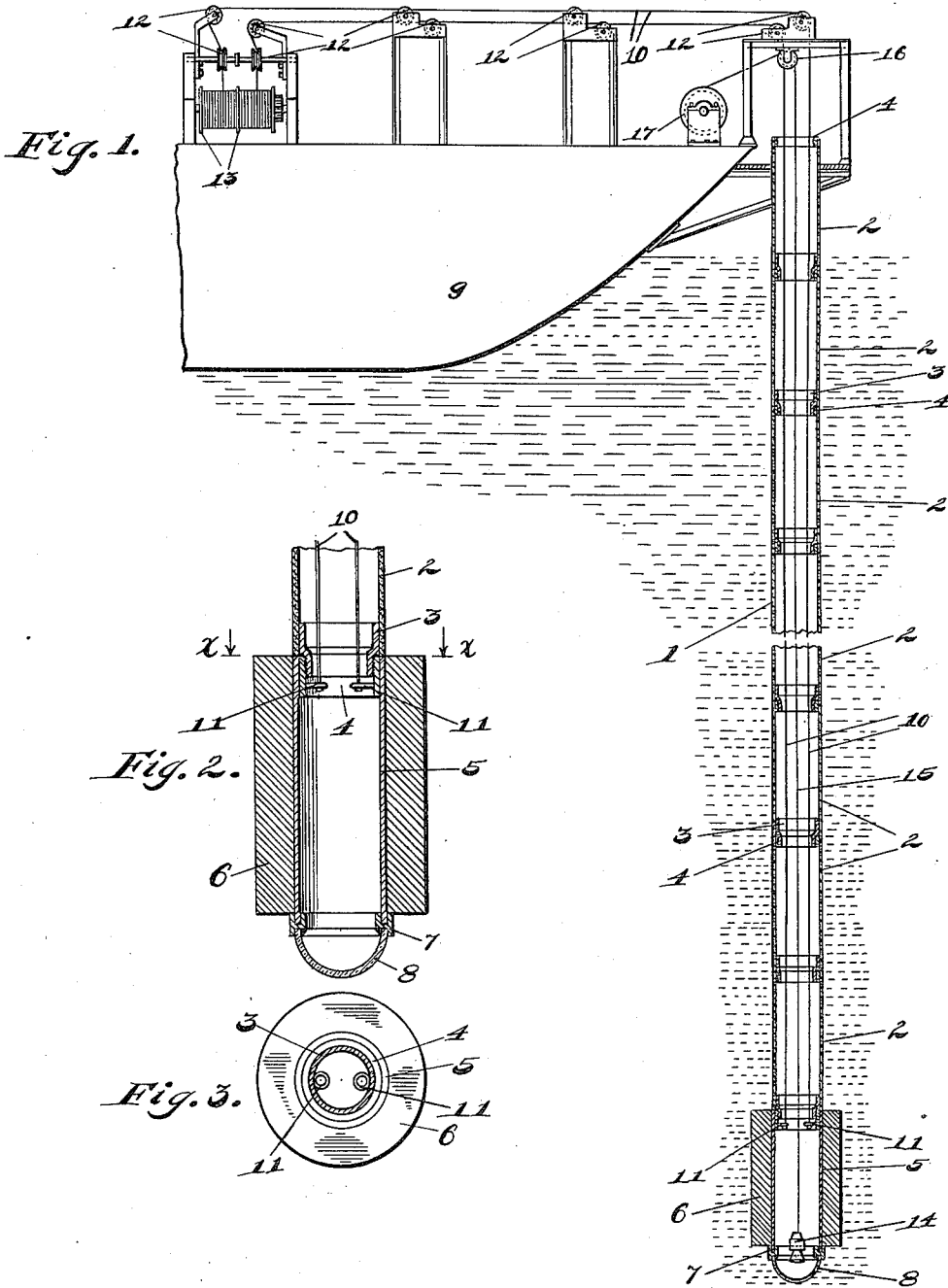


P. J. BYRNE.
SUBMARINE ILLUMINATING APPARATUS.
APPLICATION FILED NOV. 16, 1910.

1,030,052.

Patented June 18, 1912.



Witnesses:
C. E. Wessels.
A. A. Olm

Inventor:
Patrick J. Byrne
By Joshua R. Hark
his Attorney.

UNITED STATES PATENT OFFICE.

PATRICK J. BYRNE, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-THIRD TO CATHERINE V. WATSON WALSH, OF CLEVELAND, OHIO.

SUBMARINE ILLUMINATING APPARATUS.

1,030,052.

Specification of Letters Patent.

Patented June 18, 1912.

Application filed November 16, 1910. Serial No. 592,750.

To all whom it may concern:

Be it known that I, PATRICK J. BYRNE, a citizen of the United States, and a resident of the city of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Submarine Illuminating Apparatus, of which the following is a specification.

My invention relates to submarine illuminating apparatus that is a means for illumination below the surface of the water for the aid of sea divers or submarine wrecking crews working at great depths.

The object of my invention is the provision of a device of the character mentioned which will be of durable and economical construction and efficient in operation.

Other objects will appear hereinafter.

