

B. B. HOTCHKISS.

Shell-Fuse.

No. 37,756.

Patented Feb. 24, 1863.

Fig. 1.

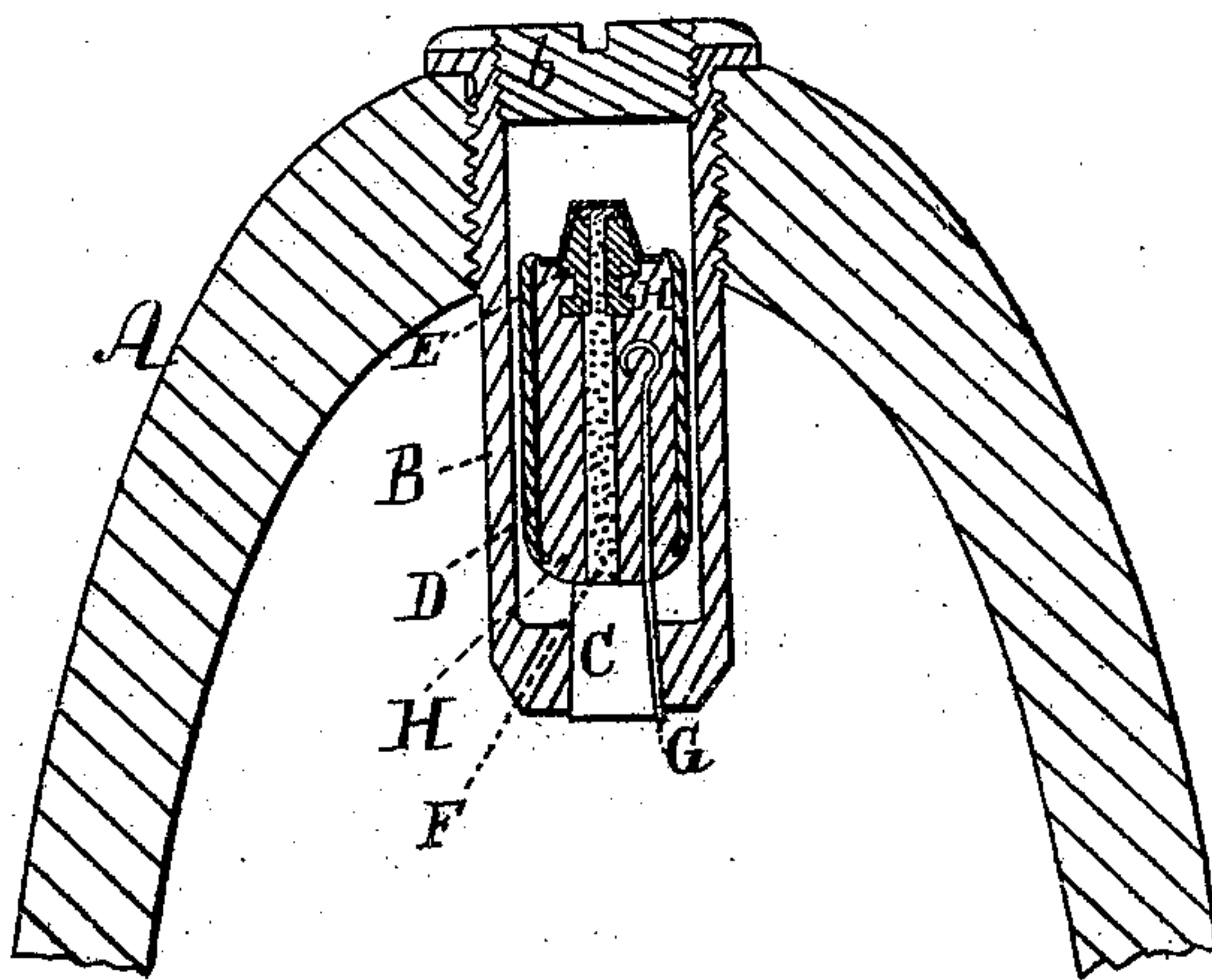
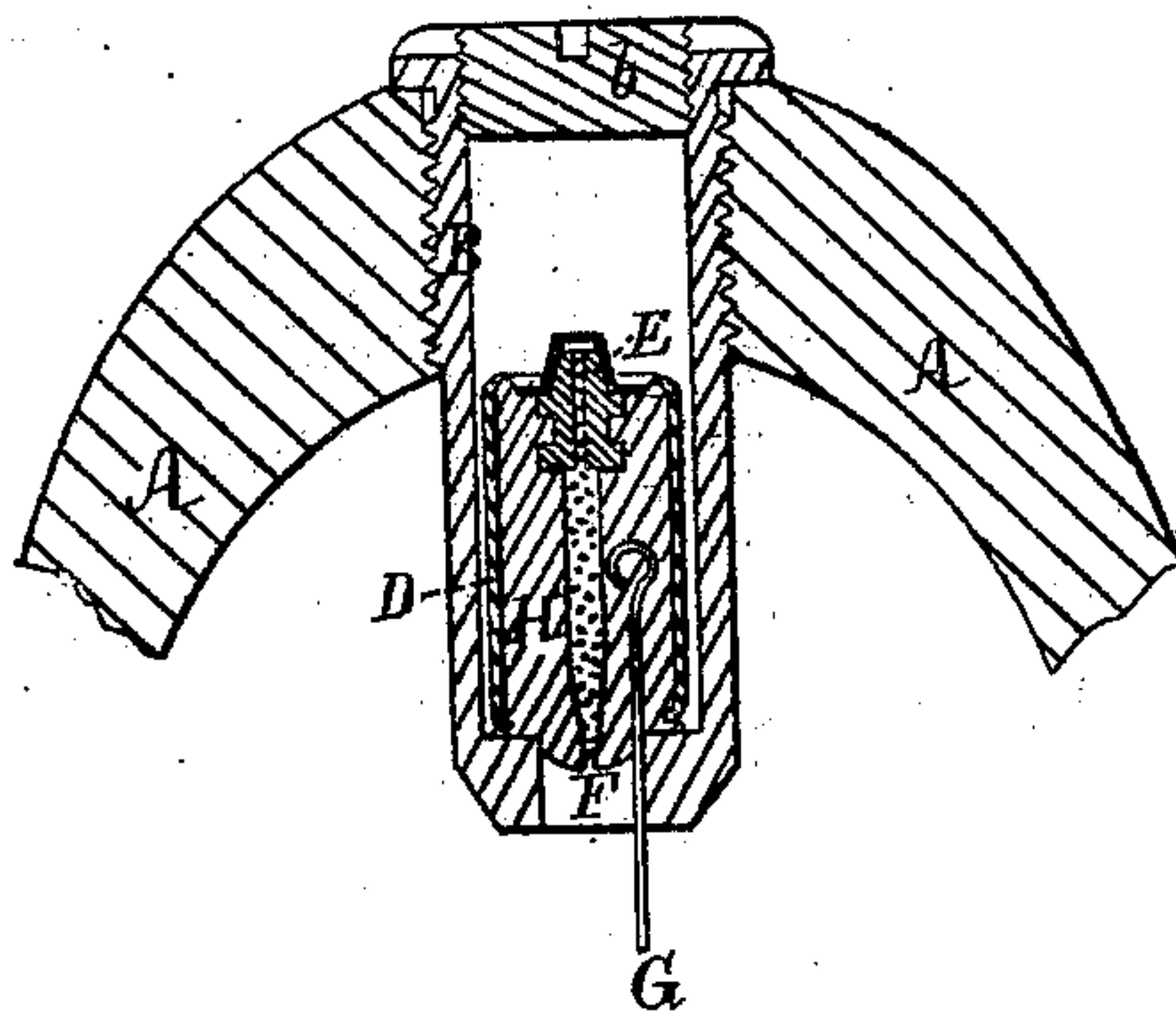


Fig. 2.



