

W. F. RIPPON.  
Shell.

No. 36 858

Patented Nov. 4, 1862.

Fig. 2.

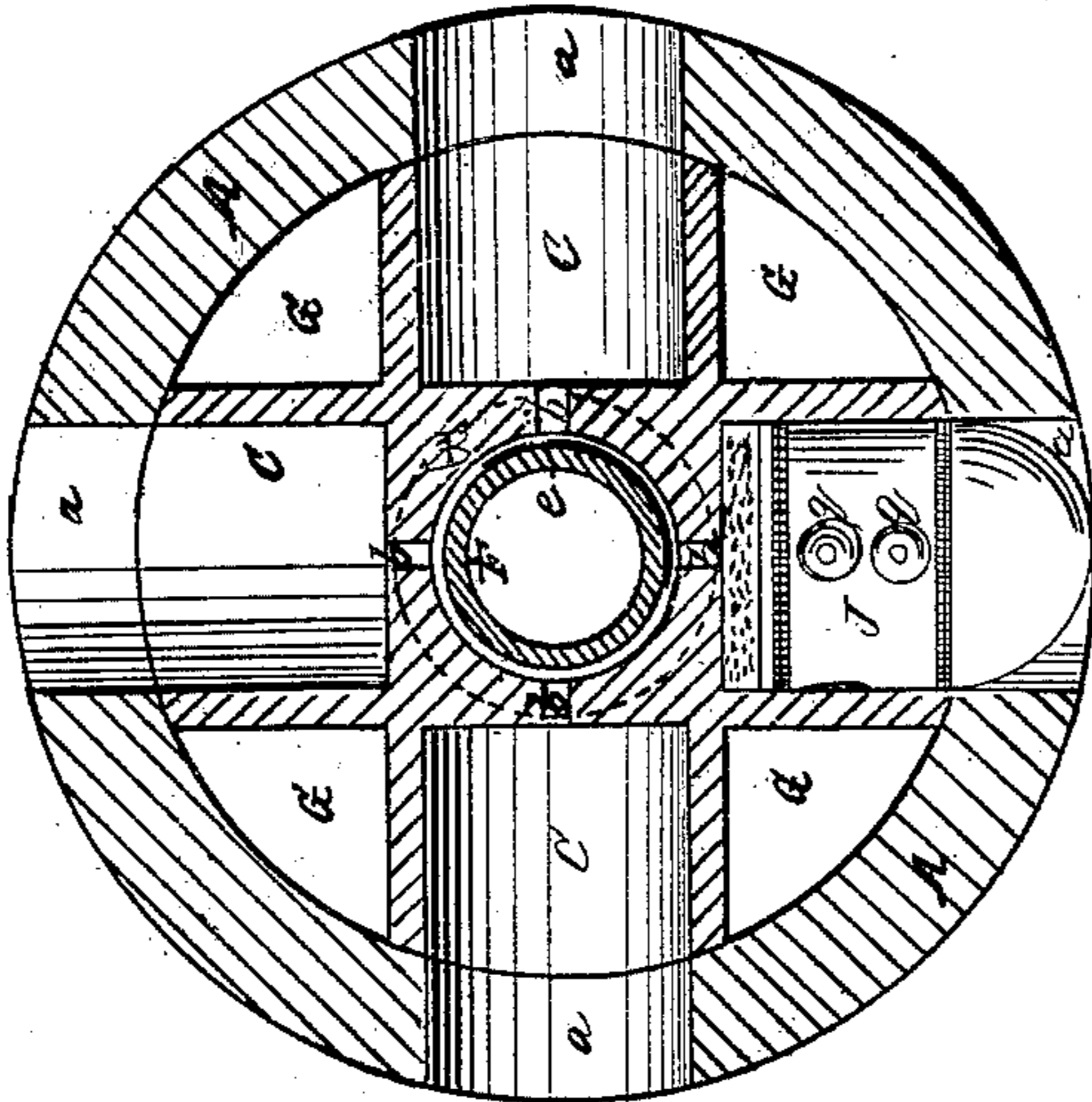
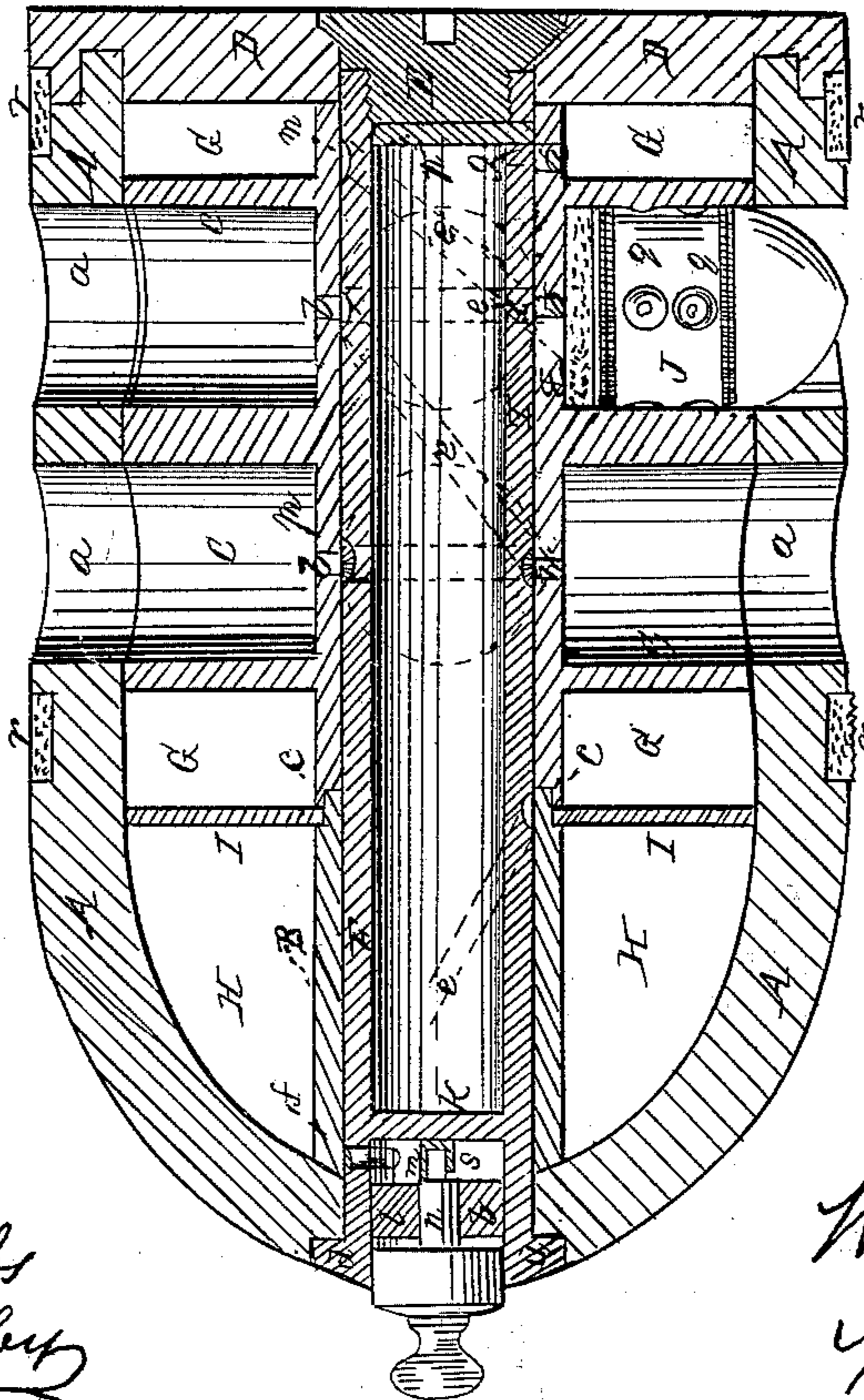


