Feb. 24, 1942. R. H. S. HUGHES 2,274,239

RECOIL DEVICE

Filed April 25, 1938

FIG. 1.

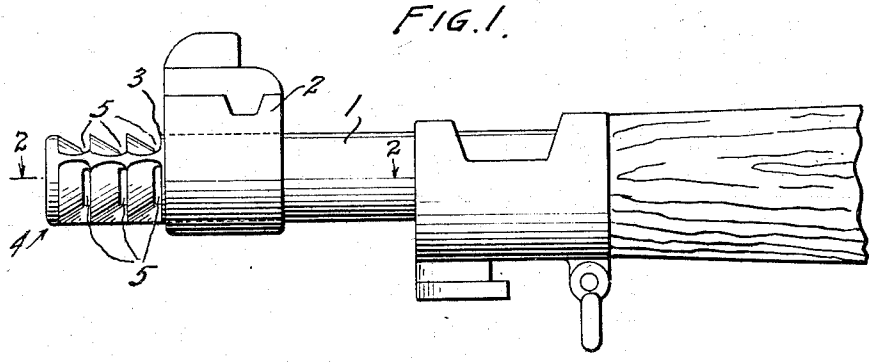


FIG. 2.

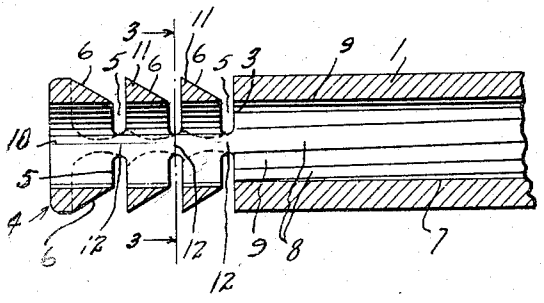


FIG. 3.

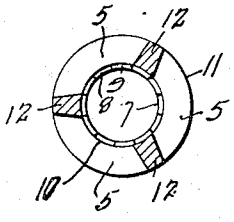


FIG. 4.

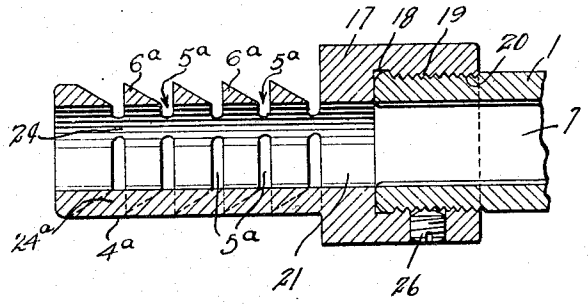
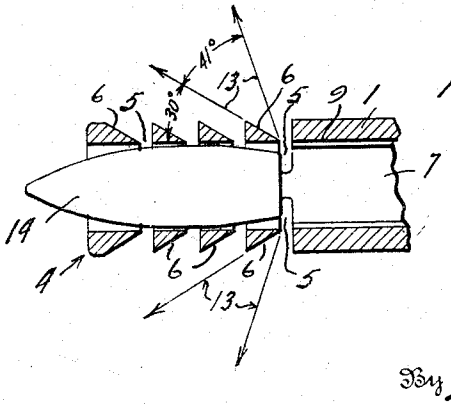


FIG. 5.



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RECOIL DEVICE

Robert H. S. Hughes, Baltimore, Md.

Application April 25, 1938, Serial No. 204,174

2 Claims. (Cl. 89—14)

This invention relates to a recoil reducing device for guns which is light in weight and effective and which may be integral with the gun barrel or formed separately and attached to the gun barrel.

The structure and advantages of the invention will be clear from the following description, taken in connection with the accompanying drawing, in which

Figure 1 is a side view of the forward end of a rifle having a recoil controlling device integral with the barrel of the rifle;

Figure 2 is a longitudinal section on the line 2—2 of Figure 1;

Figure 3 is a cross section on the line 3—3 of Figure 2;

Figure 4 is a central longitudinal section through a recoil device and part of a rifle barrel, the device being constructed for attachment to the barrel;

Figure 5 is a longitudinal central section through part of a rifle barrel and an integral recoil device, a projectile being shown within the latter, the arrows indicating the direction of the discharge of the gasses.

