J. JOHNSON.

EXPLOSIVE PROJECTILE FOR ORDNANCE.

No. 43,029. Patented June 7, 1864.

Fig. 1.

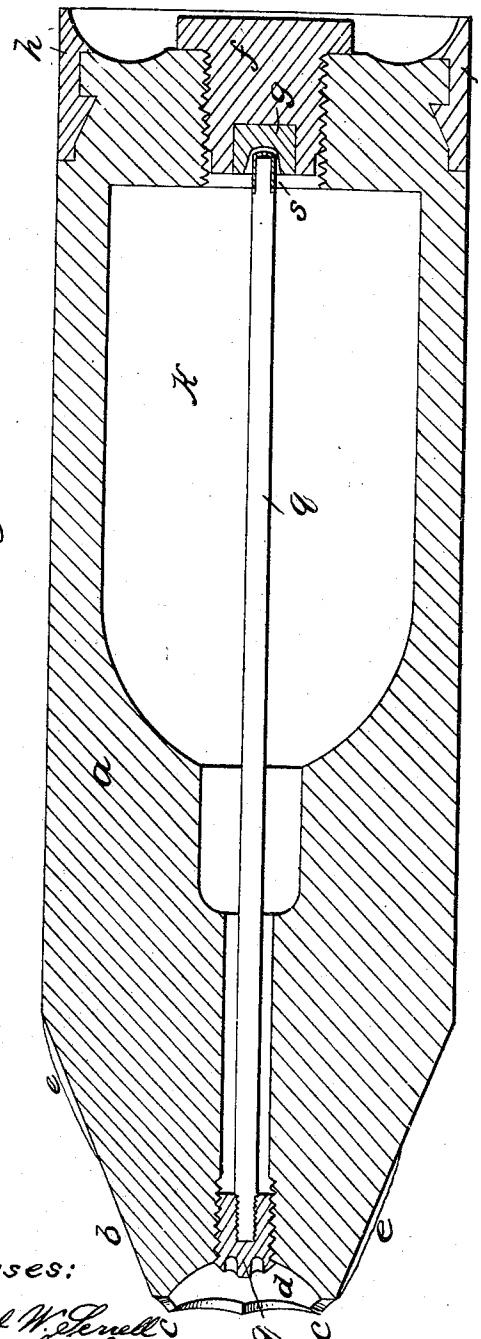


Fig. 3.

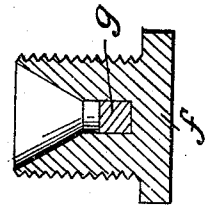
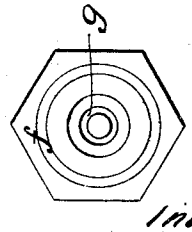


Fig. 2.



Witnesses:

Lemuel W. Serrell

Chas. H. Smith

Inventor

Job Johnson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOB JOHNSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN EXPLOSIVE PROJECTILES FOR ORDNANCE.

Specification forming part of Letters Patent No. 43,029, dated June 7, 1864.

To all whom it may concern:

Be it known that I, JOB JOHNSON, of Brooklyn, in the county of Kings and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Projectiles; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 represents a longitudinal section of my improved projectile, and Fig. 2 shows an end view of the screw-plug employed for closing the charging-orifice.

Cylindrical balls and shells with tapering ends have heretofore been employed, and the front end has been made with a central cavity and serrated cutting-edge, and a rod has been introduced at the front end of a shell to be driven in by concussion against the object struck. This rod produces a detonation and causes the explosion of the contents of such projectile, as may be seen by reference to Letters Patent granted to me May 12, 1863.

The nature of my present invention consists in a screw-plug at the base of the ball in the charging-hole, which plug is provided with a cavity at its forward end, taking a percussion-cap upon the end of a rod extending through to the front of the ball, which rod is driven back by concussion against the substance which the ball strikes when projected. The cavity in the said plug answers two purposes—it keeps the cap in place and prevents it being shaken off in transportation, and it receives and guides the rod as driven back, and prevents the end glancing off, thereby insuring the explosion. I also make the end of said plug of steel, which, being harder than the alloy of which the plug is necessarily formed, insures the explosion of the cap, which in some cases might not explode if struck against the comparatively soft metal of the plug.

In the drawings, *a* is the shell or projectile, of any desired size or shape, with a tapering forward end, *b*, which may be formed with diagonal grooves, as at *e*, to aid in the rotation of the shell. *c* is the serrated cutting-edge around the cavity *d* at the front of the ball; and *q* is the screw-rod carrying the percussion-cap *s*, which may be held upon the rod, if desired, by a spring-tube. The parts thus far are similar in construction to those shown in my aforesaid patent.

The powder-chamber *k* is formed in the casting, and is to be charged through an opening into which the plug *f* is screwed or otherwise secured. The plug *f* is faced true on the under side of its head, so as to set against the base of the ball perfectly tight, and the forward end of this plug is made with a cavity or recess, into which the end of the rod *q* and percussion-cap *s* pass. The length of this rod *q* is to be accurately determined, so that it will not reach the bottom of the cavity when the plug *f* is screwed firmly into place, but that there will be ample room for the fulminating material in the cap. Thereby the plug can be screwed to place without risk of explosion.

To charge this ball it is only necessary to withdraw the plug *f*, place a cap on the end of the rod *q*, then pour in the powder, and screw the plug into its place.

There is no risk of explosion in transportation or handling the shell, and the cap can not shake off the rod; and when fired the bomb cannot explode until it strikes some object, so as to either shorten the length of the shell or drive in the rod *q*, or both, in which case the compression of the cap between the end of the rod *q* and the plug *f* produces a detonation, exploding the bomb.

I make the end of the plug *f* with a piece of steel, introduced as represented, to take the cap when the projectile strikes any object. The steel facing renders the detonation of the cap more certain, because it is harder than the metal of the plug, as brass or other comparatively soft metal is the only thing that can safely be employed for such plugs.

A lead ring around the rear end of the ball at *h* serves to make the projectile tight in the gun when fired.

In Fig. 3 I have represented a slight modification in the shape of the end of the plug *f*. In this I have made the cavity with a flaring mouth, and the plug of steel at the bottom thereof only, the object of this being to guide the end of the rod with the cap more certainly into the cavity if the rod should be slightly bent or pressed aside; and it will be evident that the steel surface taking the detonating-cap may be cup-shaped, as in Fig. 1, or flat, as in Fig. 3.

What I claim, and desire to secure by Letters Patent, is—

1. The screw-plug *f*, formed with the cavity at the front and receiving the detonating-cap on the end of the rod *q*, for the purposes and as specified.

2. A plug or plate of steel, forming a facing or surface to the softer metal of the plug *f*, for the purposes and as specified.

In witness whereof I have hereunto set my signature this 5th day of November, 1863.

JOB JOHNSON

Witnesses:
LEMUEL W. SERRELL,
CHAS. H. SMITH.