D. I. SELFRIDGE.

PROJECTILE.

APPLICATION FILED JULY 6, 1910.

**973,983.** **Patented Oct. 25, 1910.**

Fig. 1.

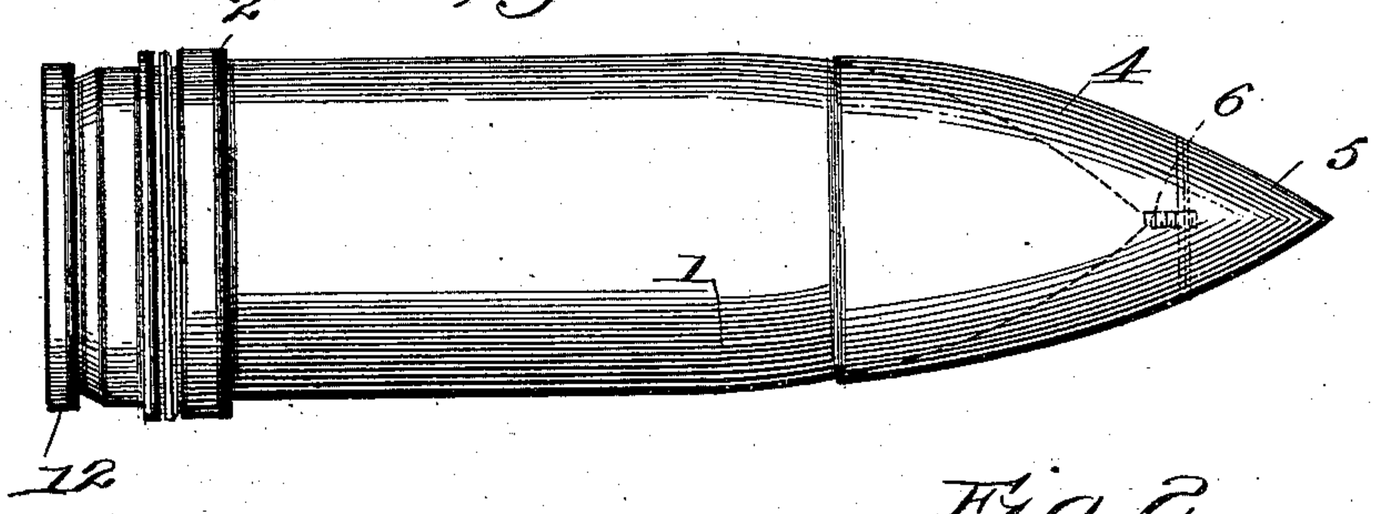



Fig. 2.

