Sept. 4, 1928. 1,683,409

J. PICCO

LIFE SAVING APPARATUS

Filed March 8, 1926 4 Sheets-Sheet 1

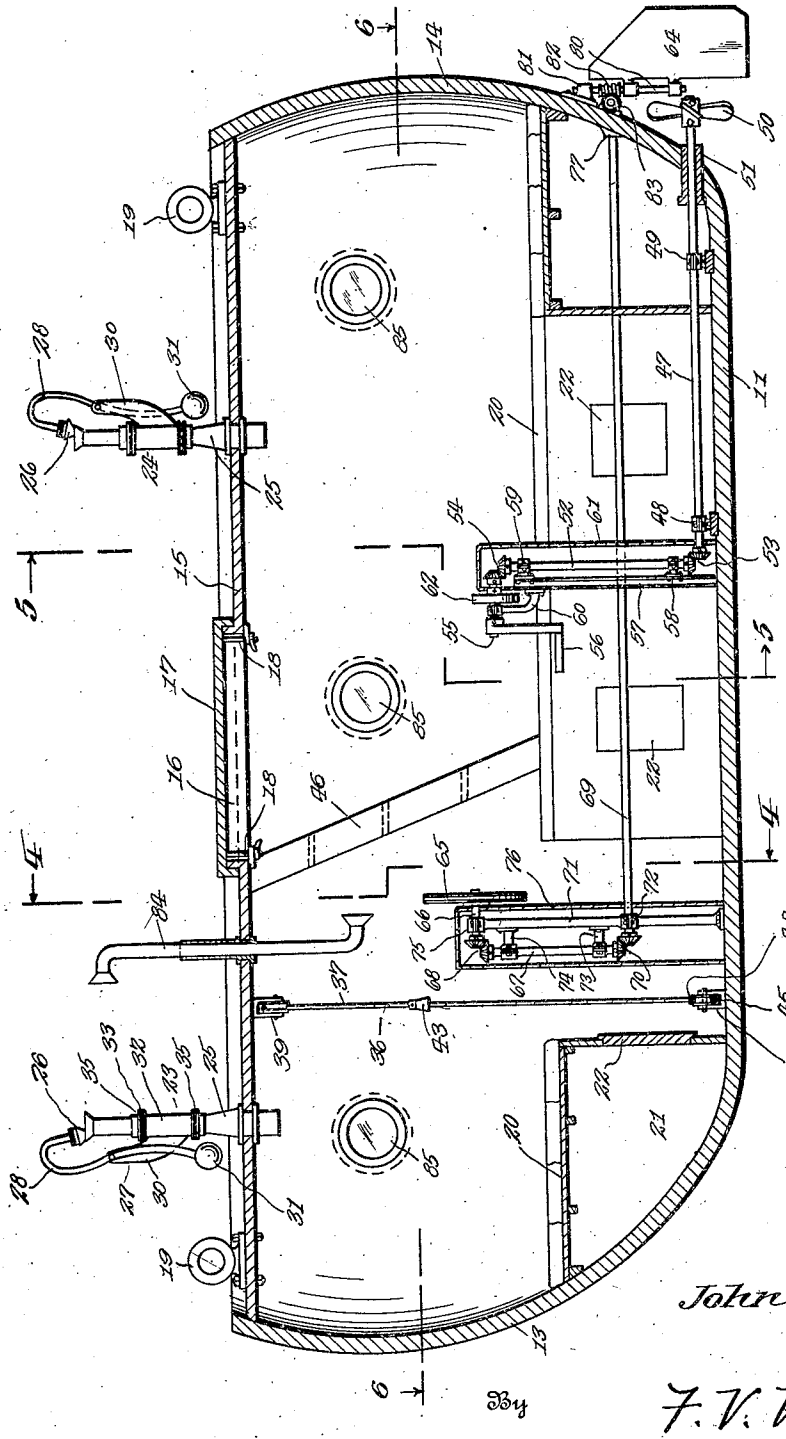

Fig. 1.

