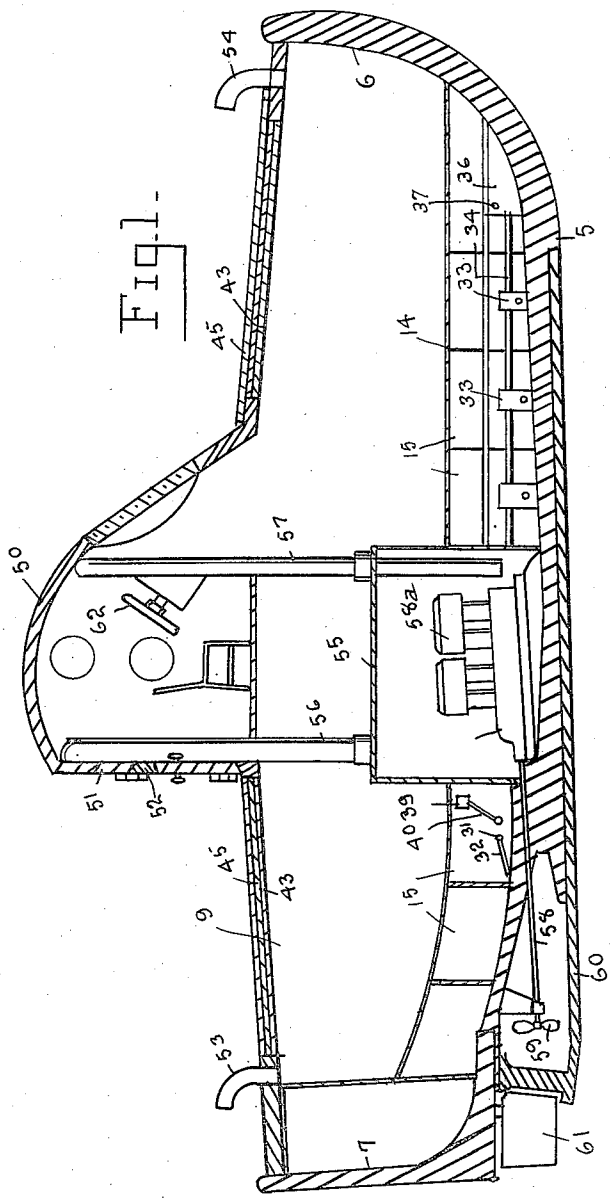
Oct. 19, 1937. C. FARRUGIA 2,096,167

SAFETY LIFEBOAT

Filed July 24, 1935 2 Sheets-Sheet 1

Fig. 1.



INVENTOR.

Charles Farrugia

Oct. 19, 1937. C. FARRUGIA 2,096,167

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Fig. 2.

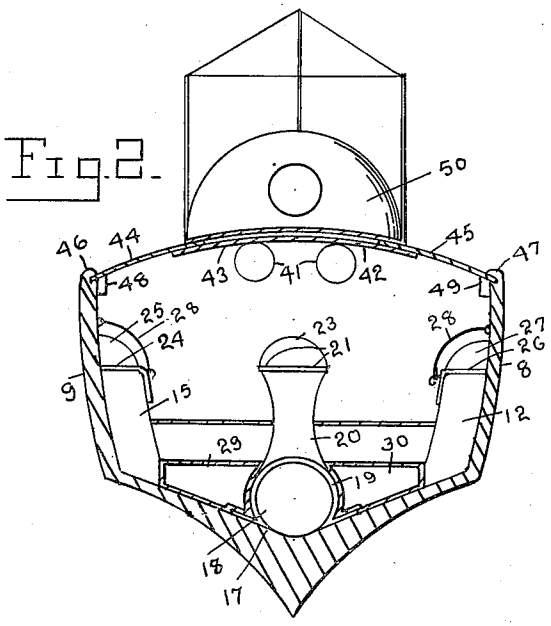
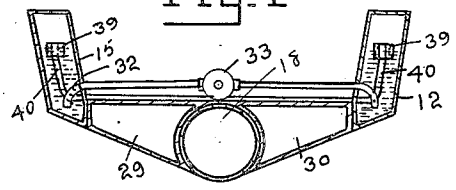


