Feb. 13, 1923. 1,445,583.

S. G. GREEN.

ATTACHMENT FOR GAS OPERATED GUNS.

FILED MAR. 17, 1921.

Fig. 1.

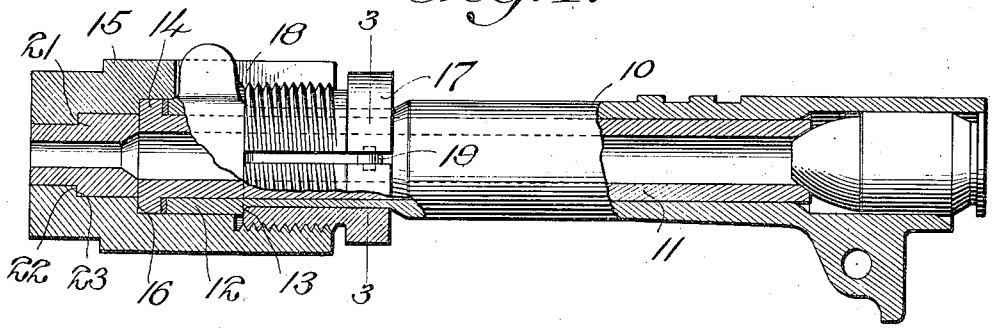



Fig. 2.

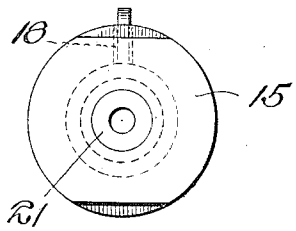



Fig. 3.

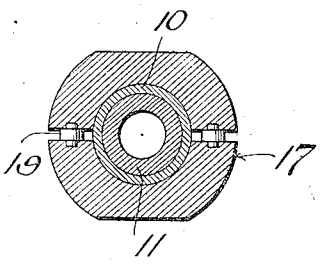
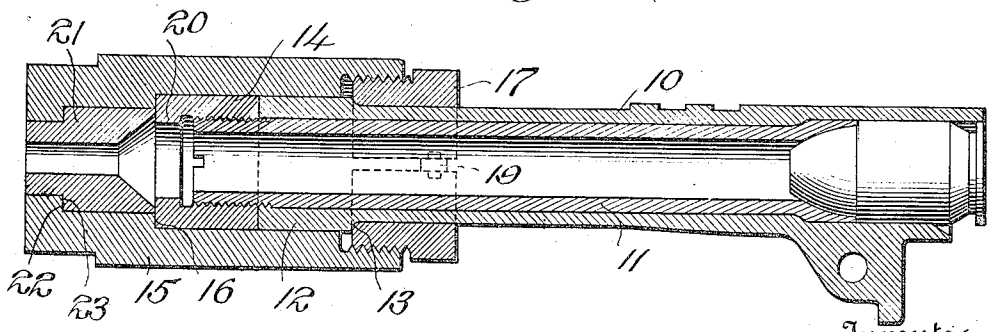



Fig. 4.




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# UNITED STATES PATENT OFFICE.

SAMUEL G. GREEN, OF THE UNITED STATES ARMY, ASSIGNOR TO UNITED STATES ORDNANCE COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF VIRGINIA.

## ATTACHMENT FOR GAS-OPERATED GUNS.

Application filed March 17, 1921. Serial No. 452,980.

*To all whom it may concern:*

Be it known that I, SAMUEL G. GREEN, a captain in the United States Army, at present stationed at Washington, in the District of Columbia, have invented certain new and useful Improvements in Attachments for Gas-Operated Guns, of which the following is a specification.

My invention relates to improvements in attachments for gas operated guns and has for its objects to provide improved means for securing a muzzle block of reduced caliber against the muzzle end of a barrel to effect choke of the gas of discharge and thereby cause automatic operation of the gun when firing blank ammunition and to provide improved means for securing an auxiliary barrel within a main barrel to permit the firing of subcaliber and shot ammunition.

In describing my invention reference will be had to the accompanying drawings which illustrate my improvements in the best form known to me at present, but it will be understood that my invention is susceptible to modification and change without departing from its essential characteristics and by the exercise of only ordinary mechanical skill within its scope as defined in the appended claims.

