A. J. STONE.

DEPTH CHARGE PROJECTOR.

APPLICATION FILED SEPT. 19, 1917.

1,311,780.

Patented July 29, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

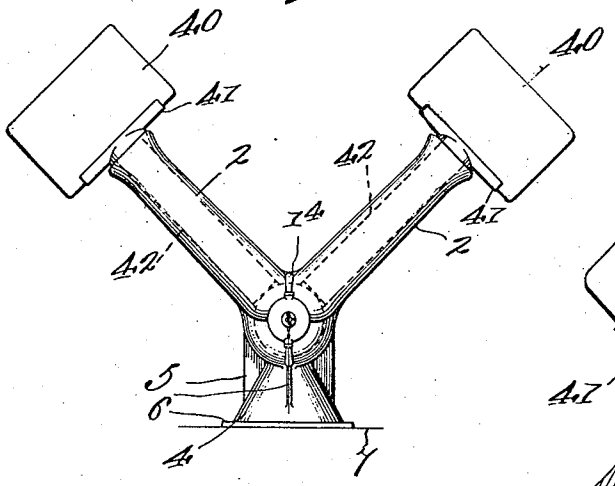


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

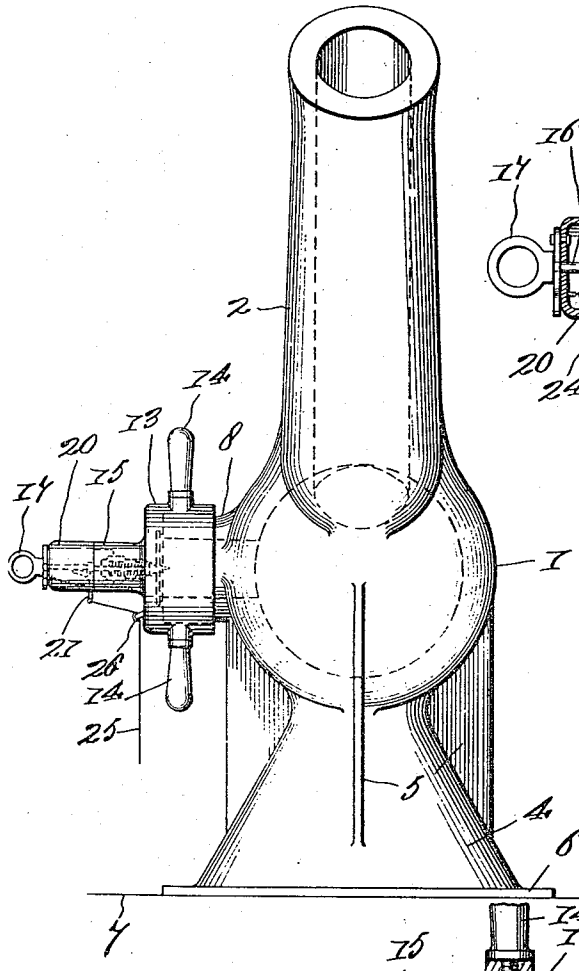


Fig. 4.

