Nov. 22, 1938. G. E. BARNHART 2,137,436

EXPLOSIVE DEVICE

Filed April 30, 1937

Fig. 1

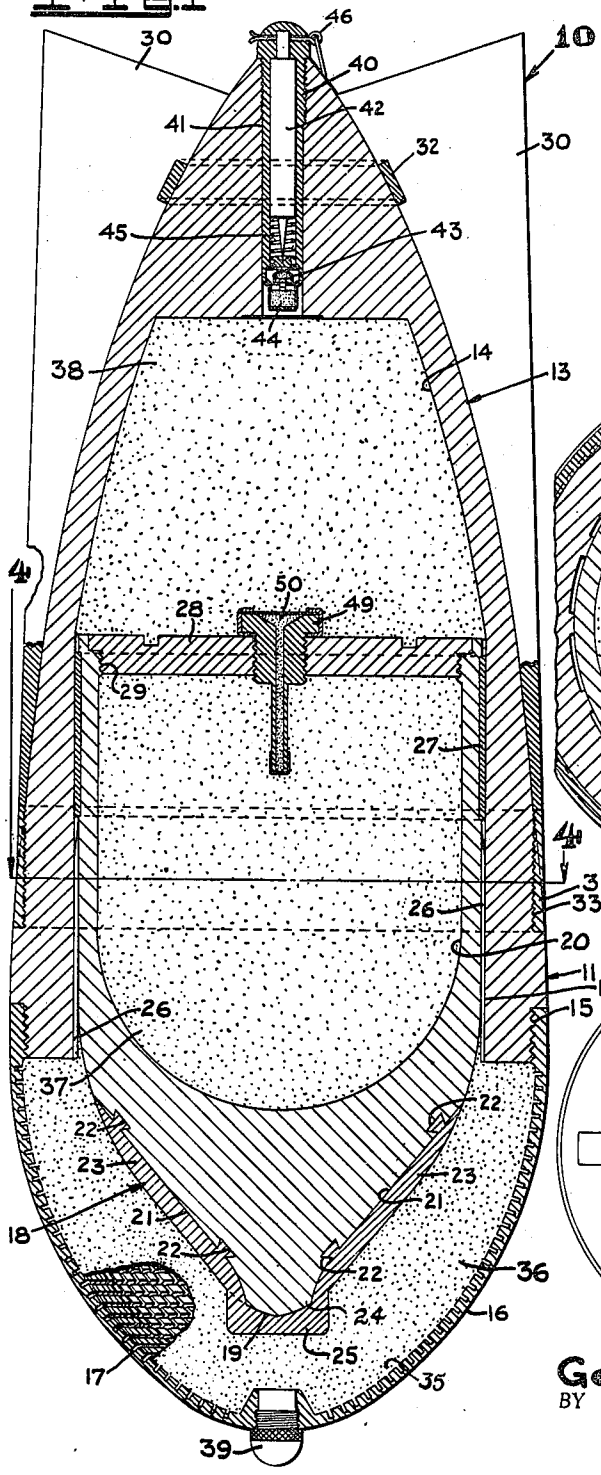


Fig. 2

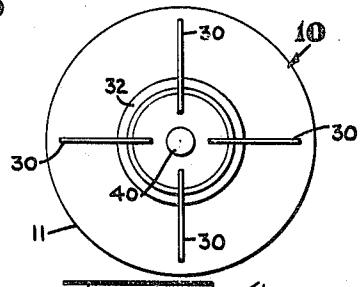


Fig. 4

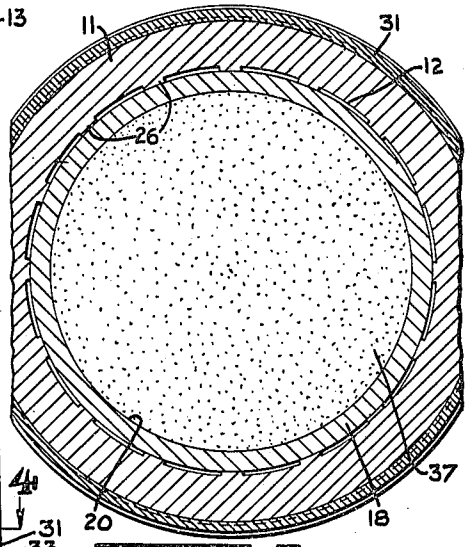
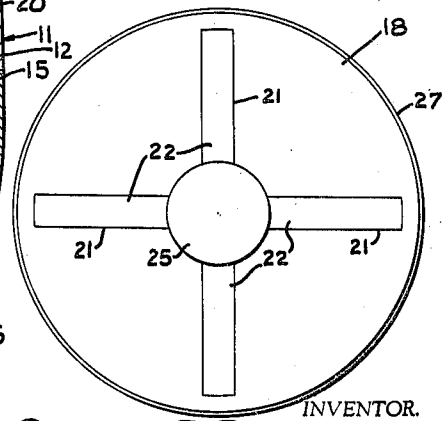


Fig. 3



INVENTOR.

George E. Barnhart.

BY

ATTORNEY.

Patented Nov. 22, 1938

2,137,436

UNITED STATES PATENT OFFICE

2,137,436

EXPLOSIVE DEVICE

George E. Barnhart, Pasadena, Calif.

