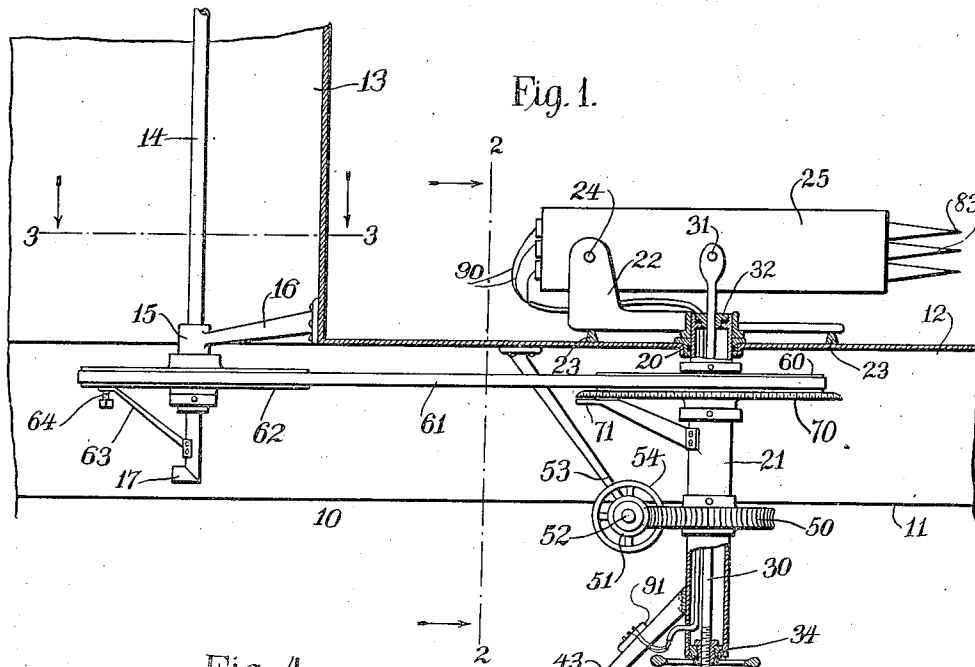
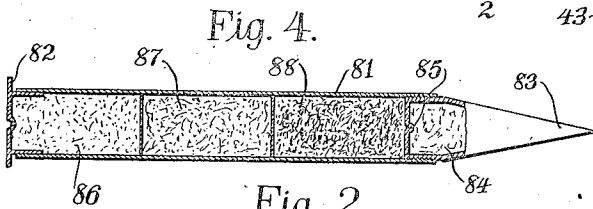
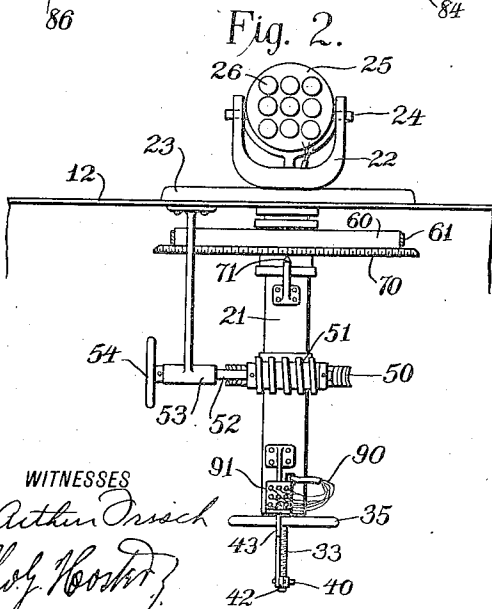
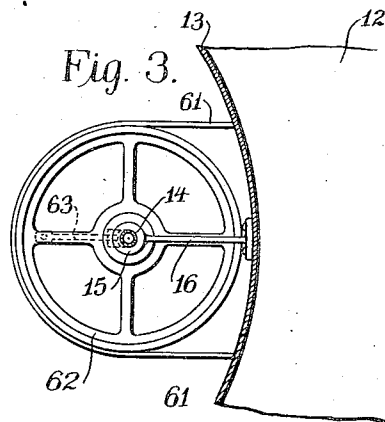


L. HOLECEK.
 COMBINED PERISCOPE AND GUN.
 APPLICATION FILED SEPT. 16, 1918.

1,351,649.

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WITNESSES
Arthur Dussch
Wm. H. Hester

INVENTOR
 LOUIS HOLECEK
 BY *Mumford*
 ATTORNEYS

UNITED STATES PATENT OFFICE.

LOUIS HOLECEK, OF OAKLAND, CALIFORNIA.

COMBINED PERISCOPE AND GUN.

1,351,649.

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Application filed September 16, 1918. Serial No. 254,318.

To all whom it may concern:

Be it known that I, LOUIS HOLECEK, a citizen of the United States, and a resident of Oakland, in the county of Alameda and State of California, have invented a new and Improved Combined Periscope and Gun, of which the following is a full, clear, and exact description.