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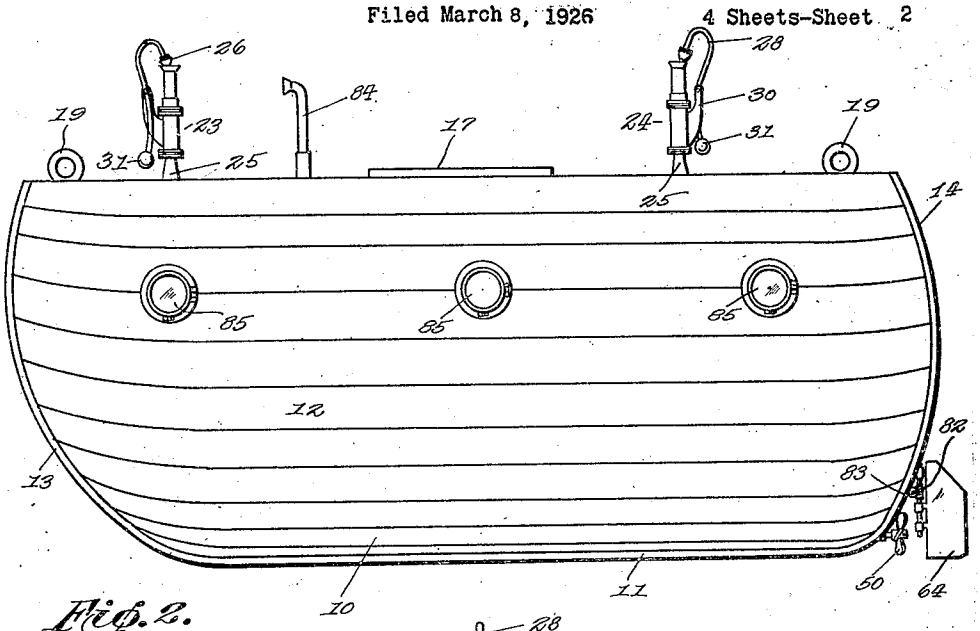

Fig. 2.

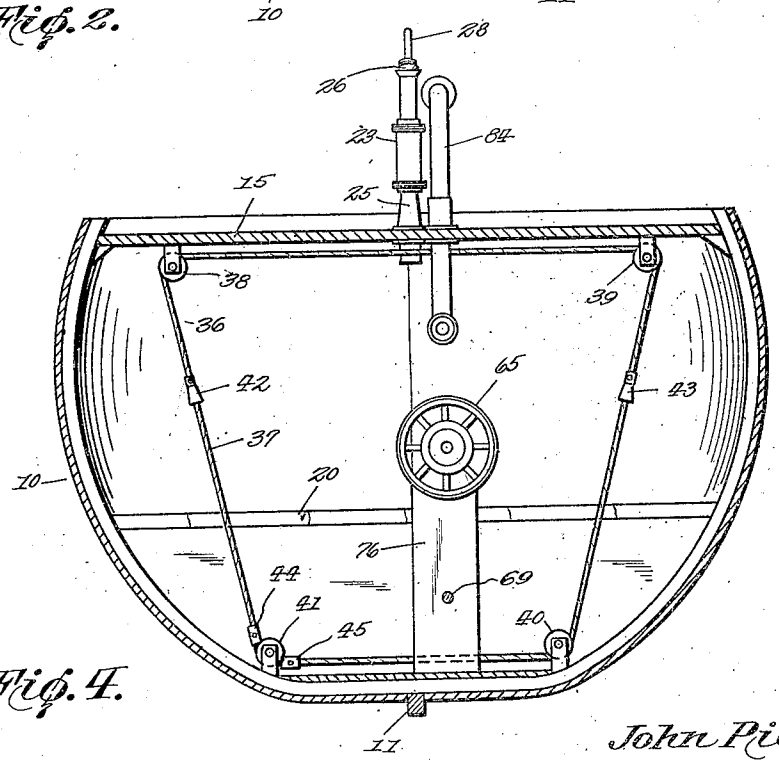

Fig. 4.

