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CARTRIDGE CASE CONTAINING PROPELLING ROCKET IGNITING CHARGE AND ROCKET PROJECTILE

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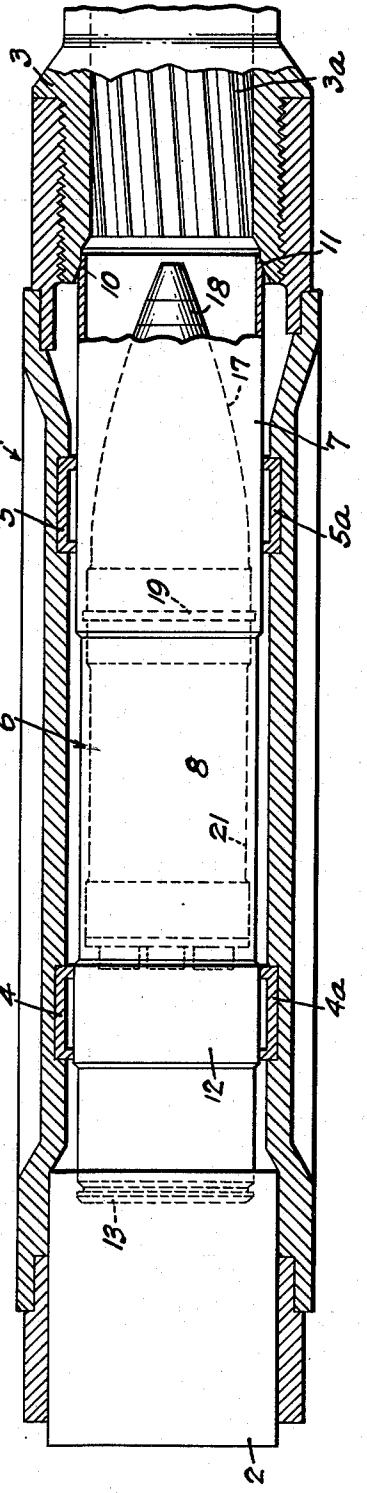


Fig. 1.

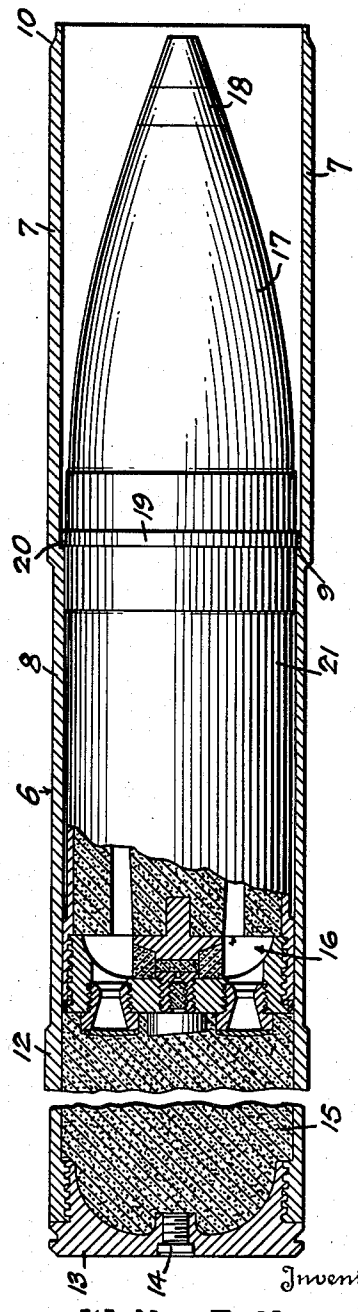


Fig. 2.

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CARTRIDGE CASE CONTAINING PROPELLING ROCKET IGNITING CHARGE AND ROCKET PROJECTILE

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5 Claims. (Cl. 89—1.7)

(Granted under Title 35, U. S. Code (1952), sec. 266)

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This invention relates to complete round ammunition and more particularly to a rocket propelled projectile housed in a cartridge case containing a charge for initially propelling the projectile and subsequently igniting the rocket motor of said projectile.

It is an object of this invention to provide a complete round of rocket ammunition wherein the igniting charge for the rocket and initial propelling charge for the rocket projectile are completely housed in the cartridge case.

Another object of the invention is a complete round of ammunition wherein the propelling rocket igniting charge and rocket projectile are completely housed within a cartridge which is adapted to be utilized as the chamber of the barrel of an automatic rocket launcher.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from the following description and accompanying drawings in which:

Figure 1 is a longitudinal sectional view through the receiver and rear of the barrel of the automatic rocket launcher, with certain parts omitted, showing the cartridge case which contains the propellant and igniter charge and also the rocket projectile, in rammed position forming the chamber of the barrel of an automatic rocket launcher.

Figure 2 is a longitudinal sectional view through the cartridge case showing the arrangement of the rocket propellant and igniter charge and the rocket projectile in the case.

