Dec. 23, 1930. R. EDWARDS 1,786,109

SUBMARINE RESCUING DEVICE

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Fig. 1.

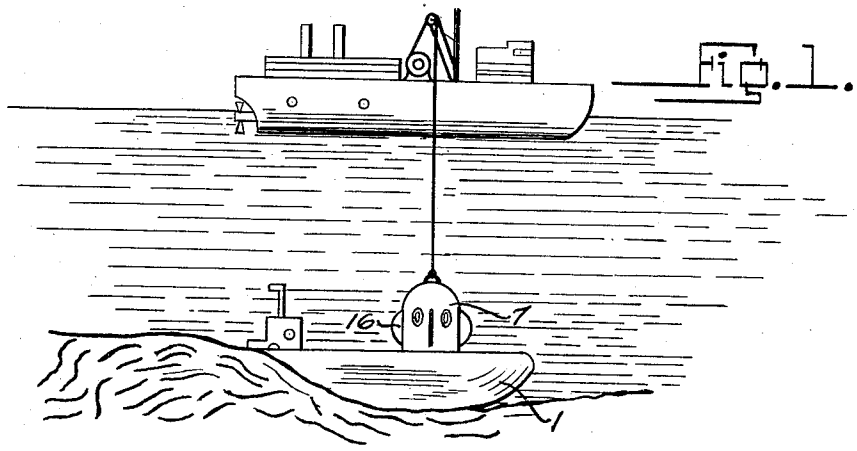
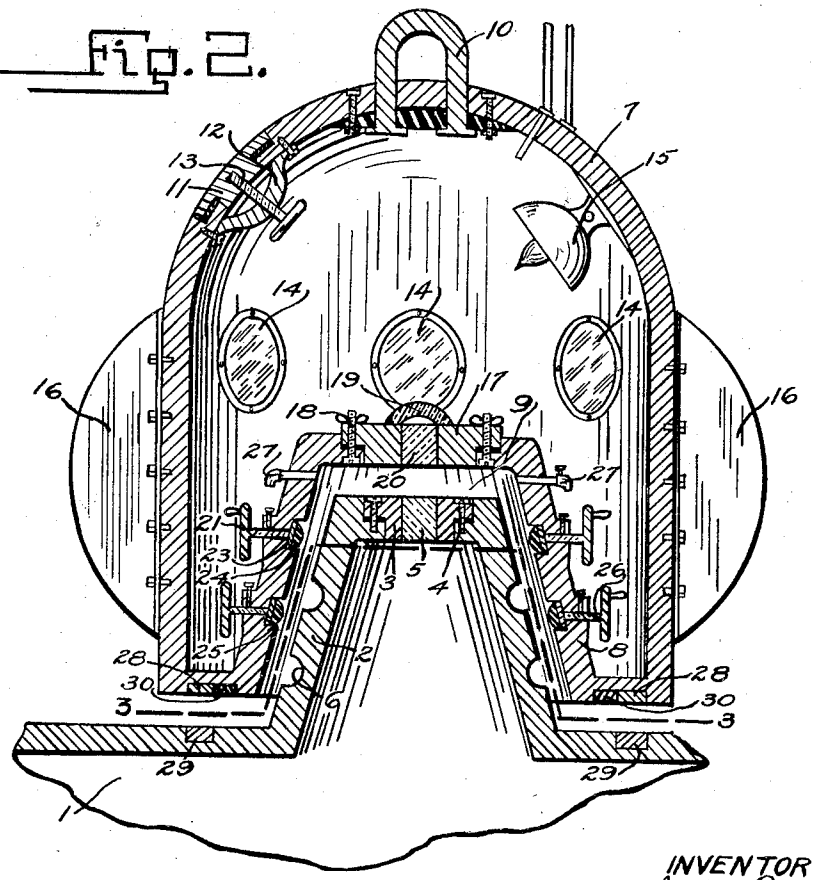


Fig. 2.



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Fig. 3.

