

J. C. COTTRELL.
TELESCOPING PERISCOPE.
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1,175,609.

Patented Mar. 14, 1916.

FIG. I.

FIG. 2.

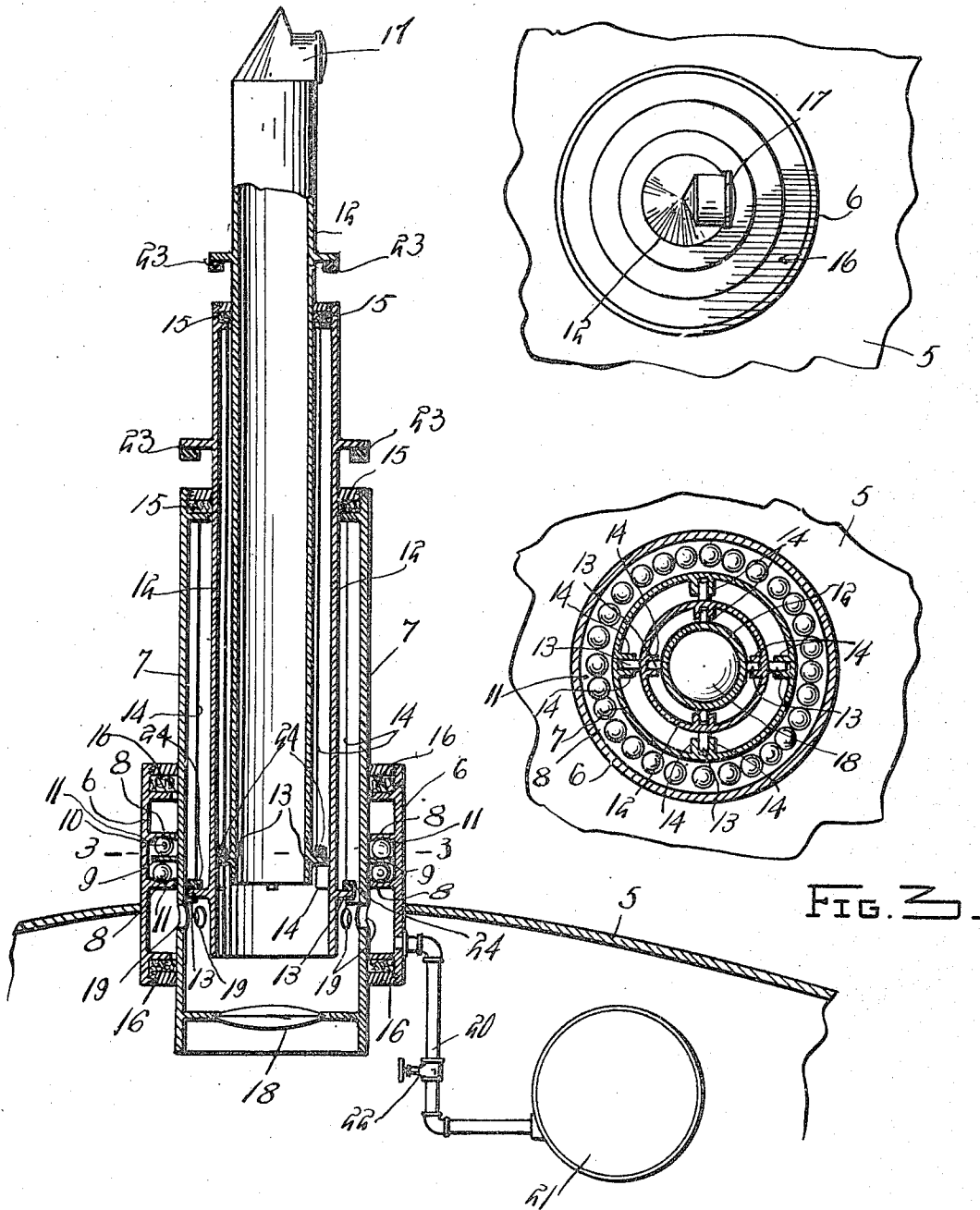


FIG. 3.

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JAMES C. COTTRELL, OF LENOX, IOWA.

TELESCOPING PERISCOPE.

1,175,609.

Specification of Letters Patent.

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Application filed May 21, 1915. Serial No. 29,640.

To all whom it may concern:

Be it known that I, JAMES C. COTTRELL, a citizen of the United States, residing at Lenox, in the county of Taylor, State of Iowa, have invented certain new and useful Improvements in Telescoping Periscopes; 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 new and useful improvements in periscopes for use in connection with submarines and the like and is particularly directed to the provision of such a device which is extensible in nature and which embodies fluid pressure means for actuating it to extended or operative position.

