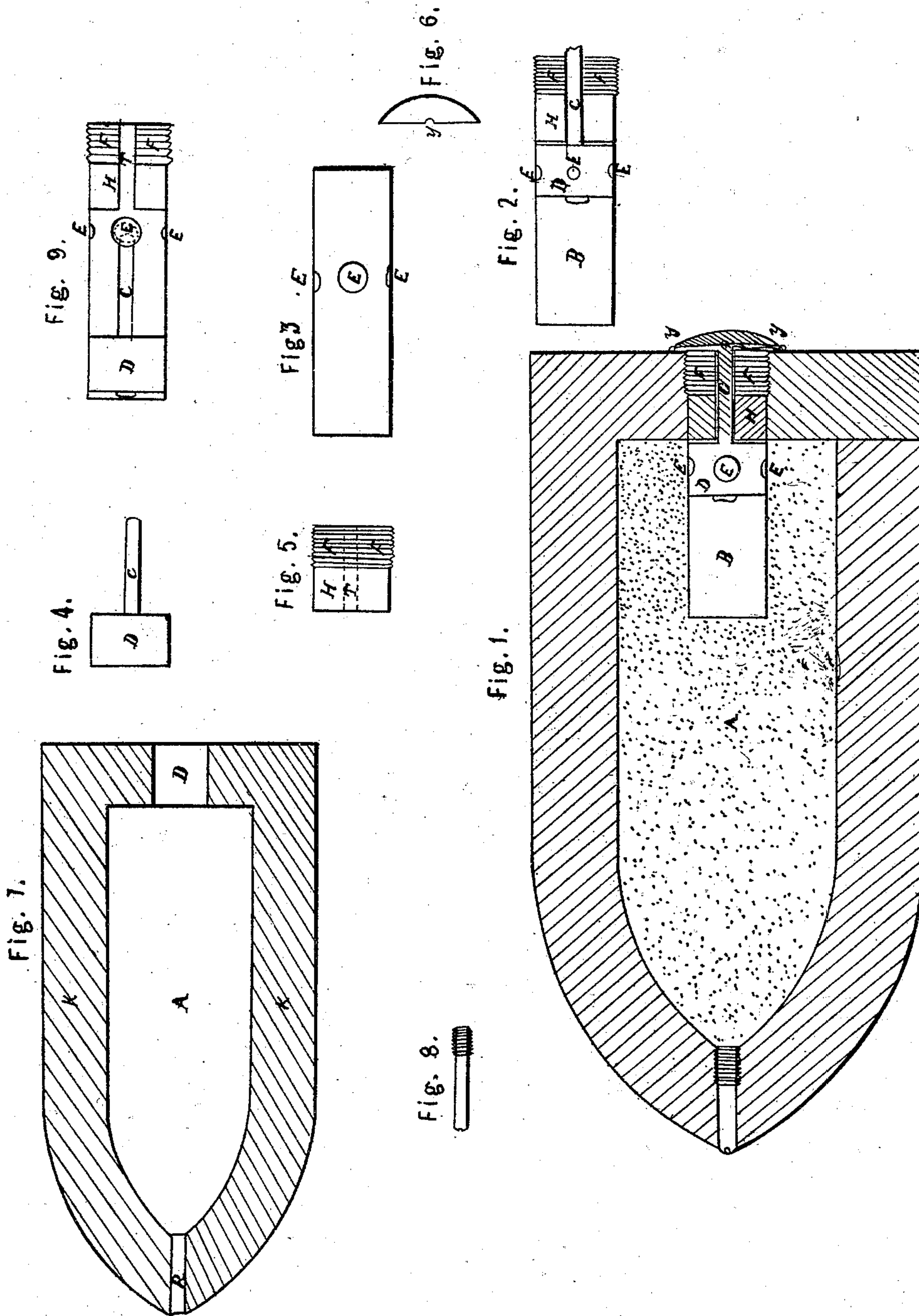


S. R. RUSSELL.

Shell-Fuse.

No. 37,200.

Patented Dec. 16, 1862.



Witnesses:

Wolcott Hamlin
M. R. Shankland

Inventor:

S. R. Russell

UNITED STATES PATENT OFFICE.