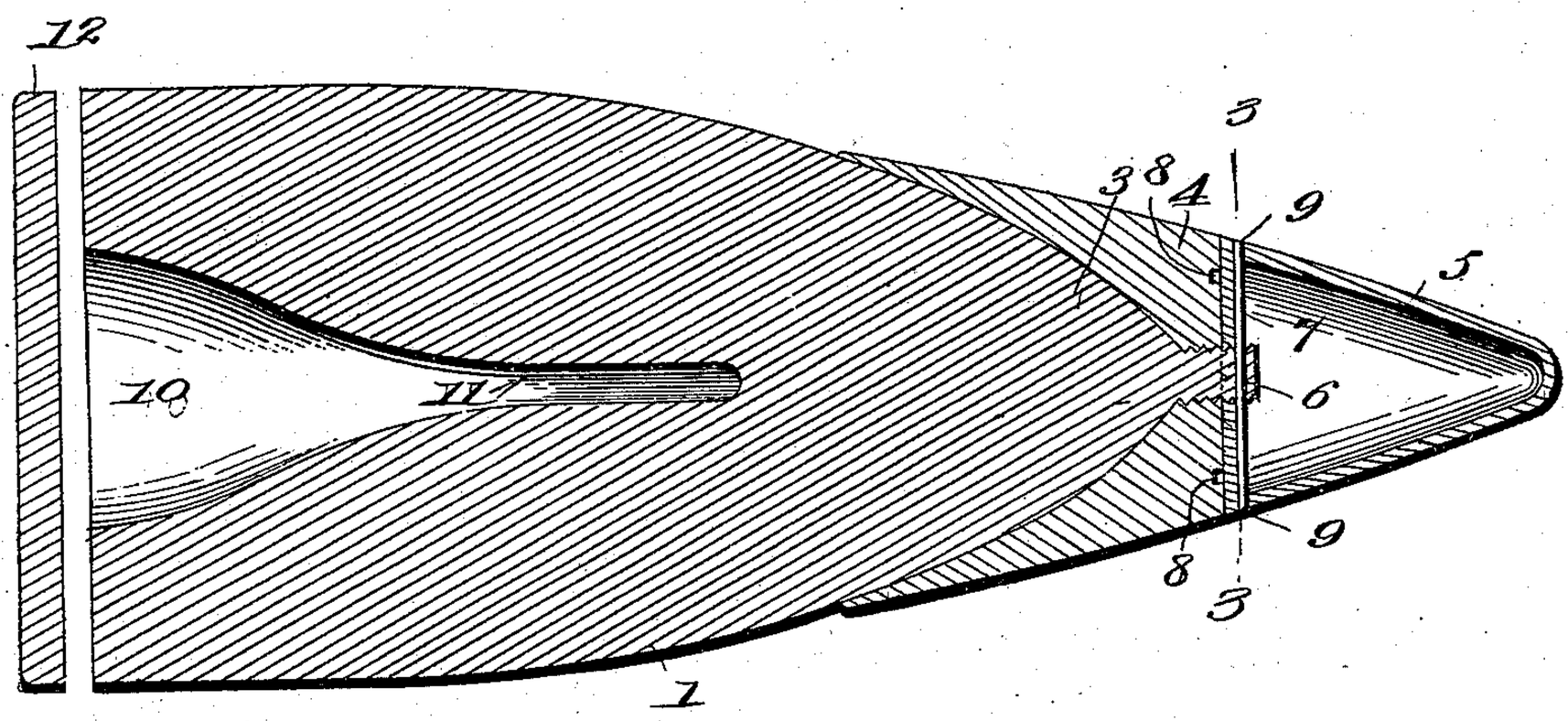
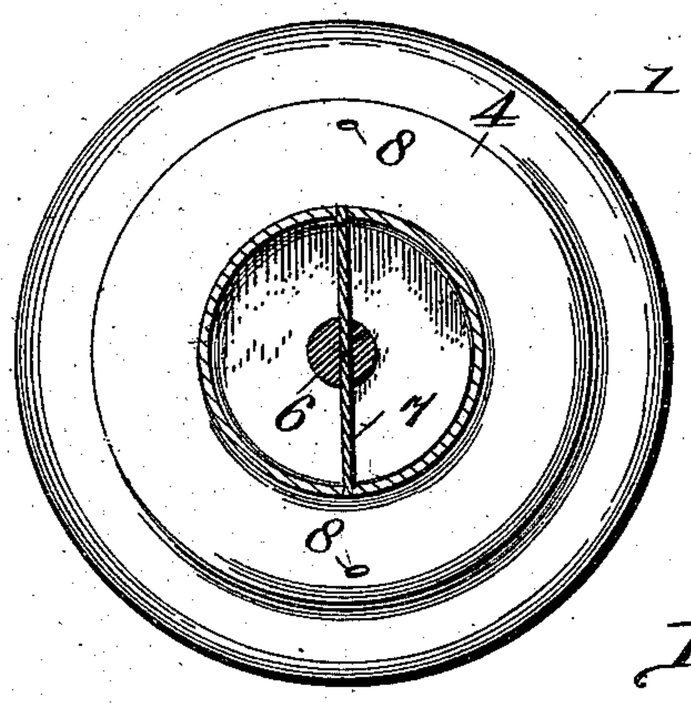



Fig. 3.




Witnesses
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# UNITED STATES PATENT OFFICE.

DUNCAN I. SELFRIDGE, OF THE UNITED STATES NAVY.

## PROJECTILE.

973,983. Specification of Letters Patent. Patented Oct. 25, 1910.

