BLANK CARTRIDGE AMMUNITION ADAPTER FOR FIREARMS

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ABSTRACT
An adapter for converting a single-shot rifle to use for firing a dart-type projectile. A 0.50-caliber or any other rifle or shotgun bore is modified to receive a 0.22 or any size caliber blank cartridge which is less than that of the rifle bore by a cylindrical member having an offset, reduced-diameter bore at the base end thereof and a wiggler member at the nose end thereof for assisting in loading a dart into the rifle bore.

6 Claims, 2 Drawing Figures
BLANK CARTRIDGE AMMUNITION ADAPTER FOR FIREARMS

BACKGROUND OF THE INVENTION

This invention relates to an ammunition adapter and more particularly to an adapter for converting a single-shot or multiple-shot rifle to use for firing a dart-type projectile of special composition, such one carrying a dye or tear gas.

Dart-type projectiles of the class described have been proposed for use as an aid in law enforcement activities and for humane animal control. For example, a dart containing tear gas may be used as an effective agent for dispersing a riotous crowd, or one containing a dye may be used for marking an individual in such a crowd or an animal in a pack or herd of animals for easy identification thereof at a subsequent time.

These darts may be fired by any suitable firearm. The explosive charge required for successfully firing the darts is not nearly as great as the cartridges for such caliber firearms normally provide. A 0.22-caliber cartridge has been determined to be sufficient for the purpose, but special provision must be made to adapt a larger bore of a rifle to receive the smaller shell no matter what caliber if it is to be used therein.

No bullet is necessary, of course since it is the material-filled dart projectile that is to be launched. Blank cartridges may therefore be used, but there is a disadvantage here in that the wadding material substituted therein for the bullet has a tendency to deposit it in the rifle barrel to create an additional bore-cleaning problem.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide an adapter for converting a single-shot rifle for receiving and firing a blank cartridge of substantially smaller diameter than the bore of the rifle for launching a dart-type projectile of the same diameter as the rifle bore.

Another object of this invention is to provide an adapter for modifying a single or multiple shot rifle to fire a blank cartridge therein of smaller diameter than the rifle bore which aids in producing complete burning of the charge in the cartridge and thereby leaves a clean rifle barrel.

Still another object of this invention is to provide an ammunition adapter for converting a single or multiple shot rifle for use in launching a material-filled dart-type projectile which produces complete burning, is easily cleaned, and also provides a tool for inserting the dart into the rifle barrel correctly aligned therewith.

The foregoing and other objects are attained by an elongate cylindrical body adapted to be positioned within the chamber of a rifle and having an offset, reduced-diameter bore at the base end thereof for receiving a blank cartridge. A tubular body having a plurality of apertures therein is connected to the forward end of the cylindrical body for retaining the expanding gases of a charge exploded therein sufficiently long for the charge to be completely burned and a wiggie member is secured to the forward end of the tubular body to assist in loading a dart-type projectile into the rifle barrel.

BRIEF DESCRIPTION OF THE DRAWING

Still other objects and many of the attendant advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the detailed description when considered in connection with the accompanying drawing wherein:

FIG. 1 is a perspective view of an ammunition adapter constructed in accordance with the teachings of this invention; and

FIG. 2 is a cross-sectional view of the adapter of FIG. 1 shown positioned within the barrel of a rifle.

DESCRIPTION OF AN EXEMPLARY EMBODIMENT

Referring now to the drawing, there is shown in FIG. 1 an adapter generally indicated by the numeral 10, comprising a substantially cylindrical body 12, a tubular member 14 and a wiggie or end probe 16, each of which may be constructed of a suitable metallic material.

As may be better seen in FIG. 2, the cylindrical body 12 is provided with an offset or eccentric bore 18 formed in the aft end thereof and terminating into an axial bore 20 of substantially larger diameter formed in the forward end of the body 12. In practice, the cylindrical body 12 is inserted into the chamber 2 of a rifle barrel 23 behind a dart-type projectile 24 to be launched therefrom and is constructed of a diameter matching that of the bore 26 of the rifle. A cartridge, not shown, of a smaller caliber than the rifle bore 26, may be inserted into the eccentric bore 18 and used, as indicated hereinafore, for launching the projectile 24.