SAMUEL R. RUSSELL, OF MIDDLETOWN, OHIO, ASSIGNOR TO HIMSELF, AND
BENJ. F. TEFFT, OF BANGOR, MAINE.

IMPROVEMENT IN CONCUSSION-FUSES FOR SHELLS.

Specification forming part of Letters Patent No. 37,200, dated December 16, 1862.

To all whom it may concern:

Be it known that I, SAMUEL R. RUSSELL, of Middletown, in the county of Butler, State of Ohio, have invented a new and Improved Fuse for Exploding Bomb-Projectiles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference made thereon.

My invention consists in a combination and particular adaptation of means for the explosion of shells by a fuse lighted by and at the moment of the discharge of the gun and carried forward by and at the instant of the impact of the shell with a resisting object, so as to bring the ignited fuse in contact with the powder within the shell at the moment of said impact, as herein fully described.

To enable others skilled in the art to make and use my improvement, I proceed to describe its construction and operation by letters of reference made on the accompanying drawings.

Figure 1 is a sectional view of a shell ready for use with my said improvement attached. Fig. 2 represents my improvement ready to be attached to a shell. Fig. 3 is a tin or other metallic tube with perforations E E E. Fig. 4 is an iron plunger with the fuse C attached. Fig. 5 is an iron plug with an orifice through the center to receive the fuse C, with a screw on the end by which to attach it to the shell. Fig. 6 is a small iron cap, which fits onto the shell over the fuse to prevent the fuse from being driven forward by the force of the powder within the gun at the moment of discharge. Fig. 7 represents a shell ready to receive its charge, A being the chamber to receive the said charge. K K is the outside of the shell. R is a small opening through the shell to receive the charge after the parts represented by the Figs. 3, 4, 5 have been fitted into the orifice D. Fig. 8 is a small iron plug to be fitted into the opening R (see Fig. 7) after the shell has received its charge. Fig. 9 represents my improvement with the plunger D and its fuse thrown forward by the impact of the shell upon its object, so as to admit the powder through the perforations of the tin tube at E E E to come in contact with

the lighted fuse C, and thus producing the explosion of the shell at the moment of its impact with its resisting object.

The parts of my improvement are fitted together, so as to be ready for insertion into the shell, as seen in Fig. 2, in the manner following: First, insert the plunger D, with fuse C attached, within the tin tube, so that the said plunger will cover and close the perforations at E E E, the plunger being wrapped with india-rubber, so as to fit it so snugly to the tin tube that it could not be thrown forward by concussion as by dropping it in the ordinary handling of the shell; second, fit the plug H into the tin tube as far as the threads of the screws F F will permit, the fuse C being passed through the orifice T while the plug H is being fitted into the tube. After my improvement, thus fitted together, is attached to the shell by means of the screw F F on the end of the plug H, the small iron cap represented in Fig. 6 is placed over the fuse C, and is held in position by two small rivets, for the purpose before stated, the fuse C terminating at the top in two threads, which, after being saturated with turpentine or like combustible fluid, so as to easily ignite from the fire of the powder within the gun at the moment of discharge, are to be placed within the small iron cap y y.

The advantages of a shell thus loaded arising from my said improvement as thus attached are that after being loaded it cannot be exploded by mere concussion, however violent, rendering it therefore entirely safe in handling; that on shipboard, in a magazine, or anywhere, it is entirely safe from fire, as the fuse might ignite and burn out without exploding the shell, unless accompanied at the same instant by a concussion so violent as it can receive by nothing less than contact with a powerfully-resisting object upon being discharged from a gun, the tightness of the wrapped plunger and fuse being nicely graduated to this end; and that, safe as is the shell in all possible handling, it cannot fail to explode by the means of my apparatus at the moment of impact with a resisting object.

I am aware that it is not new for fuses to be so arranged as to be ignited on starting by the

discharge of the gun, and to communicate their fire to the explosive shell only by the concussion received on striking an object, as this is effected by the Snœck fuse, as well as by the Splingard fuse. Such, therefore, I do not claim, generally; but

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

The combination, with a projectile, of the

perforated tube B, the plunger D, plug H, and fuse C, arranged and operated in the manner and for the purposes substantially as herein described.

SAML. R. RUSSELL.

Witnesses:

W. HAMLIN,

M. R. SHANKLAND.