

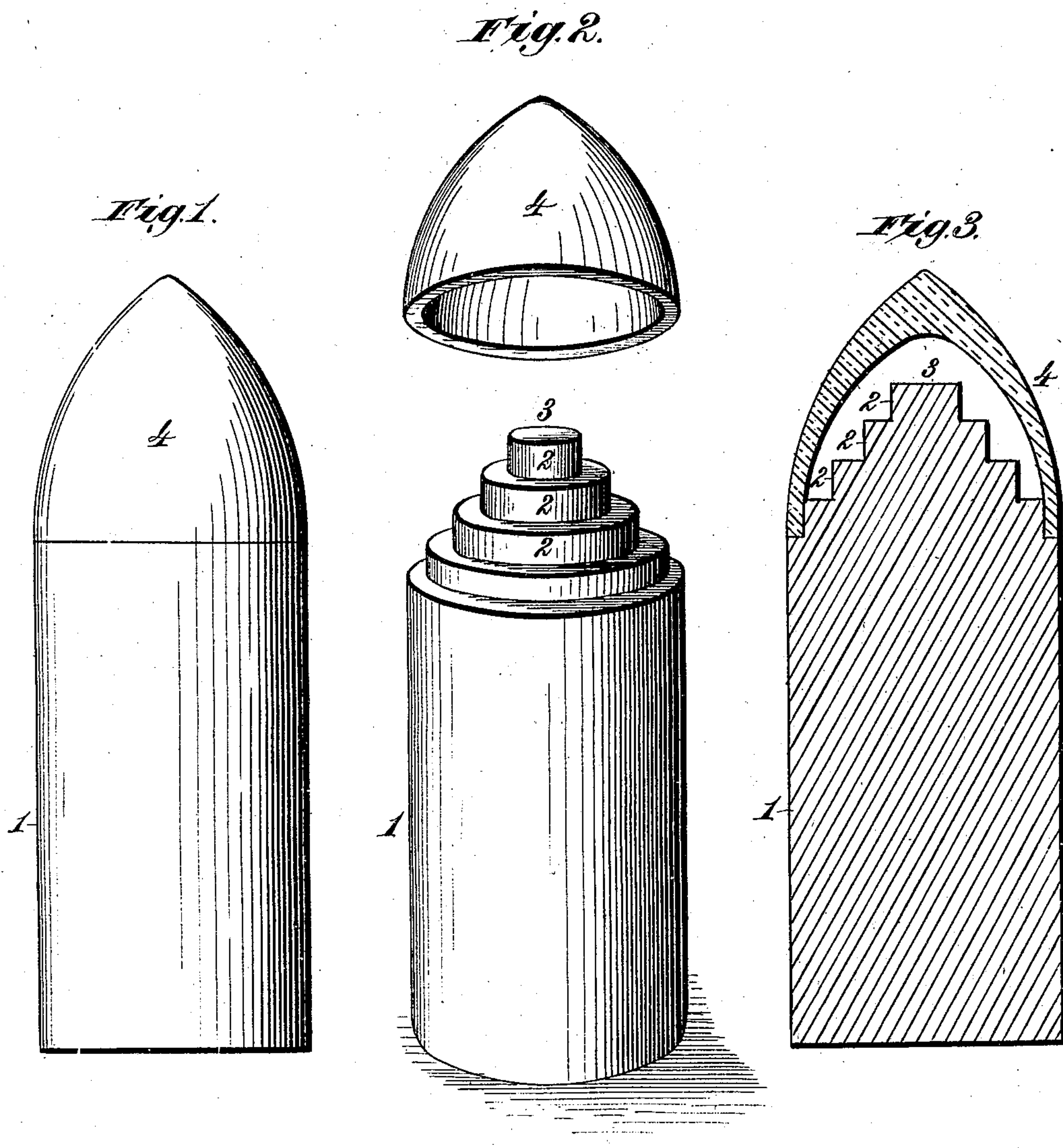
(No Model.)

