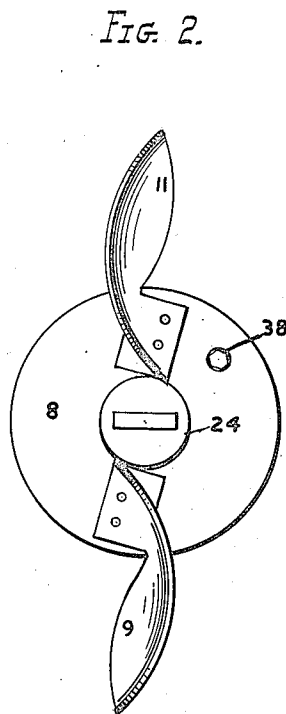
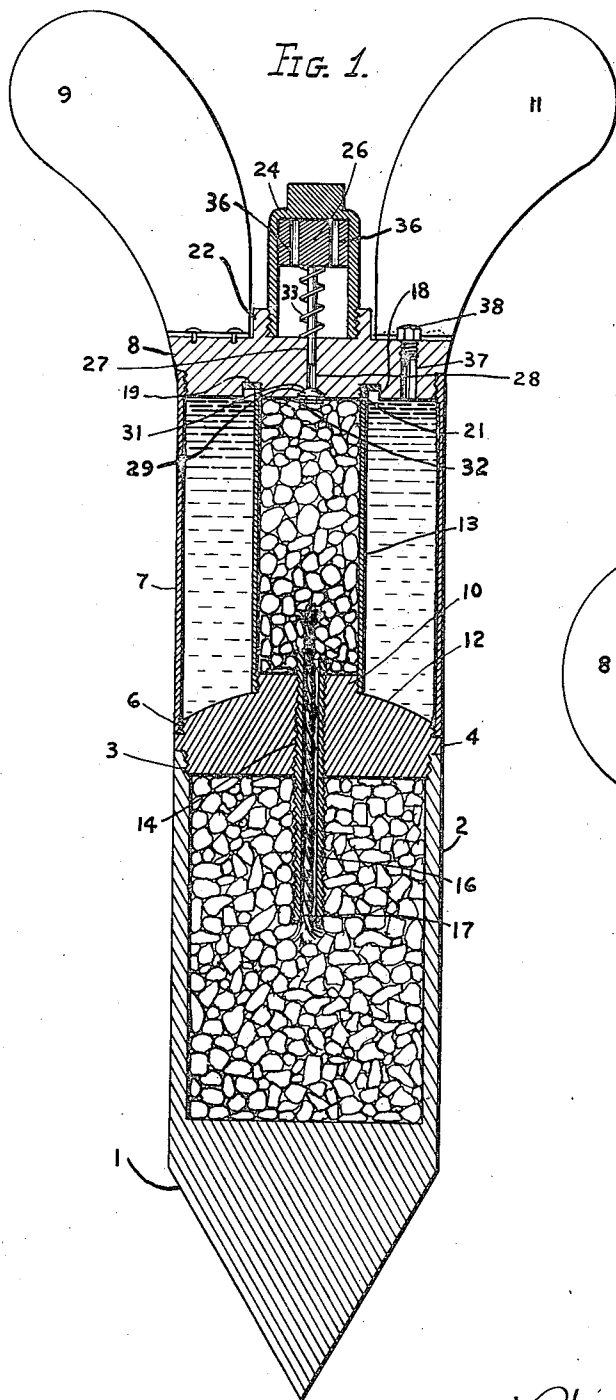


T. M. PATRICK.
AERIAL TORPEDO.
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1,361,286.

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AERIAL TORPEDO.

1,361,286.

Specification of Letters Patent.

Patented Dec. 7, 1920.

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To all whom it may concern:

Be it known that I, THOMAS M. PATRICK, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Aerial Torpedoes, of which the following is a specification.

This invention relates to munitions of war, and more particularly to aerial torpedoes or bombs containing explosive materials, adapted to be launched from air crafts upon the enemy below.

An object of this invention is to provide an aerial torpedo or bomb of this type which may be safely handled by the operator and which will explode upon the impact of landing and throw out inflammable, asphyxiating or destructive gases, oils or explosives.

A further object is to provide means whereby two or more explosions will be effected, the first caused by the impact with the ground, and the others by timed fuses.

Other objects will appear as the description proceeds.

In the accompanying drawings which constitute a part of my specification:

Figure 1 a vertical sectional view of my improved aerial torpedo, and

Fig. 2 is a top plan view of the same.

Referring more particularly to the drawings, I provide a head 1 of the torpedo, made in conical form to offer the least resistance to the air as it descends through space. The head 1 is solid at its bottom end in order to cause the torpedo to drop in a vertical position as it descends, but extends upward in the form of a tube 2 above said conical part, and is internally threaded as shown at 3 to receive one threaded end of a coupling 4. The other end of the coupling 4 is threaded as shown at 6 into one end of a tube 7, the walls of which are considerably less in thickness than the walls of the tube 2.

The outer end of the tube 7 is internally threaded to receive the threaded end of the tail piece 8. Blades 9 and 11 are suitably secured to said tail piece 8, and extend outwardly and rearwardly therefrom. These blades or fins 9 and 11 are bent respectively to the right and left after the manner of a propeller blade, and are designed to impart a rotary movement to the missile as it descends toward the earth.