The invention relates to submarines and its object is to provide a new and improved combined periscope and gun arranged to permit of accurately swinging the gun around according to the position of the periscope to correctly aim the gun at a distant object as seen through the periscope. Another object is to permit of firing the gun when the submarine is in submerged, raised or awash position. Another object is to permit the gunner to swing the gun up or down to obtain the desired elevation or depression.

With these and other objects in view the invention consists of certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the combined submarine gun and periscope as applied and with parts shown in section;

Fig. 2 is a cross section of the same on the line 2—2 of Fig. 1;

Fig. 3 is a sectional plan view of the same on the line 3—3 of Fig. 1; and

Fig. 4 is an enlarged longitudinal section of the projectile.

The submarine 10 is provided with the usual deck 11 and with a raised deck 12 from which rises the conning tower 13. Into the conning tower 13 extends the usual periscope 14 mounted on a bracket 16 attached to the conning tower 13. The lower end of the periscope 14 is provided with the usual eyepiece 17 to permit the observer to view a distant object at the time the periscope 14 is in raised position.

On the deck 12 is arranged a bearing 20 in which is mounted to turn a vertically disposed hollow post 21 extending with its upper end above the deck 12 and carrying at its upper end a head 22 mounted to travel on a horizontal circular track 23 attached to the deck 12. On the head 22 is fulcrumed

at 24 a gun 25, preferably of the multiple barrel type to accommodate a number of projectiles 26 at one time. By reference to Fig. 1, it will be noticed that the fulcrum 24 is to one side of the axis of the post 21 and centrally through the post 21 extends a rod 30 pivotally connected at its upper end at 31 to the gun 25 to permit of swinging the gun up or down. The rod 30 passes through a stuffing box 32 arranged on the upper end of the post 21, and the lower portion 33 of the rod 30 is threaded and screws in a nut 34 mounted to turn in the lower end of the post 21. The nut 34 is provided with a suitable handle 35 in the form of a wheel to permit the gun crew to readily turn the nut 34 with a view to move the rod 30 up or down to swing the gun 25 correspondingly in an upward or downward direction. On the lower portion 33 of the rod 30 is arranged a pin 40 engaging the slotted end 41 of an arm 42 pivoted on a bracket 43 attached to the post 21. On the rod 42 is mounted an elevation indicating device 44 of any approved construction to indicate the elevation or depression of the gun 25.

In order to permit the gun crew to swing the gun 25 around use is made of a worm wheel 50 secured on the post 21 and in mesh with a worm 51 secured on the worm shaft 52 journaled in suitable bearings 53 attached to the inside of the submarine. A wheel 54 is secured on the shaft 52 and is under the control of the gun crew to permit of turning the shaft 52 with a view to cause the worm 51 to rotate the worm wheel 50 and consequently the post 21 and its head 22 to swing the gun sidewise into a desired position.

For accurately turning the gun 25 sidewise according to the position of the periscope the following arrangement is made: On the post 21 is loosely mounted a pulley 60 connected by a belt 61 with a pulley 62 loosely mounted on the periscope 14 to allow up and down movement of the periscope. On the lower end of the periscope 14 is secured an arm 63 carrying a bolt 64 adapted to screw into the pulley 62 at the time the periscope 14 is in raised position thus connecting the periscope 14 with the pulley 62 to cause the two to rotate in unison and through the medium of the belt 61 rotate the pulley 60 whenever the periscope is turned. When the bolt 64 is disconnected from the pulley 62 then the periscope 14 can be low-

ered independent of the pulley 62 if desired.

In order to indicate the relative positions of the periscope 14 and the gun 25, the pulley 60 is provided with a flange 70 provided with a graduation representing degrees and subdivisions with which a pointer 71 attached to the post 21 coöperates. When the pulley 62 is locked to the periscope, as shown in Fig. 1, the eyepiece 17 of the periscope 14 is in alinement with the longitudinal center line of the submarine and the pointer 71 is at zero on the graduated flange 70, thus showing that the periscope and the gun are pointing in the same direction. When the periscope and the gun are not pointing in the same direction, due to the turning of the periscope, then the difference is shown by the pointer 71 by the number of degrees off the zero mark. The operator then turns the gun accordingly so as to cause it to point in the same direction as the periscope. The pulley 62 being loosely mounted on the periscope enables the gun crew to point the gun in the same direction as the periscope when desired, but does not interfere with the ordinary use of the periscope.

