B. WALKER
SILENCER FOR FIREARMS
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Inventor
Brooks Walker

By C. E. Herrstrom & H. P. Hildeman
Attorneys
The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

More particularly, it is an object of the invention to provide a silencer capable of being readily applied to or detached from a rifle and which will effectively eliminate the audible report of the weapon.

Another object of the invention is to provide a silencer which will also function as a muzzle brake.

Still another object of the invention is to provide a novel means of securely mounting the penetrable mass in a detachable manner so that it can readily be replaced.

This invention and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, which illustrates preferred embodiments of the invention, and wherein:

Figure 1 is a longitudinal central sectional view of one form of the silencer shown detachably mounted on the muzzle end of a rifle;

Figure 2 is a cross sectional view of the silencer taken substantially along the plane as indicated by the line 2—2 of Figure 1;

Figure 3 is an end view in elevation looking toward the outer end of the silencer; and

Figure 4 is a view similar to Figure 1 of another form of the invention.

Referring more particularly to the drawing, wherein reference characters designate like or corresponding parts throughout the different views, 5 designates a barrel of a conventional rifle, the muzzle end of which is externally threaded as seen at 6.

In the embodiment of the invention illustrated in Figures 1 to 3, 7 designates generally the silencer in its entirety and which includes a hollow body 8 having a restricted bore 9 at its inner end.

The outer end of bore 9 is reamed out and internally threaded to detachably engage the threaded portion 6 for detachably mounting the silencer 7 on the rifle barrel 5. The bore 9 is axially aligned with the bore of the barrel 5 and is of a greater diameter, as seen in Figure 1. Body 8, adjacent its opposite end, is provided with an inwardly extending annular shoulder 10 which extends into the hollow interior thereof. A relatively thick block of a penetrable, substantially self-sealing material, such as rubber, designated 11, is surrounded by a peripheral band 12 of a rigid material which is suitably bonded or otherwise secured to its outer edge. The block 11 fits into and closes the open outer end of the housing 8 and the band or ring 12 has its inner edge bearing against the shoulder 10. On the outer side of the block 11, body 8 is internally threaded to receive an annular nut 13 which bears against the outer edge of the band 12 to fix the block 11 securely in the open outer end of the body 8.

A plurality of rearwardly dished disks 14 are mounted on bolts 15 and are held in spaced apart relationship by spacing sleeves 16 which are carried by the bolts 15 and which are disposed between the disks 14. The inner end of the body 8 is provided with internally threaded sockets 17 that receive the threaded ends of the bolts 15 to thereby detachably mount the disks 14 in the body 8. Disks 14 are provided with aligned central openings 18 of substantially the same diameter as the opening 9 which is in alignment therewith. The disks 14, bolts 15 and spacing 16 combine to form a muzzle brake.

The body 8 is provided with an enlargement on its under side having an internally threaded outlet or opening 19 to receive the externally threaded open end of a cylinder 20, the opposite end of which is closed.

In Figure 4, another simpler form of the invention is disclosed, including a hollow body 21 which is substantially smaller in diameter than the body 8 and which is provided with an inner end having a restricted opening 22, the outer end of which is reamed out and internally threaded to detachably engage an annular socket type nut or flanged ring 23 which is provided with a restricted opening 24 in its outer end. The penetrable block 11 and its encompassing band 12 are mounted in the socket nut 23 and the inner edge of the ring 12 bears against the outer end of the hollow body 21 and its outer edge bears against the inwardly extending annular shoulder or flange of the nut 23, formed by opening 24. Hollow body 21 is provided with a threaded opening 25 in its side wall preferably in its under side to receive and engage the up-turned, externally
threaded open end of a cylinder 26, the opposite end of which is closed.

From the foregoing it will be readily apparent that when a projectile is fired through the barrel 5, it will pass through opening 9 and the openings 15 and centrally through the penetrable mass 11 forming an opening therein which, due to the resiliency of the block 11, is substantially smaller in diameter than the projectile, producing the opening, and which will substantially seal or close behind the projectile to prevent escape of the expanding, propelling gases. Disks 14 will act as a muzzle brake and expanding gases, prevented from escape from the body 8 by the block 11, will escape through the spaces between the disks 14 and into the outer portion of the body 8 and the gas trap cylinder 20. The body 8 and cylinder 20 are of sufficient size to allow for sufficient expansion of the propelling gases, so that the major portion of the gases do not follow the projectile in passing through the block 11. The gases will escape from the body 8 and the cylinder 20 back through the barrel 5 and out through the breech, not shown, of the weapon when the bolt is opened in addition to their limited escape from the silencer directly to the atmosphere. The block 11, if desired, can be initially provided with a small opening for the passage of the projectile, but this opening can be equally well formed by the first projectile passing therethrough. In order for the silencer to function most effectively for substantially eliminating all sound incident to firing the weapon, the muzzle velocity of the weapon should be stepped down to below the speed of sound so that the crack of the projectile in passing through the air will not be heard; and the firing pin or hammer and bolt should be cushioned to eliminate the sound incident to their operation or the weapon should be electrically fired.

In the embodiment of the invention disclosed in Figure 4, the silencer functions the same except that the parts forming the muzzle brake and including disks 14, bolts 15 and spacers 16 are eliminated.

Various other modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit and scope of the invention as hereafter defined by the appended claims.

I claim:

1. In a silencer attachment for a firearm having a rifled barrel, said attachment comprising a hollow body adapted to be connected to the muzzle of said barrel as a continuation thereof and having a central axis, a block of resilient material, a rigid ring bonded to the periphery of said block, a removable retaining member mounted in the outer end of said body and engaging the ring to removably attach the block and ring to said body, and a shoulder on said body against which the inner edge of the ring is held by said retaining member.

2. In a silencer attachment for a firearm having a rifled barrel, a hollow generally cylindrical body adapted to be secured to the muzzle of said barrel as an extension thereof, said body having an open end remote from said muzzle and an internal annular flange adjacent said end, a disc of rubber, a metallic band bonded to the periphery of said disc, said band and disc fitting within said body against said flange, to close said open end, and a ring adapted to threadedly engage said body to removably hold said disc and band in contact with said flange.

3. In a silencer attachment for a firearm having a barrel, a generally cylindrical hollow body adapted to be secured to the muzzle of said barrel as an extension thereof, said body being closed except for the end remote from said muzzle, a disc or rubber, a continuous metallic band bonded to the periphery of said disc, said disc and band being adapted to fit over the open end of said body and a ring adapted to be threaded on said body adjacent its open end, said ring having an internal peripheral flange to engage said disc and band and removably secure the same over the end of said body as a closure therefor.

4. An attachment as recited in claim 1, a plurality of bolts, circumferentially spaced about and extending parallel with said central axis, each bolt being supported at one end in said body, a plurality of rearwardly-discharged discs mounted on said bolts, and spacers mounted on said bolts to maintain said discs in spaced relation.

BROOKS WALKER.

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