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LIFE SAVING APPARATUS

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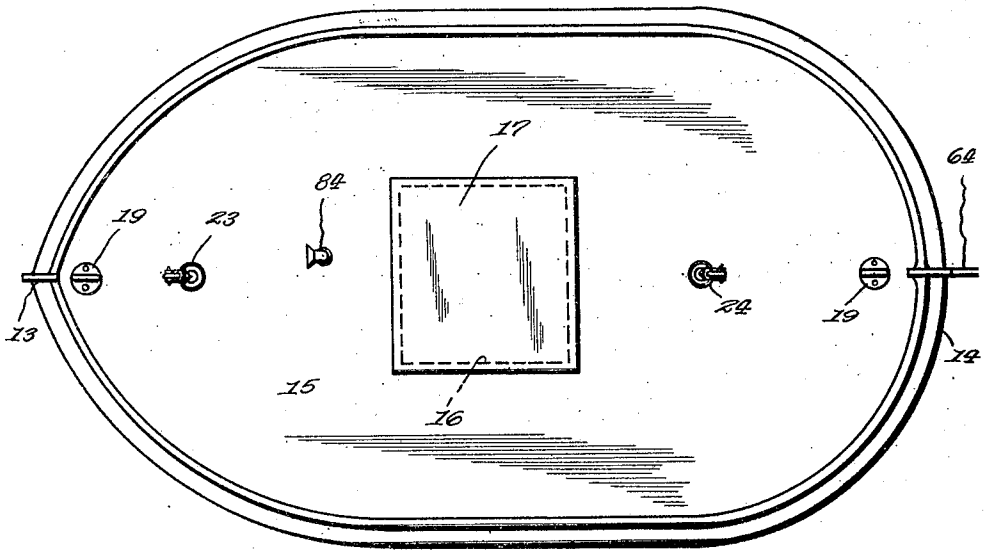

Fig. 3.

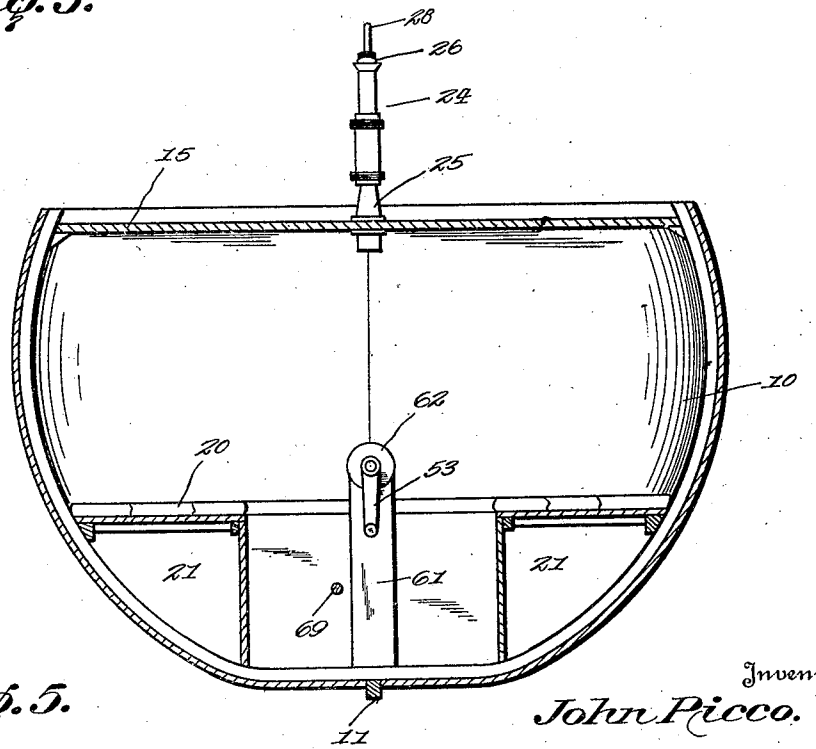

Fig. 5.