2 Sheets—Sheet 1.

G. R. WILSON, Jr.  
PROJECTILE WITH FRANGIBLE CAP.

No. 465,230.

Patented Dec. 15, 1891.



Witnesses,  
Robert Emmett,  
J. A. Rutherford.

Inventor,  
George R. Wilson Jr.  
By James L. Norris,  
Atty.

(No Model.)

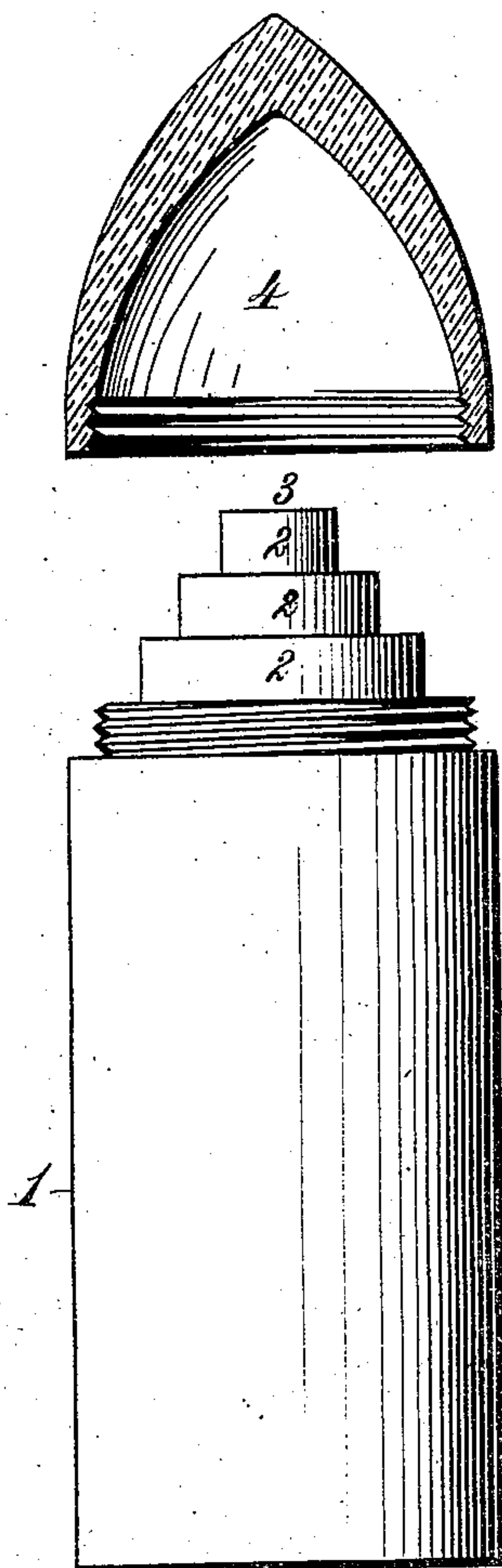
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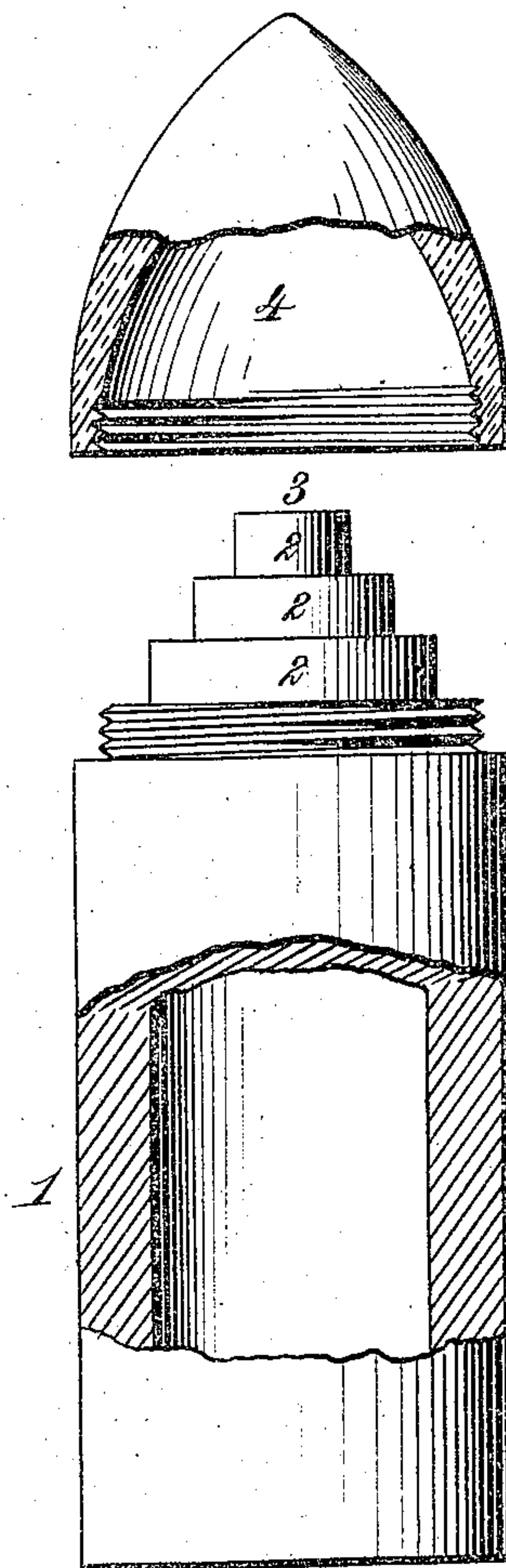
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*Fig. 4.*