Referring to Figure 1 of the drawing, 1 indicates the barrel of a rifle on which is mounted a sight 2 adjacent the muzzle 3, and extending forwardly from the muzzle is a cylindrical recoil controlling device 4, integral with the barrel and having in its wall several series of relatively narrow circumferentially extending slots 5, the slots in each series being spaced apart longitudinally of the device and the forward wall 6 of each slot extending forwardly and outwardly to approximately the rear edge of a succeeding slot in the same series, and the rear edge of each slot extendingly outwardly in a substantially radial direction, as shown. The slots of each series are separated from the slots of a different series by the short webs 12.

Preferably I make the forward surfaces 6 of the slots 5 forming an angle of approximately 47° to 30° with a line forming a forward extension of the gun bore at the bottom of the grooves 9. The action of the gases is shown in Figure 5. In practice, as the bullet emerges from the muzzle of the gun, the gases traveling behind it move at a greater velocity than the velocity of the bullet. The cone of expanding gases is included between lines 13. The angle between the lines 13 is approximately 41°.

This 41° angle is for a standard U. S. .30'06 boat-tail bullet. This angle may vary with all the varying characteristics of charge, projectile and firearm. The number of slots may cause variation also in this angle. The forward surface 6 should make an angle such that the expanding gases are not deflected by such surface.

In Figure 5, a bullet 14 is shown passing through the central aperture 10. The central aperture 10, as before described, has a diameter approximately equal to that of the bore 7, when measured from the bottom of the rifling grooves. This gives a sufficiently close fit to make the recoil control practical in operation and yet permits a definite break in the contact of the bullet with the bore proper of the firearm. The form of device just described will eliminate approximately 35% of the recoil. It is very light in weight and easy to form on the muzzle of the firearm.

Yet another form of device is shown in Figure 4. This form is a detachable form and comprises a body 17 provided with a central aperture 18 which has screw threads 19 engaging screw threads 20 formed on the muzzle 3. An aperture 21 is formed in the body 7 adjacent the muzzle 3. The tubular part 4^a of this recoil device has several series of slots 5^a in its wall, the forward wall 6^a of one slot sloping forwardly and outwardly to approximately the rear wall of the next slot in the series and the rear wall of each slot extending outwardly in a substantially radial direction, the same as in Figures 1 and 2. In Figure 4 webs between adjacent series of slots are indicated at 24, 24^a, and the latter is shown at the under side of the device, where it would prevent the downward discharge of gases and tend to eliminate climb.

I claim:

1. Recoil reducing means for guns adapted to fire projectiles comprising a cylindrical member constructed to be supported by the gun barrel and to project in advance of its muzzle, said member having a bore of uniform diameter to line with the bore of the barrel through which the projectile may pass, and having a series of relatively narrow circumferentially extending slots in its wall spaced apart longitudinally of said member and constituting ports for the discharge of products of combustion directly to the atmosphere, the forward surfaces of said slots defined by the member inclining forwardly and outwardly to approximately the rear edge of the next slot in the series, and the rear edge of each slot extending outwardly in a substantially radial direction.

2. Recoil reducing means for guns adapted to fire projectiles comprising a cylindrical member

constructed to be supported by the gun barrel and to project in advance of its muzzle, said member having a bore of uniform diameter to line with the bore of the barrel through which the projectile may pass, and having several series of relatively narrow circumferentially extending slots in its wall, the slots in each series spaced apart longitudinally of said member and constituting ports for the discharge of products of combustion directly to the atmosphere, the forward surfaces of said slots in each series defined by said member inclining forwardly and outwardly to approximately the rear edge of the next slot in the same series and the rear edge of each slot extending outwardly in a substantially radial direction.

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