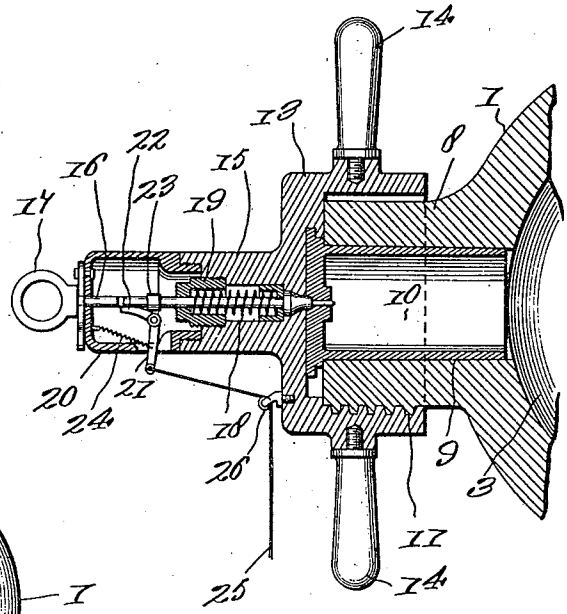
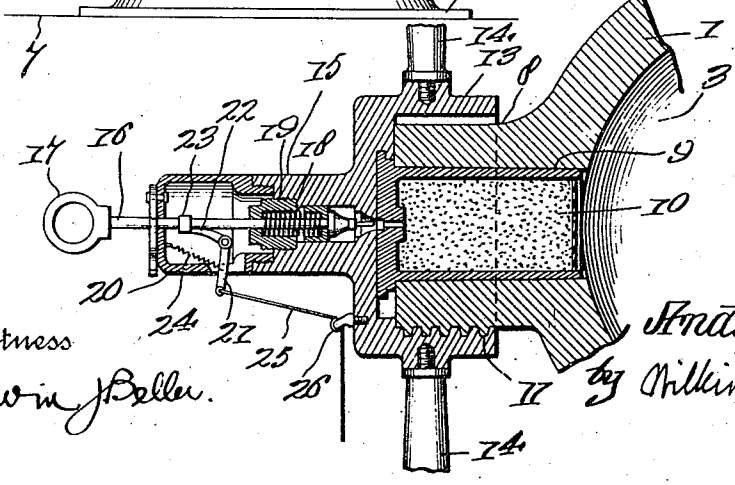


Fig. 5.



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UNITED STATES PATENT OFFICE.

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DEPTH-CHARGE PROJECTOR.

1,311,780. Specification of Letters Patent. Patented July 29, 1919.

Application filed September 19, 1917. Serial No. 192,130.

To all whom it may concern:

Be it known that I, ANDREW J. STONE, a citizen of the United States, residing at New London, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Depth-Charge Projectors; 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.

My invention relates to apparatus for simultaneously projecting two explosive bombs from the same vessel, but in different directions; and it is intended more especially for use in warfare against submarines where it is not essential to have any great accuracy in the range of flight of the projectile, but where it is desired to explode a bomb containing a heavy charge at a predetermined depth and at such a proximity to the submarine as will either sink it immediately, or impart such a shock to the submarine as will injure its storage batteries, or other delicate machinery, and will render the submarine helpless when submerged, thus rendering it necessary to rise to the surface when it may be readily destroyed by the attacking vessel from which the bombs are thrown.

By being able to throw two bombs through a short range only from opposite sides of the attacking vessels, a much wider danger zone is provided against the submarine, whose exact position beneath the water may not readily be determined.

Moreover, by the herein described apparatus the bomb is thrown at such a distance from the attacking vessel that its explosion under the water will not be liable to injure the attacking vessel, no matter what its speed may be. Hitherto it has been the practice either to drop the bomb over the stern of the attacking vessel and have it explode as the bomb sinks to a predetermined depth, which necessitates a high speed of the vessel dropping the bomb to prevent its being injured by the explosion; or the bombs have been fired singly from bomb throwers, but according to my invention I purpose to throw two bombs at once on opposite sides respectively of the attacking vessel, and thereby provide a much greater danger zone for the submarine.

Furthermore by throwing two bombs at once in opposite directions there will be very little, if any, shock in the horizontal direction, and also only a moderate amount of downward thrust, so that my invention may be used on comparatively small boats and from a comparatively light gun platform.

My invention will be more fully understood after reference to the accompanying drawings, in which:

Figure 1 is an end view of the complete apparatus;

Fig. 2 is a similar view, but on a larger scale, showing the parts broken away;

Fig. 3 is a side elevation showing only the gun barrel after the bomb has been discharged therefrom;

Fig. 4 represents a section through the breech block, cartridge case and firing mechanism, with the cartridge case empty and the firing mechanism in the position assumed after the piece has been fired; and

Fig. 5 shows a similar section, but with the parts in a position for firing the gun.

1 represents a casting of any suitable metal, provided with two barrels 2 preferably smooth bores connected to a central explosion chamber 3, supported on the pedestal 4 which is preferably provided with strengthening webs or ribs 5. This pedestal is preferably provided with a flanged face 6, fixed to the gun platform 7.

