

No. 632,027.

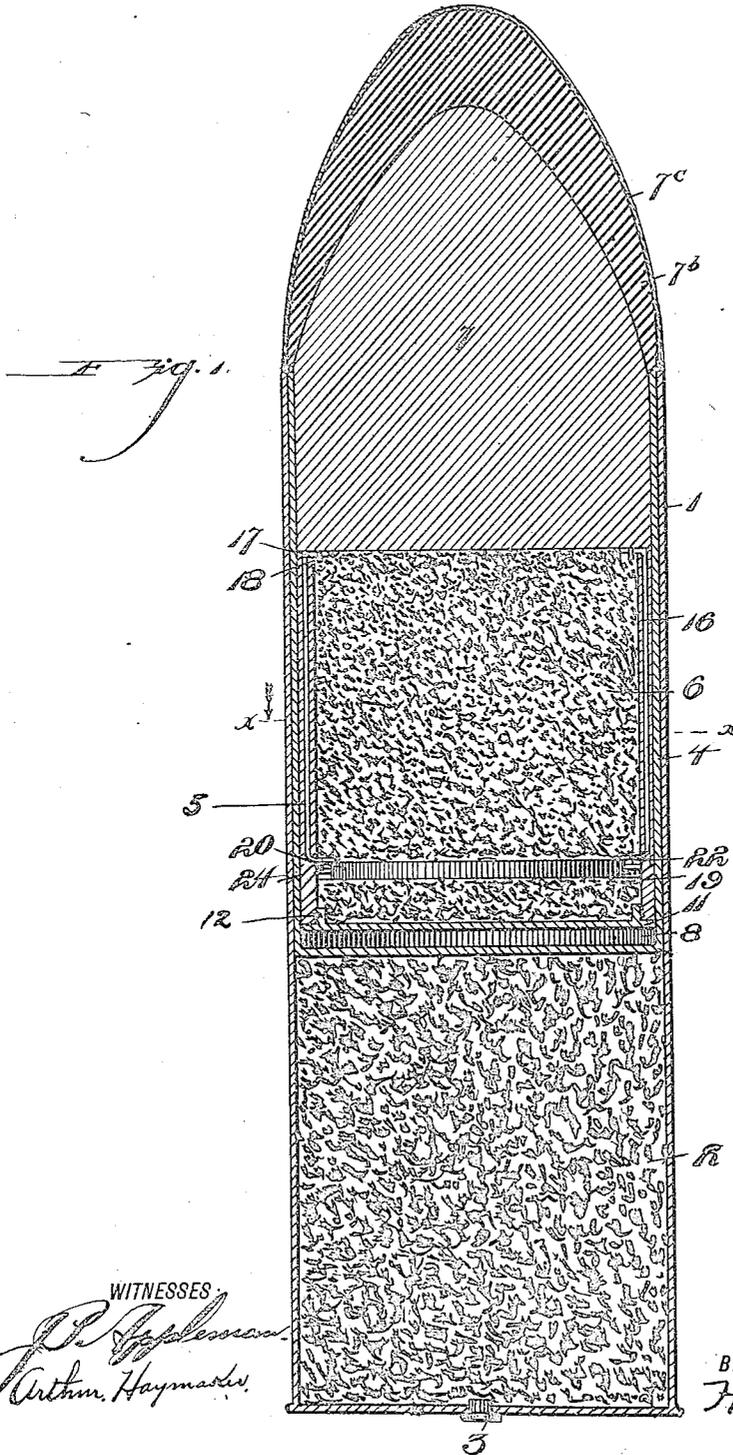
Patented Aug. 29, 1899.

J. O. SMITH.
PROJECTILE.

(Application filed Apr. 1, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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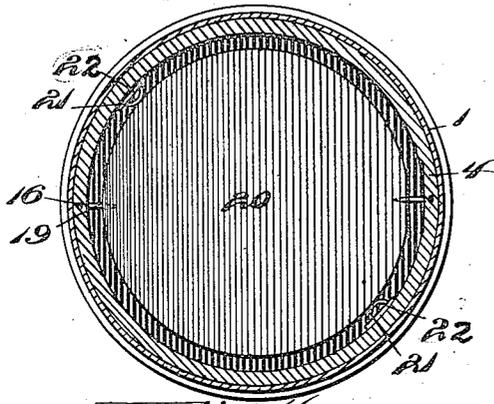
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2 Sheets—Sheet 2.

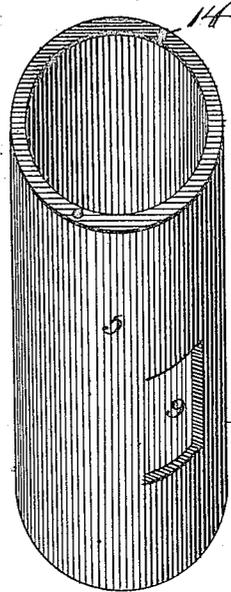
(No Model.)

