Sept. 30, 1930. S. LAVERACK 1,777,209

SUBMERSIBLE LIFE SAVING AND SALVAGING VESSEL

Filed Oct. 29, 1927 3 Sheets-Sheet 1

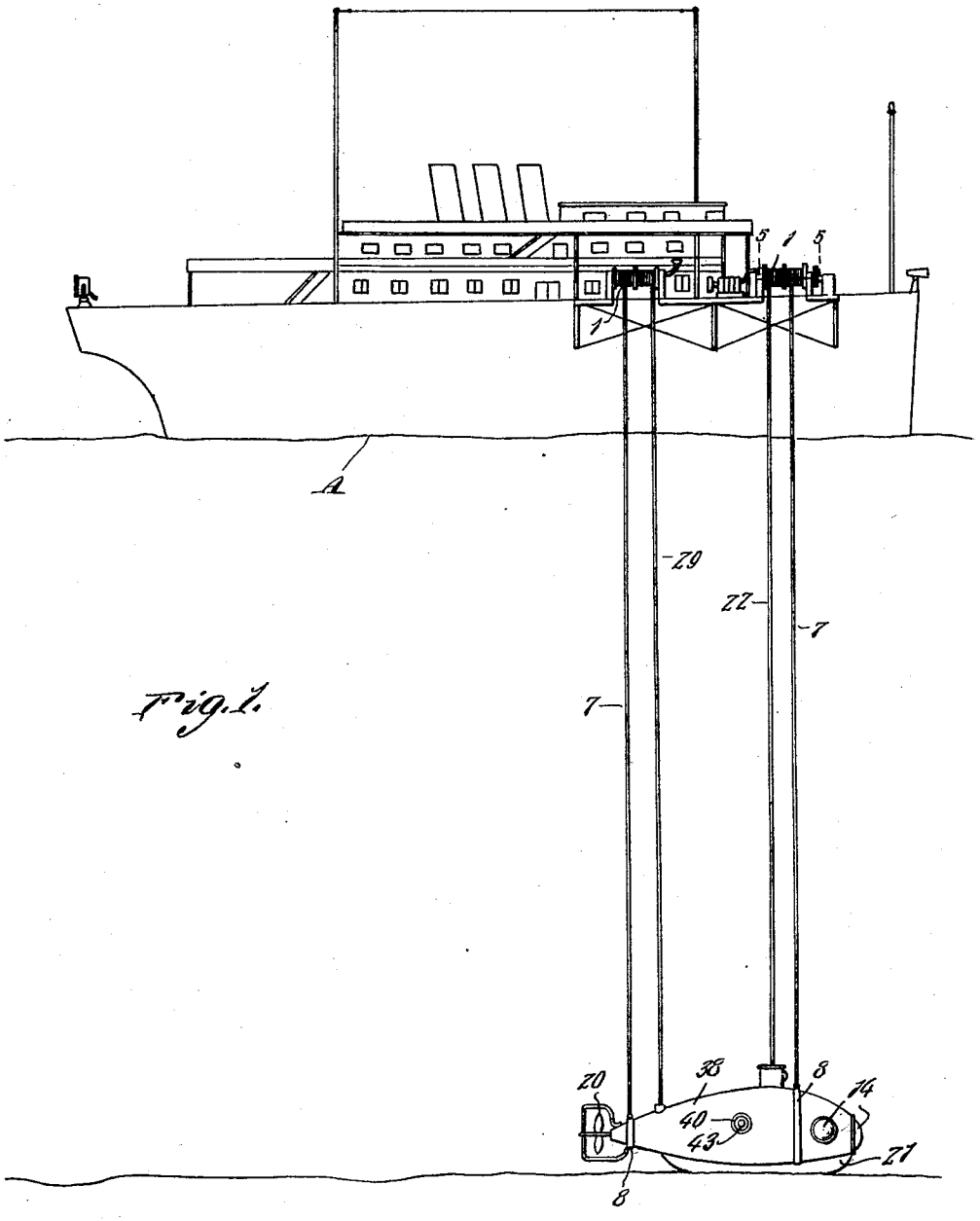


Fig. 1.

