July 7, 1942. F. KOWALSKI, JR 2,288,627

BULLET

Filed Feb. 21, 1939

Fig. 1.

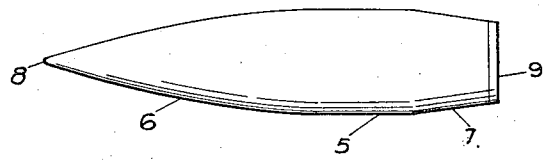
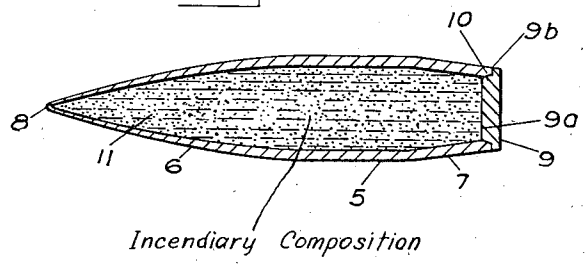


Fig. 2.



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BULLET

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Application February 21, 1939, Serial No. 257,648

2 Claims. (Cl. 102—29)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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.

The subject of this invention is a bullet.

The effectiveness of the fire of gums is determined by its accuracy. Since preliminary calculations and sight settings may be in error it is necessary to observe the fire for the purpose of determining the sense and magnitude of the deviations of the impact with respect to the target in order that appropriate adjustment may be made. Observation of the impact of small arms bullets is extremely difficult and generally impossible under all terrain conditions with the exception of dry, dusty ground.

The purpose of this invention is to provide a bullet which will have the signaling and indicating characteristics of an explosive artillery shell and thereby facilitate the observation of the effects of small arms fire. In accomplishing this purpose by means of a signaling agent carried by the bullet it is necessary to consider the ability of the bullet to withstand the shock of firing, its reaction to the propelling gases while in the bore of the barrel, a maximum volumetric capacity compatible with strength, ballistic efficiency in flight, and liberation of the contained agent on impact. In addition to satisfactorily meeting the foregoing requirements the bullet must be capable of being conveniently manufactured and loaded and fired in a normal manner from service weapons.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

Fig. 1 is a view in side elevation of the improved bullet, and

Fig. 2 is a longitudinal sectional view thereof.

Referring to the drawing by characters of reference the bullet comprises a jacket or shell of conventional design and including a cylindrical body 5, an ogival head 6, and a boat tail 7. The body and tail are made of sufficient wall thickness and strength to withstand the accelerating forces in the bore of the rifle while affording a maximum volumetric capacity. The head is of gradually decreasing thickness towards the front to provide a thin, weak point 8 which will be readily ruptured or opened on impact.

The rear end of the jacket is closed by a plug 9 which may be of steel and is fitted tightly in place so as to provide an effective seal and prevent the gas pressures in the bore of the barrel from entering the interior of the bullet and exerting pressure to rupture the jacket. The plug is formed with a reduced front portion 9^a having a force fit within the jacket and supporting the walls against collapse. The formation of the reduced portion provides a peripheral recess 9^b for receiving the annular lip 10 of the jacket. This arrangement furnishes a strong structure against which the powder gases act to propel the bullet through the barrel and at the same time conveniently establishes a seal.

The jacket when closed by the plug forms a container in which may be carried a liquid, solid or gaseous agent 11 adapted for signaling, illuminating, incendiary or like purposes. As an example, titanium tetrachloride which hydrolizes in the atmosphere will produce a puff of dense white smoke ten to fifteen feet in diameter and persisting for about a minute.

The bullet is conveniently loaded prior to assembling the rear plug 9 but it is obvious that the bullet may be considered as a hollow shell with the signaling agent introduced in other well known manners, as by means of an aperture in some part of the wall, which aperture would subsequently be plugged.

Tests of this bullet have shown that the ogival head wil be ruptured on impact with all kinds of obstacles and irrespective of the angle of incidence.

I claim:

1. A hollow metal bullet having an opening in the base, and an ogival head of forwardly gradually decreasing wall thickness over a substantial portion thereof to provide a weak point ruptur-able on impact, a metal closing plug having a reduced front portion force-fitted into said opening and a flanged rear portion overlying the base of the bullet wall, and an incendiary composition in said bullet.

2. A hollow metal bullet having a wall of forwardly gradually decreasing thickness over a substantial portion thereof, an opening in the base defined by an inwardly and forwardly slanting periphery, a metal plug having a portion complementary to said opening and fitted therein, said plug having an outer flange overlying and supporting the base of the wall of the bullet, and an incendiary composition in said bullet.

FRANK KOWALSKI, JR.