H fig. 2

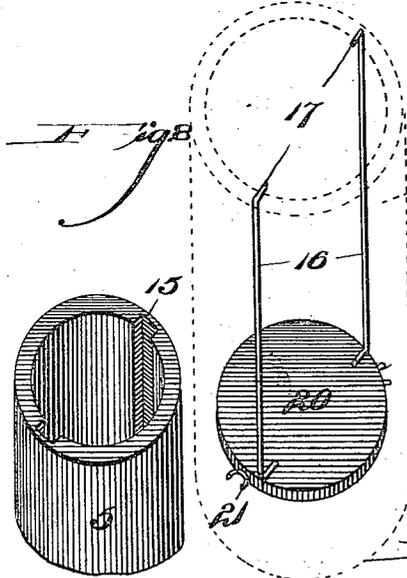
H fig. 3.



H fig. 4.

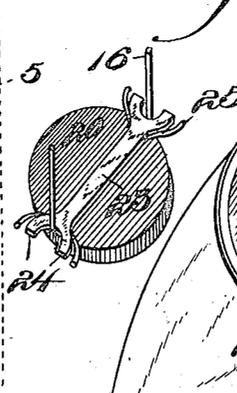


H fig. 5.

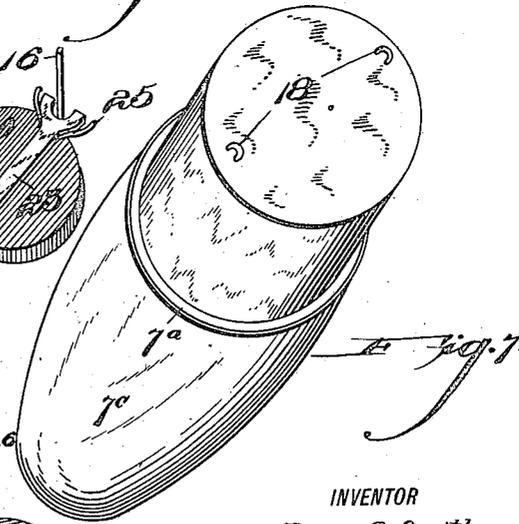


H fig. 6.

H fig. 5.



H fig. 6.



H fig. 7.

WITNESSES.

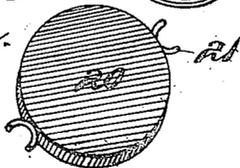
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UNITED STATES PATENT OFFICE.

JAMES O. SMITH, OF PITTSBURG, PENNSYLVANIA.

PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 632,027, dated August 29, 1899.

Application filed April 1, 1898. Serial No. 676,099. (No model.)

To all whom it may concern:

Be it known that I, JAMES O. SMITH, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Projectiles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in projectiles.

The object of my invention is to construct a projectile which is particularly adapted for rifles of large caliber (although the principle may be employed for smaller firearms) which carries an explosive charge which is adapted to be exploded at the time of the contact of the projectile with the target or other obstruction.

To this end the invention consists, essentially, in an outer shell, an inner shell which contains the explosive charge, and means by which the same is exploded at the time of contact of the projectile with an obstruction.

The invention further consists in the novel means by which absolute safety in handling such a projectile is obtained and in the general construction, which will be hereinafter more particularly described, and pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like figures of reference indicate similar parts throughout the several views, in which—

Figure 1 is a longitudinal sectional view of a projectile constructed in accordance with my invention. Fig. 2 is a transverse sectional view taken upon the line *a a*, Fig. 1, the explosive charge being omitted. Fig. 3 is a perspective view of the inner shell which forms the chamber for the explosive charge. Fig. 4 is a perspective view of the firing-rods and primer for the explosive charge. Fig. 5 is a perspective view of a modified form of primer. Fig. 6 is a perspective view of the form of primer shown in Fig. 4. Fig. 7 is an inverted perspective view of the bullet or projectile proper. Fig. 8 is a perspective view of a portion of the inner shell forming the chamber for the explosive charge, showing a modified form of construction in this shell.

Fig. 9 is a perspective view of the door for closing and opening the inner shell when the form of shell shown in Figs. 3 and 8 is employed.

It is well known that there is a great demand for a cartridge or projectile which will carry suitable explosives without the slightest injury to the rifle or firearm from which the same is expelled and forced with accuracy against the target or obstruction with absolute certainty of the explosion of the charge carried thereby when contact is made with the target or other obstruction. One of the serious objections to projectiles of this nature has been that the force requisite to propel the projectile from the rifle or firearm was extremely liable to cause an explosion of the explosive charge, thereby causing a premature explosion of the same, or if such force should not cause an explosion thereof then contact with the target or other obstruction would be equally ineffective in securing the desired explosion at the time of contact. My invention aims to avoid these difficulties, inasmuch as it is designed to afford absolute protection of the explosive charge, while at the same time insuring a certain explosion at the time of contact of the projectile.