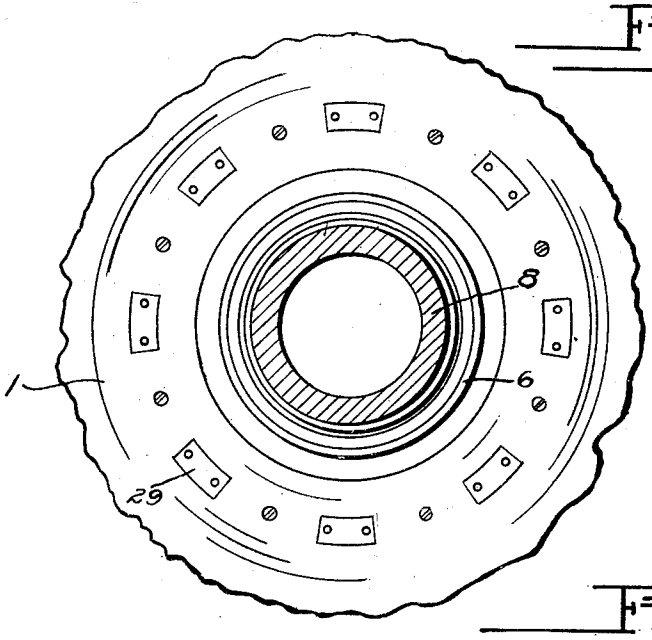


Fig. 4.

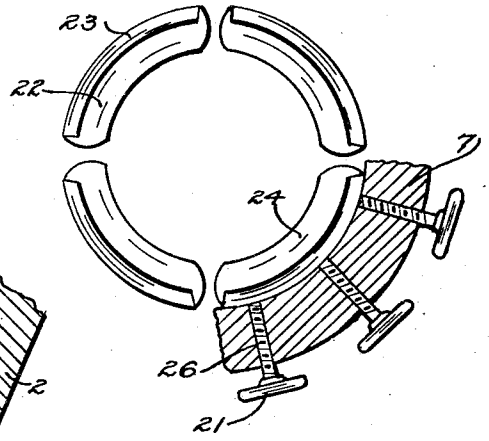
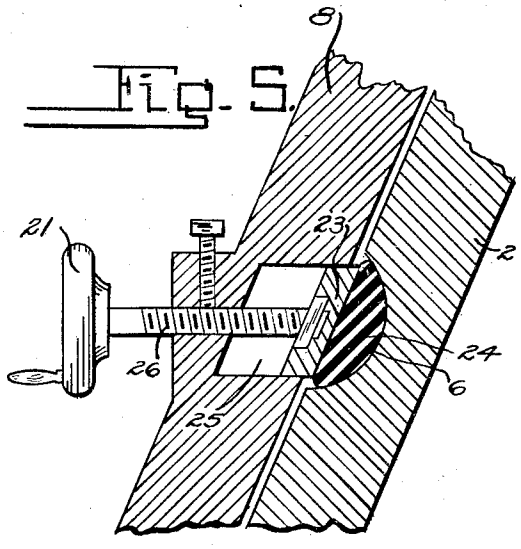


Fig. 5.



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UNITED STATES PATENT OFFICE

RUBIE EDWARDS, OF FORT SLOCUM, NEW YORK

SUBMARINE RESCUING DEVICE

Application filed April 22, 1929. Serial No. 357,237.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757)

This invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to a rescue device for sunken ships, and has for its primary object to provide a device whereby persons trapped within sunken ships, such as submarines and the like, may be rescued therefrom, and this especially in the event the ship has not become entirely filled with water, which is usually the case in ships of the submarine and other similar designs due to their compartment construction.

Another object of this invention is to provide a rescuing device that may be employed in conjunction with a sunken vessel in order that the crew and passengers may be quickly removed after the sinking of the vessel without requiring the partial or total raising of the vessel and without requiring the use of complicated and expensive mechanism.

A further object of my invention is to provide means on the rescuing device and cooperating means on the ship for operatively associating the rescue device with that of the ship when submerged.

Still further an important object of my invention is to provide a projection on the ship and a cooperating re-entrant portion on the rescuing vessel for engagement with the projection of the ship and means in connection with the re-entrant portion on the rescuing vessel and that of the projection of the ship for establishing communication between the ship and said rescuing vessel.

