

B. B. HOTCHKISS.
Projectile.

No. 29,272.

Patented July 24, 1860.

Fig. 2.

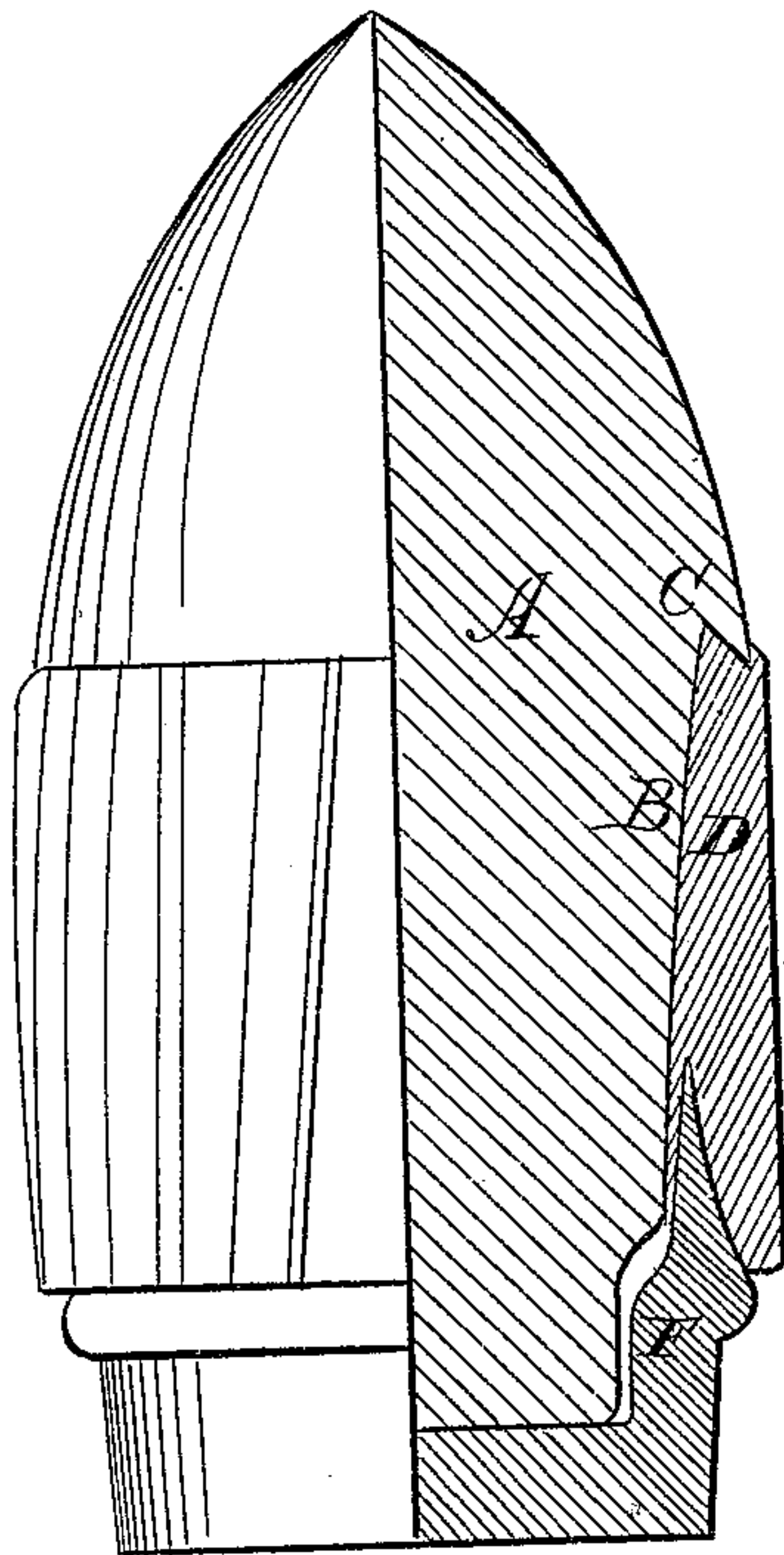


Fig. 1.