Fig. 4



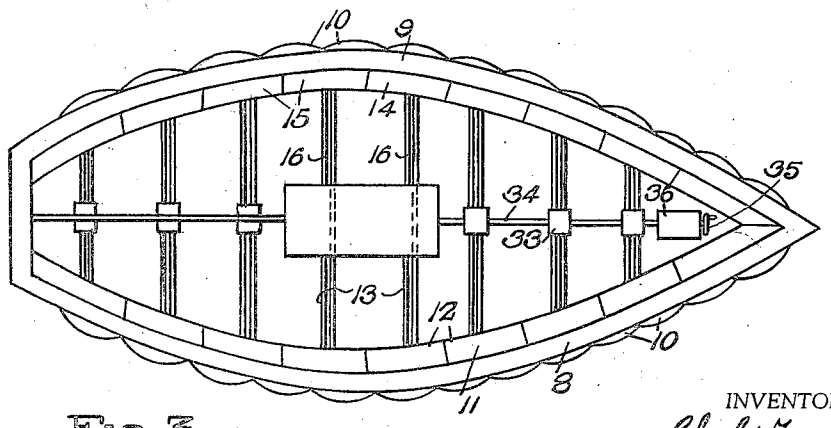


Fig. 3.

INVENTOR.

Charles Farrugia

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SAFETY LIFEBOAT

Charles Farrugia, New York, N. Y.

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9 Claims. (Cl. 9—4)

This invention relates to a life boat and one of its objects is to provide a life boat which can be righted when thrown to one side, or inverted, by controlling the ballasting water, and which cannot be flooded, either from heavy seas or through leaks in the outer hull or body of the vessel, and which will not sink when one or more punctures or holes are pierced through the outer hull.

Another object of the invention is to provide means for controlling the distribution of the passengers, so that excessive loading on one side or one end of the vessel, during stormy weather, or when launching the life boat, can be avoided.

A further object of the invention is the provision of means for enabling the operator in charge of the life boat to quickly shift the water ballast when the vessel is unbalanced in heavy seas or otherwise, so that it can be forced to a correct floating position.

A still further object of the invention is to provide a cover for the top of the vessel, which will form a water tight seal for it.

A still further object of the invention is the provision of a life boat, in which provision is made for the storage of food and water, and oxygen gas, and further provision is made for receiving and transmitting radio messages.

With the above and other objects in view the invention consists in certain new and useful constructions, combinations, and arrangements of parts, clearly described in the following specification, and fully illustrated in the drawings, in which:

Fig. 1 is a vertical longitudinal sectional view.

Fig. 2 is a vertical transverse sectional view.

Fig. 3 is a top plan view, showing the deck cover removed.

Fig. 4 is a vertical transverse sectional view.

Referring to the drawings illustrating the practical construction of my invention 5 designates the outer hull of the vessel, which is suitably shaped to provide a forward end 6 and a rear end 7, and right and left sides 8 and 9, respectively. Arranged along the sides of the vessel are a series of rope handholds 10, by means of which persons struggling in the sea may support themselves.

Against the right side 8 of the vessel a ballast tank 11 is arranged. This ballast tank is divided into a series of separate compartments 12. A ballast loading and controlling pipe 13 is connected with each of such compartments.

Another ballast tank 14 is arranged against the left side 9, and is similarly divided into a series of separate compartments 15. A ballast loading and controlling pipe 16 is connected in communication with each of said compartments.

Along the bottom 17 of the vessel a compressed air tank 18 is disposed, being shown to be located midway of the sides of the tank, so that it occupies a central longitudinal position. Over this tank a series of brackets 19 are arranged, on which the upright wall 20 is supported. On this wall the passenger seats 21 and 22 are arranged on opposite sides thereof. Spacers 23 are arranged along these seats, which are in the nature of benches which extend longitudinally of the vessel.