Squire Laverack
INVENTOR

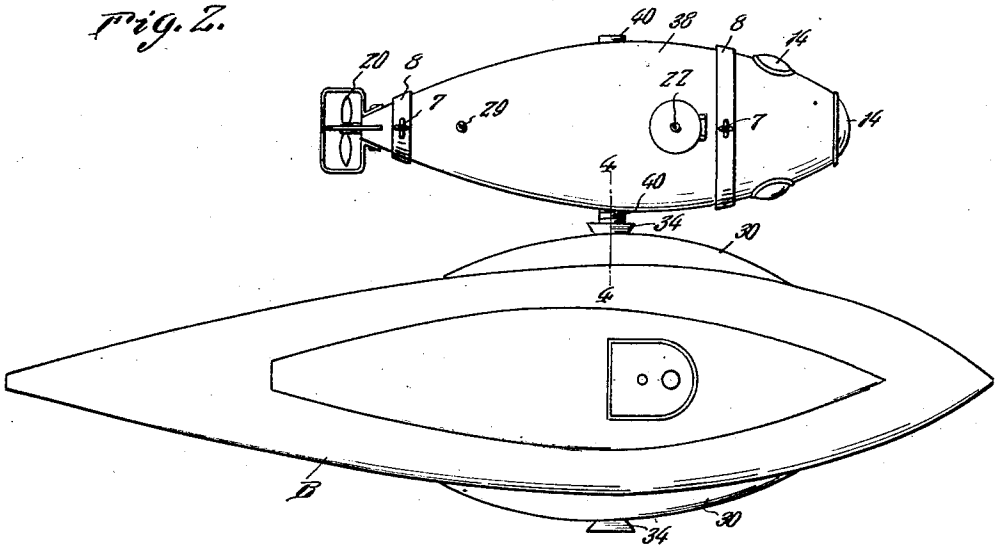
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SUBMERSIBLE LIFE SAVING AND SALVAGING VESSEL

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Fig. 2.



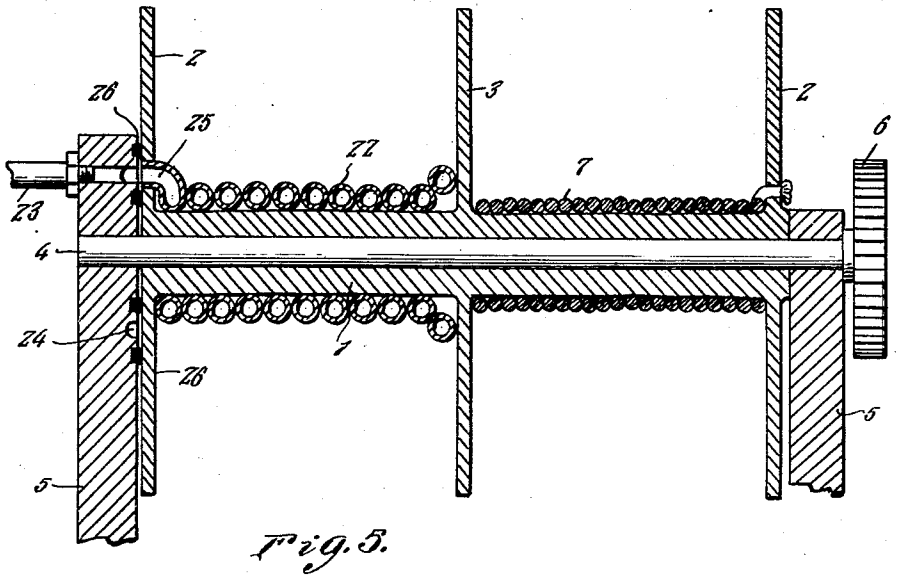


Fig. 5.