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LIFE SAVING APPARATUS

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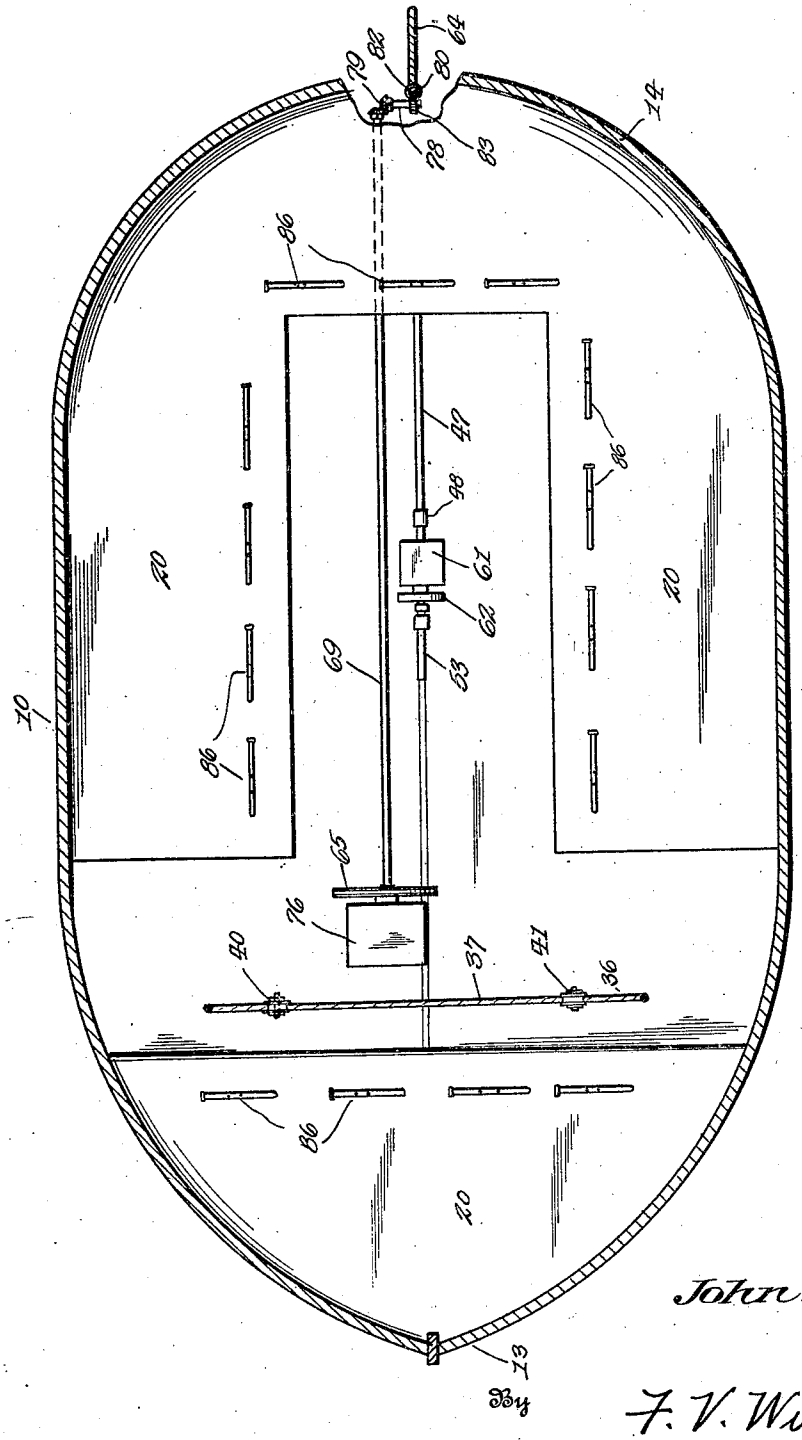

Fig. 6.