My invention further comprises specifically features of construction, arrangement and operation which will hereinafter appear. For purpose of illustration my invention will be described with reference to the accompanying drawings in which like numbers designate like parts and in which,

Fig. 1 is a diagrammatic side view of a sunken ship shown in this case as a submarine the occupants of which are being rescued by the rescue ship above using my invention;

Fig. 2 is a central vertical sectional view of my improved escapement vessel about to be applied to the portion of the boat designed to receive the same;

Fig. 3 is a cross sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a detail view of the clamping means; and

Fig. 5 is another detail view showing the operation of the clamping means.

In carrying out my invention a submarine or similar vessel, 1 on which my device may be employed in rescuing the passengers and crew therefrom is provided with a frustoconical projection 2 on any suitable clear place on the upper surface of the hull thereof. The projection 2 is provided with a removable top section or closure 3 which provides an emergency escape from the submarine 1. This removable top section 3 is normally held in place in a water tight manner by means of any exteriorly controlled locking means such as bolts shown at 4. The central portion of the removable top section 3 contains a strong piece of pressure resistant transparent glass 5 of suitable thickness. Upon the exterior surface of the projection 2 are formed circumferential cavities or grooves 6, the purpose of which will hereinafter be described.

The rescuing device comprises a bell-shaped hollow hermetically sealed metal structure 7 having a re-entrant portion 8 which forms a recess 9 shaped to fit snugly over the cooperating ship projection 2. This structure 7 is provided with operating suspension means as shown at 10 for the purpose of raising and lowering the same. A removable closure 11 having securing means 12 and 13 is provided in the upper part of the structure 7 for the purpose of entrance and exit of the rescuing party. Windows 14 are sealed in the structure at suitable points and illuminating means 15 are mounted on the wall thereof for obvious reasons. Longitudinal fins 16 are fixed to the exterior of the structure 7 for the purpose of maintaining the same in proper position by preventing rotation about a vertical axis and by reducing the resistance of the structure 7 when in motion through the water. The re-entrant portion 8 is provided with a removable her-

metically closed sealing plate 17 secured in place by means of fasteners 18 which operate only from the inside of the structure 7. This sealing plate 17 may be provided with a glass bull's-eye 19 and glass wall 20 for the purpose of enabling observation of the position of the projection 2 and also for observation of the interior of the ship 1. As the diving-bell structure 7 is lowered and approaches the cooperating projection 2 on the ship 1, the shape of the frusto-conical re-entrant portion 8 aligns the bull's-eye 19 and the glass wall 20 with the glass 5 of the frusto-conical shaped projection 2 so as to enable the observation function above referred to, to be effected. In order to maintain the parts in this position, clamping means 21 are circumferentially mounted on the re-entrant portion 8 and are operable within the structure 7 by the rescuing party. This clamping means as shown in detail in Fig. 4 consists of a plurality of sectors or shoes 22 comprising arcuate metal members 23 having leak-proof gasket members 24 suitably fitted to their interior surfaces. The rubber gasket members 24 are extended longitudinally beyond and around the ends of the metal members 23. The sectors 22 are adapted when in an inoperative position to fit within suitably spaced grooves 25 formed circumferentially on the exterior surface of the re-entrant portion 8 of the structure 7.

Each one of these sectors or shoes 22 is operated by means of a plurality of individual hand operated clamping screws 26.

Upon registration of the bell-structure 7 with the ship projection 2, the rescuing party operates the clamping screws 26 of the clamping means 21 from within the structure 7 forcing the gasket members 24 attached to the metal members 23 into the depression or grooves 6 of the projection 2.

Provision is made by means of the testing cocks 27 leading through the wall of the re-entrant portion 8 to determine whether the gaskets 24 are tight.