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SUBMERSIBLE LIFE SAVING AND SALVAGING VESSEL

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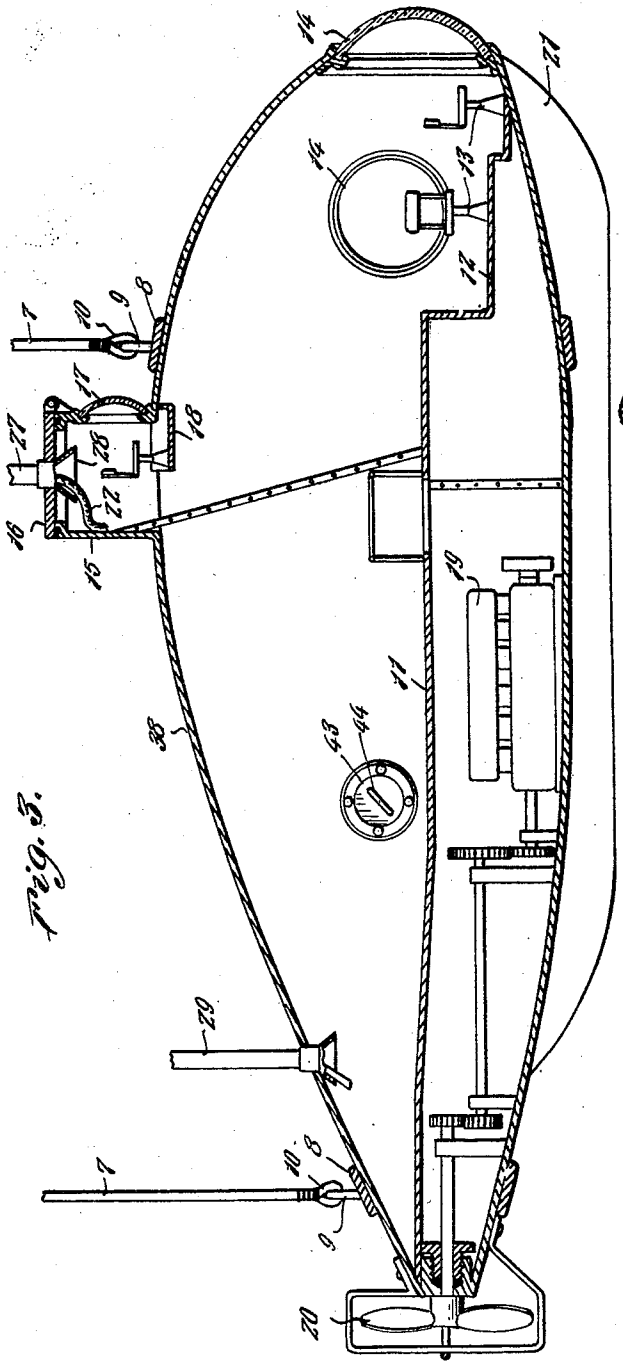


Fig. 5.

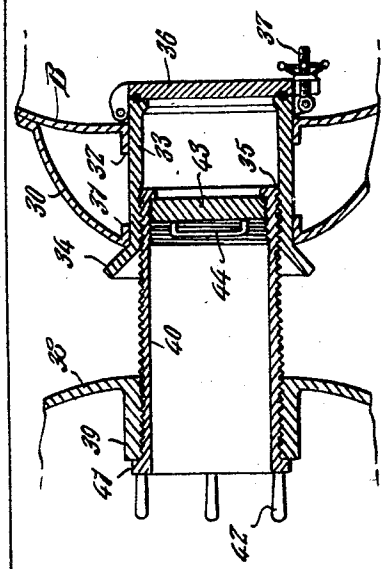


Fig. 6.

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Patented Sept. 30, 1930 1,777,209

UNITED STATES PATENT OFFICE

SQUIRE LAVERACK, OF GLASSHOUGHTON, CASTLEFORD, ENGLAND, ASSIGNOR OF ONE-HALF TO EDWIN SANDERSON, OF GLASSHOUGHTON, CASTLEFORD, ENGLAND

SUBMERSIBLE LIFE-SAVING AND SALVAGING VESSEL

Application filed October 29, 1927. Serial No. 229,679.

