J. HUBER.

SOUNDING BALL FOR SUBMARINE MINES.

APPLICATION FILED JULY 12, 1917.

1,314,657.

Patented Sept. 2, 1919.

2 SHEETS-SHEET 1.

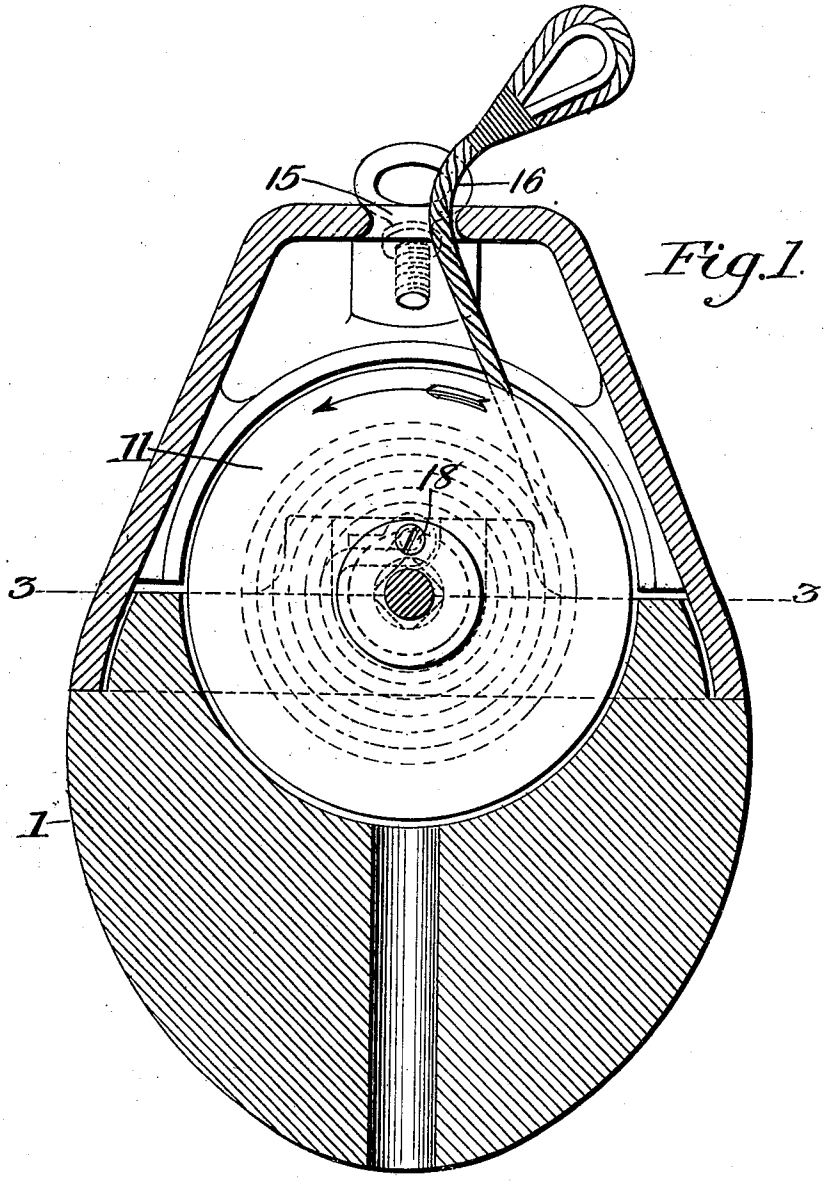


Fig. 1.

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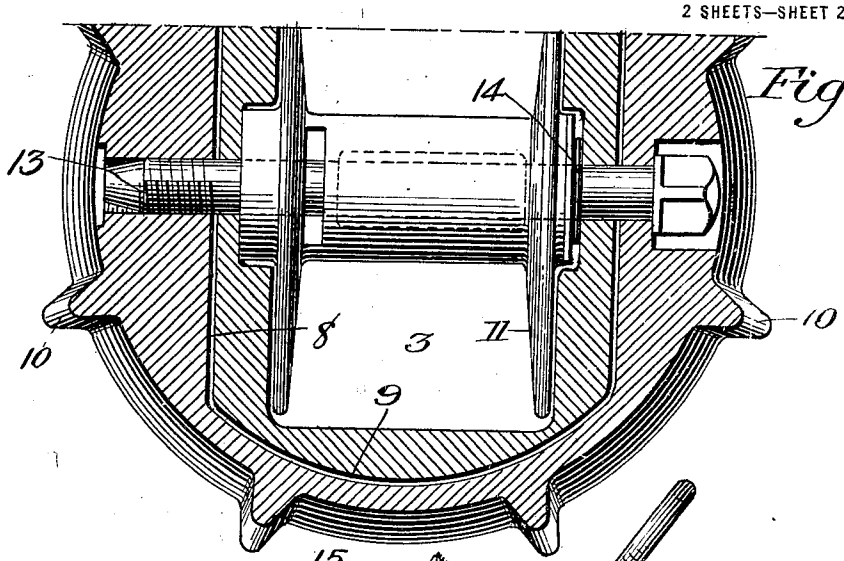


Fig. 3.