Each of the barrels of the gun 25 is adapted to receive the projectile 80 having a tube 81 provided at the rear end with a firing cap 82 of usual construction. The front end of the tube 81 is provided with a head 83 containing a high explosive 84 controlled by a time fuse 85 to turn the head 83 at the proper time. The tube 81 contains a number of propelling charges 86, 87 and 88 of low, medium and high pressure powders, respectively. The cap 82 fits friction tight into the tube 81 and is adapted to be fired by electricity conducted by wires 90 from a keyboard 91 mounted on the bracket 43 and in charge of the gun crew. The wires 90 extend through the hollow post 21 and by the use of the keyboard 91 any one of the caps 82 can be set off to fire the corresponding projectile whenever it is desired to do so. It is understood that the forward ends of the head 83 project beyond the muzzle end of the gun 25 while the caps 82 have their rims seated on the breech end of the gun. By the arrangement described the projectile when fired from the gun 25 is forced into the water with the least disturbing effect and is kept in flight by the constant pressure generated by the burning of the propellants 86, 87 and 88 owing to the inertia of the water confining the gas arising from the burning charges near the base of the projectile. From the foregoing it will be seen that the burning propelling charges provide effective propelling energy.

It is understood that when the gun and periscope are used, the observer at the periscope gives the gun crew verbal instructions as to the pointing, elevating and firing. A

gun as shown and described may be mounted on either side of the conning tower 13.

It will be noticed that the gun 25 can be fired whenever it is desired to do so and while the submarine is submerged, raised or awash, but in practice the gun is not fired until the periscope is raised sufficiently above the water to permit of sighting the enemy and to allow the gun crew to obtain correct aim.

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

1. In a submarine, the combination of a periscope, a gun mounted to swing on a vertical axis on a submarine above deck, and indicating means carried by the gun support and controlled by the periscope to permit the gun to be swung to point in the same direction as the periscope.

2. In a submarine, the combination of a periscope, a gun mounted to swing on a vertical axis on a submarine above deck, means for swinging the gun, indicating means on the axis of the gun and controlled by the periscope to permit the gun to be pointed in the same direction as the periscope, and manually controlled means connected with the gun to adjust the same to any desired elevation.

3. In a submarine, a hollow post journaled in the deck of a submarine and extending above said deck, a gun mounted to swing up and down on the upper end of the said post, manually controlled means below deck for turning the said post, a periscope, and indicating means carried by the hollow post and controlled by the periscope to permit the gun to be swung so as to point in the same direction as the periscope.

4. In a submarine, a hollow post journaled in the deck of a submarine and extending above said deck, a gun mounted to swing up and down on the upper end of the said post, manually controlled means below deck for turning the said post, a periscope, indicating means mounted on the hollow post below deck and controlled by the periscope to permit the gun to be accurately turned so as to point in the same direction as the periscope, and manually controlled means below deck and extending through the said post to connect with the gun to effect the elevation thereof.

5. In a submarine, a hollow post journaled in the deck of a submarine and extending above said deck, a gun mounted to swing up and down on the upper end of the said post, manually controlled means below deck for turning the said post, a periscope, indicating means controlled by the periscope to permit the gun to be swung so as to point in the same direction as the periscope, manually controlled actuating means for effecting the elevation of the gun, and

indicating means connected with the said actuating means to indicate the elevation of the gun.

5 6. In a submarine, a hollow post mounted to turn in the deck of a submarine and extending above the said deck, the post being provided at its upper outer end with a head, a gun mounted to swing up and down on the said head, the fulcrum being to one side of
10 the axis of the post, a rod extending through the said post and pivotally connected with the said gun to elevate or depress the gun, and manually controlled means connected with the said rod to raise or lower the rod.

15 7. In a submarine, a hollow post mounted to turn in the deck of a submarine and extending above the said deck, the post being provided at its upper outer end with a head, a gun mounted to swing up and down on the
20 said head, the fulcrum being to one side of the axis of the post, a rod extending through the said post and pivotally connected with the said gun to elevate or depress the gun, manually controlled means connected with
25 the said rod to raise or lower the rod, and indicating means connected with the said rod to indicate the elevation or depression.

30 8. In a submarine, a hollow post mounted to turn in the deck of a submarine and extending above the said deck, the post being

provided at its upper outer end with a head, a gun mounted to swing up and down on the said head, the fulcrum being to one side of the axis of the post, a rod extending through the said post and pivotally connected with
35 the said gun to elevate or depress the gun, manually controlled means connected with the said rod to raise or lower the rod, and manually controlled means connected with the said post for turning the latter. 40

9. In a submarine, a post mounted to turn in the deck of a submarine and extending above the deck, a gun mounted on the upper end of the post, indicating means including a graduated member mounted loosely on
45 the post and a pointer cooperating therewith secured to the post, a periscope mounted to turn, and means for operating the graduated member from the periscope.

10. In a submarine, a post mounted in the
50 deck of a submarine to project above the same, a gun mounted on the upper end of the post, a pulley loosely mounted on the post, indicating means including a graduation upon said pulley and a pointer cooperating
55 therewith secured to the post, a periscope mounted to turn, a pulley on the periscope and a belt connecting said pulleys.

LOUIS HOLECEK.