This invention relates to submarine apparatus, and its general object is to provide a submersible life saving and salvaging vessel, in the nature of a diving bell, that has connection with and can be controlled by a ship on the surface of the water in which the vessel is submerged but is capable of being propelled at various depths under its own power so that it can be moved in accordance with the desires of the occupants thereof.

A further object of the invention is to provide a submersible life saving and salvaging vessel for removing the occupants and contents of a disabled submarine or the like while the latter is submerged in an easy and expeditious manner with very little effort, with the result the loss of life caused by submerged submarines being unable to rise to the surface will be eliminated.

Another object of the invention is to provide a submarine vessel of the character above set forth that can be used for exploring below the surface of bodies of water as well as for salvaging submerged ships and the like.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a side elevation of my novel life saving and salvaging vessel and showing the same submerged together with the apparatus for connecting it to a ship on the surface.

Figure 2 is a top plan view of the vessel associated with a disabled submarine.

Figure 3 is a longitudinal sectional view taken through the vessel per se and showing parts in elevation.

Figure 4 is an enlarged sectional view taken on line 4—4 of Figure 2.

Figure 5 is an enlarged sectional view taken on line 5—5 of Figure 1.

Referring to the drawings in detail the letter A indicates a ship which may be of any desired type or construction, and appropriately secured thereto in any desired manner are drums preferably disposed and supported as shown in Figure 1 of the drawings.

While I have shown two drums of the construction as disclosed in Figure 5 of the drawings, it is to be understood that any number of drums may be employed for the purpose intended, without departing from the spirit of the invention. Each of the drums include a hub 1, end disks 2 and an intermediate disk 3 which divides the drum in two separate and distinct parts. Secured in the hub 1 of each of the drums are shafts 4 mounted in appropriate bearing uprights 5 and having fixed thereto pinions 6 which are to be operated in any well known manner for operating the drums accordingly. The vessel which is connected to the ship through the medium of cables 7 secured to and adapted to be wound about the hubs of the drums between the intermediate disk 3 and one of the end disks 2, is of substantial submarine shape as best shown in Figure 3 of the drawings and surrounding and secured thereto adjacent the ends thereof are bands 8 having eyes 9 formed therein to receive the looped ends 10 of the cables. By this construction, it will be apparent that the vessel can be lowered at any desired depth within the length of the cables.

The vessel is provided with a partition 11 longitudinally disposed therein and has its forward end arranged in step formation as at 12 so as to provide the platforms as shown to accommodate chairs 13. Arranged in confronting relation with the chairs 13 are openings closed by transparent material 14 connected about the openings in a water tight manner as will be readily apparent. The body has rising therefrom a chamber 15 closed by a door 16 hingedly secured adjacent the upper end of the chamber as shown, and formed in the forward portion of the chamber is an opening covered by

transparent material 17 similar to the transparent material 14. Secured to the interior of the upper wall of the vessel and having a portion thereof positioned to underlie the chamber 15 is a platform 18 also adapted to receive a chair which together with the chairs first mentioned are arranged with respect to the transparent material whereby persons seated in the chair may observe the surrounding area occupied by the vessel. Of course search lights or the like are adapted to be suspended from the ship or arranged in the vessel so that they will shine through the transparent material.

Arranged below the partition is the engine room of the vessel which is provided with an electric motor of the usual construction as indicated at 19 and said motor is adapted to operate a propeller 20 through the medium of a train of gears as shown. By including propelling means for the vessel it can be propelled by the occupants thereof. The vessel is provided with skids 21 formed on its bottom so that it may be easily moved from place to place by the propelling means therefor or by the ship.