Application filed July 6, 1910. Serial No. 570,657.

*To all whom it may concern:*

Be it known that I, DUNCAN I. SELFRIDGE, lieutenant U. S. Navy, a citizen of the United States, at present attached to U. S. S. *North Dakota*, have invented certain new and useful Improvements in Projectiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to projectiles, and has for its object to provide an improved means for securing a soft nose and a wind shield or hollow tapered point on said projectile in a simple and efficient manner, all as will be more fully hereinafter disclosed.

To these ends, the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals refer to like parts in all the views:—Figure 1, is a plan view of a projectile provided with my improvement; Fig. 2, is a longitudinal sectional view of the front portion of the projectile shown in Fig. 1; and, Fig. 3, is a transverse sectional view taken on the line 3—3 of Fig. 2.

1 indicates the body of any standard projectile; 2 the rifling bands attached thereto; 3 the usual head or nose of the projectile; 12 the base of said projectile; 4 any suitable soft metal cap having a flat front face $4^a$ attached to said projectile and 5 a hollow, metal, pointed extension or wind shield having a flat rear face $5^a$ attached to the projectile, as will appear more fully hereinafter.

In casting standard projectiles, there is usually a projection 6 found thereon when the projectile comes out of the mold, and this projection is usually removed before the soft metal cap 4 is put in place. In my invention, however, I leave the projection 6 on the projectile and screw thread the same before the projectile is hardened. In case the hardening process should distort the screw thread on the projection 6, the temper of said projection may be drawn so as to admit of running a die over its threads and truing them up. After the threads have been trued up, the projection 6 may be rehardened, or if desired, the soft metal cap 4 may be screwed thereon without hardening the same. This soft metal cap 4 is preferably made of a slightly less internal diameter at its rear than is the diameter of the projectile at its point of contact, so that said cap may be forced on the projectile by a sort of wedging action. Spanner holes 8 may also be provided in the cap 4 which will enable the same to be readily fitted to the projectile and the holes 9 in the cap may also be used for tightly securing said cap 5 in place.

The locking pin 7 preferably passes through the holes 9 and also through the stud 6, when its ends are finished off smooth, as shown. When the parts are assembled as indicated, a tight joint being made between the front face $4^a$ of the soft metal cap and the rear face $5^a$ of the wind shield, they are firmly locked in place, and the screw threads on the various parts are so chosen that the rotation of the projectile on its axis will tend to tighten the said parts rather than loosen the same.

When the heads of projectiles are tempered for hardening, the metal, of course, is subjected to great internal strains, and in order to lessen these strains, and therefore, to give a greater penetrative strength to the hardened heads of these projectiles, I preferably extend the usual cavities 10 into an expansion chamber 11, as shown. These expansion chambers serve to allow the contracting metal constituting the head to settle with less internal strains than would be the case were no chambers 11 provided, and, therefore, they serve to produce a head 3 having less internal strains, and, therefore, capable of greater penetrative power, than would be otherwise the case.

It is evident that those skilled in the art may vary the details of construction and combinations of parts without departing from the spirit of my invention, and, therefore, I do not wish to be limited to such details except as may be required by the claims.

What I claim is:—

1. In a projectile provided with an integral projection on its point, the combination of a tapering soft metal cap fitting over and secured to said projectile by said projection; a tapering hollow cap forward of said soft metal cap forming a continuation of the contour of the same and also fitting over and secured to said projectile by said projection; and means for locking said hol-

low cap to said projection, substantially as described.

2. In a projectile, the combination of an integral screw threaded projection extending from the extreme point of said projectile; a screw threaded soft metal cap fitting over said projection and the head of said projectile; and a hollow contour cap also screw threaded to said projection, substantially as described.

3. In a projectile, the combination of an integral screw threaded projection extending from the extreme point of the projectile; a soft metal cap provided with a threaded hole adapted to fit said projection and a flat front face; a contour cap provided with a rear flat face adapted to fit against said soft cap and also provided with a screw threaded hole adapted to fit said projection; and a pin passing through said contour cap and said projection, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

DUNCAN I. SELFRIDGE.

Witnesses:

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