With these objects in view my invention consists in a submarine illuminating apparatus characterized as above mentioned and in certain details of construction and arrangements of parts all as will be hereinafter more fully described and particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawing forming a part of this specification and in which,

Figure 1 illustrates the rearward end of a vessel or other floating supporting body to which is applied an illuminating device embodying the preferred form of my invention, the illuminating device being shown partly in section, Fig. 2 is an enlarged sectional detail of the lower end portion of the tube or body portion of the device, and Fig. 3 is a transverse section taken on line $x-x$ of Fig. 2.

The preferred form of my apparatus as illustrated in the drawings comprises a tube 1. Said tube is formed of a plurality of detachably connected sections 2, the latter being formed of a flexible water proof material. Detachable connection of adjacent sections 2 is effected by means of a metallic ring 3 which is secured to the lower end of the uppermost section, the lower end portion of said ring being reduced and exteriorly screw threaded for threading into a ring 4 secured to the upper end portion of the lowermost of said sections. This construction is simple and effectual, permitting of ready connection or disconnection of the

sections 2, so that a tube 1 of any length desired or required may be readily formed.

Detachably connected to the lower end of the lowermost of the sections 2 in a manner similar to the connection of adjacent sections 2, as above described, is a metallic section 5. Said section 5 is provided with a coating or packet of metal, preferably lead 6 which serves as a weight to effect the sinking of the lower end of the tube into the water for employment, the jacket 6 being of such a weight as to be adapted preferably to sink the lower end of the tube to a depth of say one hundred and fifty or two hundred feet. However, this is immaterial, since by increasing such weight said tube may be sunk to any depth desired. Secured to the lower extremity of the section 5 is a ring 7 in which is slid a lens or bull's-eye 8 preferably hemispherical in conformation, said lens being of such a thickness as to be adapted to withstand a great pressure.

The tube 1 is suspended from a vessel or other suitable floating supporting body 9 by means of cables or other flexible connecting elements 10 the lower extremities of which are connected with eyes 11 provided within the lowermost section 5 adjacent the upper extremity thereof. Said cables 10 extend upwardly within the tube 1 over guide rollers 12 suitably supported upon the vessel 9, the opposite ends of said cables being secured to and wound upon capstans 13 arranged upon said vessel. With this arrangement it will be seen that elevation or lowering of the tube 1 may be readily and easily effected by simply operating said capstans. The cables 10 are preferably of a sectional character in order to permit of ready addition of sections 2 to the tube 1 or detachment of sections therefrom if desired.

Arranged at the lower extremity of the section 5 at the lens or bull's-eye 8 is a lamp 14 preferably electric, a search light preferably being employed. However, in shallow water where a lesser light would suffice an ordinary electric lamp may be employed. The lamp 14 is removably supported within the tube 1 by means of a cable 15 the upper end of which extends over a guide pulley 16, the same being wound upon a capstan 17 suitably arranged upon the vessel 9.

With an apparatus of a construction as set forth it will be seen that the illumina-

tion of the water below the surface at any particular location may be readily effected. As for instance if it is desired to illuminate the water in the region of a sunken vessel to aid sea divers or submarine wrecking crews at their work, it is only required to position the vessel 9 directly above such vessel and to lower the tube 1 until the lower end or the lens 8 thereof is positioned in close proximity thereto. Upon so positioning the tube 1 the lamp 14 is lowered thereinto until positioned at the lens, such lamp, as will be apparent, being then adapted to cast rays of light through the water effecting the desired illumination thereof. The apparatus set forth is of simple and economical construction, the same may be readily handled and is not susceptible to readily becoming inoperative.

While I have shown what I deem to be the preferable form of my submarine illuminating apparatus I do not wish to be limited thereto as there might be various changes made in the details of construction and the arrangements of parts described without departing from the spirit of the invention as comprehended within the scope of the appended claims.

Having described my invention what I deem as new and desire to secure by Letters Patent is:

1. A device of the class described comprising a tube the body of which is formed of sections of flexible water proof material, each of said sections being provided with an internally threaded metallic ring at one end and a metallic ring at the other end having a reduced threaded portion projecting from said section and adapted to engage said first-mentioned ring; a metallic end section for said tube having a transparency therein; and a light in said end section, substantially as described.

2. A device of the class described comprising a tube the body of which is formed

of sections of flexible water proof material, each of said sections being provided with an internally threaded metallic ring at one end and a metallic ring at the other end having a reduced threaded portion projecting from said section and adapted to engage said first-mentioned ring; a weighted metallic end section for said tube having a transparency therein; and a light in said end section, substantially as described.

3. A device of the class described comprising a tube the body of which is formed of sections of flexible water proof material, each of said sections being provided with an internally threaded metallic ring at one end and a metallic ring at the other end having a reduced threaded portion projecting from said section and adapted to engage said first-mentioned ring; a metallic end section for said tube having a transparency therein; a light in said end section; and cables secured to the interior of said end section and extending upwardly within said tube, substantially as described.

4. A device of the class described comprising a tube the body of which is formed of sections of flexible water proof material, each of said sections being provided with an internally threaded metallic ring at one end and a metallic ring at the other end having a reduced threaded portion projecting from said section and adapted to engage said first-mentioned ring; a weighted metallic end section for said tube having a transparency therein; a light in said end section; and cables secured to the interior of said section and extending upwardly within said tube, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PATRICK J. BYRNE.

Witnesses:

EMMA VEIL,
FANNIE MULCAHY.