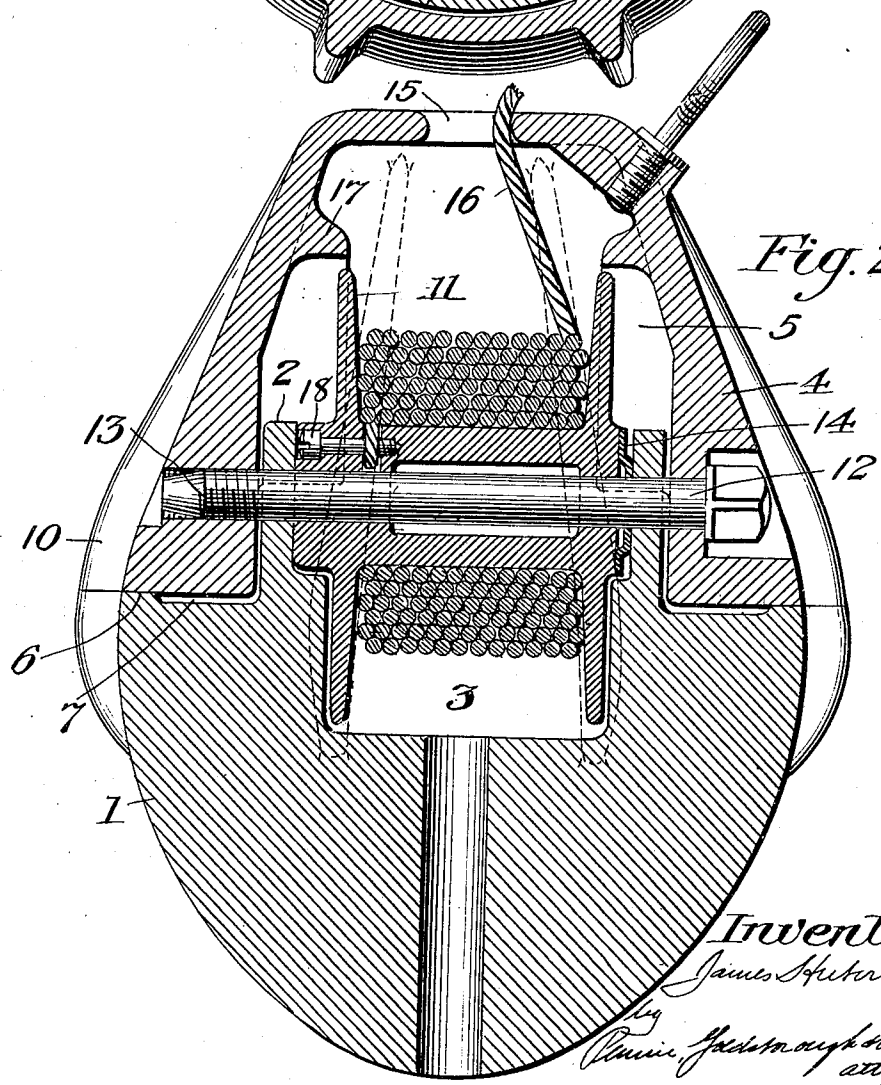


Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES HUBER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO VICKERS LIMITED, OF WESTMINSTER, ENGLAND.

SOUNDING-BALL FOR SUBMARINE MINES.

1,314,657. Specification of Letters Patent. Patented Sept. 2, 1919.

Application filed July 12, 1917. Serial No. 180,201.

To all whom it may concern:

Be it known that I, JAMES HUBER, a citizen of Switzerland, a resident of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Sounding-Balls for Submarine Mines; 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.

This invention relates to a sounding ball for submarine mines.

The primary object of the invention is to provide a ball which is simple and cheap to manufacture and one in which the parts may be assembled with the greatest facility.

With this and other objects in view, such as will appear as the description progresses, the invention comprises a combination and arrangement of parts as set forth in and falling within the scope of the appended claims.

In the drawing—

Figure 1 is a vertical sectional view through a sounding ball constructed in accordance with my invention.

