

J. B. READ.
Projectile.

No. 15,999

Patented Oct. 28, 1856.

Fig. 1.

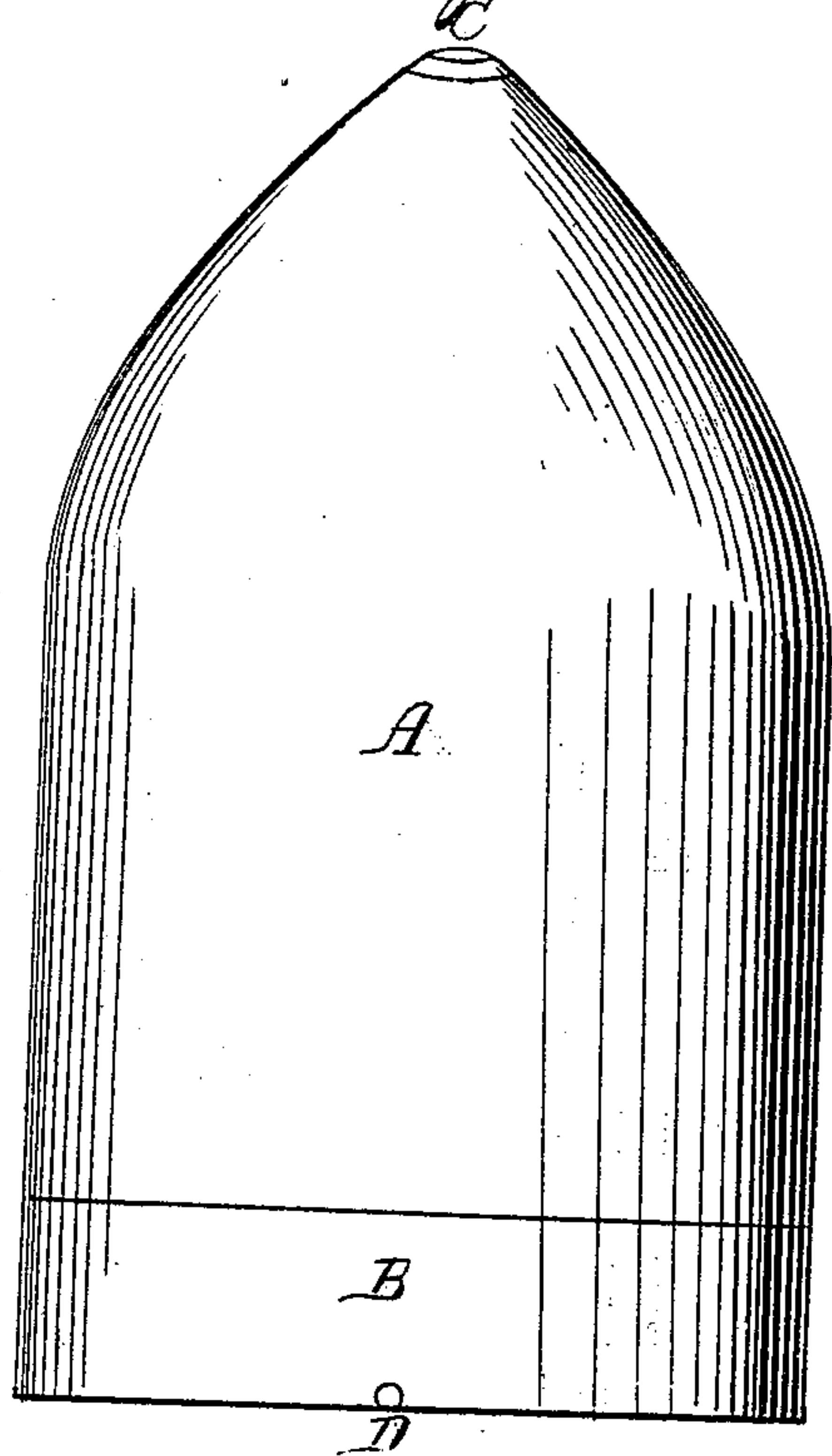


Fig. 2.