Fig. 1.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN EXPLOSIVE PROJECTILES FOR ORDNANCE.

Specification forming part of Letters Patent No. 36,858, dated November 4, 1862.

*To all whom it may concern:*

Be it known that I, WILLIAM F. RIPPON, of the city of Providence, in the county of Providence and State of Rhode Island, 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 constructed according to my invention. Fig. 2 is a transverse section of the same.

Similar letters of reference indicate corresponding parts in both figures.

This invention relates to elongated projectiles in which are provided radial chambers or mortars from which smaller projectiles are to be discharged, either during the flight of or after the striking of the first one; and it consists in a certain construction of the internal parts of such projectiles, whereby greater destructiveness is obtained.

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

A is a hollow iron casting, which forms the front and sides of the shell of the projectile, having a number of circular openings, *a a*, in its exterior corresponding in number, position, and caliber with the mortars to be contained in the projectile.

B is a cylindrical tube of cast-iron, having cast with it the mortars C C, which radiate from the said tube, and have vents *b b* leading to the interior thereof. The said tube B may be made of one, two, or more sections. In the example represented it is composed of two, with a shouldered joint at *c*, for the purpose which will be presently explained.

D is a plate, which forms the base of the shell, fitted to the casting A in a suitable manner. The ends of the mortars C C fit snugly to the cylindrical portion of the interior of A, and their mouths coincide in position with the openings *a a* in the shell. The ends of the tube B fit closely between the head of the casting A and the plate D, and the whole are secured together and kept in place by a central tube, F, and screw-plug E. This tube F passes through a central hole in the head of

A from the front thereof, and through the tube B, to which it fits snugly, and enters a central hole in the plate D, fitting to A, with a counter-sunk shoulder, *d*, and the plug E passes through the plate D and screws into the said tube F. The said tube F has in its exterior a spiral groove, *e*, which terminates near the front end of the tube in a hole, *f*, and near the rear end thereof in a hole, *g*, such groove being for the reception of the fuse *m*, which is wound round the tube, and has its ends pushed into and through the said holes *f g*, and the said groove being so formed that the fuse will cross the vents *b b* of the mortars C C, and a vent, *h*, communicating with the chamber G, which is formed within the shell around the tube B and mortars C C, and which is filled with gunpowder. The fuse is shown in red color. Just behind the hole *f* there is provided in the tube F a fixed partition, *k*, which is intended to separate the gunpowder, with which the greater portion of the said tube behind the said partition is filled, from the portion in front thereof, which constitutes a priming. Some distance in front of this partition *k* there is fitted tightly into the tube F a perforated wooden plug, *l*, through which is inserted an iron or steel pin, *n*, the head of which projects through the front end of the tube and the head of the projectile, and the rear end of which is intended to receive a percussion-cap, *s*. The screw-plug E, which secures the tube F in place, has its inner end faced with wood, as shown at *p* in Fig. 1, to prevent the iron from grinding upon the gunpowder in inserting the said plug. The front portion, H, of the interior of the shell is partitioned off from the powder-chamber G by means of a thin plate, I, which fits snugly within the shell and around the tube B, and which is secured in place between the shoulders of the joint *c*. The space H is intended to be filled with scrap-iron, which serves to ballast the projectile—that is to say, to make the front end the heaviest, to insure its striking on that end, and which is scattered by the explosion of the projectile. Each one of the mortars C C has placed in it a charge of gunpowder and a projectile, J, of suitable size to fit it, such projectile being either a solid shot, an ordinary shell, or a projectile of similar construction to the larger or main projectile, and containing similar mortars charged with still smaller projectiles *q q*.

The exterior of the main projectile may be fitted with packing-rings *r r*, of any known or suitable kind.

When the projectile is discharged from a cannon or mortar, or otherwise thrown, the head of the pin *n* first strikes, and the said pin is driven inward and the cap *S* driven forcibly against the partition *k* of the tube *F*, and thereby exploded, firing the priming-powder in the front part of said tube and setting fire to the fuse *m*, which burns gradually and conveys fire to the several vents, *b b*, in succession, and thus causing the discharge of the projectiles *J* from the several mortars *C C*, one after the other. After all the projectiles have been discharged from the mortars *C C*, the fire reaches the holes *g* and *h*, and sets fire to the gunpowder in the chamber *G* and to that in the tube *F*, and causes the disruption of all parts of the projectile and the breaking of it in a number of pieces, which, with the scrap-iron from the chamber *H*, are scattered in all directions.

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

1. The combination of the mortar-tube *B*, central tube, *F*, plate *D*, and plug *E* with the shell *A* and the openings therein, *a a*, in the manner and for the purpose herein shown and described.

2. Having the tube *F* provided with a spiral fuse-groove, *e*, so arranged as to conduct the fire from chamber *s* between the tubes *F B* successively across the vents *b b b b* of the mortars to the powder-chamber *G* and the interior of tube *F*, as and for the purpose herein shown and described.

3. The combination of the partition *I* with the mortar-tube *B* and the shell *A*, thereby forming a ballast-chamber, *H*, all as herein shown and described.

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Witnesses:

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