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MEANS FOR GUIDING PROJECTILES DURING FLIGHT.
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1,293,869.

Patented Feb. 11, 1919.

Fig. 1.

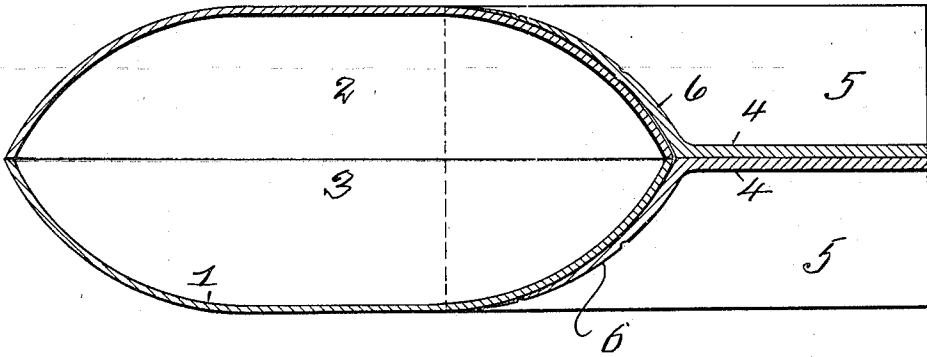


Fig. 2.

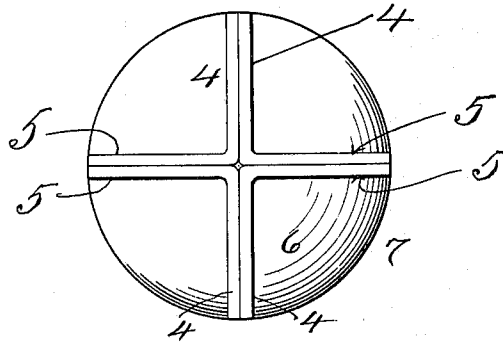
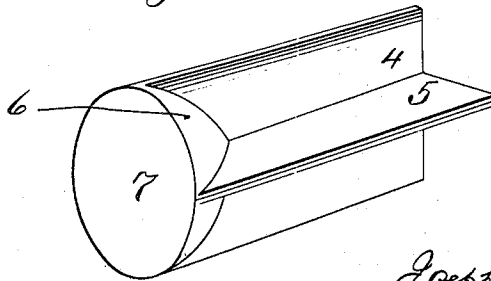


Fig. 3.



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MEANS FOR GUIDING PROJECTILES DURING FLIGHT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JOSEPH B. MURRAY and THOMAS E. MURRAY, JR., citizens of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Means for Guiding Projectiles During Flight, of which the following is a specification.

The invention is a means for guiding a projectile during flight, and consists in the construction more particularly hereinafter set forth: also in conjunction with said guiding means, a cap for supporting the same and for reinforcing the projectile at the area thereof which receives the impact of the propelling charge. The invention is here shown applied to a hand grenade or bomb for trench use.

In the accompanying drawings—

Figure 1 is a longitudinal section of the projectile and guiding means. Fig. 2 is an end view of said guiding means, and Fig. 3 is a perspective view of the same.

Similar numbers of reference indicate like parts.

1 is the projectile, here shown of cylindrical form, having ogival ends preferably in two similar half sections 2, 3 of sheet metal pressed, stamped or struck up and electrically welded at their meeting edges. The guide means are plates or vanes preferably made in four similar unit sections, also pressed, stamped or struck up from sheet metal. Each section comprises two flat plates 4, 5—and when four sections are employed, said plates are disposed at a right angle to one another. The plates 4, 5 are preferably integral, and, therefore, each section may be formed integrally of a V-shaped plate. At one end of each section and integral therewith is a triangular concave plate 6 shaped to fit upon an ogival end of the projectile 1. When the unit sections are assembled, the flat plates 4, 5 are in contact, producing four vanes, and the triangular plates 6 unitedly form a cap 7 covering and fitting upon the said ogival end when applied thereto. The flat plates in contact forming the vanes may be electrically welded together, and the cap 7 may be electrically welded to the end of the projectile.

We do not limit ourselves to the attachment of the vane sections to one another and to the projectile by electrical welding, nor

to vanes made in united sections, since they may be constructed in other ways, while preserving substantially the same form.

This projectile is easily and quickly made, and at a very great reduction of cost as compared with present projectiles of similar character. The cap 7 is to be located on the end of the projectile which receives the impact of the propelling charge, and, therefore, serves to reinforce said end. This reinforcement permits of the thickness of the metal of the shell being reduced.

We claim:

1. Means for guiding a projectile in flight, comprising a concave cap wherein said projectile is seated, and secured at corresponding ends to said cap a plurality of elongated plates radiating from a common axis passing through the center of said cap.

2. Means for guiding a projectile in flight as in claim 1, the said elongated plates being electrically welded to said cap.

3. Means for guiding a projectile in flight, comprising a plurality of elongated angle plates disposed around a central axis, united to one another at their meeting faces and united to said projectile at their corresponding ends.

4. Means for guiding an elongated projectile in flight, comprising a plurality of sections, each section comprising a V-shaped plate and a concave triangular plate at one end of said V-shaped plate, the said V-shaped plates being united, and the said triangular plates conjointly forming a cap adapted to fit and be secured upon said projectile.

5. In combination with a projectile of the type thrown by a gun or mortar, means for guiding said projectile during flight and for reinforcing the same at the area thereof receiving the impact of the propelling charge, comprising a concave metal cap wherein said projectile is seated and covering the said area, and guide vanes secured at corresponding ends to said cap radiating from an axis concentric with said cap.

6. A projectile ogival shaped at both ends, a metal cap shaped to receive one of said ends, and guide vanes secured at corresponding ends to said cap.

7. A projectile formed of sheet metal struck up into shape, a concave cap of sheet metal receiving one end of said projectile and electrically welded thereto, and guide

vanes electrically welded at corresponding ends to said cap.

8. A projectile, a concave cap wherein one end of said projectile is seated, and
5 guide vanes on said cap, the whole integrally made of sheet metal.

9. A projectile of sheet metal formed in two struck up sections electrically united,
and a cap and guide vanes, the said cap and
10 vanes being formed in sections electrically

united, and the said projectile being seated in and electrically welded to said cap.

In testimony whereof we have affixed our signatures in presence of two witnesses.

JOSEPH B. MURRAY.
THOMAS E. MURRAY, Jr.

Witnesses:

GERTRUDE T. PORTER,
MAY T. MCGARRY.