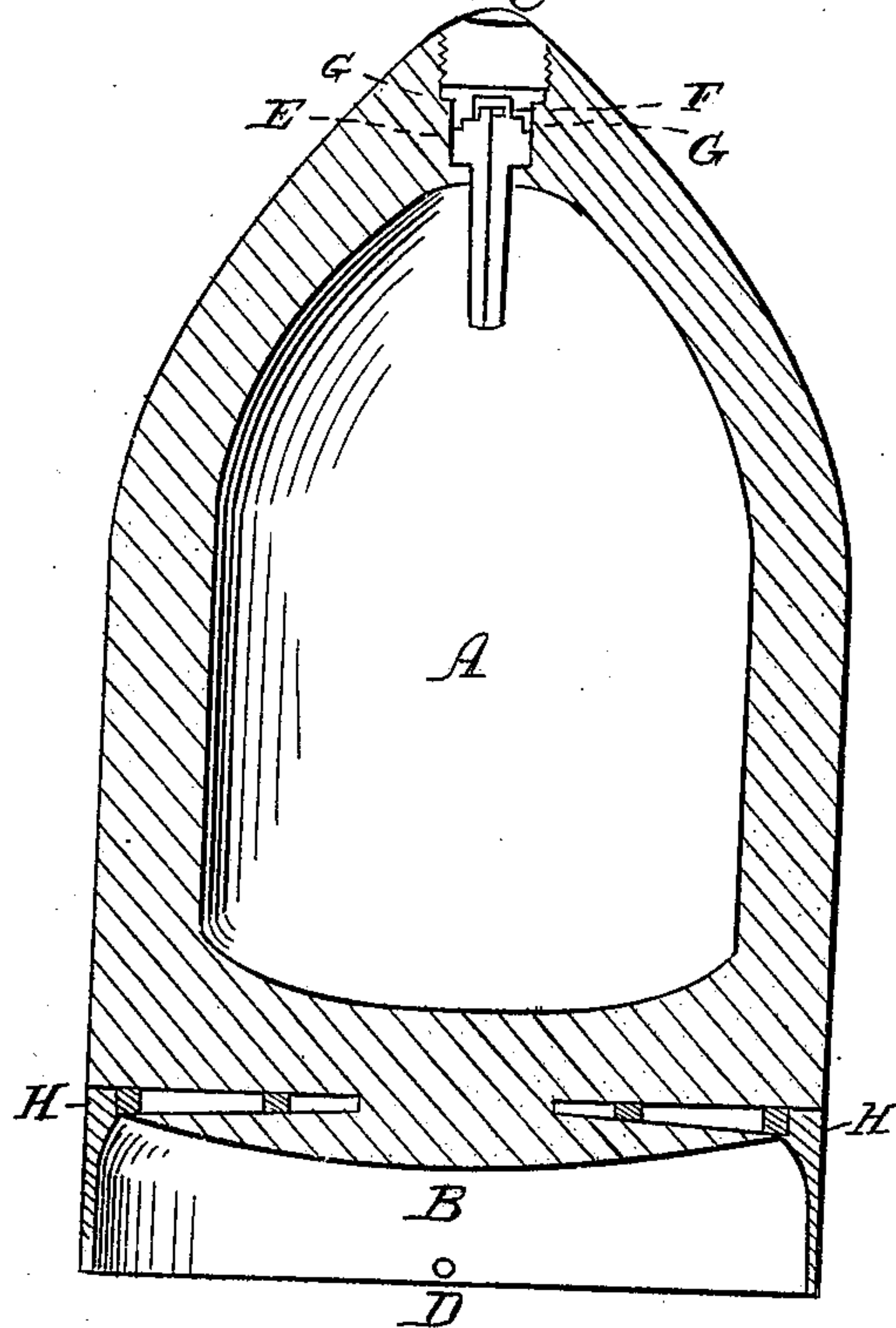


Fig. 3.

