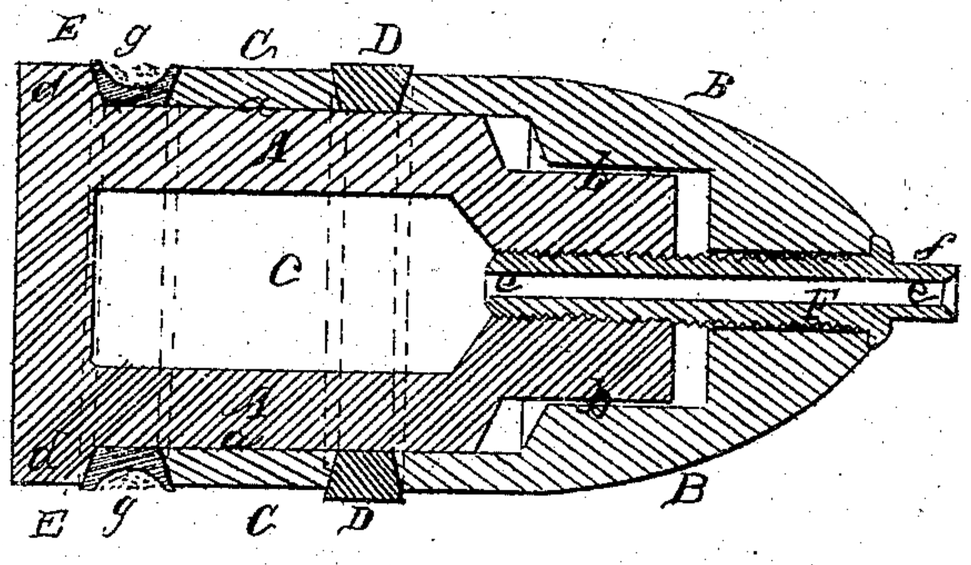
HOUGHTON & DENISON.

Shell.

No. 35,520

Patented June 10, 1862.



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UNITED STATES PATENT OFFICE.

H. N. HOUGHTON, OF HALIFAX, AND C. H. DENISON, OF BRATTLEBOROUGH, VERMONT.

IMPROVEMENT IN SHELLS FOR RIFLED ORDNANCE.

Specification forming part of Letters Patent No. 35,520, dated June 10, 1862.

To all whom it may concern:

Be it known that we, H. N. HOUGHTON, of Halifax, in the county of Windham and State of Vermont, and C. H. DENISON, of Brattleborough, in the county of Windham and State of Vermont, have invented a new and useful Improvement in Projectiles for Ordnance; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, said drawing representing a central vertical section of an explosive projectile with our improvement.

This invention relates to the construction of the body of an elongated projectile of two or more pieces, with interposed packing-rings, the whole connected by a central screw-bolt, which projects through the head of the projectile for the reception of a wrench, by which it may be screwed up after the insertion of the projectile in the gun, for the purpose of drawing the said pieces together, and thereby so expanding the packing-rings as to prevent windage in firing, and to make the packing enter the rifle-grooves in case of the gun being rifled.

It consists in the employment of the said screw as a fuse-tube by making it hollow for the reception of the fuse.

To enable others to make and use our invention, we will proceed to describe its construction and operation.

A and B are the two principal portions of the body, made of cast-iron, the piece B forming the head and point of the projectile and the piece A the base, the latter fitting easily into the interior of the former, and the fitting parts being of cylindrical form, as shown at *a a* and *b b*. The larger and cylindrical portion of the exterior of the piece B is of a size to enter loosely into the bore of the gun, and the piece A has a flange, *d*, whose cylindrical exterior is of corresponding size. The piece A contains the chamber *c*, for the reception of the gunpowder to produce the explosion.

c is a cast-iron ring, fitted easily to the cylindrical portion of the exterior of A in front of the flange *d*.

D and E are two packing-rings fitted to the cylindrical portion of the exterior of A—one between the front of the ring C and the rear end of B, and the other between the rear of the ring C and the front of the flange *d*. These rings may be of soft metal or any other moderately flexible or yielding material.

The ring D is represented as made of heavy leather, and may be composed of one or more thicknesses, and the ring E is represented as of soft metal, having around its exterior a concave groove for the reception of twine or cord *g*, of hemp or other fibrous material, which is wound upon it to prevent it from being torn asunder by centrifugal force or other agency, and being thereby caused to fly off at a short distance from the gun. The exteriors of these packing-rings when they are first applied to the projectile are slightly larger than the largest portions of the exteriors of A and B, and than the exterior of C, and just large enough to enable them to fit snugly but easily into the bore of the gun, to permit the projectile to be inserted in the gun from the muzzle without difficulty, in which operation they center the body A B C. The rear end of B, the front of the flange *d*, and the two ends of the ring C are beveled, as shown in the drawing, to make the intervening spaces wider toward the exterior of the projectile, and the packing-rings have their sides of corresponding form to fit the said spaces, such form enabling the packing-rings to be expanded more easily by forcing or drawing together the parts A and B in a longitudinal direction.

F is the screw-bolt which connects and holds the several parts of the projectile together, passing easily through without screwing into a central hole provided for it in the front of B and screwing into a central tapped hole in the front of A. The head of this screw is shouldered to fit up to the end of the piece B of the body and squared for the reception of a socket-wrench provided in the rammer. By making this screw hollow, as indicated at *e e*, it is made to serve as a fuse-tube, and it may be fitted at the end with a percussion-cap or other contrivance for exploding the projectile by percussion.

The projectile may be transported in pieces and not put together till time for loading the gun, or may be transported with all its parts together. The packing-rings, if of absorbent material—like D or the fibrous packing *g*—may be saturated with water, grease, or other lubricating material.

In loading the gun the projectile is inserted

at the muzzle and pushed home by the rammer, which is made to fit its head and the head of the bolt F, and when it has been pushed home the rammer is turned to screw the bolt F into the piece A for the purpose of drawing the part B farther on the part A, and so compressing the packing-rings in a direction parallel with the axis of the projectile, and thereby causing their expansion in a circumferential direction, to make them fit closely to the bore of the gun and enter the rifle-grooves thereof, if such grooves be provided therein. When the gun is fired, the pressure of the gases on the base of the piece A drives it still farther forward into B, and causes a further compression and expansion in the directions above mentioned, and so prevents windage and causes the packing to so indent itself into the grooves as to insure a rotary motion of the projectile being produced by its discharge.

The only finishing required for this projectile will be the fitting of the bolt and packing-rings.

What we claim as our invention, and desire to secure by Letters Patent, is—

The employment of the screw-bolt F, applied, as and for the purpose herein specified, as a fuse-tube, substantially as herein described.

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Witnesses:
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