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Patented Sept. 4, 1928. 1,683,409

UNITED STATES PATENT OFFICE.

JOHN PICCO, OF NEW YORK, N. Y.

LIFE-SAVING APPARATUS.

Application filed March 8, 1926. Serial No. 93,168.

My invention relates to life saving apparatus, and particularly has to do with water-craft of special design adapted to become a component part of the equipment of trans-oceanic liners, though, of course, not strictly limited to this extent.

Life-boats, non-sinkable rafts, and the like at present in use possess many disadvantages in that no provision is made for protecting the ship-wrecked occupants from the elements. As a matter of fact they are solely adapted to harbor a certain number of persons and maintain them a short duration of time with the ultimate hope that some passing vessel may quickly rescue them from their plight. Obviously these unfortunate people exposed to the inclement weather in an open boat or raft, having no stores in the form of food or clothing at their disposal, or means for securing rest or a respite from the trying conditions, must of necessity perish or become permanently disabled unless rescued within a short time from their perilous condition.

Obviously an apparatus looking toward the diminishing of the above privations and even in a small measure relieving the horrors of shipwreck and its attendant degradations, is bound to supply a need long sought after by the artisans in this art.

Therefore, with a view to curing the defects noted hereinbefore, my invention has for its objects:

First; to provide a life saving apparatus the lines or dimensions thereof being designed to peculiarly withstand a heavy high-going sea.

Second; to provide means for sheltering the occupants of the apparatus from the rigors of inclement weather.

Third; to provide a mechanism operable within said sheltered condition for navigating the craft.

Fourth; to provide means for directing the course of said life saving apparatus.

Fifth; to provide suitable resting places for the occupants, relatively comfortable and stable, until rescued.

Sixth; to provide ample storage space for ship's stores, such as clothing, food, or other comforts.

Seventh; to provide means technically termed a "righting device", especially adapted for assisting the maintenance of the craft on even keel.

Eighth; to provide in combination with such apparatus valve controlled air supply means so arranged as to allow the entrance of air and the expulsion of foul air while preventing water from entering.

With these objects in view, together with others which will appear as the description proceeds, the invention resides in the novel formation, combination, and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings, and particularly pointed out in the claims.

In said drawings:

Figure 1 is a central, vertical longitudinal sectional view of the apparatus embodying my invention, wherein certain operating parts are shown in elevation, the structural details of the hull being omitted for the sake of clarity in the essential details.

Fig. 2 is a side elevation of the craft illustrating the positions of certain air-supplying and ventilating means.

Fig. 3 is a plan view of the apparatus showing the means for entering and leaving the interior thereof.

Fig. 4 is a vertical transverse section taken substantially on the line 4—4 of Fig. 1 illustrating certain navigating control means and the righting device hereinbefore referred to.

Fig. 5 is a view like unto Fig. 4 but taken on the plane of the line 5—5 of Fig. 1.

Fig. 6 is a horizontal longitudinal sectional view taken on the line 6—6 of Fig. 1 to clearly depict the neat and compact arrangement of the essential elements and operative parts of the apparatus.

Referring now more in particular to the accompanying drawings, wherein like characters of reference denote similar parts throughout the several views, let 10 denote generally the hull of my apparatus which comprises the well-known parts such as the keel 11 and the planking members 12 constituting the exterior of the craft.

The general design and contour of the boat as a whole apparently does not appear to be in keeping with the well accepted views of water-craft, but it should be remembered that stability and staunchness are the key-notes of a device of this caliber, wherein capacity and ability to withstand the rigors of a heavy sea and torrential storms are of primary importance. To this end the nose or bow 13 of the boat has been fashioned to cut its way through the sea, its stern 14 relatively flattened, its beam of goodly proportions,

and its draft sufficient to maintain the boat at even keel under extraordinary conditions. Upon reference to Figs. 4 and 5 of the drawings it becomes at once apparent that the seaworthiness of the craft is reflected in its rolling sides whereby uncommon lists to the port or starboard may be encountered without danger of overturning or the like.