In the drawings:—

Fig. 1 is a view partially in side elevation and partially in longitudinal section of the barrel of a gas operated gun and my improved attachment operatively associated therewith;

Fig. 2, an end view of the structure shown in Fig. 1;

Fig. 3, a transverse section on the line 3—3 of Fig. 1; and

Fig. 4, a view similar to Fig. 1 showing a slightly modified form of my attachment.

Referring to the drawings in detail, 10 designates the main barrel of a gas operated gun and 11 an auxiliary barrel adapted to be inserted within the main barrel whereby subcaliber, blank and shot ammunition may be fired without injury to the main barrel. An auxiliary barrel of course is not essential to permit firing of blank ammunition in a gun, but it is nevertheless desirable not only for the protection it affords the main barrel, but because its breech end may be disposed as shown in the drawings to block out ball ammunition and thereby render the gun safe against the accidental firing of ball cartridges when only blank or shot cartridges are intended to be fired.

The main barrel 10 is provided at its muzzle end with an annular exterior projection 12 providing a shoulder 13 and the auxiliary barrel carries a portion 14 at its muzzle end overlying the muzzle end of the main barrel, said overlying portion 14 being formed either as an integral part of the auxiliary barrel, as shown in Fig. 1 or as a sleeve threaded or otherwise secured thereto, as shown in Fig. 4.

In order to secure the auxiliary barrel, as shown in Fig. 1 within the main barrel, an interiorly threaded casing 15 having an interior shoulder 16 is engaged over the muzzle ends of both barrels with the shoulder abutting the overlying portion 14, and a plural-piece, radially assembled, exteriorly threaded, sleeve nut 17, arranged in embracing relation to the main barrel and in abutting relation to the shoulder 13, is engaged with the threads of the casing and rotated whereby the latter is drawn rearwardly and the auxiliary barrel clamped in place. The casing is provided with a slot 18 to receive the sight usually carried at the muzzle end of the main barrel and both the casing and sleeve nut preferably are provided with flat surfaces shown in Figs. 2 and 3 to facilitate the engagement therewith of an implement such as a spanner wrench for holding and turning the same. Means such as the dowel pins shown at 19 may be provided to assure proper assembly of the plural piece nut, the latter being constructed in the manner shown to permit its engagement with barrels which are smaller intermediately than at their ends. The same clamping action as described in connection with the structure for securing the auxiliary barrel within the main barrel takes place in the structure shown in Fig. 4, but in the latter instance the overlying portion 14 is in the form of a sleeve threaded on the muzzle end of the auxiliary barrel and in itself provides a means of drawing the auxiliary barrel forward so that an annular shoulder at its breech end is clamped against a similar shoulder formed in the main barrel.

With respect to the overlying portion 14

shown in Fig. 4 it will be observed that a portion of the same is disposed forwardly of the breech end of the auxiliary barrel and provided with an inwardly directed annular flange 20 which is spaced from the muzzle end of the auxiliary barrel and acts in the nature of a buffer for the back pressure of gases trapped in the casing 15 to prevent such gases from fouling the threaded connection between the overlying portion or sleeve 14 and the auxiliary barrel.

In combination with the structure so far described I have provided means in the nature of a muzzle plug 21 detachably associated with the casing 15 and having an axial channel of smaller caliber than the caliber of the gun, whether equipped or not equipped with an auxiliary barrel, to effect choke of the gas of discharge to thereby cause automatic operation of the gun when firing blank ammunition. This plug is shouldered as at 22 and the casing 15 is shouldered as at 23, said shoulders being arranged in abutting relation whereby rearward movement of the casing clamps the block against the muzzle end of the gun.