In order that air may be supplied to the vessel, an air hose 22 is carried by one of the drums as shown in Figure 5, and it will be noted that one of the upright bearings 5 is formed with a passage which receives a pipe line 23 having its opposed end in connection with a suitable source of air, and the passage is in communication with an annular groove 24 arranged on the inner side of said bearing so that the end 25 of the air hose which is passed through the adjacent end disk 2 may be supplied with air from the groove at all times regardless of the position of the drum. Packing gaskets 26 are disposed upon opposite sides of the groove in order to provide an air tight connection between the said adjacent disk 2 and the bearing upright 5. The air hose may be passed through a tubing 27 which has one of its ends secured in the small end of a funnel shape member 28 fixed in the door 16, with the enlarged portion of said member disposed in the chamber 15.

The cables of course are secured to the drums, and in order to supply electric current to the vessel a conductor 29 is fed from and to the cable carrying drum which is not provided with the air hose. The conductor may also be arranged in a tube as shown in Figure 3, and be in electrical connection with lights and the motor for driving the latter as will be apparent.

In order that my vessel can be used as a life saving device as well as for removing the contents from disabled submerged submarines, a portion of my invention also includes chambers 30 extending laterally from the opposite sides of a submarine indicated at B in Figures 2 and 4. These chambers 30 are each provided with an opening 31 which registers with an opening 32 formed in the side walls of the submarine and arranged in these openings 31 and 32 is a sleeve 33 which is of a size to allow for the passage of a person therethrough as will be apparent. Each of the sleeves 33 have formed on their outer end a flared portion 34 and the sleeves are further provided with threads 35 extending from the flared portion and terminating intermediate the ends of the sleeve, as best shown in Figure 4. The inner end of the sleeves terminate within the submarine B and are closed by a door 36 which is hingedly secured and provided with latching means 37. The door of course is arranged in a water tight connection with the sleeve when disposed in closed position. Extending inwardly from opposite sides of the vessel which for distinction is indicated by the reference numeral 38 are flanges 39 having their interior portions threaded to accommodate a tubular member 40 provided at one end with an outwardly extending flange 41 engageable with the inner end of its flange 39 to limit the movement of the tubular member in one direction. These tubular members 40 are rotated by arms 42 extending from the flanges thereof, and so that they can be arranged in threaded engagement with the sleeves 33 for the purpose of providing a continuous passage-way between the vessel 38 and the submarine B. The flared portion 34 provides a guide for the tubular members 40, and disposed within the tubular members is a closure 43 which is threadedly mounted therein in a manner whereby it can be removed through the medium of a bail 44 formed with the closure, if desired. By this construction, it will be obvious that in the event that a submarine should be in a disabled submerged condition, and includes the sleeves 33 disposed upon opposite sides thereof as shown in Figure 2, the vessel 38 can be lowered and arranged so that the tubular member can be threadedly secured in one of the sleeves of the submarine, and when the door 36 is opened and the closure 43 removed, a passage-way will be provided between the disabled submerged submarine and the vessel 38, so that the occupants of the submarine can pass therefrom and into the vessel. The contents of the disabled submerged submarine can also be carried or passed through the passage-way.

From the above description and disclosure of the drawings, it will be obvious that I have provided a submersible life saving and salvaging vessel that is not only controllable from the ship A, but can be propelled by the occupants of the vessel, with the result the vessel can be arranged in accordance with the desires of the occupants for connecting the same with respect to the disabled submerged submarine as set forth, as well as for other purposes.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. A device of the character set forth comprising a hull having an opening therein, an inwardly extending and internally threaded flange formed on the inner wall of the hull about said opening, a tubular member threaded in said flange and projecting beyond the ends thereof and adapted to connect at one end with an entrance of a ship, an inwardly extending annular flange formed on the other end of said tubular member and engaging the inner end of the first mentioned flange, hand grips formed on the second mentioned annular flange, and an inwardly extending annular flange formed in said tubular member, and a closure threaded in said tubular member and abutting said inwardly extending annular flange.

2. A device of the character set forth comprising a hull having an opening, a tubular member secured in said opening and projecting outwardly of the hull and internally threaded, a closure for said tubular member, and an internally threaded sleeve threaded to said tubular member and having one end flared to facilitate the entrance of said tubular member into the sleeve and adapted to have the other end thereof secured to a second hull.

In testimony whereof I affix my signature.

SQUIRE LAVERACK.