The forward end of the cylindrical body is internally threaded for receiving at 28 in threaded engagement a flanged portion 30 of one end of the tubular member 14. An axial bore 32 is defined within the tubular member 14 and opens into a counterbore 34 formed in the flanged portion 30 thereof. The diameter of the tubular member 14 is substantially less than that of the cylindrical body 12, whereby an annular space is provided about the tubular member within the rifle chamber 22 for the expansion of gases thereinto, as will be explained hereinafter, through a plurality of apertures 36 in the tubular member 14.

At the forward end of the tubular member 14, a small lip 38 restricts the size of the bore 32 at the terminal point thereof in the tubular member. A flange 40 on the end of the elongate, substantially cylindrical wiggler or end probe 16 is disposed within the bore 32 of the tubular member 14, providing an end stop whereby the wiggler 16 is prevented from falling out of the tubular member, the diameter of the flange 40 and probe 16, with relation to the bore 32 and the flange 40, being such as to permit free wiggling movement of the probe.

An annular groove 42 is provided in the end probe 16 for receiving therein a C-shaped snap-in washer 44. The groove 42 is disposed in the wiggler 16 a slight distance forward of the flange 40, thereby providing a loose joint and permitting limited lateral movement of the probe as well as limited wobble or wiggle movement thereof.

In operation, a dart projectile 24 is inserted into a chamber 22 of rifle barrel 23 and the loading is assisted by the adapter 10, using the wiggler 16 on the end thereof to align the projectile in place. A blank cartridge, as for example a 0.22-caliber blank cartridge in the case of a rifle having a larger bore, is inserted in the eccentric bore 18 of the cylindrical body of the adapter 10.

When the cartridge is fired, the gases formed by the exploding charge therein expand rapidly within the area of the bore 20 in the cylindrical body 12 and into the tubular member 14. The small holes 36 in the tubular member 14 retain the gas long enough to permit the buildup of high pressure and high temperature, whereby more complete burning of the powder charge may take place. This nearly complete combustion process leaves less residue and thus leaves a cleaner barrel than normally obtained. The result of the complete burning each time of the powder contained within the blank cartridge regardless of caliber insures consistent accuracy. The expanding gas thereafter passes through the apertures 36 to launch the projectile 24 from the rifle barrel.

An important function of the adapter is to provide a uniform flow of the gases formed by the burning chemicals in the blank. The arrangement and size of the small apertures accomplishes this uniform flow. A uniform flow of gases is necessary for accuracy of missile or dart. The size and number of apertures regulates the flow of gases, restraining them in such a way that enough heat is generated to completely burn all chemicals or powder contained in the blank cartridge ensuring uniform range and accuracy.
3. An additional advantage of the adapter 10 of the present invention is gained through the feature of construction thereof whereby disassembly and reuse is possible. In this manner, the tubular member 14 may be removed after firing for cleaning the gas ports 36 of any wadding from the blank cartridge that may have become deposited therein.

Obviously, many other modifications and variations of the invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. An ammunition adapter for modifying a single or multiple shot firearm to fire a blank cartridge of smaller diameter than the bore of the firearm of which it is to be used, said adapter comprising:
   a cylindrical body of the same diameter as the said firearm bore and having a bore in the base end thereof for receiving said cartridge and an axial chamber forward of said cartridge bore in communication therewith; and
   a tubular member of less diameter than said cylindrical body secured to the forward end of said body and having at least one aperture in the wall thereof.

2. An ammunition adapter according to claim 1 wherein said cartridge bore is eccentrically disposed within said cylindrical body.

3. An ammunition adapter according to claim 1 wherein said tubular member is threadably engaged to said cylindrical body.

4. An adapter according to claim 1 further including an end probe member attached to said tubular member for loading a projectile to be launched from said firearm.

5. An adapter according to claim 1 wherein the forward end of said tubular member is provided with a lip portion partially restricting the opening therein; and
   said end probe member is loosely attached to said tubular member through said restricted opening.

6. An adapter according to claim 5 further including a flange on one end of said end probe slidable within said tubular member and retained therein by said lip portion;
   an annular groove in said end probe spaced from said flange; and
   a snap-in washer means in said groove for limiting rearward lateral movement of said end probe and permitting limited wobbling movement thereof;
   said adapter accomplishing more complete burning of the combustible materials of said cartridge and reducing greatly any resulting sludge and debris within the firearm bore thereby achieving better accuracy for the fired projectile.

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