Fig. 2 is a similar view taken at right angles to Fig. 1, and

Fig. 3 is a horizontal sectional view on line 3—3 of Fig. 1.

The sounding ball illustrated comprises a base 1, which constitutes the main portion of the weight of the sounding ball, and is provided with a wall 2 which is located inwardly of the peripheral edge of the base and defines a recess 3. A cap 4 which is substantially hollow, having a recess 5 therein which coöperates with the recess 3 in the base to form a cable drum receiving chamber, is adapted to be located on the base. A portion of the lower face of this cap rests upon a face 6, which is provided for the purpose. A clearance space 7 between the base 1 and the wall 2 on the one hand and the cap 4 on the other, is provided except at the engaging faces, which have been previously described. This clearance will insure the proper contact of the base and cap and will permit of a tight joint between the same, particularly because of the fact that the contacting surfaces of the base and cap are of comparatively small width. The wall 2 is provided with a pair of parallel faces 8 and a pair of concentric faces 9, so that when the cap is in place on the base, any relative turning movement between the two will be prevented.

Formed on the cap 2 and the base 1 are fins 10 which project beyond the surface of the ball and guide it in its downward movement. Moreover, these fins will contact with the side of the mine anchor before the sounding ball is released therefrom and prevent the rolling of the ball on the anchor and consequently prevent its accidental disengagement.

Located in the chamber which is formed by the recesses 3 and 5, is a cable drum 11 which is mounted on a bolt 12. This bolt passes through apertures in the cap and through corresponding apertures in the wall 2, and is provided on one end with screw threads 13 which engage corresponding threads on the cap and which maintain it in position. The bolt supports, rotatably, the cable drum 11 within the wall 2 and the rotation of this drum is governed by resilient friction washer 14, which bears against one of the end faces of the drum and against the adjacent inner face of the wall 2. The top of the cap is provided with an opening 15 through which the cable 16 passes from the drum to the anchor. The flanges of the drum operate beneath guards 17 which are formed on the inner surface of the cap and are preferably of arcuate formation, as shown in Fig. 1. The inner end of this cable is adapted to be secured to the drum by a screw 18 with which the end of the cable is engaged.

An eye bolt is mounted on the cap 4, having screw threaded engagement therewith, and is adapted to engage the anchor hook to support the sounding ball on the anchor.

With this construction it will be seen that a cable drum with the desired length of cable wound thereon may be placed in the recess in the base and the cap placed on the base so that the opening through the drum and the apertures in the wall 2 and the cap 4 will register. The bolt 12 may then be passed through said apertures and opening and the screw threads 13 engage with the corresponding threads in the cap. This bolt will at this time serve to secure the cap to the base and also to support the cable drum. The screw threads 13, which have

been previously described, are such that the direction of rotation of the bolt to disengage the screw threads from the corresponding threads on the cap is opposite to the direction of rotation of the cable drum, so that the rotation of the cable drum will not only not disengage the bolt but will actually tighten the same which is obviously advantageous.

It is, of course, to be understood that a stock of drums may be provided, each having the proper length of cable thereon so that if it is desired to place a drum having sixty feet of cable, for instance, in the sounding ball, the drum may be selected from the stock, or on the other hand, if it is desired to place a drum with a greater or lesser length of cable thereon in the sounding ball, this may be done.

By assembling the parts in the manner which has been described, the operation of the assembling will be comparatively simple, owing to the fact that but one bolt is necessary for securing all of the parts together. Moreover, the simplicity of the sounding ball makes it possible to manufacture the same rapidly and at the minimum cost.

What I claim is:—

1. A sounding ball comprising a weighted base, a cap having a cable opening at the upper end thereof, a cable drum and means for securing the base and cap together and for supporting the drum.

2. A sounding ball comprising a weighted base, a cap having a cable opening at the upper end thereof, a cable drum and a bolt for securing the base and cap together and for supporting the drum.

3. A sounding ball comprising a weighted base having a recess therein, a cap having a cable opening at the upper end thereof and having a recess therein, which recesses form a drum receiving chamber, a drum mounted in said chamber and means for securing the cap to the base.

4. A sounding ball comprising a weighted base, a cap having a cable opening at the upper end thereof, a cable drum, means for securing the base and cap together and for rotatably supporting the drum, the center of gravity of the ball being below the axis of the rotation of the drum.

5. A sounding ball comprising a weighted base having an upwardly extending shell, a cap having a shell encircling the shell on the base and having a cable opening at the upper end thereof, a cable drum mounted within the base and cap, and a bolt extending through the shells to secure the base and cap together and support the cable drum.

In testimony whereof I affix my signature.

JAMES HUBER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."