H. LAUESEN.

SELF STEERING BOMB.

APPLICATION FILED MAY 18, 1918.

1,277,225.

Patented Aug. 27, 1918.

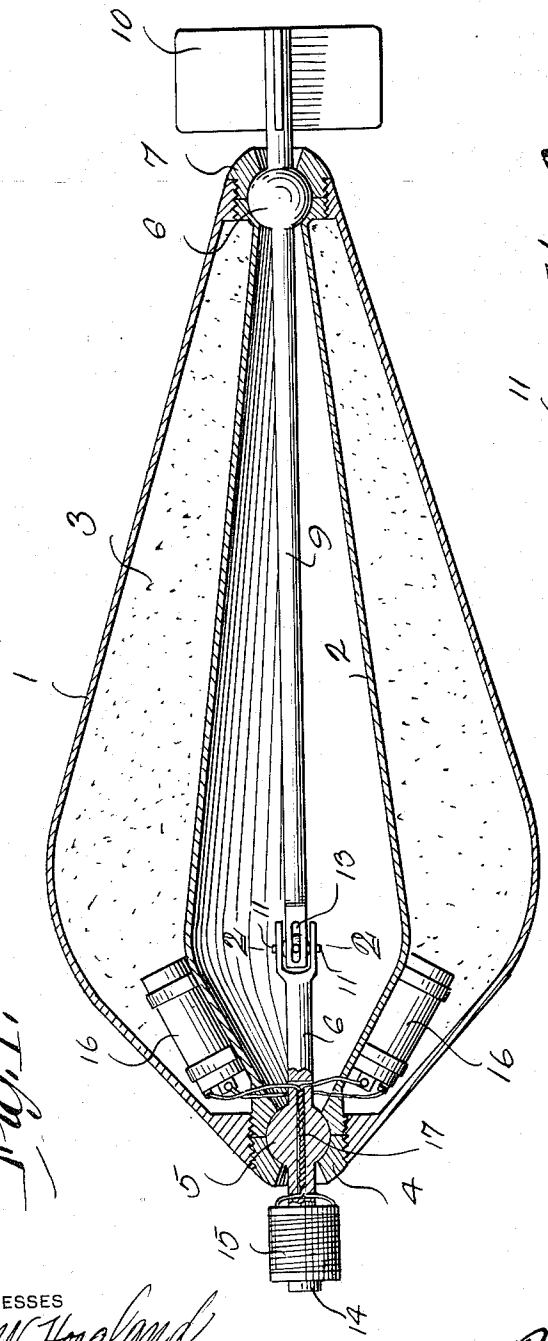


Fig. 1.

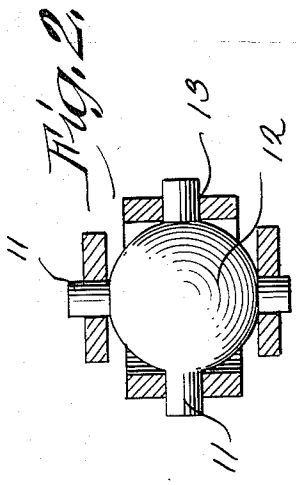


Fig. 2.

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HANS LAUESEN, OF WISDOM, MONTANA.

SELF-STEERING BOMB.

1,277,225. Specification of Letters Patent. Patented Aug. 27, 1918.

Application filed May 18, 1918. Serial No. 235,301.

To all whom it may concern:

Be it known that I, HANS LAUESEN, a citizen of the United States, residing at Wisdom, in the county of Beaverhead and State of Montana, have invented certain new and useful Improvements in Self-Steering Bombs, of which the following is a specification.

This invention has for its object to provide a projectile, which may be projected through the air or water, and which is provided with means for automatically directing the same toward the object to be struck or bombed.

In accordance with this invention, a bomb or like explosive missile or projectile, is provided with rudders or steering vanes, and with a device for automatically operating the rudder vanes so as to direct the missile in the direction of the object to be struck.

A further purpose of the invention is to combine with a bomb or like projectile, an electromagnet to connect the same with the rudder vanes, whereby the latter are moved to direct the bomb in the course to insure impact with the object to be attacked.

The invention furthermore aims to combine with a bomb or like explosive missile, rudder vanes, and a magnetic steering element, the same being connected with the rudder vanes in a manner to move the latter whereby the bomb may be caused to travel in the line of magnetic attraction.

The drawing illustrates a preferred embodiment of the invention, however, it is to be understood that in adapting the same to meet different conditions, various changes in the form, proportion, and minor details of construction may be resorted to without departing from the nature of the invention as claimed hereinafter.

In the drawing:—

Figure 1 is a central longitudinal section of a bomb or analogous explosive missile provided with automatic steering means embodying the invention,

Fig. 2 is a sectional detail of a universal joint on the line 2—2 of Fig. 1, showing the parts on a larger scale.