Arranged against the right side 8 of the vessel and over the ballast tank thereof, is another seating bench 24, which is likewise provided with spacers 25. Arranged over the ballast tank of the left side and against the left side of the hull, is another passenger seating bench 26, which is also equipped with spacers 27. The spacers prevent longitudinal shifting of the passengers in heavy seas, toward the forward and rear ends of the vessel, while the intermediate longitudinal wall provides means for preventing the passengers on one side of the vessel from rolling toward and against the other side of the vessel. To retain the passengers in position, restraining straps 28 may be arranged over the benches.

Against the floor of the vessel on the right side thereof a ballast tank 29 is arranged, which is divided into a series of separate compartments, and against the bottom on the left side of the vessel another ballast tank 30 is arranged, which is also divided into a series of ballast compartments.

The compartments of the right ballast tank 11 are connected by transverse pipes 31 with the compartments of the left ballast tank 14, so that the compartments of both tanks will be arranged in opposed units, each compartment of the right tank being connected in communication with the opposite compartment of the left tank, through one of the pipes 31. The end of each pipe 31 which engages or enters any compartment is provided with a flexible rubber conduit or hose 32, which is adapted to drop toward the lower part of the compartment, in any position the compartment may be shifted to by heavy seas, or improper launching, or from other causes.

Flow from the units of each pair of compartments of the right and left ballast tanks is controlled by means of the pumping units 33, which are assembled in flow relation to the cross pipes 31. All of these units 33 are connected by a single line shaft 34 to each other, and may be driven by

a hand wheel 35, or by means of a suitable air or other motor 36.

An air driven motor is preferred, and this may be operated by means of the compressed air supply contained in the tank 18, through the medium of the supply pipe 37, and the controlling valve 38. A float 39 is arranged in each compartment, and this float is connected to an air hose 40, of flexible rubber, which in turn is connected with a cross air pipe, so that any compartment of the right tank will be able to discharge air to its twin compartment of the left ballast tank, when there is a shifting of the ballast water from such right compartment to the companion left compartment.

A manually driven air compressor 41 is arranged in the vessel, so that the passengers can recharge the tank 18 with compressed air, should they remain at sea for a prolonged period of time. When the ballast water is shifted from one compartment to its opposite companion compartment, then the air from the compartment from which water is withdrawn will be increased from the air from the compartment into which water is delivered.

Should the vessel be inverted, the operator or person in charge of the vessel would shift the ballast toward one side of the vessel, so that this side would tend to sink and thus produce a turning movement on the vessel. Should the vessel be caused to ride or float on one side, then the ballast water would be shifted to the uppermost side, so that gravity pressure would produce a turning movement of the vessel, thereby tending to shift the vessel to normal position. As the vessel is righted to normal position the ballast water is returned to the compartments from which it has been withdrawn.

One or more oxygen tanks 41 is arranged under the roof 42, which includes a central rigid section 43, and sliding sections 44 and 45. The outer edges of the sliding sections engage the water tight overlapping bars 46 and 47, and may be secured in closed positions by means of the locks 48 and 49.

An entrance hood 50 is mounted on the central roof section, and is provided with a water tight door 51, which is also equipped with a smaller ventilation door 52.

The hull of the vessel may be lined or equipped with protected cork, so that under all circumstances the vessel will retain sufficient buoyancy to support itself against sinking; but each of the ballast tanks is provided with sufficient air capacity to insure that buoyancy will be maintained.

The entire top of the vessel is completely covered, and ventilation may be obtained by means of the inverted air conduits 53 and 54, arranged at suitable locations on the roof, so that a thermo circulation may be maintained within the vessel.

The bottom of the hull 5 is equipped with a cast metal keel 60, and the vessel is steered by means of the rudder 61. A propeller shaft 58 extends rearwardly of the hull and is equipped with a suitable propeller 59. The propeller shaft is driven by means of the engine 58, arranged in a water tight compartment 55, and furnished with fresh air through the conduit 56, which extends upward into the cabin. This conduit terminates at the top of the compartment 56, so as to carry off the exhaust and another conduit 57 extends to a low level in the compartment 55, so that a good circulation is maintained in the engine compartment.

