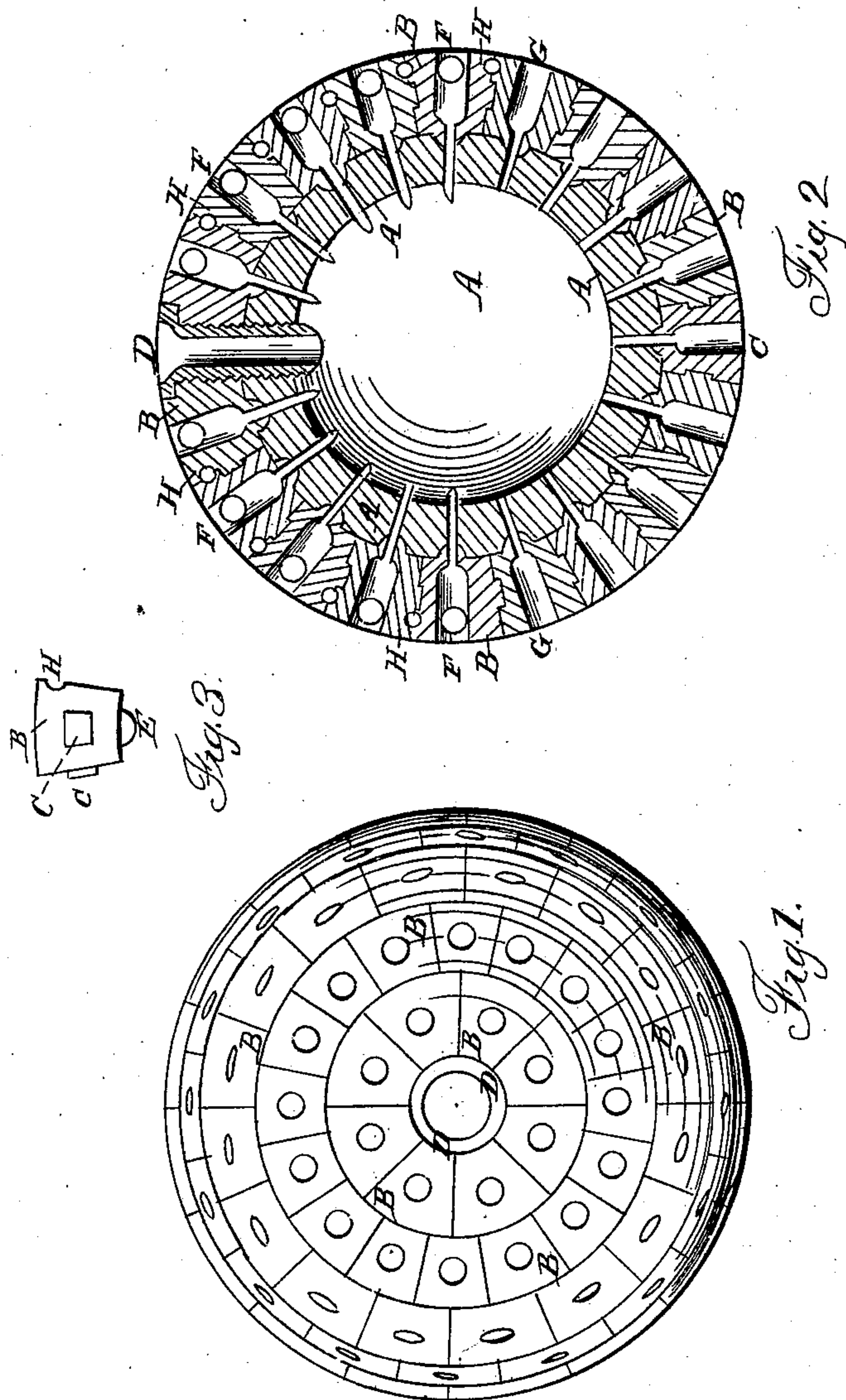


L. B. OLMSTED.

Shell.

No 21,773.

Patented Oct. 12, 1858.



Witnesses:

*J. D. Hyde*  
*John H. Hedges*

Inventor:

*Lorenzo B. Olmsted*



# UNITED STATES PATENT OFFICE.

LORENZO B. OLMSTED, OF BINGHAMTON, NEW YORK.

## IMPROVEMENT IN COMPOUND SHELLS FOR ORDNANCE.

Specification forming part of Letters Patent No. 21,773, dated October 12, 1858.

*To all whom it may concern:*

Be it known that I, LORENZO B. OLMSTED, of the town of Binghamton, county of Broome, and State of New York, have invented a new and useful Compound Shell for Ordnance; and I declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists in the employment of a shell composed of an inner cast-iron bursting-shell, which serves also as a nucleus or core upon which I construct a second shell or outer coating in sections. These sections form also a series of independent chambers to be charged with explosive material and projectiles. The bursting-charge of the inner shell is ignited in the usual manner by a fuse fired by the projecting charge of the gun. The explosion of the shell sets at liberty the sections, each of which contains a fuse to be ignited by the bursting-charge, as hereinafter described, the object of the invention being that the explosion shall insure a division of the shell into the greatest possible number of effective fragments, which, after having done execution as projectiles, shall contain within themselves still further agency for harassing an enemy in action by explosions after the fragments are at rest, throwing their missiles in every direction from among the front and the rear of the foe. These sections will be separated upon the explosion of the inner shell, and be scattered with the fragments thereof with the usual execution due thereto, after which the sections explode with destructive effect, sending their leaden messengers with force, as if projected from a musket.

I prefer that the sections shall be of such size as to admit a musket ball and charge; yet they may be made to admit a larger or smaller ball according to circumstances, as required.

For facility in description I must refer to the drawings, Figures I, II, and III, and the similar parts lettered alike.

Fig. I represents the compound ball intact as charged and ready for service. Fig. II shows the shell in section with a part of the chambers empty, and the remainder charged with powder and ball, and the quick-match fuses in place as used, as well as the bomb-

fuse. Fig. III shows the form and construction of one of the sectional parts.

The letters A A show the core or bursting-shell; B B, the sections of the outer shell, one of which is shown separate at Fig. III, with projecting lock-tenons C C, which take into corresponding mortises on the match-pieces. On one side of this section is seen a semicircular indentation, H, and on Fig. II are seen dark circular spots H H. These latter represent sections of wire rings, which fit into the recesses of the sections to lock them in circles. In some cases I should use both the tenons and the rings, and hence both are here represented. The sections should be so divided as to break joint on the surface in the several series of circles, and their shape will somewhat vary in each of the circles of the hemisphere. The lower end of the section is concave, fitting the core-shell, in which is a slight depression or countersink to receive the projecting piece E, on the middle of the section. Through this projection, which corresponds with the bottom of the chamber, the fuse-hole is bored, and again continued through the core-shell, as seen in Fig. II. The main bursting-fuse is seen at D, upon the plug of which a flange is turned, and a screw cut on the plug. This contrivance serves to lock the last circle, which will bind and secure all the parts strongly together.

F F show the chambers as charged ready for use, and G G the chambers empty for loading.

The depressions on the core-shell to receive the projecting pieces E of the sections should be molded and cast therein to save expense and facilitate fitting the parts together.

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

Surrounding an explosive shell with a number of chambered segments, each charged with cartridge or other projectiles, and discharged by fuses properly connected with the inner exploding shell, the whole forming a second or outer spherical shell, arranged in the manner hereinbefore set forth.

LORENZO B. OLMSTED.

Witnesses:

J. B. HYDE,

JOHN S. HOLLINGSHEAD.