Application April 30, 1937, Serial No. 139,966

1 Claim. (Cl. 102—2)

This invention relates to explosive device.

The general object of the invention is to provide an improved explosive missile for use in a torpedo device such as a bomb or aquatic torpedo which is of novel construction.

Another object of the invention is to provide an improved explosive device including a body having an explosive chamber with a second explosive member in the chamber and adapted to be discharged in a novel manner.

Another object of the invention is to provide an improved bomb including an outer bomb member and an inner armor piercing projectile member.

Another object of the invention is to provide an improved casing for a bomb.

An additional object of the invention is to provide novel means for setting off the charge in the bomb.

Other objects and the advantages of my invention will be apparent from the following description taken in connection with the accompanying drawing, wherein:

Fig. 1 is a central sectional view through an explosive device embodying the features of my invention;

Fig. 2 is a top end view of the bomb;

Fig. 3 is a nose view of the projectile; and

Fig. 4 is a section taken on line 4—4 Fig. 1.

Referring to the drawing by reference characters I have shown my invention as embodied in an explosive device which is indicated generally at 10. As shown this device includes an elongated body 11 having a cylindrical bore 12 and having a rear portion 13 which includes a hollow chamber 14.

The body is threaded as at 15 at its upper end and on this threaded portion I mount a cap 16 which has threads matching the portion 15. The cap 16 is preferably of a shape to pass through the atmosphere readily and preferably includes hollow grooves 17 so that when the cap is disrupted as will be later described a large number of shrapnel fragments will be formed.

Mounted within the body 11, I show an armor piercing projectile which is indicated generally at 18. This projectile includes a forwardly directed armor piercing point 19 and a rearwardly directed chamber 20. The point 19 includes longitudinally extending grooves 21 which are intersected by transverse dovetail grooves 22 and in these grooves I arrange a lubricating material 23 such as lead. The lubricating material extends beyond the point 24 and forms a protuberance 25. The interior of the bore 12 is provided with longitudinally extending ribs 26 which are engaged by a soft metallic band of material such as copper 27 on the projectile 18 to form a gas tight fit. The armor piercing projectile 18 is provided with a rear closure 28 which may be held in place by threads 29. This closure 28 is disposed in advance of the chamber 14 previously mentioned.

The explosive device is shown as provided with directing vanes 30 which are preferably connected at the forward end by a band 31 and at the rear end by another band 32, the band 31 being threaded to the body as at 33. It will be understood that instead of the vanes 30 I may attach the flask of a torpedo or other propelling means.

The space 35 between the cap 16 and the armor piercing projectile is filled with a suitable explosive 36 while the chamber 20 in the armor piercing projectile is also filled with explosive 37 and the chamber 14 is filled with explosive 38.

The cap 16 is provided with an impact fuse of suitable type 39, the details of which form no part of the present invention. This fuse, upon impact, will ignite the powder 36 causing the cap 16 to be fractured and scattered when the missile hits, for instance, the deck of a ship. The explosive 38 in the chamber 14 is adapted to be set off by an impact fuse 40 arranged in a bore 41 disposed in the rear of a chamber 14. This impact fuse includes a movable percussion pin 42 which engages a primer 43 which in turn sets off a detonator 44 to explode the explosive in the chamber 14. The impact member 42 is normally urged away from the primer by a spring 45 and is prevented from moving forward by a safety pin 46. When the impact is to be used the pin 46 is withdrawn thus allowing the point 47 to be moved forward by inertia to pierce the safety member 48 and set off the primer 43 when the explosive device strikes its target.

The explosion of the explosive in the chamber 14 causes the armor piercing projectile 18 to be discharged from the bore 12 and the timing is such that the discharge of the explosive 38 occurs a very short interval after the missile strikes and after the explosive 36 has freed the cap 16.

The closure 28 on the armor piercing projectile includes a fuse member 49 which includes a firing train 50. This train is ignited when the explosive 38 in the chamber 14 burns and the train 50 sets off the explosive 37 in the armor piercing projectile.

As one illustration of the use of my invention, one of the devices may be dropped from an airplane upon the deck of a ship. Upon impact the fuse 39 will break the cap 16 and after a short

interval the explosive 38 will be set off thus discharging the armor piercing projectile 18 and causing it to pierce the deck of the ship and to pass into the lower portion of the ship whereupon the fuse member 49 will cause the explosive 37 in the armor piercing projectile to discharge thus causing further damage.

From the foregoing description it will be apparent that I have invented a novel explosive device which is simple in construction and operation and which is highly efficient for the intended purpose.

Having thus described my invention I claim:

In an explosive device, an outer one-piece shell comprising a body the outer surface of which tapers rearwardly, said body having a cylindrical bore therein, a hollow armor piercing projectile including a rear portion which is cylindrical and positioned within said bore, the length of the cylindrical portion of the projectile substantially equalling the length of the shell bore, said projectile having a nose, said nose projecting beyond the front end of said bore, the rear end of said shell being hollow to form a chamber, a grooved cap engaging the front end of said shell, the interior of said cap being spaced from the nose of said projectile, a cap disrupting explosive charge between said cap and said nose, a propelling charge within said chamber, an explosive charge within said hollow projectile, an impact fuse at the forward end of said cap, an inertia impact fuse at the rear of said chamber and communicating therewith and a time fuse positioned in the rear of said hollow projectile and communicating therewith.

GEORGE E. BARNHART.