

[54] BLANK FIRING ATTACHMENT

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[58] Field of Search **89/14 R, 14 A, 14 B, 89/14 C, 14 D, 14 E, 14 SB; 42/79**

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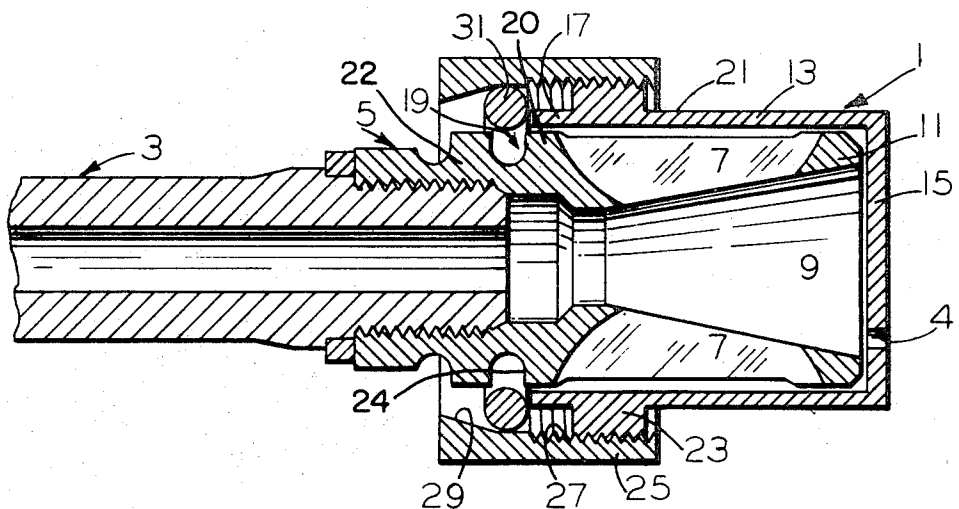
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[57] ABSTRACT

A blank firing attachment is provided for automatic weapons which comprises a cylindrical member one end of which is open for slideable mounting on the muzzle end of the weapon barrel. A collet and split ring arrangement is associated with the open end of the member and is adjustable with respect thereto to hold the attachment on the muzzle end and effect substantial sealing engagement therewith whereby the expanding gases incident to firing blank ammunition are confined within the barrel for accomplishing automatic operation in a manner well-known in the art. The housing is also provided with vent means for controlled release of the gases within the barrel.

8 Claims, 4 Drawing Figures



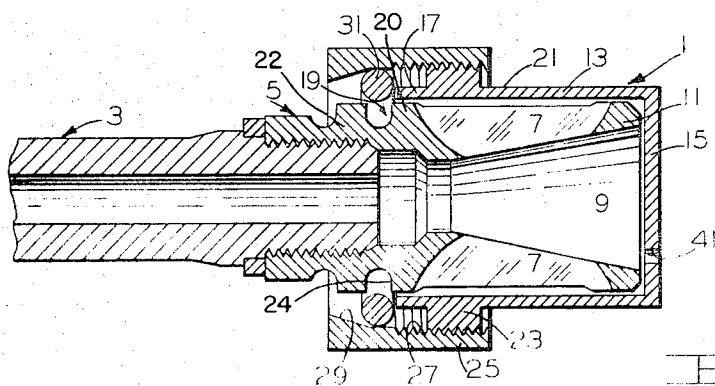


Fig. 1

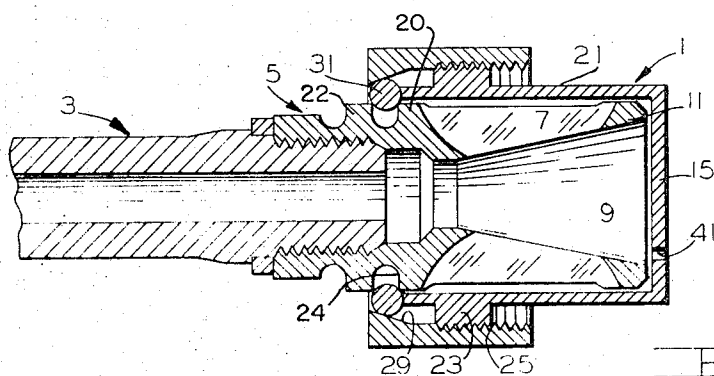


Fig. 2

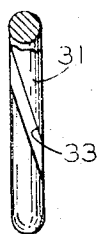


Fig. 3

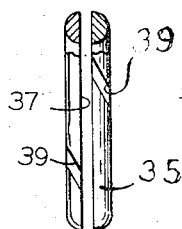


Fig. 4

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BLANK FIRING ATTACHMENT

BACKGROUND OF THE INVENTION

The present invention relates to an attachment for weapons, and more particularly to a blank firing attachment for effecting automatic operation of weapons.