To further aid in aligning and securing the rescuing device with the submarine 1 the bell-shaped rescuing device 7 is provided on its lower surface with a complemental series of soft non-magnetic iron pieces 28 while the vessel 1 is provided with an annular series of magnets 29. Other gaskets 30 are imbedded in the wall at the base of the re-entraut portion 8 for the purpose of further sealing the two cooperating members together. When they are properly sealed together as determined by observation from within the bell structure 7 the clamping means 21 are loosened and the sealing plate 17 is removed permitting the rescuing party to release the sealing plate 3 of the projection member 2 of the ship 1. Upon removal of this latter sealing plate 3 entrance to the interior of the ship 1 is had so that the rescuing party may aid the imprisoned persons in making their exit into the diving-bell 7. After which the sealing plate 17 of the diving-bell is again secured the clamping screws 26 are actuated to release the diving-bell 7 from the ship 1, when it can be raised to the surface of the water and into the air. When the closure member 11 is opened, the living cargo may be given freedom.

It will thus be seen that I have provided a highly novel, simple, and efficient form of rescuing device that is well adapted for all the purposes designated. Even though I have herein shown and described my device as comprising certain structural elements it is nevertheless to be understood that changes may be made therein without departing from the spirit or scope of my invention which broadly comprises a submarine rescue means consisting of a hermetically sealed passanger container adapted to be brought into contact with a submerged vessel and provided with means cooperating with corresponding means on the said vessel to permit the passage of imprisoned persons from the vessel to the container.

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

1. Means for securing a rescue vessel to a submerged ship comprising a tapered projecting passage-way on said ship and a corresponding re-entrant portion on the rescue vessel, said projecting passage-way having grooves and said re-entrant portion having apertures and locking means mounted in said apertures for entering said grooves.

2. A diving-bell comprising an hermetically sealed passenger container having a re-entrant portion, and locking means circumferentially mounted on said re-entrant portion, said means comprising arcuate metal and gasket members.

3. Means for securing a rescue vessel to a submerged ship comprising an hermetically sealed passenger container having vessel engaging means adapted to be brought into contact with complemental means on the submerged ship, a plurality of circumferential grooves on the complemental means of said ship, and a plurality of arcuate sector members mounted on said vessel engaging means, said arcuate sectors operable from within said container for engaging the grooves of the said complemental means of said submerged ship.

4. Means for securing a rescue vessel to a submerged ship comprising an hermetically sealed bell-shaped chamber having a frusto-conical re-entrant portion adapted to fit a frusto-conical projecting passage-way on the vessel to be salvaged, a plurality of circumferential grooves on the exterior surface of said projecting passage-way and a plurality of circumferentially disposed arcuate metal

and gasket members mounted on said re-entrant portion, said arcuate metal and gasket members operable from within said bell-shaped chamber for bringing about a positive interlocking of said gasket members with the grooves of said projecting passage-way.

5. Means for securing a rescue vessel to a submerged ship comprising a frusto-conical re-entrant portion adapted to fit a frusto-conical projection on the vessel to be salvaged, a removable section provided with transparent windows on the said re-entrant portion and said projection, a plurality of circumferential grooves on the exterior surface of said projection, and a plurality of circumferential grooves on the exterior surface of said re-entrant portion, series of circumferentially disposed apertures leading through the wall of said re-entrant portion to said grooves, and a plurality of clamping screws having arcuate sector members mounted in said apertures, said sector members comprising arcuate metal members with gasket members attached to their outer surfaces, said clamping screws adapted to project through the said apertures and said arcuate sectors mounted within the grooves thereof, and means on said clamping screws operable from within said rescue vessel for bringing about a positive interlocking of said sector members with the grooves of said projection.

6. Means for securing a rescue vessel to a submerged ship comprising an hermetically sealed bell-shaped chamber having a frusto-conical re-entrant portion adapted to fit a frusto-conical projection on the vessel to be salvaged, the said projection and said re-entrant portion having removable sections provided with transparent windows, a plurality of circumferential grooves on the exterior surface of said projection, a plurality of circumferential grooves in the exterior of said re-entrant portion, and circumferentially disposed apertures leading through the wall of said re-entrant portion to said grooves, clamping screws comprising arcuate metal members with rubber leak proof gaskets on their outer ends mounted in said apertures, said clamping means operable from within said rescue vessel for bringing about a positive interlocking of said gasket members with the grooves of said projection, and test cocks leading through the wall of said re-entrant portion for determining the tightness of said gasket members.

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