

No. 812,326.

PATENTED FEB. 13, 1906.

J. M. BROWNING.
RECOIL BRAKE FOR AUTOMATIC GUNS.
APPLICATION FILED JUNE 30, 1904.

FIG. 1.

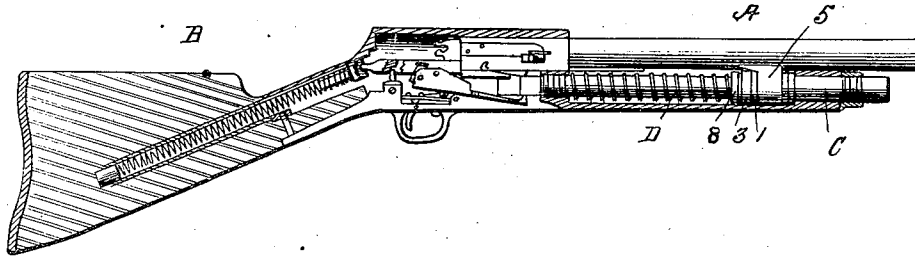


FIG. 2.

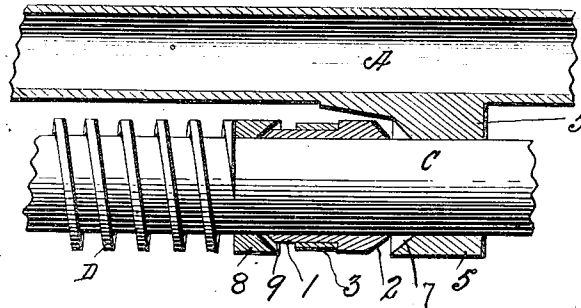


FIG. 3.

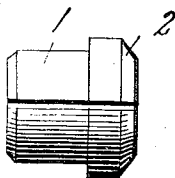


FIG. 4.

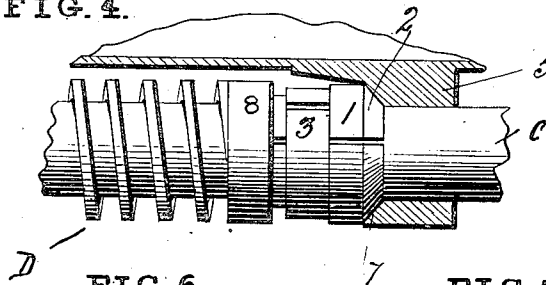


FIG. 5.

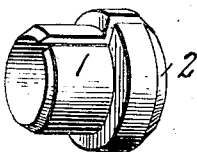


FIG. 6.

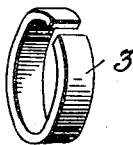
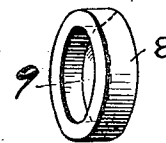


FIG. 7.



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JOHN M. BROWNING, OF OGDEN, UTAH.

RECOIL-BRAKE FOR AUTOMATIC GUNS.

No. 812,326.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed June 30, 1904. Serial No. 214,773.

To all whom it may concern:

Be it known that I, JOHN M. BROWNING, a citizen of the United States, residing at Ogden, in the county of Weber and State of Utah, have invented certain new and useful Improvements in Recoil-Brakes for Automatic Guns, of which the following is a specification.

This invention relates to friction-brakes for automatic guns.

The object of the invention is to adjust the brake mechanism of an automatic gun to the character of the cartridge employed, so that the shock of recoil and the shock of the return of the barrel to firing position may both be adapted to the conditions of use with different cartridges.

In my Patent No. 689,283, of December 17, 1901, I describe a brake mechanism for reducing the shock of recoil upon the rear end of the frame of the gun and also reducing the shock of the return of the barrel to its normal or firing position. The present invention is an improvement thereon and is applicable to the automatic gun of that invention or to other guns of like general character.

In the drawings, Figure 1 is a broken longitudinal section of an automatic gun and for convenience may be supposed to be the gun of the patent referred to with the present invention applied thereto. Fig. 2 is a broken longitudinal section of the brake mechanism of the present invention, the barrel-lug being slightly forward. Fig. 3 is a detached elevation of the contractile collar-brake. (Shown in former patent.) Fig. 4 is a partial section and partial elevation of the brake mechanism of this invention. Fig. 5 is a perspective of Fig. 3. Fig. 6 is a perspective of the clamping-ring. Fig. 7 is a rear perspective of the adjustment ring or controller.

Assuming the gun to be substantially of the character described in my former patent or equivalent thereto, let A indicate the barrel; B the stock; C the magazine, and D the barrel-returning spring.