In the art of automatic weapons, utilization of gas pressures within the barrel is relied upon to effect automatic operation in a manner well-known in the art. If blank ammunition is used in such weapons, such as in the case of training operations to simulate actual combat conditions, there is no projectile propelled through the barrel which enables the gas system to function. Accordingly, a blank firing attachment is applied to the muzzle end of the barrel, the purpose of which is to take the place of the projectile function and to enable gas pressures to build up in the barrel sufficient to operate the weapon continuously and automatically thereby simulating sustained fire conditions.

Although blank firing attachments are not new to the art, many are found objectionable from the standpoint of safety, ease of application to or removal from the weapon barrel, not universally applicable, or they are complicated in structure, or cause unnecessary damage to a gun barrel.

Accordingly, it is a primary object of the present invention to provide a simple, yet highly effective, blank firing attachment for an automatic weapon.

It is also an object of the present invention to provide a blank firing attachment which can be easily attached to and detached from a weapon barrel.

Another object of the present invention is to provide a blank firing attachment which is universally applicable to and particularly adapted for use with automatic weapons.

A further object of the present invention is to provide a blank firing attachment for automatic weapons which conforms to maximum safety requirements and minimizes damage to the barrels of the weapons it is used with.

Still another object of the present invention is to provide a blank firing attachment for automatic weapons which is of simple structure, conducive to mass production, and yet is relatively inexpensive to manufacture.

SUMMARY OF THE INVENTION

In accordance with the present invention, a blank firing attachment for automatic weapons is provided which comprises a cylindrical member having one end open for slideably receiving either the muzzle end of a weapon barrel or other attachments associated therewith. An annular shoulder associated with the barrel muzzle end is utilized to attach the unit to the barrel. Split ring means is disposed in abutment with the open end of the cylindrical member. A collet encompasses the split ring means and a portion of the open end and is adjustably arranged for axial movement relative to the cylindrical member. The internal surface of the collet is provided with a cam surface which tightens the split ring into sealing engagement with both the shoulder and the open end of the cylindrical member. Vent means is disposed in a cylindrical member wall for controlled release of expanding gases within the barrel and cylinder incident to firing the weapon.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features characteristic of the present in-

vention, as well as additional objects and advantages thereof, will be understood better from the following description when read in connection with the accompanying drawing in which:

FIG. 1 is a central, longitudinal section of a preferred embodiment of the present invention as applied to the muzzle end of a weapon barrel, the parts being shown in an unlocked position;

FIG. 2 is a view similar to FIG. 1 but showing the parts in a locked position;

FIG. 3 is a side view of a single element lock ring for the blank firing attachment, a portion thereof being shown in cross section; and

FIG. 4 is a side view of an alternate form of lock ring, a portion thereof being shown in cross section.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring more particularly to the drawing, wherein similar reference characters have been used to designate corresponding parts throughout, FIGS. 1 and 2 show a preferred embodiment of a blank firing attachment 1 in accordance with the present invention, as applied to the muzzle end of an automatic weapon barrel 3.

The preferred embodiment of blank firing attachment 1 is shown applied to a conventional flash suppressor 5 which is threadably engaged on the muzzle end of the barrel 3. The flash suppressor includes the customary radial openings 7 and an axial opening 9 in the end 11 thereof which function in a manner well-known in the art. In order to effect automatic operation of a weapon using blank ammunition, it is necessary to close off these openings. This is accomplished by employing a cap-like body 13 in the form of a cylinder having one end 15 closed and the opposite end 17 open. The length of the cap-like body is at least coextensive with the radial openings 7 from the end 11 of the flash suppressor 5. The inside diameter of the cap-like body is greater than that of the suppressor so that it can be slideably disposed thereover.

The flash suppressor 5 is provided with a circumferential groove 19 in its outer surface, adjacent to but rearwardly of the radial openings and which is utilized to seal and fasten the blank firing attachment onto the flash suppressor. The groove 19 provides a front shoulder 20 and a rear shoulder 22, and the side 24 of the front shoulder remote from the muzzle end of the barrel cooperates with a split ring 31, in a manner more particularly described hereinafter. A similar groove would be required adjacent to the muzzle end of a barrel in the event no flash suppressor was associated therewith.

On the external surface 21 of the cap-like body 13, adjacent to the open end 17 thereof, there is provided a shoulder 23 having the cylindrical outer surface thereof threaded. A collet 25 has the internal surface 27 thereof threadably engaged with the shoulder 23 for adjustment axially with respect to the cap-like body 13. Adjacent to the rear end of the collet, remote from its engagement with the shoulder, a portion 29 of the internal surface is gradually reduced in diameter to provide a cam surface. A lock ring 31 is disposed within the collet 25 which is of a diameter slightly greater than the external diameter of the flash suppressor so that it can be slipped thereover in assembly. The lock ring is disposed in abutment with the open end 17 of the cap-like body 13 and it is provided with a diagonal cut or

slit 33 to facilitate reducing its diameter under the influence of the collet cam surface 29. Although the lock ring may be of a single ring type having a circular cross section, as shown in FIG. 3 of the drawing, an alternate embodiment of lock ring which is a split ring 35, as shown in FIG. 4, can also be used. In the latter case, each half has a semi-circular cross section and the respective flat sides 37 of the two ring halves are disposed adjacent to each other. Each one of the ring halves is provided with a diagonal cut or slit 39 the same as cut 33 in the single ring embodiment. Preferably, the respective cuts in the two halves should be spaced apart in order to provide a more effective gas seal.