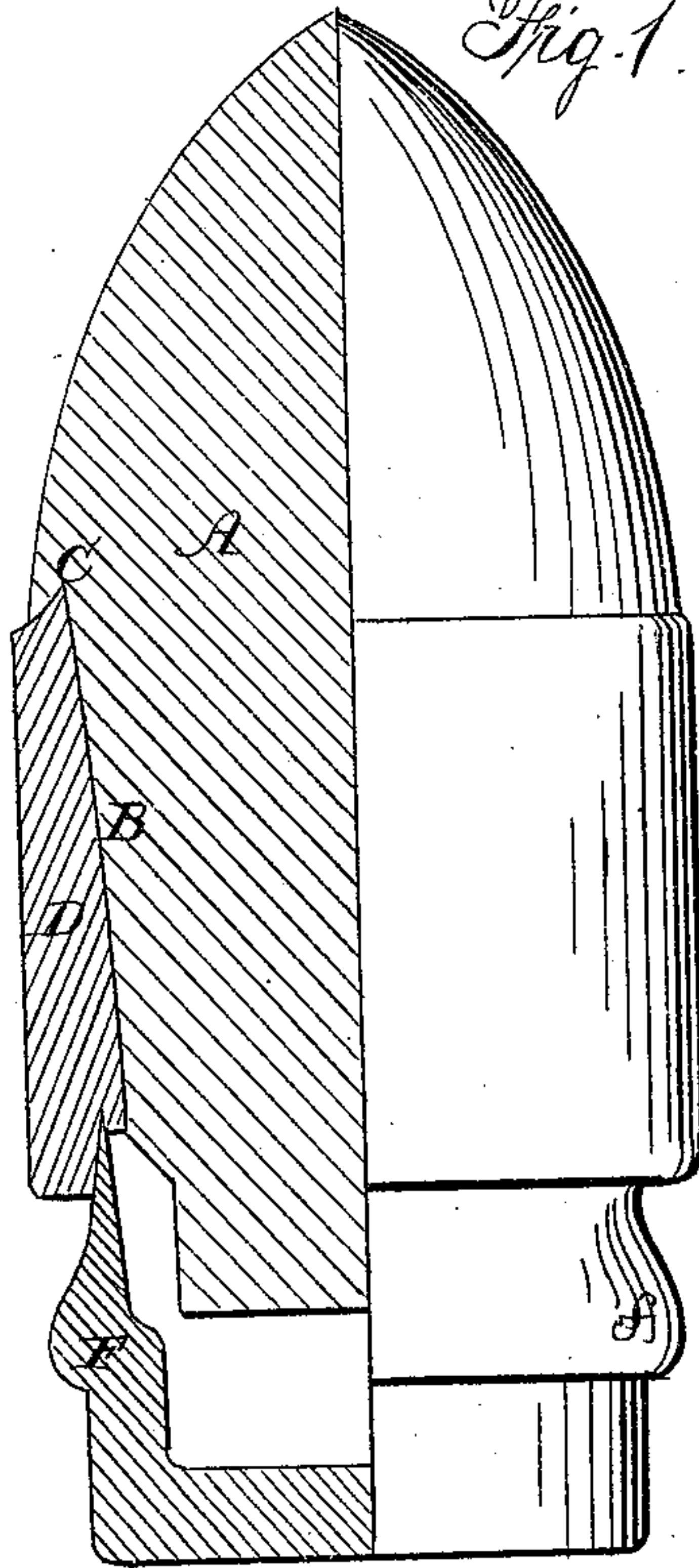