Corresponding and like parts are referred to in the following description and indicated in the two views of the drawing by like reference characters.

The bomb shown is of ordinary outline and tapers from an intermediate point toward opposite ends, the forward portion being somewhat blunted. An opening is formed centrally through the projectile and conforms approximately to the general exterior outline of the missile. As indicated, the bomb comprises an outer shell 1 and an inner shell 2, the space between the two shells receiving the explosive 3 or other material according to the character of the bomb projectile. The ends of the bomb are open and internally screw threaded as shown most clearly in Fig. 1. A plug 4 closes one end of the shell and its inner face is recessed. The forward end of the inner shell 2 is formed with a recess corresponding with the recess of the plug 4 and the two recesses jointly form a socket in which is fitted a ball 5. The ball 5 constitutes part of a shaft 6 which is disposed axially of the bomb or projectile.

The rear end of the bomb is closed by means of a plug 7 which is recessed at its inner end, said recess corresponding with a similar recess formed in the rear end of the shell 2, the two recesses unitedly forming a socket which receives a ball 8 forming part of a shaft 9. The shaft 9 is disposed axially within the shell 2 and extends some distance in the rear of the projectile and receives vanes or steering blades 10. The openings formed in the plugs 4 and 7 are outwardly flared whereby provision is had for an oscillating movement of the respective shafts 6 and 9. The vanes 10 have a cruci-form, whereby the bomb or projectile may be steered in any direction by the combined action of the angularly disposed steering or rudder vanes.

The inner or adjacent ends of the shafts 6 and 9 are connected by means of a universal or gimbal joint to admit of the shafts moving in any direction. As indicated in Fig. 1 the inner ends of the shafts 6 and 9 are forked and the bifurcations are longitudinally slotted so as to receive pins or studs 11 projecting outwardly from a ball 12. The ball 12 is comprised between the forked ends or bifurcations of the respective shaft, and the studs 11 projecting outwardly therefrom enter the longitudinal slots 13 formed in the forked ends of the shafts, thereby admitting of the latter having a free movement in every direction

which is essential to accuracy of steering. The forward end of the shaft 6 projects beyond the nose of the projectile and receives an electromagnet, the latter comprising a core 14 and a helix 15, the terminals of the wire comprising a helix being electrically connected with batteries 16 disposed within the body of the projectile as indicated most clearly in Fig. 1. The conducting wires are inter-twisted so as to form a cable which passes through a central opening 17 formed in the forward portion of the shaft 6, so as not to interfere with the free movements of the shaft. In the event of the shaft 6 being of iron or soft steel its forward end may be extended and constitute the core of the electro-magnet, upon which the helix 15 is mounted. While an electro-magnet is preferred, since it enables the shaft 6 to be utilized as a core therefor, it is to be understood that a permanent magnet may be advantageously utilized under some conditions.

The electro-magnet, or its substantial equivalent constitutes a magnetic director which is attracted by a body susceptible to magnetic influence, hence when the bomb or projectile is discharged toward an object containing an appreciable amount of iron or steel the latter will exercise an attractive influence upon the electro-magnet and deflect the latter which causes a movement of the shaft 6, and a corresponding movement of the shaft 9, with the result that the rudder or steering vanes 10 are moved to such a position as to cause the bomb or projectile to travel in the direction of the object and strike the same.

The foregoing description and the drawings have reference to what may be considered the preferred, or approved form of my invention. It is to be understood that I may make such changes in construction and arrangement and combination of parts, materials, dimensions, et cetera, as may prove expedient and fall within the scope of the appended claims.

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

1. A bomb or explosive projectile, having an axial opening therethrough which is enlarged at an intermediate point and which tapers from such point toward opposite ends of the bomb, shafts extending through the axial opening and mounted at opposite ends of the bomb by means of ball and socket joints, the inner ends of the shafts being connected by a universal joint, and said shafts projecting beyond the ends of the bomb, steering vanes on the projecting end of one of the shafts, and a magnetic element on the projecting end of the remaining shaft and disposed forward of the nose of the bomb.

2. A bomb or like missile, having an axial opening therethrough, which is enlarged at an intermediate point, and which terminates in ball sockets, shafts provided intermediate of their ends with balls which are mounted in the respective sockets, said shafts passing axially through the opening of the bomb, and connected at their inner ends by a universal joint, which is disposed about in line with the enlarged portion of the axial opening of the bomb, steering vanes on the rear projecting end of one of the shafts, and a magnetic directing element on the projecting end of the remaining shaft and disposed forward of the nose of the missile.

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

HANS LAUESEN.

Witnesses:
A. M. Sheimo,
Mark F. Hayfield.