March 13, 1945. A. FAGERLUND 2,371,510

PROJECTILE

Filed May 5, 1942

Fig. 1.

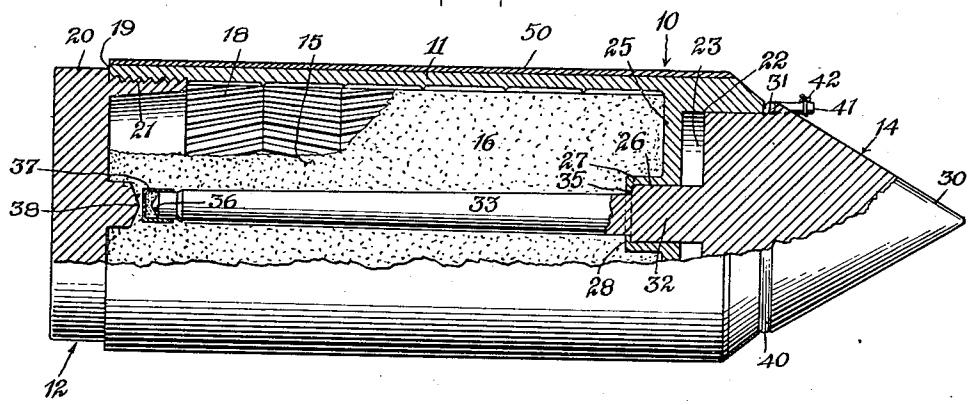


Fig. 2.

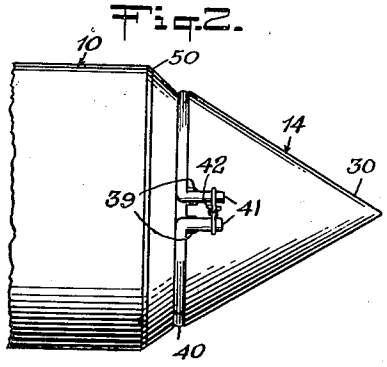


Fig. 3.

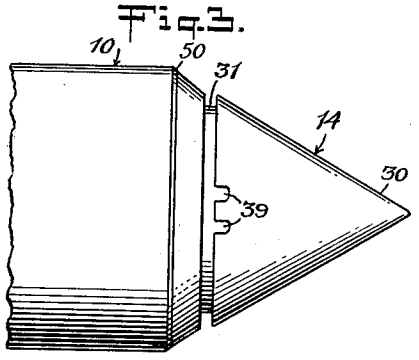
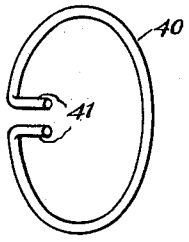


Fig. 4.



WITNESSES

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PROJECTILE

Arthur Fagerlund, New York, N. Y.

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2 Claims. (Cl. 102—56)

This invention relates to projectiles, and more particularly to projectiles of the explosive type.

An object of the invention is to provide a shell having armor-piercing qualities, which will be particularly adapted for anti-tank work.

A further object is to provide a shell which is simple in construction, which contains a relatively few number of parts, and which will be certain of operation.

A still further object is to provide a shell which contains an explosive chamber operable on contact to aid the armor-piercing head, and which will destroy the shell in the event of a miss.

A still further object is to provide a shell of the type described, which is provided with a simple safety device to prevent premature explosion.

With these and other objects in view, reference is had to the accompanying drawing in which—

Fig. 1 is a side view of the shell, being partly cut away to show the construction;

Fig. 2 is a detail view of the head with the safety device applied;

Fig. 3 is a view similar to Fig. 2, with the safety device removed; and

Fig. 4 is a view of the safety device employed.

The shell 10 consists of three essential parts, a shell body 11, a rear plug 12, and a combined head and firing pin 14. The body 11 may be cast and machined out to provide an explosive chamber 15 in which a suitable explosive 16 is packed. Scoring or weakening lines 18 may be provided in the inner or outer wall of the body to insure fragmentation.

The outer end of the explosive chamber is internally threaded at 19 to receive the closure plug 12 which in turn is threaded at 21. The outer portion of the plug 12 is machined around its periphery 20 to engage a conventional shell casing (not shown). The outer end of the explosive chamber is provided with a wall 25 which defines, with the outer end 22 of the body 11, the chamber 23, for the reception of the head 14.

The wall 25 is provided with an opening 26 having a flange 27 provided with a shoulder 28. The combined head and firing pin 14 includes a pointed nose 30 preferably made of steel having armor-piercing qualities and having a recess 31. The inner portion of the nose 30 has an extension 32 which terminates in the firing pin 33. The extension 32 has a shoulder 35 adapted to engage the shoulder 28 on the flange 27.

At the end 36 of the firing pin 33 is a percussion cap 37. Mounted on the plug 20 immediately adjacent the percussion cap 37 is a point or projection 38. A split ring 40 having upstanding ends 41 is adapted to be placed in the recess 31 with the ends 41 engaging the cut-out portions 39. A wire or cord 42 may secure the ends against accidental displacement.

It will be seen that the assembled shell may be shipped without danger of premature explosion and may readily be handled as long as the ring 40 remains in the recess 31. When the completed shell is to be loaded into a gun, the ring 40 is removed. As the gun is fired, the entire projectile will be propelled toward the target. When the nose 30 engages the target, the nose will be driven back into the chamber 23 and the shoulder 28 of the flange 27 will be broken, thus driving the firing pin 33 rearwardly and setting off the percussion cap 37 against the projection 38 igniting the explosive 16. This will create an explosive force which will burst the casing 11 and drive the nose 30 into the target, thus increasing the efficiency of the head.

It will be appreciated that where the shell is used against armored vehicles, such as tanks, a hit in the tracks of the tank will not only drive the nose through to disable the tracks but the result of the explosion will complete the destruction started by the head. Should the target be missed and the force behind the shell depleted through a long flight, the shell would nevertheless explode upon landing due to the fact that the heavier nose will cause the nose to contact the ground first. If the junction between the end of the shell 22 and the nose 30 is looser than between the extension 32 and the flange 27, any contact of the nose with the ground or other object will explode the shell so that it will readily destroy itself, regardless of whether the point makes contact or not.

A coating 50 of lead or other soft material may be placed over the body 11 to protect the rifling in the barrel of the gun and to insure a completely smooth surface on the casting.

I claim:

1. A projectile, including a body adapted to receive high explosives, a plug closing one end of said body, said plug having a projection at the center thereof, a wall adjacent the other end of said body defining with the end of said body a circular recess, an opening in said wall, a flange on said wall surrounding said opening, an inwardly extending shearable shoulder on said flange, a head positioned in said recess having a member extending through said opening defining a firing pin, a shoulder on said member engaging the shoulder on said flange to space said head

from said wall, and a percussion cap on said firing pin adjacent said projection on said plug.

2. A projectile, including a body adapted to receive high explosives, a plug closing one end of said body, said plug having an inwardly extending projection at the center thereof, said plug having its outer periphery machined to engage a shell, a wall adjacent the other end of said body defining with said body a circular recess, an opening in said wall, a flange on said wall surrounding said opening, an inwardly extending shearable shoulder on said flange, a head positioned in said recess having a member extending through said opening defining a firing pin, a shoulder on said member engaging the shoulder on said flange spacing the inner side of said head from said wall, a percussion cap on said firing pin adjacent said projection on said plug, and temporary means to insure the spacing of said head from said wall.

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