*Fig. 5.*



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Inventor,

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# UNITED STATES PATENT OFFICE.

GEORGE R. WILSON, JR.; OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR  
TO JOHN W. ROSS, TRUSTEE, OF SAME PLACE.

## PROJECTILE WITH FRANGIBLE CAP.

SPECIFICATION forming part of Letters Patent No. 465,230, dated December 15, 1891.

Application filed November 4, 1890. Serial No. 370,309. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE R. WILSON, Jr., a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Projectiles for Ordnance, of which the following is a specification.

My invention relates to certain novel improvements in projectiles for heavy ordnance, the purpose thereof being to provide a solid shot or a shell having such formation that it may not only plow through, penetrate, or tear up the armor of a vessel, but that its flight from the piece firing said projectile may be accurate in aim and the range as great as in projectiles of usual or different construction.

It is my further purpose to provide a projectile having a hollow imperforate conoidal point detachable from and attachable to the body of the projectile and composed of any suitable frangible material, such as cast-iron, a thin plate of high steel, or even porcelain or glass, although the two latter materials may prove in practice less desirable, the inclosed end of the projectile, which is the active working, penetrating, or plowing end, being provided with one, two, or more concentric rings or angular shoulders of successively increasing diameter from the point of the projectile toward its base, whereby the impact of the shot upon the armor of a vessel at any angle will shatter the conoidal point and expose the active working, penetrating, or plowing end having angular shoulders, which will instantly bite into and plow up or penetrate the metal of the armor, preventing the projectile from deflection or glancing and causing far greater destruction and a deeper penetration than is possible with a solid conical shot or a shell unprovided with my said invention.

The invention consists to these ends in the several novel features of construction and new combinations of parts hereinafter fully set forth, and then definitely pointed out in the claims following this specification.

To enable others skilled in the art to practice my said invention, I will proceed to describe the same in detail, reference being had to the drawings accompanying this specification, in which—

Figure 1 is a side elevation of a projectile embodying my invention. Fig. 2 is a detail perspective of the same, showing the cap removed. Fig. 3 is a central vertical section of the projectile. Fig. 4 is a sectional elevation showing a modified construction. Fig. 5 is a similar view showing the application of the invention to a shell.

