10 so as to hold the gun in either of two positions with the said axis 10 either adjacent the cradle axis 5 as shown in Fig. 1 or with the trunnion axis 10 relatively remote from the cradle axis 5 as shown in Figs. 3 and 4. As concerns the broader aspects of the invention I do not limit myself as concerns the details of this means, but I prefer and have shown a means which comprises at least one, and preferably two, links which are horizontally pivoted to the cradle and which are connectible to the gun at the said trunnion axis thereof. When the cradle comprises two separate vertical plates 6, 6 as are shown, I preferably provide two separate links 12 and 13 located at the outer sides of the respective plates 6, 6 and pivoted thereto by means of a tranverse pivot pin 14 extending through both plates and both links. The pin 14 is surrounded by a spacing tube 15 which extends between the two side plates.

The opposite or free ends of the links 12 and 13 have transverse holes therein for receiving the before-mentioned pivot pin 10, this pin extending through the transverse opening at the trunnion axis of the gun as already described. The holes in the right hand link 12 and in the gun are unthreaded, but the hole in the left hand link 13 is threaded to receive the threaded end of the pin 10. By means of this threaded engagement the pin 10 when turned by the handle 10^a may serve as a means for frictionally clamping the links to the gun. Preferably the links 12 and 13 are provided with bosses 12^a and 13^a which enter notches 16 formed in the respective side plates 6, 6. When the said bosses are seated in the said notches the links are firmly supported in their normal positions as clearly shown in Figs. 1 and 5. The links may be positively held in their normal positions by means of a transverse pin 17 having a handle 17^a. The pin extends through holes in the links and cradle plates and has threaded engagement with the left hand link 13 as shown in Fig. 6. The pin 17, and if desired the pins 10 and 11 also, may be attached by means of suitable chains.

The cradle 4 is preferably provided with the usual adjusting means for providing fine adjustments in the angle of elevation of the gun. As illustrated in Figs. 5 and 6, there is a yoke 18 having trunnions 19, 19 which are rotatable in suitable apertures in the two cradle plates 6, 6. The yoke 18 is provided with a threaded aperture in which is fitted a threaded sleeve 20 provided with a hand wheel 21. The central hole through the sleeve 20 is threaded and fitted therein is a threaded rod 22 which rod is connected with an apertured head 23 through which extends the transverse retaining pin 11 which has been mentioned. The threads on the exterior and on the interior of the sleeve 20 are of different pitches so as to provide a fine adjustment of the angle of the gun by turning the hand wheel 21.

By removing the pins 11 and 17, and by also loosing the pin 10 if necessary, the gun and the two links are sufficiently freed to permit them to be moved relatively to the cradle to the position shown in Fig. 3. It will be understood that the links swing about the pin 14. Stops 24, 24 on the side plates 6, 6 serve to prevent movement of the links beyond the position shown. As soon as the parts have reached the position shown in Fig. 3, the pin 17 is again put in place, the pin now extending through holes 17^b provided for the purpose in the side plates 6, 6. The pin 11 is preferably also restored to its normal position in the holes in the lugs of the gun, in order that it may serve a purpose to be presently described.

After the parts have been moved to the positions shown in Fig. 3 and after the links have been locked by means of the pin 17, the cradle can be unclamped by loosing the lever 9 and can be swung to its upright position as shown in Fig. 4 and again clamped. Movement of the cradle beyond the upright position as shown is prevented by means of stops 25, 25 on the plates 6, 6. This movement of the cradle brings the gun to a relatively high position as shown. The gun is freely adjustable about the pivot pin 10, that is, about its own trunnion axis, and it may be moved to a high angle of elevation as indicated by dot-and-dash lines in Fig. 4. The high position of the gun enables the gunner to conveniently and comfortably sight and operate it.

It will be clear that in shifting the gun from its low position as shown in Fig. 1 to its high position as shown in Fig. 4, the gun remains permanently attached to the mount. The change in position is effected without any substitution or addition of parts and is effected merely by changing the relative positions of the links 12 and 13 and then by changing the angular position of the cradle 4. To permit the change in the positions of the links, it is only necessary to remove the two pins 11 and 17 and to then replace them. The return of the gun from its high position as shown in Fig. 4 to its low position as shown in Fig. 1 is equally simple and involves merely the reversals of the operations which have already been described. It will be observed that this shifting of the gun from its low position to its high position or back from its high position to its low position may be effected without handling of the forward hot portion of the gun, it being only necessary for the gunner to touch the mount and the rear portion of the gun.

In order that the cartridge magazine may remain in proper operative relationship to

the gun for all positions thereof I provide a novel supporting means for the magazine. The magazine is indicated in the drawings at M and it is adapted to be detachably mounted on a bracket 26 which is of substantially standard construction. The bracket 26 is supported at least in part independently of the gun, and preferably it is carried by a link 27 which at its forward end is pivoted independently of the gun for movement about the axis of the pivot pin 10. Preferably the link 27 is pivoted directly to the left hand link 13, and as shown in Fig. 7 the link 13 is provided with a bearing boss 13^b upon which the link 27 is pivoted. The link 27 is held in place by the head of a special bolt 28. In order that access may be had to the bolt head the bracket 26 is preferably cut away as indicated at 26^a in Fig. 2. The link 27 is held in its proper relationship with the gun by means of the beforementioned pin 11 which is made sufficiently long to enter a tapered hole 27^a in the rear end of the link 27. In order that the link 27 may not drop down when the pin 11 is removed preparatory to shifting the position of the gun there is provided a lug 27^b which overlies the adjacent link 13.