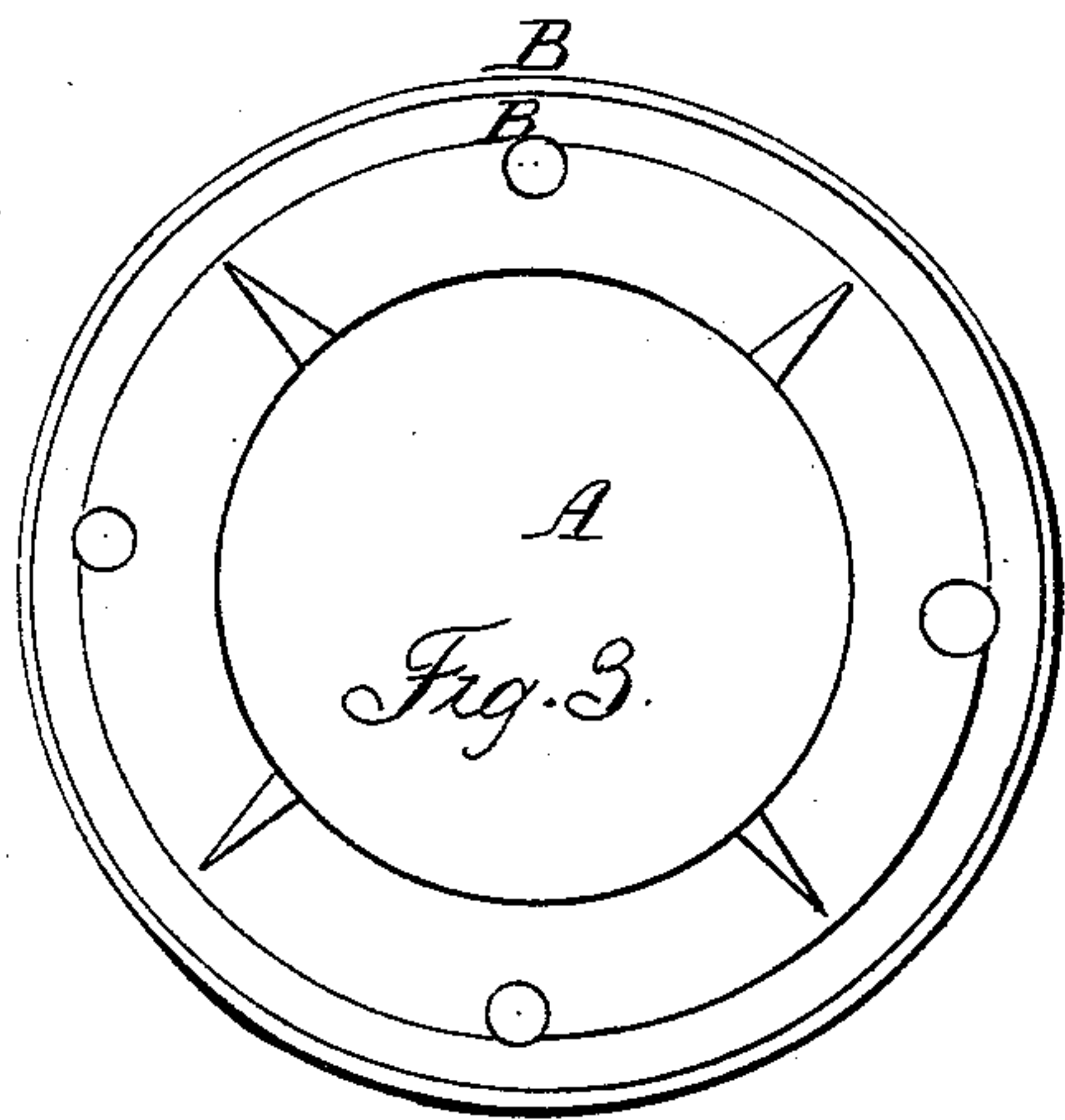
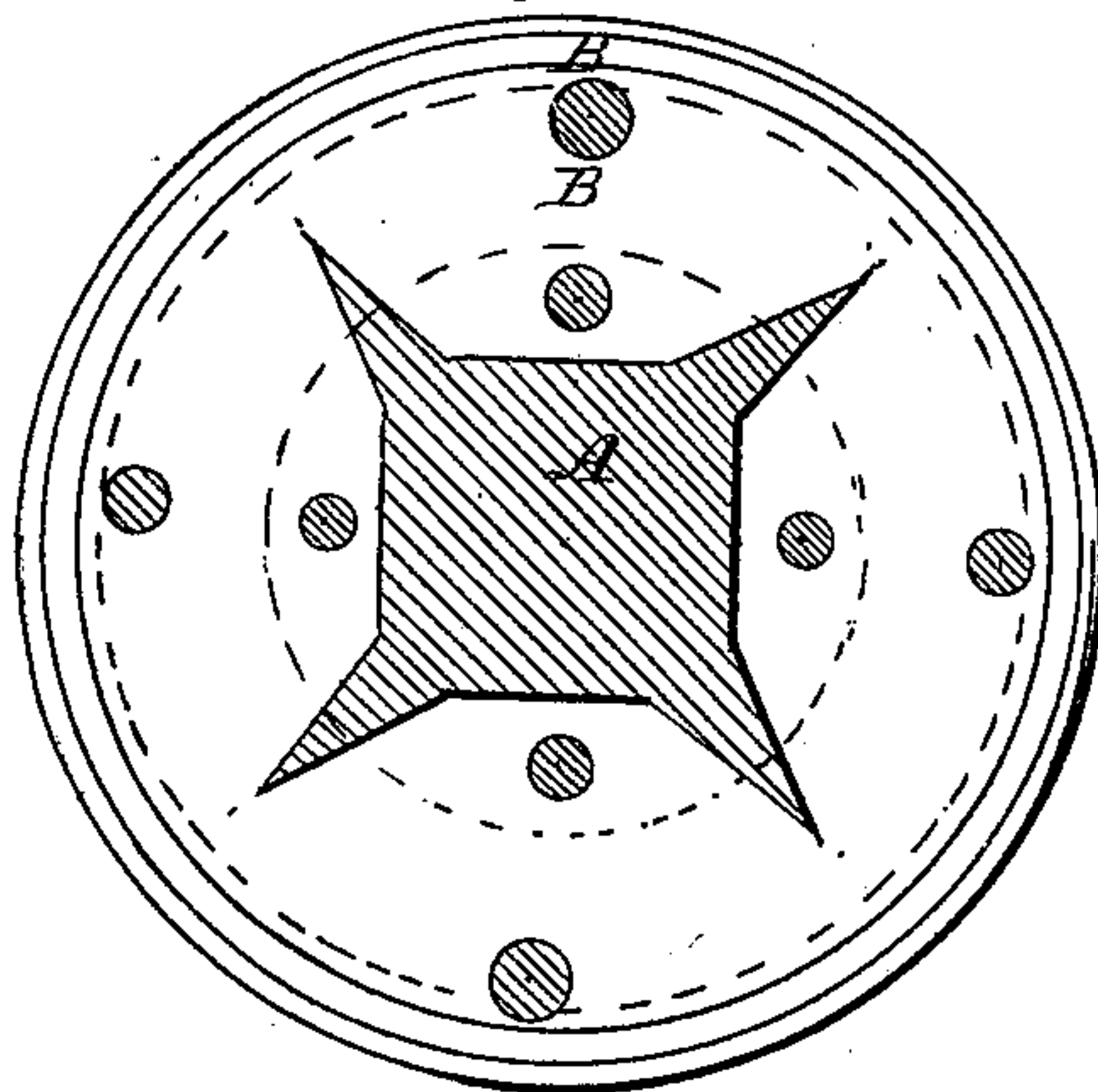