As distinguished from the ordinary accepted idea of a life-boat my craft is provided with a deck 15, extending throughout the entire length and breadth of the same, and having a central hatchway 16, which latter is fitted with a closure 17 and secured tightly to said hatchway by means of the fastening elements 18, (see Fig. 1). By this construction the occupants within the craft are protected from bad weather conditions and at the same time supplied with fresh air and other comforts as will appear hereinafter.

Under ordinary conditions my life-boat is adapted to be carried aboard the liner and to this end I have provided my apparatus with elements 19, in the form of eyebolts, which are adapted to be engaged by the tackle of the davits and thus lowered to the sea.

The interior of the hull is provided with benches 20 which extend around the sides thereof and which may be used as bunks by the occupants. Beneath these benches are storage spaces 21 for the ship's stores, there being provided suitable access means 22 in the form of doors or the like. With such ample storage space available it is manifest that sufficient food may be carried and warm and dry clothing obtained to enable the occupants to maintain themselves for a considerable length of time awaiting rescue.

Means for introducing fresh air into the hull and exhausting the foul air therefrom is provided in the form of the automatically operated valve mechanism 23 and 24, each being similar in construction. Secured to the deck 15 is an air duct 25 provided with an automatically operating valve 26 at the upper opening of the duct. This valve is rotatably connected with a valve stem 28, fulcrumed at 27 to a bracket 30 and weighted by ball 31.

Bracket 30 forms a part of a sleeve 32 surrounding a portion of duct 25 and held in place by flanged collars 33 provided with ball bearings 35.

When the craft is substantially in perpendicular position valve 26 opens due to the action of weight 31. At the moment, however, when the vessel becomes inclined, no matter in which direction, the valve tends to close and will close entirely when the deviation reaches a certain degree. In this manner water is prevented from entering into the duct at rough sea, while air is admitted and exhausted whenever the vessel reaches an upright or nearly upright position when listing to the port or starboard and plunging headlong into the sea.

I now direct particular attention to an arrangement forming a part of my apparatus, which I term my "righting device." This device indicated generally by the numeral 36, (see Figs. 1 and 4,) is relatively simple in construction and operation, but so far as I am aware no attempt has been made in the past to combine such a device with a life boat for this obvious purpose. I have foreseen that the occupants of my craft are more or less shut off from outside help in the event an unusually heavy sea upsets the same or lists the craft laterally beyond the normal point of recovery. In a word, the device is used for the purpose of shifting ballast from starboard to port or vice versa to offset the effect of the list. The structural arrangement of my device comprises an endless member 37, more or less flexible in nature, a rope for instance, said member being supported at either side of the deck 15, by means of pulleys 38 and 39, then passing downwardly to the pulley 40, thence across the keel to the pulley 41 and thence upwardly to the pulley 38. The side branches of said member 37 is provided with hand holds 42 and 43, which may be grasped by one of the occupants and his added suspended weight thus furnish the necessary ballast to right the craft. Obviously, the pulleys may be dispensed with and other means non-rotative in nature may be substituted. In order to permit the adjustment of the endless member 37 and to change the relative positions of the hand holes 42 and 43 with respect to each other, I provide sleeve members 44 and 45, which normally are releasably secured to said member 37 on both sides of the pulley 41 for the purpose of preventing any slippage of said member.

So no interference may be experienced during the manipulation of my righting device I have elected to dispense with the benches adjacent the member 37, as will be observed upon inspection of Figs. 1 and 4 of the drawings.

Let us now assume that our passengers are safely aboard the craft having entered by means of the hatchway 16, and descended amidships by the ladder 46, the hatch being battened down and locked as aforesaid, the craft is cast off from the mothership.