Witnesses.

Thomas L. Stetson

W. A. Hendrickson

Signature.

B. B. Hotchkiss



# UNITED STATES PATENT OFFICE.

B. B. HOTCHKISS, OF SHARON, CONNECTICUT..

## IMPROVEMENT IN PERCUSSION-FUSES FOR SHELLS.

Specification forming part of Letters Patent No. 37,756, dated February 24, 1863.

*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 certain Improvement in the Construction of the Striker for Explosive Shells; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a section of a portion of an elongated shell with my apparatus inserted ready for use; and Fig. 2 is a similar section with the parts in the position they assume during the flight of the projectile.

Similar letters of reference denote like parts in both figures.

My present invention is an improvement on the one for which a patent was granted to me bearing date June 17, 1862, and also on all the other American and foreign inventions in which fulminates are exploded by a loose striker in the act of striking the object, and relates to the construction of the striker or sliding hammer, by which the advantages due to the inventions above referred to are more perfectly realized and some of the objections obviated. It is intended for all the various constructions of rifle-cannon shells.

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

A is the body of a projectile of any of the approved forms.

B is a fuse-plug of metal, adapted to be screwed into A, and closed by a cap or stopper, *b*, in the ordinary manner. The bottom of B has a hole in the center, as represented, which is closed by a plug, C, as described in my patent before referred to.

The sliding hammer is made as follows: A short tube, D, of brass or other hard metal, is prepared and placed within a proper mold. The nipple E, a stout wire or other core to form the axial cavity F, and the retaining-wire G are adjusted in their proper positions in the mold, after which it is filled with lead in a melted condition, which is allowed to harden in the form represented by H, forming a complete sliding hammer with a soft-metal interior and a hard exterior. The base of H is rounding or hemispherical, and projects below the end of the inclosing-tube D. The hammer is charged and fixed in place the same as described in the above-mentioned

patent. On the discharge of the shell from the gun, the hammer, by its inertia within the shell, drives out the plug C and strikes with considerable force against the back end of the interior of the fuse-plug B. This causes the soft end of the hammer, where the lead projects beyond the inclosing-tube D, to change its form and take the impress of the base of B, as shown in Fig. 2. This change of form overcomes the inertia of the hammer or striker without causing any sensible rebound, as is the case where it is formed of hard elastic metal, and does not so distort the exterior form of the hammer as to prevent it from sliding easily in the barrel of the fuse-plug. When the shell strikes a vessel or any substance sufficiently solid to retard its velocity to any considerable extent, the momentum of the hammer causes it to slide forward, and, forcibly striking the part *b*, it explodes the cap which is upon the nipple D, ignites the powder in the axial cavity, and thus causes the explosion of the shell in the ordinary manner.

By the construction of the hammer in the manner herein shown and described, I obtain the following advantages: First, in the invention patented by Smith and Stetson, the hammer, being made entirely of soft metal, was liable, if soft enough to secure the effect desired, to be so changed in form as to become wedged in the fuse-plug, and thus defeat its object by not moving with sufficient freedom to cause an explosion on the impact of the shell; by the use of the surrounding tube I am enabled to secure all the advantages of the lead hammer without this liability to failure; second, for the same reason, I am enabled to use a heavier hammer in the same space than could be before used, as pure lead could not be used alone on account of the liability above referred to; third, my improved hammer is very simple and cheap, requiring no fitting, and holds the nipple and retaining-wire very securely.

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

A percussion hammer or striker constructed substantially as herein described, having a hard exterior and a soft interior and base, for the purpose specified.

Witnesses: B. B. HOTCHKISS.  
W. A. HENDRICKSON,  
THOMAS D. STETSON.