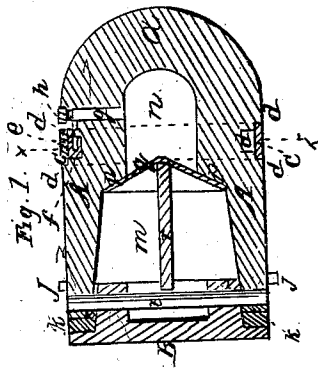
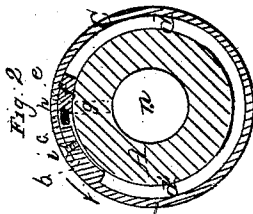
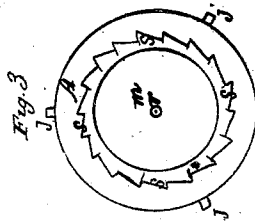


W. MAGINN.

Shell

Patented Sept. 22, 1863.

No. 40,054.



Witnesses  
*Lemy J. Brown*  
*A. Schlegel*

Inventor:  
*William Maginn*

# UNITED STATES PATENT OFFICE.

WILLIAM MAGINN, OF NEW YORK, N. Y.

## IMPROVEMENT IN EXPLOSIVE SHELLS.

Specification forming part of Letters Patent No. 40,054, dated September 22, 1863.

*To all whom it may concern:*

Be it known that I, WILLIAM MAGINN, of the city, county, and State of New York, have invented a new and useful Improvement in Explosive Projectiles for Ordnance; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central longitudinal section of a projectile with my improvements. Fig. 2 is a transverse section of the same in the plane indicated by the line *x x* of Fig. 1. Fig. 3 is a rear end view of the same without the breech-piece.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in certain means of exploding a percussion-cap by the rotary motion of a projectile in a rifled piece of ordnance, for the purpose of igniting a time-fuse.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the body of the projectile, hollow, and of elongated or partly cylindrical form, made with a solid head, *a*, but with an opening in its rear, which is closed by a breech-piece or sabot, B, of cast-iron. *d* is a groove provided around the front part of the body A, and C is a ring fitted loosely into the said groove, having its external circumference slightly smaller than that of the exterior of the cylindrical portion of the body A, which fits loosely to the bore of the piece from which it is to be fired.

Within the groove *d* is a deeper groove, *d'*, and a portion, *b*, of the ring is made of sufficient thickness to reach nearly to the bottom of this groove *d'*, to serve as a hammer for striking the percussion-cap, placed on a nipple, *e*, which is secured into or formed upon a block, *f*, which is secured to the body at the bottom of the groove *d'*, and in which there is formed a portion of a vent, *e*, which leads from the nipple to the fuse-hole *g*, provided in the projectile for the reception of a time-fuse. This fuse-hole is plugged up from the outside, after the insertion of the fuse, by a screw, *h*.

In order to provide for the application of the ring C within the groove *d*, if of wrought-iron, it should be divided at one point, and spring over the head of the projectile into the

groove, and then be secured by a screw, *i*, as represented in Fig. 2; but if of cast-iron it should be made in two semicircular pieces, which would be united by two screws after being put in. The nipple should be so arranged that the direction in which it points will correspond with the direction of the rotation of the projectile in the gun, as shown in Fig. 2, in which the direction of the rotation is indicated by an arrow.

The operation of firing the fuse is as follows: Before putting the projectile in the gun the ring C is turned back in the opposite direction to that indicated by the arrow in Fig. 2, till its projection *b* comes in contact with the back of the block *f*, and when the gun is fired the inertia of the ring prevents it from at first turning with the projectile, and the consequence is that the rotary motion of the projectile brings the percussion-cap on the nipple *e* violently into contact with the hammer *b*, either before or immediately after the projectile has left the gun, and so causes the explosion of the cap and the firing of the time-fuse.

*j j* are pins inserted firmly into the projectile or projections formed thereon, for the purpose of entering the rifle-grooves of the gun, and producing the rotary motion of the projectile about its axis.

*k* is a packing-ring of soft metal, applied around the sabot B, between the rear end of the body A of the projectile and a flange, *l*, on the sabot. A portion of the sabot enters the rear portion, *m*, of the open cavity *m n* in the projectile, and the sabot is secured by a transverse pin, *l*, which is inserted through holes in the projectile and sabot. This pin is so fitted as to allow the sabot to be driven forward by the explosion of the charge of the gun, and thereby produce the circumferential expansion of the packing-ring, to make it fit the bore of the gun and prevent windage. The front portion *n*, which constitutes the powder-chamber of the cavity *m n*, is made of smaller diameter than the rear portion *n*, to form a shoulder, *p*, against which rests a metal disk, *q*, which separates the powder from the bullets or other missiles placed in the back part, *m*, of the said cavity, and this disk has secured to it a central pin, *r*, around which the missiles are arranged. When the charge in the

cavity *n* is fired, it drives back the disk *g* and the missiles in rear of it, and by the pressure on the sabot causes the pin *t* to be broken or sheared off by the edges of the holes in the sabot B and body A, and drives out the sabot, scattering the missiles which were contained in the shell, leaving the body A intact to operate as a solid shot.

In order to produce a centrifugal motion of the missiles by the rotary motion of the projectile, notches *ss* are formed in the back part of the interior of the cavity *m*, and the missiles are thereby scattered in a very effective manner.

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

The ring C and attached hammer *b*, applied to operate within a double groove, *d d'*, in combination with a nipple, *c*, and fuse-hole *g*, substantially as and for the purpose herein specified.

WILLIAM MAGINN.

Witnesses:

HENRY T. BROWN,  
J. W. COOMBS.