The cap-like body 13 is provided with a small hole 41 in the closed end 15 thereof. It is disposed preferably away from the center line of the bore axis so that expanding gases do not have an exit path straight through. The hole 41 is of a size which will effectively reduce expanding gas pressures within the barrel incident to blank firing but maintain sufficient pressure to sustain automatic fire of the weapon in a manner well-known in the art.

Application of the blank firing attachment to the barrel of a weapon utilizing a flash suppressor is as follows. The blank firing attachment is assembled with the collet 25 threadedly engaged with the cap-like body shoulder 23, and with the lock ring loosely disposed within the collet, as shown in FIG. 1 of the drawing. The assembly is mounted over the flash suppressor sufficiently to dispose the lock ring axially opposite the suppressor groove 19 and in abutment with the open end 17 of the cap-like body. The collet is rotated relative to the cap-like body thereby to advance it forwardly. This movement of the collet engages the internal cam surface 29 thereof with the lock ring to reduce the diameter thereof thereby moving the lock ring into the suppressor groove. Thus, as the collet is further moved forwardly, a gas seal is effected between the collet, the sides of the suppressor groove 19 and the open end 17 of the cap-like body, thereby to seal the suppressor openings 7 and the barrel bore.

Although but two preferred embodiments of the present invention have been shown and described herein, it will be recognized by persons skilled in the art that variations and changes are possible within the spirit and scope of the present invention. Therefore, it is respectfully requested that the present invention not be regarded as limited in scope but include all changes and modifications coming within the terms of the claims hereof.

I claim:

1. A blank firing attachment for a rifle barrel the muzzle end of which is provided with annular shoulder means, said attachment comprising a cylindrical housing having one end thereof open and dimensioned to slideably fit over said shoulder means, split sealing ring means disposed for engagement with the side of said shoulder means remote from the muzzle end of said barrel and in abutment with the open end of said housing, a collet surrounding said ring means and threadedly engaged with cooperating means on the external

surface of said housing adjacent to the open end thereof, the internal surface of said collet remote from said cooperating means defining a cam surface for engaging said ring means whereby, in response to adjustment of said collet relative to said housing, said ring means is brought into sealing engagement with said open end and behind said shoulder means, and vent means disposed in said cylindrical housing for controlled release of expanding gas pressures in said barrel incident to firing.

2. The invention as defined in claim 1 and wherein said split sealing ring means comprises a single ring having the body thereof diagonally split.

3. The invention as defined in claim 1 and wherein said split sealing ring means comprises a pair of rings axially abutted with each other, the abutting surfaces thereof being flat, and each of said rings having the body thereof diagonally split, the diagonal splits of said rings being disposed circumferentially spaced apart.

4. The invention as defined in claim 1 and wherein said vent means comprises a hole through said housing disposed apart from axial alignment with the bore of said barrel.

5. In an automatic weapon having a barrel and means associated with the muzzle end of said barrel providing an annular shoulder adjacent to and rearwardly of said muzzle end, a blank firing attachment for said weapon comprising a cylindrical housing having one end thereof open and dimensioned to slideably fit over said annular shoulder, the opposite end of said housing being disposed coextensive with said muzzle end and said associated means, split sealing ring means disposed for engagement with the side of said shoulder remote from said muzzle end and in abutment with said open end, a collet encompassing said ring means and a portion of said housing adjacent said open end, cooperating means on said collet and said housing for effecting axial adjustment of said collet relative to said housing, the internal surface of said collet defining a cam surface engageable with said ring means in response to adjustment of said collet relative to said housing, said cam surface being effective to collapse said ring means into sealing engagement with said annular shoulder and said open end, and means in said housing for venting the expanding gases in said barrel incident to firing said weapon.

6. The invention as defined in claim 5 and wherein said vent means comprises an opening in said housing disposed apart from axial alignment with said barrel bore and dimensioned for controlled release of said expanding gases.

7. The invention as defined in claim 6 and wherein said sealing ring means comprises a single ring having the body thereof diagonally split.

8. The invention as defined in claim 6 and wherein said sealing ring means comprises a pair of juxtaposed rings the adjacent surfaces thereof being flat and each of said rings having the body thereof diagonally split, the diagonal splits thereof being disposed spaced apart.

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