Fig. 4.



inventors.

John B. Read

UNITED STATES PATENT OFFICE.

JOHN B. READ, OF TUSCALOOSA, ALABAMA.

IMPROVED PROJECTILE FOR ORDNANCE.

Specification forming part of Letters Patent No. 15,999, dated October 28, 1856.

To all whom it may concern:

Be it known that I, JOHN B. READ, of the town and county of Tuscaloosa, and State of Alabama, have invented a new and Improved Mode of Constructing Projectiles for Cannon; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in the attachment to the butt of elongated cannon shot or shells of a cupped cylinder of wrought-iron fastened to the body of the shot or shell by having its perforated bottom embedded in the cast-iron or other metal of which the shot may be composed, while its sides project beyond and are so thinned down as to be capable of such expansion by the charge of the gun on firing as to fit its bore exactly, thus saving windage in all cases and imparting rotary motion to projectiles when rifle-grooves or their equivalents are employed, thus securing, by the striking of the projectile upon its apex, the important advantage of using percussion-shells.

To enable others skilled in the manufacture of military projectiles to make use of my invention, I will proceed to describe its construction and mode of operation.

Shot or shells embracing my improvements may be constructed in any of the patterns for elongated projectiles now known; but the shell represented in my drawings is of the cylindro-conoidal form, preferred, for obvious reasons, by the majority of military men. With the exception of its flange and of the peculiarities which I have added, it is identical as to its exterior, its re-enforcements, and internal cavity or powder-space with the shell represented in Sir Howard Douglas's well-known work on naval gunnery.