From the foregoing it will be observed that by slightly changing the proportion of the separate parts, without in any manner departing from the essential characteristics of my invention the muzzle block may be used with the main barrel whether the auxiliary barrel is or is not associated therewith, and likewise it is apparent that the auxiliary barrel may be used without the choke block, but in most instances it is desired to use the auxiliary barrel in combination with the choke block in which event the casing 15 and plural part nut 17 provide a very simple, inexpensive and efficient means of securing the parts together and clamping them to the main barrel. It is also apparent that when the auxiliary barrel is secured within the main barrel to all intents and purposes only a single barrel exists, and I therefore desire to point out that where I make use of the term "barrel" in the claims without specific reference to the main or auxiliary barrels I intend to include any main barrel whether equipped or not equipped with an auxiliary barrel.

When I use the expression "gas operated gun" in the specification and claims I desire it to be understood that such expression is intended to define either a gun in which the breech mechanism is caused to function by the direct action of the gas of explosion, such as the "Benet-Mercie" gun; or a gun in which the recoil of any part or parts is effected by the explosion of discharge and such recoil utilized to cause the breech mechanism to function as in the well known "Browning" machine gun.

I claim:—

1. In a gas operated gun, the combination with a barrel, of a casing engaged over the muzzle of the barrel, a muzzle plug within said casing having an axial channel of smaller caliber than the caliber of the barrel, and means connected with the casing and disposed entirely to the rear of the muzzle end of the barrel and coacting with the latter to draw the casing rearwardly on the barrel and thereby clamp the muzzle plug against the muzzle end of the barrel.

2. In a gas operated gun, the combination with a barrel having an exterior projection providing a shoulder, of a casing engaged over the muzzle end of the barrel, a muzzle plug within said casing having an axial channel of smaller caliber than the caliber of the barrel, and means connected with the casing, and disposed entirely to the rear of said shoulder and coacting with the latter to draw the casing rearwardly on the barrel and thereby clamp the muzzle plug against the muzzle end of the barrel.

3. In a gas operated gun, the combination with a barrel, of a casing engaged over the muzzle of the barrel, a muzzle plug within the casing having an axial channel of smaller caliber than the caliber of the barrel, and a radially assembled, plural piece, sleeve nut threaded to the casing and rotatable on and coacting with the barrel to draw the casing rearwardly on the barrel and thereby clamp the muzzle plug against the muzzle end of the barrel.

4. In a gas operated gun, the combination with a barrel having an exterior projection providing a shoulder, of a casing engaged over the muzzle end of the barrel, a muzzle plug within the casing having an axial channel of smaller caliber than the caliber of the barrel, and a radially assembled, plural piece, sleeve nut threaded to the casing and rotatable on the barrel and coacting with said shoulder to draw the casing rearwardly on the barrel and thereby clamp the muzzle plug against the muzzle end of the barrel.

5. In a gas operated gun, the combination of a main barrel, an auxiliary barrel within the main barrel carrying a portion at its muzzle overlying the muzzle end of the main barrel, a casing engaged over the muzzle ends of both barrels, a muzzle plug within the casing having an axial channel of smaller caliber than the caliber of the auxiliary barrel, and means connected to the casing and coacting with one of said barrels to draw the casing rearwardly and thereby clamp the muzzle plug against the muzzle end of the auxiliary barrel.

6. In a gas operated gun, the combination of a main barrel, an auxiliary barrel within the main barrel including a tubular member and a sleeve threaded on the muzzle end of the member in overlying relation to the muzzle end of the main barrel, an inwardly directed

flange on the forward end of the sleeve spaced from the muzzle end of the tubular member, a casing engaged over the muzzle ends of both barrels, a muzzle plug within the casing having an axial channel of smaller caliber than the caliber of the auxiliary barrel, and means connected to the casing and coacting with said main barrel to draw the casing rearwardly and thereby clamp the muzzle plug against said sleeve.

7. In a gas operated gun, the combination of a main barrel, an auxiliary barrel within the main barrel carrying a portion at its muzzle end overlying the muzzle end of the main barrel, a casing engaged over the muzzle ends of both barrels having means engaging the muzzle and of the auxiliary barrel, and means having rotatable connection with the casing and coacting with the main barrel when rotated relatively to the casing to draw the latter rearwardly and thereby clamp the overlying portion of the auxiliary barrel against the muzzle end of the main barrel.

In testimony whereof I hereunto affix my signature.

SAMUEL G. GREEN.