In order to reduce the shock of recoil upon the rear end of the frame of the gun, to reduce the shock of the return of the barrel to its normal position under the action of the barrel-spring, and to prevent any rattling in the connection between the barrel and the magazine, I employ a contractile collar-brake which operates frictionally upon the maga-

zine. This consists of a split collar 1, formed at its forward end with a conical or beveled flange 2, which is also split, so as to be contractile. The collar 1 is encircled by a split clamping-collar 3, preferably made of steel, and exerting a constant effort to contract the collar 1 and the beveled or conical flange 2 thereof. This composite brake is interposed between the forward end of the barrel-spring D and the rear edge of the perforated lug 5, depending from the gun-barrel A and adapted to receive the forward end of the tubular magazine C. The rear face of the perforated lug 5 is formed with a beveled shoulder 7 to coact with the beveled flange 2 of the brake. When the gun is fired and the barrel starts rearward, a portion of the force of the recoil will act, through the beveled shoulder 7, upon the beveled flange 2, which will be contracted and which will in turn contract the collar 1, so as to cause the same to grasp the magazine D and slide over the same with sufficient resistance to materially reduce the shock of recoil and prevent the rear end of the bolt from being impinged with too much severity upon the rear end of the receiver. This I call the "recoil-brake action" of my improved composite collar-brake. Now when the barrel-spring D operates to return the barrel to its normal position the split clamping-collar 3 operates by its contractile power to squeeze the collar 1 upon the magazine with sufficient power to develop enough friction to moderate the action of the spring D. This may be called the "barrel-spring braking action" of my improved composite collar-brake. Of course the crowding of the flange 2 of the collar 1 forward against the bevel-shoulder 7 heightens the clamping action to a certain extent during the return movement of the barrel. Furthermore, at all times the coaction of the flange 2 and shoulder 7 prevents any rattling between the barrel and the magazine due to their connection through the perforated lug 5.

It will be understood that the braking action is greater during the recoil movement of the barrel than during the return movement of the barrel, and that is as it should be, because the power of the recoil is always greater than the power of the barrel-spring.

So far I have substantially described the brake mechanism of the patent referred to. In the present invention I add to such mech-

anism a controlling-ring 8, which surrounds the magazine in front of spring D. The front end of the ring 8 is beveled, as indicated at 9. The rear end of the collar 1 may also be beveled, as shown, although this is not essential.

The forward pressure of spring D forces ring 8 over the rear end of split collar 1, thus compressing said collar onto the magazine by a wedge action. Clamping pressure thus exerted increases the frictional resistance to recoil of the barrel and to return of the barrel to normal position.

The ring 8 can be quickly applied to or removed from the brake mechanism of my former patent. When removed, the ring can be conveniently stored on the magazine in rear of the spring D and next to the receiver, although it need not be so stored. This applicable and removable controlling-ring 8 is a valuable addition to the brake mechanism of the gun described and is, so far as I know, the first mechanism for adjusting the resistance of the brake for an automatic gun to recoil and counter-recoil under changed conditions due to the firing of increased or diminished charges.

While the magazine is a most convenient part for the friction-brake to operate on, it is evident that any other piece or part which is rigid with the stock and extends parallel with the barrel would serve the same purpose as the magazine.

What I claim is—

1. In an automatic gun, the combination with a recoiling barrel, a friction-brake connected with the barrel and operating through the recoiling movement of the barrel for reducing the shock of recoil, and means sepa-

rate from the barrel for increasing the friction of said brake upon the firing of the gun.

2. In an automatic gun, the combination of a recoiling barrel, a magazine, a friction-brake connected to the barrel to move rearward therewith and reduce the shock of recoil, and auxiliary means separate from the barrel for increasing the friction of said brake on the magazine upon the firing of the gun.

3. In an automatic gun, the combination with a recoiling barrel, of a tubular magazine, a friction-brake connecting with the magazine over which it rides to reduce the shock of recoil, and auxiliary means separate from the barrel for increasing the friction of the brake on the magazine upon the firing of the gun.

4. In an automatic gun, the combination with a recoiling barrel, of a friction-brake connected with the barrel and reducing the shock when the barrel is recoiling, and braking the shock following the return of the barrel to firing position, and auxiliary means independent of the barrel and removable from the brake, for regulating the friction of said brake upon the firing of the gun.

5. An automatic gun, a recoiling barrel, a split collar connected thereto, a rigid piece parallel with the barrel and surrounded by said collar, the spring for returning the barrel, and a beveled ring pressed by said spring against said collar to contract the same.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. BROWNING.

Witnesses:

THEODORE DE W. MOORE,
CHAS. W. MANY.