From the foregoing description it will be apparent that inasmuch as the link 27 is held by the two pins 10 and 11 it is maintained in fixed relationship with the gun for all positions thereof, thus holding the bracket 26 and the magazine M in fixed relationship with the gun. The link 27 is released only momentarily during the removal and replacement of the pin 11 and it is then prevented from moving to any considerable extent by means of the lug 27^b.

What I claim is:

1. In a mount for a machine gun, the combination of a tripod, a head carried by the tripod, a cradle connected with the head for movement about a horizontal axis, and a means relatively movable with respect to the cradle and adapted to engage a machine gun at the horizontal trunnion axis thereof to hold the said gun in either of two positions with the said axis either adjacent the cradle axis or relatively remote therefrom, the gun when in the first position being relatively low and in normally fixed relationship to the cradle so that the angle of the gun may be adjusted by moving the cradle about its axis and the gun when in the second position being freely adjustable about its trunnion axis and being bodily movable to a relatively high position upon movement of the cradle to its upright position.

2. A mount for a machine gun as set forth in claim 1, wherein the means for engaging and holding the gun comprises a link horizontally pivoted to the cradle and connectible to the gun at the trunnion axis thereof.

3. A mount for a machine gun as set forth in claim 1, wherein the means for engaging and holding the gun comprises a link horizontally pivoted to the cradle and connectible to the gun at the trunnion axis thereof, and wherein there is included means locking the link in the position corresponding to the second said position of the gun.

4. A mount for a machine gun as set forth in claim 1, wherein the means for engaging and holding the gun comprises a link horizontally pivoted to the cradle and connectible to the gun at the trunnion axis thereof, and wherein there is included an additional means detachably connectible with the gun when in its first position for effecting limited angular adjustment thereof with respect to the cradle.

5. A mount for a machine gun as set forth in claim 1, wherein the cradle comprises two vertical plates spaced apart, and wherein the means for engaging and holding the gun comprises two links horizontally pivoted to the cradle at the outer sides of the plates and connectible to the gun at the trunnion axis thereof.

6. A mount for a machine gun as set forth in claim 1, wherein the cradle comprises two vertical plates spaced apart and having notches adjacent the cradle axis, and wherein the means for engaging and holding the gun comprises two gun engaging links horizontally pivoted to the cradle at the outer sides of the plates and having bosses adapted to enter the said notches.

7. A mount for a machine gun as set forth in claim 1, wherein the cradle comprises two vertical plates spaced apart, wherein the means for engaging and holding the gun comprises two links horizontally pivoted to the cradle at the outer sides of the plates and connectible to the gun at the trunnion axis thereof, and means for releasably holding the gun in any position of angular adjustment with respect to the links.

8. A mount for a machine gun as set forth in claim 1, wherein the cradle comprises two vertical plates spaced apart, wherein the means for engaging and holding the gun comprises two links horizontally pivoted to the cradle at the outer sides of the plates, and wherein there is included a transverse pivot pin for connecting the gun with the links, the said pin extending through tranverse unthreaded holes in one link and in the trunnion block of the gun and having threaded engagement with the other link whereby upon turning the bolt the gun may be frictionally clamped between the links.

9. In a mount for a machine gun, the combination of a tripod, a head carried by the tripod, a cradle connected with the head for movement about a horizontal axis, a means relatively movable with respect to the cradle and adapted to engage a machine gun at the horizontal trunnion axis thereof to hold the

said gun in either of two positions with the said axis either adjacent the cradle axis or relatively remote therefrom, the gun when in the first position being relatively low and in normally fixed relationship to the cradle so that the angle of the gun may be adjusted by moving the cradle about its axis and the gun when in the second position being freely adjustable about its trunnion axis and being bodily movable to a relatively high position upon movement of the cradle to its upright position, and means supported at least in part independently of the gun for holding a cartridge magazine in operative relationship with the gun for all positions thereof.

10. A mount for a machine gun as set forth in claim 9, wherein the means for engaging and holding the gun comprises a link horizontally pivoted to the cradle and connectible to the gun at the trunnion axis thereof, and wherein the magazine holding means is movable with the gun and relatively to the said link.

11. A mount for a machine gun as set forth in claim 9, wherein the cradle comprises two vertical plates spaced apart, wherein the means for engaging and holding the gun comprises two links horizontally pivoted to the cradle at the outer sides of the plates and connectible to the gun at the trunnion axis thereof, and wherein there is included a third link connected at one end to one of the first said links for movement about the same axis as the gun, the said third link carrying the magazine holding means and being connectible at its other end to the gun.

12. A mount for a machine gun as set forth in claim 9, wherein the cradle comprises two vertical plates spaced apart, wherein the means for engaging and holding the gun comprises two links horizontally pivoted to the cradle at the outer sides of the plates and connectible to the gun at the trunnion axis thereof, and wherein there is included a third link connected at one end to one of the first said links for movement about the same axis as the gun, the said third link carrying the magazine holding means and being connectible at its other end to the gun and the said third link being provided with a stop for limiting downward movement thereof with respect to the corresponding first link when the parts are in the positions corresponding to the first said position of the gun.

In testimony whereof I have hereunto set my hand this 15th day of February, 1930.

GEORGE IRONSIDE.