While the proportions of the boat and its stores are deemed sufficient to protect and maintain its occupants for a considerable interval of time, I realize the value of some source of motive power and means for directing the course of the boat, since my adoption of the closed deck 15, precludes the use of oars or other external propelling means now existing. Figure 1 of the drawings clearly illustrates my means for propelling the boat but before considering the same it

should be borne in mind that speed of travel is of minor consideration and I only aim to provide a mechanism that will propell the craft for the obvious purpose of evading dangerous swells or troughs in the sea. This mechanism aforesaid, comprises the horizontal shaft 47, suitably journalled in the bilge of the vessel, as at 48 and 49, one end thereof extending exteriorly of the vessel and carrying a screw propeller 50. Suitable packing means 51 is provided to prevent seepage of water into the bilge. The other end of said shaft is rotatively connected to a vertical shaft 52 by means of the bevel gearing 53, whereupon the bevel gearing 54 rotatively connected said shaft 52 to the stub shaft 55 which carries a crank 56 at its outer end adapted for manual operation. Obviously rotation of said crank communicates movement to the propeller through the intermediary of the shafts and gearing aforesaid. Said shaft 52 is suitably journalled to a standard 57 by means of bearings 58 and 59, while the stub shaft 55 is supported by means of a bracket 60 carried by said standard. The bevel gearing 53 and 54 and their connecting shaft may be mounted in a casing 61 for the obvious purpose of protecting the occupants of the boat. In order that the propelling means may if desired be connected to automotive power I have supplied a pulley 62 on said stub shaft which may be belted to said power means.

The means for navigating the boat, in short, steering the vessel, comprises the usual rudder 64 operated amidship by means of a steering wheel 65; their connection will now be described in detail, and consideration of Figs. 1 and 6 of the drawings will be necessary for a complete and full understanding thereof.

Starting at the steering, or operating end of the above means, we observe that said wheel 65 is adapted to impart rotative motion to a stub shaft 66, and then to a vertical shaft 67 through the medium of bevel gearing 68, said rotative motion being continued to the longitudinal shaft 69 through another bevel gearing 70. A standard 71 is adapted to support the above mechanism, said shaft 69 being mounted in bearing 72, while vertical shaft 67 is rotatively carried by bearings 73 and 74 carried by said standard and lastly said stub shaft 66 is mounted in bearing 75 at the top of said standard. Similarly the other end of said longitudinal shaft 69 is journalled at the stern of the craft, as noted at 77, Fig. 1, the rotative movement thereof being communicated to a stub shaft 78, (see Fig. 6,) through the medium of bevel gearing 79. The rudder 64 is pivotally carried by the vertical shaft 80 supporting by bearing 81, said shaft 80 having splined thereto a worm 82 meshing with the worm gear 83 carried by said stud shaft 78. By means of this construction the rudder 64 is made responsive to the operation of the steering wheel 65 and further the positioning of shaft 69 at one side of the center line of the craft prevents interference with the operating mechanism. In order that the helmsman may have an unrestricted view in navigating the boat I have provided a periscope 84, which emerges from the deck and may be adjusted vertically thereof.

I further provide portholes 85 to enable the occupants to keep a lookout for passing vessels and in the event the storm abates before rescue said portholes may be opened for ventilation and air.

Such minor other details, such as fastening means 86, may be used for the purpose of strapping the occupants to the bunks during extremely severe weather.

Having thus described my invention, I claim as new and desire to secure by U. S. Letters Patent:

1. In combination with a life boat having an inclosed hull, rotatable members mounted within said hull, an endless element passing around said members, hand holds positioned on the side branches of said element and means adjustably mounted on both sides of one of said members to prevent slippage of said element.

2. In combination with a life boat having an inclosed hull, rotatable members mounted with said hull substantially in the same vertical plane, an endless flexible element passing around said members, hand holds positioned on the side branches of said element and adjustable means positioned on opposite sides of one of said members and adapted to prevent slippage of said element.

3. In combination with a life boat having an inclosed hull, an endless element positioned within said hull to present side branches, hand holds mounted intermediate the length of said side branches and means permitting adjustment of the endless element so as to change the relative positions of the hand holds with respect to each other.

In testimony whereof I affix my signature.

JOHN PICCO.