The coupling 4 is curved on its upper face as shown at 12 and on the convex surface is

an extension 10 threaded to receive the internally threaded end of a tube 13. The coupling 4 is also bored and tapped through its center as shown at 14 to receive an externally threaded pipe 16 designed to inclose a fuse 17 connecting the tubes 2 and 13.

The tail piece 8 is recessed on its inner face by an annular groove 18 adapted to receive a gasket 19 of packing or rubber to seal the contents of the tube 7 from contact with the contents of tube 13, which has one of its ends threaded as shown at 21 to the tail piece 8.

The tail piece 8 has a rearwardly extending tubular member 22, integral therewith which is threaded internally to receive a plug housing 24. Slidable within said plug is a hammer block 26 having a firing pin 27 integral therewith extending into a port 28 and adapted to explode a percussion cap 29 held in a recess 31 by a bushing 32. Surrounding the firing pin 27 is a coiled spring 33, one end of which bears against the face of the tail plate 8 and the other end against the hammer block 26. The said spring serves to hold the hammer away from the cap 29 until the force of impact upon landing causes the weight of the hammer block to force the firing pin downward, thereby causing the cap to explode.

Within the hammer block 26, are ports 36 to allow the free passage of the air as it is displaced by the changing position of the hammer block as it slides downward. The tail piece 8 has a port 37 with a closure or plug 38 for filling the tube 7 with liquid.

It will be apparent that for safety in storing these missiles that the plug 24 may be unscrewed and the hammer block 26 removed, thereby positively preventing any accident. When it is desired to use the torpedo, the hammer block is again inserted.

In assembling the torpedo, the tube 2 is filled with powder or other high explosive, and the coupling 4 with the fuse and fuse pipe in place, is screwed in position. The tube 13 is then screwed on the extension 10 and the said tube 13 filled with an explosive substance. The tube 7 is then screwed on the coupling 14. A detonating cap 29 is placed in the recess 31 of the tail piece 8 and the bushing 32 screwed into place over it. The tail piece 8 is then screwed into the tube 7 until the pressure on the gasket 19 completely seals the explosive from ingress of liquid from the tube 7.

The tube 7 is then filled with gasoline or

other suitable inflammable or asphyxiating fluid or gas and sealed with the plug 38.

The torpedo is then ready to have the firing pin and hammer block put in position, after which they are capped by the plug 24.

When the torpedo drops from an air craft, it drops vertically and with a twisting or rotary movement until it reaches the earth when the shock of the impact drives the hammer block and firing pin against the percussion cap which is of fulminate of mercury or of some similar substance calculated to detonate the charge within the tube 13.

The explosion of this charge blows away the walls of the tubes 13 and 7 throwing out the gasoline fluid or gas, and igniting the fuse 17 which burns within the pipe 16 until it reaches the charge in tube 2 and causes the second explosion.

It will be readily seen that by reason of the lighter construction of the walls of the tubes 7 and 13, the explosion of the charge in tube 13 will follow the lines of least resistance and fracture the uppermost portions of the structure and leave the lower, heavier portion or head intact until the second explosion.

Obviously a series of explosions may be effected by adding more units as the structure is built to be extensible, one end threading into the next as desired.

It will be seen that the interval of time between the first and second explosions will be determined by the length of the pipe 16 and fuse 17, and I propose to make these of various lengths.

While I have described one specific form of torpedo, it will be understood that I have in no way limited myself to this type only, and minor changes in details of construction may be resorted to without departure from the spirit of the invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. An aerial torpedo comprising a tail piece, a coupling, concentric tubes removably engaging said tail piece and said coupling, whereby inner and outer chambers are provided, a nose piece provided with a chamber, a fuse tube connecting said inner chamber with the chamber of the nose piece, and means for exploding a charge within

said inner chamber, said means being of a nature to be automatically actuated by the impact of the shell when striking.

2. An aerial torpedo comprising a tail piece provided with an annular groove in its inner face, an inner tube having one end inserted in said groove, a concentric outer tube surrounding the first mentioned tube and engaging said tail piece, a coupling connected with said tubes, a nose piece connected with said coupling and having an internal chamber, and a fuse tube connecting said inner tube with the chamber of said nose piece.

3. An aerial torpedo comprising a tail piece, a coupling, concentric tubes removably engaging said tail piece and said coupling, whereby inner and outer chambers are provided, a nose piece provided with a chamber, a fuse tube connecting said inner chamber with the chamber of the nose piece, and means for exploding a charge within said inner chamber, the wall of the nose piece chamber being materially thicker than the walls of said tubes.

4. An aerial torpedo comprising a tail piece having an annular groove in its inner face, a coupling provided with a central boss, an inner tube connecting said groove and said boss, a concentric outer tube engaging the peripheries of the tail piece and the coupling, a nose piece having a central chamber, and a fuse tube carried by said coupling and communicating with said chamber and said inner tube.

5. An aerial torpedo comprising a tail piece, a coupling, inner and outer tubes connecting said tail piece and said coupling, a nose piece also connected with said coupling and provided with a chamber, a fuse tube connecting said inner tube with said chamber, and means for causing the bomb to rotate as it travels.

6. An aerial torpedo comprising a tail piece, a coupling, inner and outer tubes connecting said tail piece and said coupling, a nose piece also connected with said coupling and provided with a chamber, a fuse tube connecting said inner tube with said chamber, a hammer block, and means for removably attaching said hammer block to said tail piece.

In testimony whereof I affix my signature.
THOMAS M. PATRICK.