The vessel is equipped with an engine room 55, which is sealed against the inflow of water, in which a power plant or engine 58 is arranged. The shaft 58' of this engine or power plant is equipped with a propeller 59 on its rear end. A weighted metal keel 60 is mounted on the bottom of the vessel, and this provides a guard for the propeller. Rearwardly thereof the rudder 61 is arranged. Air is supplied to the engine room 55 by the pipe 57, which discharges fresh air near the floor of the room, and exhaust air is discharged by a pipe 56, which taps the roof of the room.

I claim as my invention:—

1. A life boat consisting of a hull having ballast chambers in the opposite sides thereof, conduits constituting the sole means for connecting the opposed chambers, said conduit being located adjacent the bottom of said chambers, a pump connected with each conduit for propelling water from one chamber to the opposite chamber, the chambers being arranged in series on each side, said pumps arranged in line formation, and a line shaft connected with all the pumps for simultaneously operating the same.

2. A life boat consisting of a hull, a weighted keel for the hull, a ballast chamber located at the bottom of said boat and extending longitudinally thereof, ballast chambers located in series on opposite sides of the boat, a conduit constituting the sole means for connecting the opposed ballast chambers, said conduits being located adjacent the bottoms of said chambers, a water tight cover for the hull, seats arranged over the second mentioned chambers, means for restraining each passenger on each seat, a pump connected with each conduit, and means for simultaneously operating all the pumps to transfer water from one side of the hull to the other side to produce a righting of the boat when upset in heavy seas or otherwise.

3. A safety life boat, consisting of a vessel having a hull, a series of opposed ballast tanks arranged on each side of the vessel adjacent to the hull thereof, a conduit connecting the lower ends of each pair of opposed tanks, a pump in each conduit controlling the gravitational flow of water through the conduit, and means for operating the pumps simultaneously to cause water from one side of the vessel to flow upwardly from the tanks of that side to the tanks directly opposite to produce excessive weight on the uppermost side of an upset vessel, whereby the transferred ballast will tend to correct the unbalanced position of the vessel.

4. The construction set forth in claim 3, including a closed top for the vessel, forming means for excluding sea water from entering the vessel, and a sliding door for said cover providing means for controlling admission to the vessel.

5. The construction set forth in claim 3, including passenger seats immediately above the side tanks, and means for securing passengers to said seats to prevent accumulation of the passengers on one side when the vessel is upset.

6. The combination set forth in claim 3, including an air motor for operating said pumps, and a compressed air tank for operating said air motor.

7. The combination set forth in claim 3, including an engine chamber sealed from the interior of the vessel, an exhaust conduit connected with the top of said chamber, and a fresh air intake connected with the bottom of the chamber, to provide a thermo circulation of air through

said chamber independently of the passenger compartment of the vessel.

8. A life boat consisting of a hull having a weighted keel, said life boat having a series of ballast tanks arranged on each side thereof entirely enclosed by the hull, means for causing ballast water in the tanks on one side of the boat to shift to the tanks on the opposite side of the boat, the tanks on each side of the boat being independent of each other and without direct communication with each other, means for retaining passengers in position within the life boat to prevent shifting of the weights thereof, and means for excluding water from entering the boat from a sea in which the boat is immersed for surface navigation.

9. A life boat consisting of a hull, said hull including opposed sides, a series of individual ballast tanks arranged on the sides of the hull, pipes connecting the opposite tanks to each other to permit of lateral shifting of ballast water in such tanks, the tanks being arranged so that longitudinal shifting of ballast water toward either end of the hull is prevented, means for causing water to flow through the pipes to forcibly shift the ballast water from one side to the other side, to provide means for accumulating the ballast water on either side of the hull to enable the occupants to forcibly right the position of the hull when inverted at sea, a motor for operating the last means, stored motive power means for operating said motor, and a cover for the hull constructed to prevent sea water shifting into the hull.

CHARLES FARRUGIA.