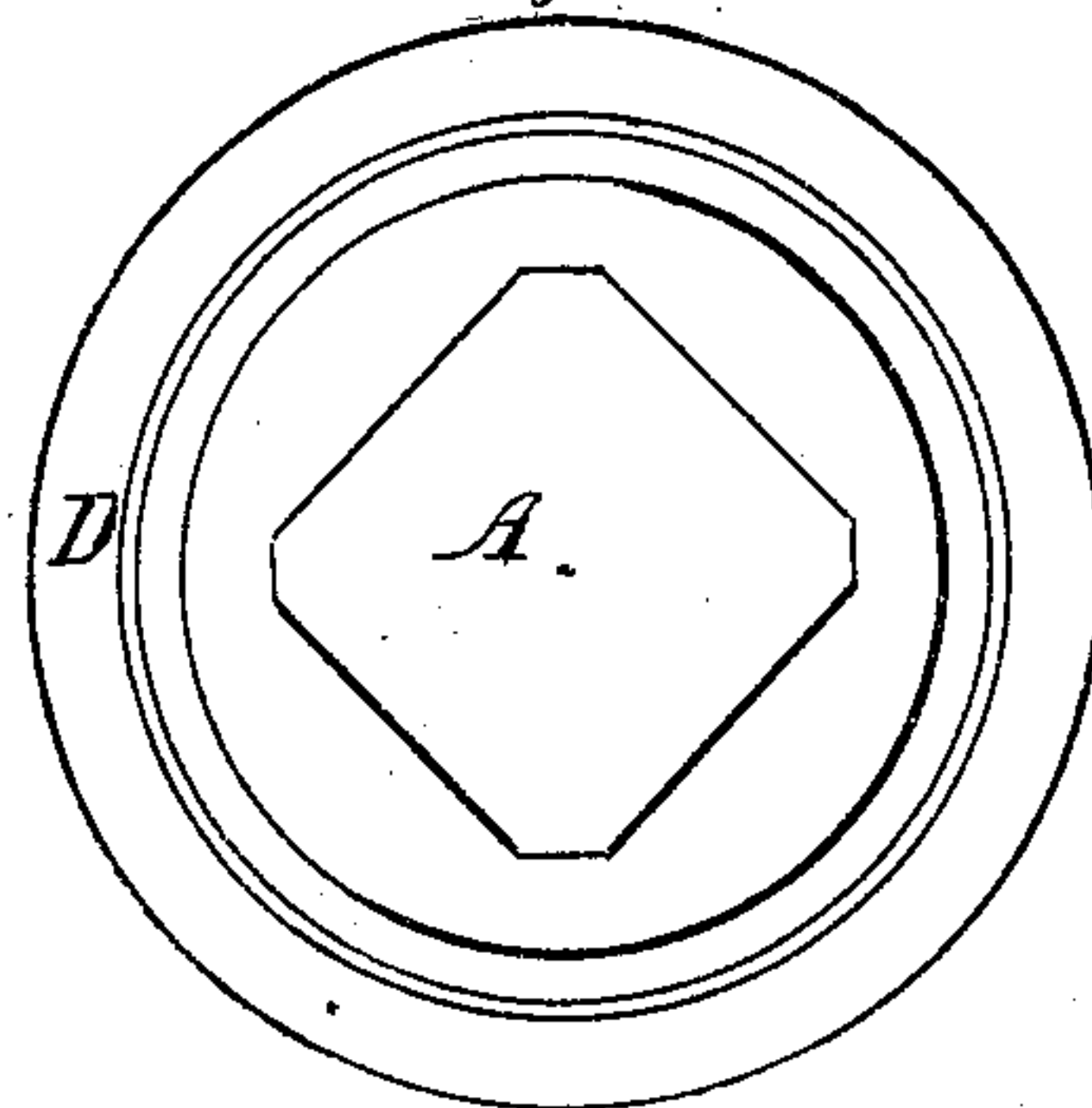


