April 27, 1948. R. C. ARTER 2,440,568

CARTRIDGE LOADING

Filed Jan. 2, 1946

Fig. 1.

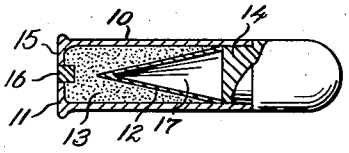


Fig. 2.

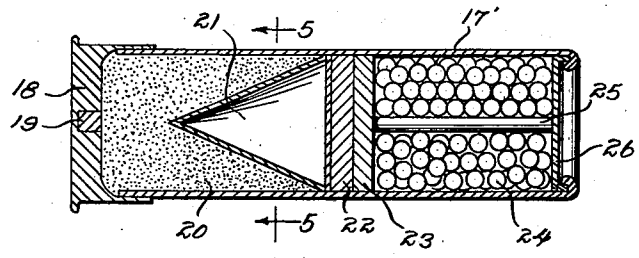


Fig. 5.

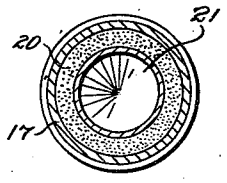


Fig. 3.

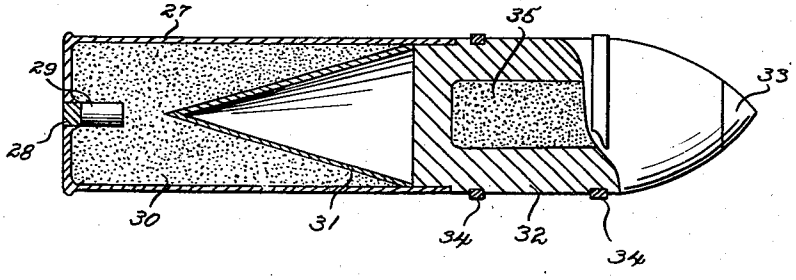
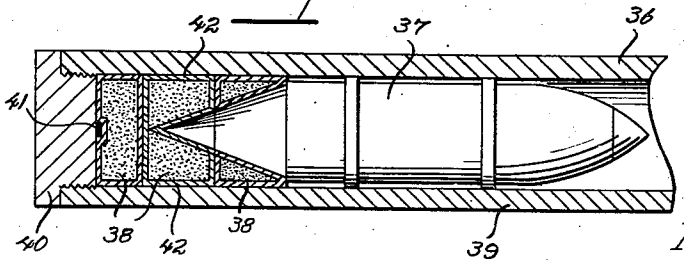


Fig. 4.



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CARTRIDGE LOADING

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Application January 2, 1946, Serial No. 638,614

1 Claim. (Cl. 102—42)

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The invention relates to ammunition, and more especially to a small firearm cartridge, either a shot gun, pistol or the like.

The primary object of the invention is the provision of a cartridge of this character, wherein the principle involved therein relates to the shape of the chamber containing the explosive for service in small firearms, and causing greater damage by the projectile upon contact with a target. The theory being that upon exploding the gases travel toward the center line of the weapon where they meet with equal angle, velocity and weight, thus giving a resultant force in the direction of the axis of the barrel of such weapon, since a greater portion of the explosive is presented to the area of the least resistance, with less loss of power due to the confusion of the molecules and excessive breach pressure before the shot or bullet starts to travel. In other types of cartridges the movement depends more on the built up pressure with little of the kinetic energy being utilized.

Another object of the invention is the provision of a cartridge of this character, wherein there is obtained better control of the propelling gases by directing a greater portion of it initially along the axis of the barrel of the firearm, and conserving the kinetic energy of the moving gases by presenting a larger portion of the explosive to the area of least resistance.

A further object of the invention is the provision of a cartridge of this character, wherein there is gained power by permitting the gases to move with little resistance toward the axis of the cone built within the cartridge where the molecules collide giving a resultant force in the direction of the axis of the barrel of the firearm.