At one side of the chamber 3 the casting 1 is provided with a hollowed out cylindrical boss 8, having a chamber 9 to receive the cartridge case 10. This chamber 9 thus forms the powder chamber of the piece, and contains the propelling charge for both barrels of the piece for causing the simultaneous expulsion of both of the projectiles from the piece, as will be hereinafter described.

This cylindrical boss 8 is preferably provided with interrupted screw threads 11, adapted to engage corresponding screw threads on the breech block 13. This breech block may be turned in any convenient way, as by means of the handles 14. Projecting from the back of the breech block is the housing 15 for the firing mechanism, which consists of the firing pin 16 adapted to be pulled back by the cocking ring 17, and normally pressed forward by the spring 18.

The pressure of this spring 18 may be adjusted by turning the screw sleeve 19, through which the pin 16 freely passes. Exterior to the housing 15 I provide a hollow cap 20, through which the firing pin 16

passes, and in which cap the trigger 21 is pivoted, which trigger is in the form of a bell crank lever having one arm 22 adapted to engage the coller 23 on the firing pin, when the firing pin is in the cocked position shown in Fig. 5. The trigger is normally held in engagement with said collar by means of the trigger spring 24, but the trigger may be released when desired by pulling on the lanyard 25, which passes over the pulley 26 and may be fired by the operator from any convenient position.

Any suitable safety attachment may be provided for locking the firing pin in the cocked position shown in Fig. 5, such, for instance, as that shown in Figs. 2, 4 and 5.

The projectile comprises the bomb proper 40 and a holder, which holder is provided with a head 41 which carries the bomb and is preferably rigidly attached thereto, and a hollow cylindrical stem 42 projecting down into the gun barrel, as shown in Fig. 2, and having its end closed as at 43.

The operation of the device is as follows: Assuming the parts to be in the position shown in Fig. 4, cock the firing mechanism so as to mask the point of the firing pin until the firing pin is in the position shown in Fig. 5, then unlock the breech block by giving the same a partial turn, and then remove the same rearward, take out the empty cartridge case, put in a loaded cartridge case, and return the breech block and firing mechanism to the position shown in Fig. 5. Now by pulling on the lanyard the propelling charge in the cartridge case will be exploded, and the powder gases will be expanded into the central chamber 3 under sufficient pressure to hurl the pistons 42 out of their respective barrels 2, throwing the bombs in opposite directions a sufficient distance from the sides of the attacking vessel so as to prevent endangering said vessel, due to the explosion of the bombs in the water. These bombs are set to fire at a predetermined depth, but the special construction of the bombs themselves, and of the mechanism for exploding the same are not a part of my present invention, and will not be further discussed herein.

It will be seen that the pressures in a horizontal direction on the two oppositely-disposed pistons 42 will neutralize each other, so there will be little if any tendency to topple over the piece laterally, or to capsize the boat firing the same; while the downward component of the thrust will not be excessive and will not require any strong supports for the gun platform.

Since the piece is not intended to be fired with heavy pressures cast metals may be used, such as cast steel or bronze.

It will be obvious that various modifications might be made in the herein described apparatus, and in the construction, combination and arrangement of parts which could be used without departing from the spirit of my invention.

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

1. A bomb projector for use on marine vessels, comprising a gun support fixedly mounted on the deck of the vessel, a double barreled gun, the two barrels being set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, and an explosion chamber communicating with the breech of each of said barrels, all mounted on said gun support, with means for injecting gas under high pressure into said explosion chamber, substantially as described.

2. A bomb projector for use on marine vessels, comprising a gun support fixedly mounted on the deck of the vessel, a double barreled gun, the two barrels being set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, and an explosion chamber communicating with the breech of each of said barrels, all mounted on said gun support, a powder chamber adapted to receive a propelling charge communicating with said explosion chamber, a breech block for opening and closing said powder chamber, and firing mechanism for igniting said explosion charge, substantially as described.

3. A bomb projector for use on marine vessels, comprising a gun support fixedly mounted on the deck of the vessel, a double barreled gun, the two barrels being set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, and an explosion chamber communicating with the breech of each of said barrels, all mounted on said gun support, a powder chamber adapted to receive a propelling charge communicating with said explosion chamber, a breech block for opening and closing said powder chamber, and firing mechanism carried by said breech block for igniting said explosion charge, substantially as described.

