

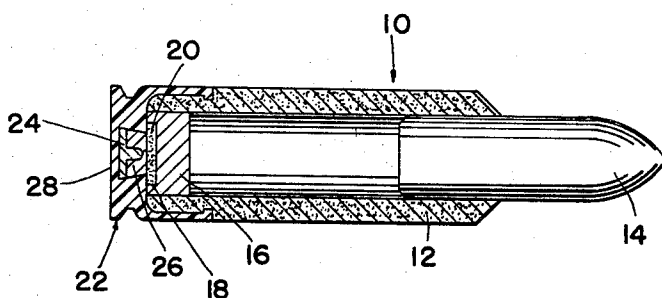
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SMALL ARMS CARTRIDGE

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SMALL ARMS CARTRIDGE

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6 Claims. (Cl. 102—38)

ABSTRACT OF THE DISCLOSURE

A small arms caseless cartridge for use with a conventional rifle and having an obturator secured to the rearward end of a molded propellant charge. A firing pin is seated in a cavity of the obturator and its forward surface portion is sealed and retained therein by an elastomeric plug, having a forwardly reduced tapering surface by which the sealed firing pin is longitudinally spaced from the primer mix. The obturator is likewise formed of elastomeric material, such as neoprene, and a relatively lighter weight round of ammunition is provided for use in a standard weapon having repetitive firing without the need of a preliminary step in frictionally securing an obturating cup to a bolt face.

This invention relates to a small arms cartridge and more particularly to a caseless small arms cartridge capable of being fired from conventional rifles.

Briefly, this invention provides a stub obturated caseless round having the same caliber as a standard cased cartridge, and therefore permitting its firing from a conventional rifle. By practicing our invention, advantages of caseless ammunition can be enjoyed without having to resort to special rifles.

It is therefore an object of the present invention to provide a caseless small arms cartridge capable of being fired from a conventional rifle.

Another object is the provision of a small arms cartridge which has a stub obturated caseless charge.

A further object is to provide a stub obturated caseless small arms cartridge that can be fired interchangeably with conventional cased ammunition from a conventional rifle.

The above objects as well as others together with the benefits and the advantages of the invention will be apparent upon reference to the detailed description set forth below, particularly when taken in conjunction with the annexed drawing illustrating a transverse section of an embodiment of our invention wherein is shown a small arms cartridge 10 comprising an open ended hollow cylindrical molded propellant charge 12 in place of the conventional case. Secured to the forward end of charge 12 is a projectile 14 while in the rearward end is disposed a primer plug 16. Contained in cavity 18 of primer plug is a conventional primer mix 20.

Obturator 22 is crimped to the rearward end of charge 12 and contains a firing pin 24 held in place by a plug insert 26 made of some elastomeric material such as neoprene or rubber, which is retained in the obturator by the high pressure gases formed from ignition of primer plug 16, the taper fit and a nitrocellulose bonding adhesive. Obturator 22, having base 28, is made suitably of an

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elastomeric material, e.g., neoprene or a light weight metal or metal alloy and resembles the base of a conventional metal case insofar as it contains an extraction groove, and that its walls can expand under chamber pressure and obturate. Unlike the base of a metallic case, obturator 22 contains no primer pocket, vent, or primer.

In operation, the firing pin (not shown) in the bolt of a conventional rifle (not shown) strikes base 28 of cartridge 10 to push firing pin 24 forward and thus piercing a plug insert 26 to actuate primer mix 20 and igniting primer plug 16. This in turn ignites propellant charge 12 and the pressure from gases formed upon ignition of charge 12 expands obturator 22 against the chamber wall (not shown). The rifle bolt face (not shown) prevents the obturator from moving rearward. At muzzle exit, the extractor (not shown) on the bolt (not shown) removes obturator 22 in a conventional manner.

The advantages of the use of the stub obturated caseless round aforescribed are, among others, that a 30–35% savings in weight results, a higher velocity of projectile 14 can be achieved due to increased propellant charge, and no erosion of the firing pin can occur because it is self-contained and therefore protected substantially against contact with hot gases.

Obviously many modifications and variations of the present invention are possible in 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.

We claim:

1. A small arms caseless cartridge capable of use with conventional rifles comprising,

an open ended hollow cylindrical molded propellant charge,

a projectile secured to a forward end of said charge, a primer plug secured to a rearward end of said charge, an obturator secured to the rearward end of said charge abutting said primer plug,

a firing pin having a rearward face seated in a cavity of said obturator, said pin having a forward face, and

means including an elastomeric plug covering said pin forward face and retaining said firing pin in said obturator cavity rearward of said primer plug.

2. A cartridge of the type described in claim 1 wherein said primer plug is provided with a cavity having a primer mix contained therein.

3. A cartridge of the type described in claim 1 wherein said obturator is constructed of an elastomeric material.

4. A cartridge of the type described in claim 3 wherein said elastomeric material is neoprene.

5. A cartridge of the type described in claim 1 wherein said obturator is made of a metal selected from the group consisting of a light weight metal and metal alloy.

6. The structure in accordance with claim 1 wherein said elastomeric plug has a forwardly reduced tapering surface.

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