A further object of the invention is the provision of a cartridge of this character, wherein the cone therein is hollow to reduce breach pressures by providing a vacancy in which the gases may expand without encountering heavy resistance, the cone being made of slow burning molded explosive material or high explosive substance, thus retaining velocity of the projectile and reducing muzzle flash, and also effective as a booster charge without the usual excessive muzzle strain due to the choking effect of the shot charge in the cartridge.

A still further object of the invention is the provision of a cartridge of this character, which is simple in construction, thoroughly reliable and effective in operation, strong, durable, compact, and inexpensive to manufacture.

With these and other objects in view the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter fully set forth in detail, illustrated in the accompanying drawing, which shows the preferred and modified forms of construction of the invention, and pointed out in the claim herewith appended.

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In the accompanying drawing:

Figure 1 is a side view of a cartridge, partly broken away, constructed in accordance with the invention for use in a pistol weapon.

Figure 2 is a vertical longitudinal sectional view through a cartridge for use in a shot gun.

Figure 3 is a view similar to Figure 1 showing a heavier type of cartridge.

Figure 4 is a fragmentary vertical longitudinal sectional view through a gun loaded with a cartridge of modified form therein.

Figure 5 is a sectional view taken on the line 5—5 of Figure 2 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, particularly Figure 1, the cartridge constituting the present invention involves a standard cartridge case 10, with the exception that its base has a reinforcement 11 to give strength and to direct motion of gases. This pistol or rifle cartridge has standard shape and design and includes a collapsible cone 12 which is inserted in the propellent charge or explosive 13 to direct the gases of the explosive in the desired direction, the shape of the inside of the cartridge case being varied with the type and power of the propellent used to give the desired strength and to assist in directing gases.

The cone 12 at its larger end confronts the bullet 14, which is held fast in the open end of the case 10, which is opposite that 15 having the reinforcement 11 carrying at its center the detonating cap 16.

The cone 12 creates a vacancy 17 therein, which functions for permitting the expansion of the gases without encountering heavy resistance and to move with little of the latter toward the axis of such cone where the molecules collide giving a resultant force in the direction of the axis of the barrel of the firearm. Furthermore, to gain power by permitting the gases to move with little resistance toward the axis of the hollow cone and to conserve the kinetic energy of the moving gases by presenting a larger portion of the same initially

along the axis of the said barrel, as well as to reduce breach pressures.

The cone 12 may be made from cellulose or nitrocellulose film or a molded explosive as desired to accomplish the muzzle velocity required.

In Figure 2 of the drawing, there is disclosed a shot gun type of cartridge in which is included a fiber cartridge case tube 17 with a metal reinforcement 18, having centrally thereof a primer cap 19, while the propellant charge 20 has embedded therein a hollow cone 21, confronting paper wadding 22, associated with felt wadding 23, abutting a shot charge 24, with a central longitudinally disposed spacer 25 for compensating the barrel choke of the firearm and this charge is retained by a retainer wad 26.

In Figure 3 of the drawing there is shown a heavier type of cartridge, such as, a 75 mm. gun. This cartridge involves a cartridge case 27 having the primer cap 28 in association with a booster primer 29 and the main propellent charge 30, while within the latter is a hollow cone 31 confronting the projectile 32 capped by a timer fuse 33. About this projectile exteriorly thereof are the rifle bands 34, and within the said projectile is an explosive 35.

In Figure 4 of the drawing there is shown fragmentarily a heavy gun 36 that is loaded by inserting the projectile 37, and propellent charge 38 directly into the gun barrel 39, which has the breach block 40, the detonating primer being indicated at 41 and the propellent charge 38 is enclosed in fabric bags 42 or molded in blocks and may be in one or more sections as shown.

What is claimed is:

In a cartridge for firearms, the combination, which comprises, a shell having a base with a detonator cap therein, a tubular casing with the outer edges thereof crimped inward carried by the shell, an explosive charge in the inner end of the casing, projectiles in the outer portion of the casing, wadding between the explosive charge and projectiles, a washer positioned at the outer end of the projectiles held by the crimped edges of the casing, a collapsible conical shaped element, the base of which is of the same diameter as that of the inside of the casing, positioned in the explosive charge with the base thereof against the wadding, and a centrally disposed collapsible tubular element extending through the projectiles in the outer portion of the casing.

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