A in Figure 1 represents the body of the shell or shot entire; B, the cupped cylinder of wrought-iron; C, the fuse-plug; D, one of the holes for passing a cord or wire to serve as a sling. Fig. 2 is a sectional view of the same. A B C D indicate similar parts, as in Fig. 1. E represents an ordinary percussion fuse-tube. The cupped cylinder B, Fig. 2, must have its bottom turned in, as represented at H H, at a right angle, or one varying but a few degrees to either side of a perpendicular to its sides,

with a large central opening or perforation and other smaller ones surrounding it, round or irregular, as many as may be thought necessary, through which the molten cast metal may pass in founding, thus forming, as it were, large rivets, by which the cylinder may be made to adhere firmly. The cast metal may not pass through the wrought-iron cupped cylinder as much as represented in the drawings, if thought best, but only so far as may be necessary to form the necessary rivets, and the butt of the shell may be left flat or concave; but the convex form represented is believed to be best, as presenting the greatest resistance to the shock of the charge of the gun. Just below H H may be seen the slope or bevel by which the sides of the wrought-iron cylinder are reduced to the proper thinness for the necessary expansion.

Fig. 3 is a representation of the bottom of the shell, with the convex portion of cast metal, A, forming the butt of the shell or shot, thickest in the center, and so thinned at the circumference as to show the forms of some of the apertures by which the wrought and cast metal are made to adhere.

Fig. 4 represents the bottom of the shell, with the convex portion of cast metal removed, so as to show more distinctly how the cupped cylinder is formed and attached. The bottom of the wrought-iron cupped cylinder is shown as formed from a cylinder having its sides turned in at one end at or near a right angle, wedge-shaped portions being cut from it at four points to facilitate turning in and flattening, the ends to be left sufficiently far apart to form a large central opening, and as many holes formed surrounding it as thought at all necessary.

The free sides of the cylinder may be made originally of the proper tensility by rolling or hammering; or they may be reamed out after the cylinder is formed and attached to the shell; or it may be found that a uniform thickness of metal may answer every purpose; or the cupped cylinder may be formed from disks of wrought metal by the use of male and female dies under a stamping-press, which could be so arranged as to cut the disks and punch the necessary apertures all at one operation.

The cupped cylinder, by whatever mode it may be formed, is to be placed in the bottom

of the mold formed by the pattern for the shell, and the projectile completed by pouring the necessary amount of cast metal.

It is evident that the wrought-iron cylinder might be attached to the body of the shot in several different ways, as by leaving the large central aperture round and cutting in it a female screw to take hold of a projection from the bottom of the shell; or the bottom of the cupped cylinder might be omitted entirely and the sides nearest the butt be cut with a female screw large enough to receive the butt of the shot; or the cupped cylinder may be made without apertures, but with rough and projecting points, as where the mouth of a filled sack is tied, and these might be embedded in the cast metal; or the cylinder may be fastened on by screws or rivets to the body of the shell without being united with it in founding; or the cylinder may embrace the sides of the shell more or less or envelop it at its apex, being fastened on with cast or wrought rivets or screws or by brazing; but none of these methods can compare with the economical, solid, and easy mode of union which I have indicated, and they are only mentioned to prevent future claims for improvements.

The mode of manufacture being sufficiently evident from the above details, I will proceed to describe the manner in which my improved projectiles are to be used.

After the shell has been charged, the percussion-tube capped and properly placed, and the fuse-plug inserted, the cartridge of the gun is placed in its muzzle, with the tied end fitted into the cupped cylinder of the shot,

made with easy windage, when the loading may be completed with one motion, the rammer having its head made slightly concave. On firing the charge of the gun the cylinder immediately expands and fills the rifle-grooves when they are employed, thus imparting rotary motion and securing the striking of the shell on its apex, and thus, by exploding the cap, securing the bursting of the shell immediately on impact, or soon afterward, if the tube be filled with a short-time fuse or mixture. Solid shot may be fired and rotated in the same way, and, besides the advantage as to economy over any leaded shot, they possess the valuable advantage of being fired red hot.

The expanding butt is not claimed, of course, as my invention, nor is the placing of a percussion tube and cap in the apex of a shell.

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

The attachment to elongated shot or shells of a cylinder of wrought-iron fastened to the body of the shot or shell by having its bottom or sides more or less embedded in the cast metal of which the shot may be composed, the cylinder to be attached to the butt of the shot or shell, and its sides to project beyond, being thinned down after a short bevel to such a degree as exactly to fit the bore of the gun when the charge is fired, so as to save windage in all cases and impart rotation when rifle-grooves are employed.

JOHN B. READ.

Witnesses.

B. K. MORSELL,
WM. W. TUCKER.