Fig. 3.



INVENTOR.

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IMPROVEMENT IN PROJECTILES FOR RIFLED ORDNANCE.

Specification forming part of Letters Patent No. 29,272, dated July 24, 1860.

To all whom it may concern:

Be it known that I, B. B. HOTCHKISS, of Sharon, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Projectiles for Rifled Ordnance; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

My improvement relates to and is an improvement on the construction of projectiles invented by my brother, Andrew Hotchkiss, and patented by him on the 16th of October, 1855.

The nature of my invention consists in the employment of a body and soft-metal belt of a peculiar form, in combination with the cap-piece for controlling the extent of the action on the belt, the object of this combination being the expansion of the forward part of the belt, equally or nearly equally with the back part, and at the same time insuring that the expansion shall not exceed a certain moderate amount.

The nature of my invention also consists in causing the cap or wedge piece to be forced into the metal of the packing or belt between its inner and outer surfaces, in lieu of between it and the body of the projectile, for the purpose of holding the rear edge of the belt more firmly to the shot and preventing it from being torn therefrom in firing.

The nature of my invention also consists in a combination of a lip to hold or confine the forward edge of the belt with the above peculiar means of holding the rear edge of the same, for the purpose of holding the portion of the belt to the shot in case the belt is separated, longitudinally, in two or more parts.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, by the aid of the accompanying drawings, in which—

Figure 1 is a half-elevation and half-section of the projectile as placed in the cannon. Fig. 2 is a similar view with the packing-ring expanded, and Fig. 3 is a rear view with the cap-piece removed.

Similar letters indicate like parts in all the figures.

A is the body of the projectile, made in a convenient form at the point and rear, but smaller for a little more than half its length, to allow for the packing or belt of soft metal. The forward portion of that part of the body of the projectile which is encompassed by the belt, is tapered toward the rear, as shown at B. The rear portion is of uniform section. At C is an annular lip or projection which stands in the edge of the belt or packing, as represented. Upon A, I fit the packing or ring D, composed of lead, or other suitable soft metal, with a flange or projection on its rear, as shown at G, under which is placed the cap or wedge-piece F, which is driven home with a hammer with sufficient force to induce it to remain and allow the projectile to be handled in the ordinary manner without danger of a separation. The projectile is placed in the gun in this condition, as shown in Fig. 1, with the cap F next the powder. In firing the gun the force of the explosion is received by the cap F, which is thereby forced with great violence against and into the lead or soft-metal ring D, the adhesion of which to the body A B is very slight, so that it is free to slip forward thereon, the force of the explosion both compressing and driving forward the belt D uniformly, or nearly so, but only to the extent due to the motion of F. This expansion of both ends of D follows from the form of the several parts, as follows: The sharp edge of the cap F is driven into the rear edge of the belt D until the shoulder *f* meets the same. The mass of D is then compressed and changed in form, being "upset" as the change is termed, or, in other words, shortened and thickened. The mass of D is also moved forward by the same force upon A. By the form due to my invention the upper or forward portion of D is the thinnest and is most easily compressed, so that the hinder and central portions move forward, and the tapering form of B and greater upsetting of that part of D expands the forward portion in such a manner as to cause it also to fit the bore and grooves of the gun. The belt under these conditions expands equally and to the proper extent at both ends and also at the middle, and D fits tightly to the gun throughout its whole extent, as shown in Fig. 2. The edge C and the wedge F cut into the metal of

thering, and tend to prevent the latter from becoming removed from the body of the shot, either in the gun or after it has left the muzzle.

The belt of soft metal has hitherto been held to the body of the projectile only by its maintaining its integrity as a complete belt or hoop, and so soon as it is separated into two or more parts, it would fly asunder under the resistance of the air upon its front edge. By my improvement the soft metal locks under a portion of the body at its forward edge and under a portion of the cap at its rear edge, so that if it were split into many parts or sections, each extending the entire length from F to C, none of the parts could escape from the body of the shot, but the whole would remain in one single projectile.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The tapering body B and the corresponding form of the belt D, in combination with the cap-piece F f, or its equivalent, for the purpose of expanding D equally and to a definitely-controlled extent at each end, substantially as herein set forth.

2. Causing the edge of the cap F to embrace a portion of the belt D, so as to lock and confine D at that edge, substantially as and for the purposes herein shown and specified.

3. The combination of the lip C at the forward edge with the means herein described of confining the rear edge of the belt D, for the purpose of retaining the parts of the latter between them when burst open or otherwise fractured, as herein set forth.

B. B. HOTCHKISS.

Witnesses:

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