Referring now to the drawings by characters of reference there is shown particularly in Figure 1 the receiver 1 of an automatic rocket launcher supporting a bolt and extractor mechanism within a housing 2 and in its forward end the rear end of a rifled barrel 3. Reference numerals 4 and 5, and 4a and 5a indicate spaced rail members in the upper and lower inside surfaces of the receiver, respectively. The cartridge case 6 is slidably received by said rails as it is fed by a feed mechanism, not shown, to the ramming position. The forward portion 7 of the cartridge case is of greater inside and outside diameters than that of the intermediate portion 8 to form a band. An interior annular shelf 9 is formed by the juncture of the intermediate and forward portions of the cartridge case. The open end of the case is exteriorly provided with a tapered edge 10 for forming a gas tight seal with a beveled mating surface 11 in the opening of the barrel 3 when the case is in rammed position. The case adjacent its base end has formed integral therewith a band 12. The aforementioned bands constitute bearing surfaces which are in contact with the rails as the round is fed to ramming position. The base comprises a threaded closure plug 13 having a primer 14 centrally positioned therein. A propelling charge 15 is positioned in the case at the base end in intimate contact with the primer and the rocket motor 16 of the projectile 21. The propelling charge when ignited by the primer propels the rocket projectile through the barrel and subsequently ignites the rocket motor. The war head 17 of the rocket projectile is contained entirely within the cartridge case, permitting the case to be used as a chamber for the barrel of the automatic rocket launcher and thereby eliminating costly chamber and breech mechanisms. It is common practice in the case of fixed ammunition to retain the projectile in the cartridge case neck by either a press fit or by crimping. Unfortunately neither of the methods lends itself to the ammunition of this invention thus dictating that another method be employed. The retention of the rocket projectile within the cartridge case need only be sufficient to withstand the forces incident to normal handling and loading. The projectile is releasably maintained in the case by a cement bond 20 between the rotating band 19 and annular shelf 9 and the interior surface of the forward portion 7 as shown in Figure 2. The separation of the cemented joint occurs at pressures so low as to be considered effectually a zero starting resistance, the value assumed in the determination of the charge.

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I claim:

1. A chamber for the barrel of an automatic rocket launcher comprising a cartridge case closing the rear end of said barrel when in rammed position, a beveled edge on the open end of said case forming a gas seal with a beveled surface on the rear end of said barrel, two spaced bands intermediate the ends and integral with said case, a propelling charge in said case adjacent its base, a rocket projectile housed entirely within said case and in intimate contact with said charge, a rotating band on said projectile, an annular shelf formed interiorly of said case intermediate its ends and supporting said projectile, and a bond between said shelf and said rotating band, said bond releasably retaining said projectile in said case.

2. A round of ammunition comprising a hollow cylindrical body bent to form a shelf and having one end closed and the other end thereof open and tapered to engage a bevel in the barrel of a launcher, a propellent charge adjacent the said closed end of said body, a primer

within said propellent charge, a rocket projectile having a motor completely within said body, a band on the periphery of said rocket projectile normally bonded to said shelf whereby ignition of the said primer explodes the said propellent charge to break the bond and force the said rocket projectile through the said barrel and thereafter ignite the said motor.

3. A round of ammunition comprising a hollow cylindrical body bent to form an internal shelf and having one end closed and the other end thereof open and tapered to engage a bevel in the barrel of a launcher, a propellent charge adjacent the said closed end of said body, a primer within said propellent charge, a rocket projectile having a propulsion motor completely enclosed within said body, a rotating band embracing said rocket projectile and normally bonded to said shelf whereby ignition of said primer explodes the said propellent charge to rupture the bond and force the said rocket projectile through the said cylindrical body and barrel and ignite the said motor.

4. A chamber for the barrel of an automatic rocket launcher comprising a case closing the rear end of said barrel when in rammed position, a beveled edge on the open end of said case forming a gas seal with a beveled surface on the rear end of said barrel, a propelling charge in said case adjacent its base, a primer within said propelling charge, a rocket projectile enclosed entirely within said case and in contact

with said charge, a rotating band embracing said projectile, an annular shelf formed interiorly of said case and a bond between said shelf and said rotating band said bond releasably retaining said projectile within said case.

5. A round of ammunition comprising a hollow cylindrical body bent to form a shelf and having one end closed and the other end thereof open and tapered to engage a bevel in the barrel of a launcher, whereby a gas tight seal is formed, a propellent charge at the said closed end of said body, a primer within said propellent charge, a rocket projectile completely within said body, a rotating band embracing the said rocket projectile normally engaging and bonded to said shelf whereby ignition of the said primer explodes the said propellent charge to rupture the bond and force the said rocket projectile out of the said body and through the said barrel.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
610	Daniels	Feb. 15, 1838
493,382	Hilder	Mar. 14, 1893
703,839	Scott	July 1, 1902
1,108,714	Davis	Aug. 25, 1914
1,311,021	Spear et al.	July 22, 1919
2,426,239	Renner	Aug. 26, 1947