4. A bomb projector for use on marine vessels, comprising a pedestal secured to the deck of the vessel, a double barreled gun carried by said pedestal, the two barrels being oppositely disposed but set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, and an explosion chamber communicating with the breech of each of said barrels contained in said pedestal, a powder chamber also provided in said pedestal and adapted to receive a propelling charge communicating with said explosion chamber, a breech block for opening and closing said powder chamber, and firing mechanism for igniting said explosion charge, substantially as described.

5. A bomb projector for use on marine vessels, comprising a pedestal secured to the deck of the vessel, a double barreled gun carried by said pedestal, the two barrels being oppositely disposed but set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, and an explosion chamber communicating with the breech of each of said barrels contained in said pedestal, a powder chamber also provided in said pedestal and adapted to receive a propelling charge communicating with said explosion chamber, an interrupted screw breech block for opening and closing said powder chamber, and firing mechanism carried by said breech block for igniting said explosion charge, substantially as described.

6. A bomb projector for use on marine vessels, comprising a gun support secured to the deck of the vessel, a double barreled gun, the two barrels being set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, an explosion chamber communicating with the breech of each of said barrels, all mounted on said gun support, with means for injecting gas under high pressure into said explosion chamber, and a projectile for each gun barrel provided with a hollow stem fitting into the barrel and forming a piston therein, said stem terminating in a holder for the bomb exterior to the gun barrel, with a bomb carried in said holder, substantially as described.

7. A bomb projector for use on marine vessels comprising a gun support secured to the deck of the vessel, a double barreled gun, the two barrels being set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, an explosion chamber communicating with the breech of each of said barrels, all mounted on said gun support, a powder chamber adapted to receive a propelling charge communicating with said explosion chamber, a breech block for opening and closing said powder chamber, firing mechanism for igniting said explosion charge, and a projectile for each gun barrel provided with a hollow stem fitting into the barrel and forming a piston therein, said stem terminating in a holder for the bomb exterior to the gun barrel, with a bomb carried in said holder, substantially as described.

8. A bomb projector for use on marine vessels, comprising a gun support secured to the deck of the vessel, a double barreled gun, the two barrels being set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, and an explosion chamber communicating with the breech of each of said barrels, all mounted on said gun support, a powder chamber adapted to receive a propelling charge communicating with said explosion chamber, a breech block for opening and closing said powder chamber, firing mechanism carried by said breech block for igniting said explosion charge, and a projectile for each gun barrel provided with a hollow stem fitting into the barrel and forming a piston therein, said stem terminating in a holder for the bomb exterior to the gun barrel, with a bomb carried in said holder, substantially as described.

9. A bomb projector for use on marine vessels, comprising a pedestal secured to the deck of the vessel, a double barreled gun carried by said pedestal, the two barrels being oppositely disposed but set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, an explosion chamber communicating with the breech of each of said barrels contained in said pedestal, a powder chamber also provided in said pedestal and adapted to receive a propelling charge communicating with said explosion chamber, a breech block for opening and closing said powder chamber, firing mechanism for igniting said explosion charge, and a projectile for each gun barrel provided with a hollow stem fitting into the barrel and forming a piston therein, said stem terminating in a holder for the bomb exterior to the gun barrel, with a bomb carried in said holder, substantially as described.

10. A bomb projector for use on marine vessels, comprising a pedestal secured to the deck of the vessel, a double barreled gun carried by said pedestal, the two barrels being oppositely disposed but set at an angle to each other, the axis of both barrels being substantially in the same vertical plane, an explosion chamber communicating with the breech of each of said barrels contained in said pedestal, a powder chamber also provided in said pedestal and adapted to receive a propelling charge communicating with said explosion chamber, an interrupted screw breech block for opening and closing said powder chamber, firing mechanism carried by said breech block for igniting said explosion charge, and a projectile for each gun barrel provided with a hollow stem fitting into the barrel and forming a piston therein, said stem terminating in a holder for the bomb exterior to the gun barrel, with a bomb carried in said holder, substantially as described.

In testimony whereof, I affix my signature.

ANDREW J. STONE.