In the drawings, 1 represents the outer shell, which is formed of any suitable material having the desired rigidity, strength, and lightness, but is preferably formed of cast-steel, and, as shown, the same is of the general form as those now employed. The rear or butt portion of this shell is adapted to receive the firing charge 2, which may be exploded by means of the central-fire primer 3, by a rim-fire or any other desired means. This outer shell is adapted to receive an inner shell 4, which like the outer shell may be composed of any material possessing the desired rigidity, strength, and lightness, but is preferably composed of copper, as such material will not in any way injure the rifling of the rifle or other firearm when the projectile is propelled therefrom. This inner shell, as heretofore stated, is located within the outer shell and its base or closed end may either rest upon the firing charge 2 or a suitable wadding may be interposed between the said charge and the said closed end of the inner shell. The outer ends of the outer and inner

shells being preferably flush with each other. Within this inner shell 4 I arrange an auxiliary shell or casing 5, which is adapted to receive the explosive charge 6. This auxiliary casing or shell 5 extends but partially the length of the shell 4 in order that a sufficient amount of the latter may be left projecting beyond the inner end of the former to receive the bullet or projectile 7. The casing or auxiliary shell 5 is also adapted to fit neatly within the shell 4 and is preferably inserted therein only a sufficient distance to leave the space 8 between the rear end of the casing or shell 5 and the closed end of the shell 4. If desired to afford additional protection in order to prevent the closed end of the shell 4 being forced against the closed end of the casing or auxiliary shell 5 by the explosion of the main charge 2, a suitable wadding may be interposed in the space 8.

The explosive charge 6 may be introduced into the shell or auxiliary casing 5 either through an opening 9, which may be provided therefor in the side of the casing and which may be closed after the charge has been introduced, by means of the door 10, having its edges formed in any suitable manner for the purpose of securing the same in the opening 9, or this charge may be introduced at the rear end of the casing or shell 5 and the said end then closed by a cap or plate 11, having a protruding flange 12, that is provided with the external threads, which engage with internal threads provided therefor on the inner wall of the said casing or auxiliary shell 5. In order to explode the explosive charge 6 at the time of contact of the bullet or projectile with the target or other obstruction, I provide the casing or shell 5 either with apertures 14, arranged diametrically opposite each other, or with the grooves 15, either of which is adapted to receive the firing-rods 16. The firing-rods 16 are bent at right angles at their outer ends, as shown at 17, forming the hooks which engage in eyelets 18 provided therefor on the butt end of the bullet or projectile. The apertures 14 or the grooves 15 extend longitudinally of the casing or auxiliary shell 5 nearly to its rear end, where they may open inwardly into the chamber containing the explosive charge 6. The firing-rods 16 are also bent inwardly at their rear ends, as shown at 19, and engage against and hold the primer 20, which is arranged within the casing or auxiliary shell 5. The impact of the projecting ends 19 of the firing-rods against the primer or percussion cap 20 is adapted to explode the same, and consequently explode the explosive charge 6 at the time of contact of the bullet or projectile with the target or other obstruction.

The rear end of the projectile or bullet 7

is chamfered or reduced to form a shoulder 7^a at the point where the bullet or projectile is of the greatest diameter, said shoulder being adapted to receive the outer end of the outer shell 1 and the inner shell 4. In order to give rigidity and strength to the bullet or projectile, I may provide the metal portion of the same with a covering 7^b, composed of hardened steel or other suitable material, and incase this with a covering of copper 7^c. Where such construction is used, the covering of copper 7^c is adapted to be flush at the rear end thereof with the outer wall of the shell 1, the butt portion of the bullet or projectile having been previously reduced sufficiently to allow the placing of the coverings of steel and copper thereon.

It will be observed from the foregoing description, taken in connection with the accompanying drawings, that all parts are simple in construction, positive in their action, and that absolute protection from premature explosion is afforded; also, that the metal portion of the bullet or projectile being entirely incased by copper or other suitable material is not permitted to engage the rifling of the rifle or other firearm.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described projectile, comprising an outer shell which receives the firing charge, an inner shell of less length than the outer shell, a charge-containing casing within the inner shell, an explosive charge within said casing, a bullet or projectile secured in the inner shell, a primer arranged within the charge-containing casing or shell, and connections between said primer and the bullet or projectile whereby the former is exploded when the projectile or bullet comes in contact with a target or other obstruction, substantially as shown and described.

2. The herein-described projectile, the same comprising in combination an outer shell, an inner shell of less length, a casing or auxiliary shell within the inner shell adapted to receive an explosive charge, a suitable bullet or projectile engaging the inner shell, a primer arranged within the casing or auxiliary shell, and firing-rods connecting the bullet or projectile and the primer whereby the latter is exploded upon contact of the bullet or projectile with an obstruction, substantially as herein shown and set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES O. SMITH.

Witnesses:

A. M. WILSON,
WILLIAM E. MINOR.