In the said drawings, the reference-numeral 1 denotes the body of the projectile, which may be solid, as shown in Figs. 1, 2, and 3, and which is formed of suitable metal in the usual manner and of any desired form, and provided with a head, which is composed of angular and substantially concentric shoulders 2, having a successively-diminished diameter as they proceed toward the extreme point 3 of the projectile. These angular shoulders will preferably be of circular form, though it is evident that they may be made of polygonal shape, whereby sharp cutting angles will be provided, which may alternate one with another, so that one or more will invariably come in contact with the object aimed at. Said shoulders also may be of any number from two upward, and will usually be made of hardened steel or other suitable metal.

Surrounding and inclosing the active, working, penetrating, or plowing point of the projectile upon which the angular shoulders 2 are formed is a conoidal or approximately cone-shaped imperforate cap 4, which surrounds the lower shoulder upon the end of the projectile, the exterior of said cap forming flush surfaces with the body of the projectile. This cap is constructed of some brittle and easily-shattered material—such, for example, as a thin shell of cast-iron or other metal, though glass, porcelain, or even earthenware may be used, provided a sufficient body is employed to impart the necessary strength. This cap may be shrunk upon the shoulder next to the end of the body 1, or it may be screwed thereon; or, if preferred, it may, if formed of metal, be brazed, whereby the seam or point will be practically imperceptible. Its presence preserves the symmetry of the projectile, insures accuracy of flight, and increases the range, whereas should the projectile be fired without the



conical or conoidal cap or point 4 the resistance exerted by the atmosphere upon the series of angular shoulders 2 would necessarily impede its flight and might seriously interfere with the accuracy of the aim.

When the projectile strikes the object at which it is fired, the point or cap 4 is shattered instantaneously, and the angular shoulders 2, which are thereby exposed, are driven into the wall, armor-plate, or other object, such as the armor or a vessel of war, instead of being deflected or glancing off, as is usually the case with conical shot, unless they strike fairly upon the point. The angular shoulders, however, of whatever form they may be made bite into, plow up, and shatter the metal of the armor, and not only make a deeper penetration, but effect far more damage and destruction than is possible with a conical shot not provided with my invention.

I have shown in the drawings in Figs. 1, 2, and 3 a smooth joint between the cap and the projectile, whereby the two may be united by shrinking or by brazing or such other suitable means as are adapted to this form of construction. I have also illustrated in Figs. 4 and 5 a male and female thread cut upon the head of the projectile or shell and within the cap, respectively, whereby said parts are united. I may, however, unite these parts in any other suitable manner, and my invention is not limited in this respect to any specified construction.

My invention may be applied without material change to shells of whatever construction, provided, of course, that they are of such form as to require a conical or conoidal point, as shown in Fig. 5. These shells may be exploded by any of the usual means, such as high explosives, time fuses, or other means.

I am aware that heretofore a frangible cap has been used having a plug entering an opening in the end of the shell to fire the bursting charge. A sheet-metal cap has also been known for the purpose of yielding an impact to fire a percussion-primer. A point

composed of angular shoulders has also been known, said point being screwed upon the end of the shell, and a point composed of angular shoulders, which wind spirally about the point, has also been invented. I make no claim, broadly, to any of these features.

What I claim is—

1. A projectile for ordnance, consisting of a body portion having a striking, plowing, and penetrating point composed of a series of angular concentric shoulders of successively-diminished diameters, and an imperforate conical or conoidal cap composed of frangible material, the open base of said cap being engaged with the shoulder at the end of the projectile, the exterior of the cap being flush with the outer surface of the projectile, the striking-point of which is received in and inclosed by said cap, substantially as described.

2. A projectile for ordnance, consisting of a cylindrical body portion having at one end a striking-point composed of a series of circular and angular shoulders having sides which are parallel to and concentric with the axis of the projectile and flat faces at right angles with said axis, in combination with a frangible, conical, or conoidal imperforate cap forming flush exterior surfaces with the body of the projectile, its open base surrounding and engaging the circular angular shoulder nearest the end of the projectile, the said striking-point of which is received in and inclosed and protected by said cap without contact with the angular shoulders, the latter being successively diminished in diameter as they approach the apex of the striking-point, substantially as described.

\* In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

GEO. R. WILSON, JR. [L. S.]

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.