It is the object of the present invention to provide a telescoping periscope which is adapted to be actuated to extended position by fluid pressure means and which has its parts so arranged as to be freely slidable with relation to each other and at the same time so arranged as to prevent any access of water.

It is further the object to provide such a structure wherein the periscope is mounted so as to be freely rotatable.

With the above and other objects and advantages in view, the invention resides more particularly in the novel combination, formation and arrangement of parts as more fully hereinafter described and pointed out in the appended claims.

Reference is had to the accompanying drawings, wherein similar characters of reference designate corresponding parts throughout the several views, and in which: Figure 1 is a central vertical sectional view through a periscope constructed in accordance with the present invention; Fig. 2 is a top plan view of the structure shown; Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1.

Referring now more particularly to the accompanying drawings wherein the improved periscope is shown in a partially retracted position, 5 designates the top portion of the hull of a submarine craft and 6 designates a vertical cylindrical casing carried thereby which holds the lower section 7 of the telescoping periscope structure. To mount this section in such manner that it is freely rotatable to obtain a proper view therethrough, the inner periphery of the cas-

ing is provided with a pair of annular spaced flanges 8 and the said section is provided with an annular flange 9 disposed between these flanges. Ball bearings 10 are disposed on each side of the flange 9 and engage the flanges 8, being carried in suitable races 11 formed in these members. The periscope includes a plurality of other sections 12 which are slidably telescopically engaged with each other and with the section 7 and to prevent relative turning movement, each section 12 is provided with lugs 13 projecting laterally at its lower end and slidably held between pairs of longitudinal ribs 14 on the inner periphery of the next section. These lugs further serve to hold the sections in spaced relation, in connection with packing rings 15 secured on the inner periphery of the upper ends of the sections. Packing rings 16 are also provided at both ends of the casing 6 and serve to hold the section 7 so that an air chamber is formed between it and the casing.

The upper end of the innermost section 12 carries an eye member 17 of conventional structure, and the lower end of the section 7 carries a lens 18 which is associated with any other desired optical mechanism for obtaining a proper view through the periscope and which provides an air tight closure for the lower end of the section.

The section 7 is provided with a plurality of openings 19 communicating with the air chamber formed by the casing. Thus, to raise or extend the periscope to operative position, air is introduced into the lower end of the chamber through the medium of a pipe 20 extending therefrom to a suitable source of supply 21, and this air under pressure passes through the openings 19 and into the telescoping members to extend them against the action of gravity and the pressure of water. This pipe 20 is provided with a suitable valve 22 which is preferably in the nature of a three-way valve so that it may be actuated either to admit air under pressure from the source 21 or to permit the escape of air.

Upon actuating the valve to a position for releasing air from the periscope structure, the force of gravity and the pressure of water thereon will collapse the structure. Should this force be not sufficient, however, suitable suction means of any desired nature may be associated with the air chamber formed by the casing 6.

From the foregoing it is apparent that a structure has been provided wherein the periscope is properly mounted and which will operate in a ready and efficient manner to extend the periscope as desired.

To prevent an undesired jarring shock to the periscope mechanism upon its reaching each limit of its movement, cushions 23 are carried by the upper ends of the periscope section to abut against the next outer section, and cushions 24 are carried on the lugs 13 to abut against the packing rings 15.

What is claimed is:—

1. A periscope comprising a casing, a section rotatably carried by the casing and held spaced therefrom and provided with openings within said casing, a closure for the lower end of the section, telescoping sections carried by the first section and an air supply connected to the casing.

2. A periscope comprising a casing, a section rotatably mounted in the casing and held spaced therefrom at its end portions to form a chamber, said section being provided with openings communicating with said chamber, telescoping sections carried by the first section, certain sections being provided with packing members provided at the upper ends thereof for engaging the next inner section, longitudinal guide members formed on the inner peripheries of certain

sections, lugs at the lower ends of certain sections engaged and held by the said guide members, and a fluid supply for the chamber.

3. In a periscope, a cylindrical casing, packing members provided to project inwardly from the interior of said casing adjacent its ends, a rotatable section mounted within said casing to be engaged by said packing and projecting beyond the ends of said casing, the said section being held against movement longitudinally of said casing and being provided with openings communicating with the chamber formed between the walls of said section and casing, a closure for one end of said section, a plurality of sections arranged in telescopic relation within said first mentioned section and each being open at its inner end, means for supporting said inner ends spaced from the closed end of said first section, the outer end of the innermost of said sections being closed, and means for controlling the air pressure in said chamber.

In testimony whereof, I affix my signature, in the presence of two witnesses.

JAMES C. COTTRELL.

Witnesses:

J. H. CONNOR,

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