No. 812,815. PATENTED FEB. 20, 1906.

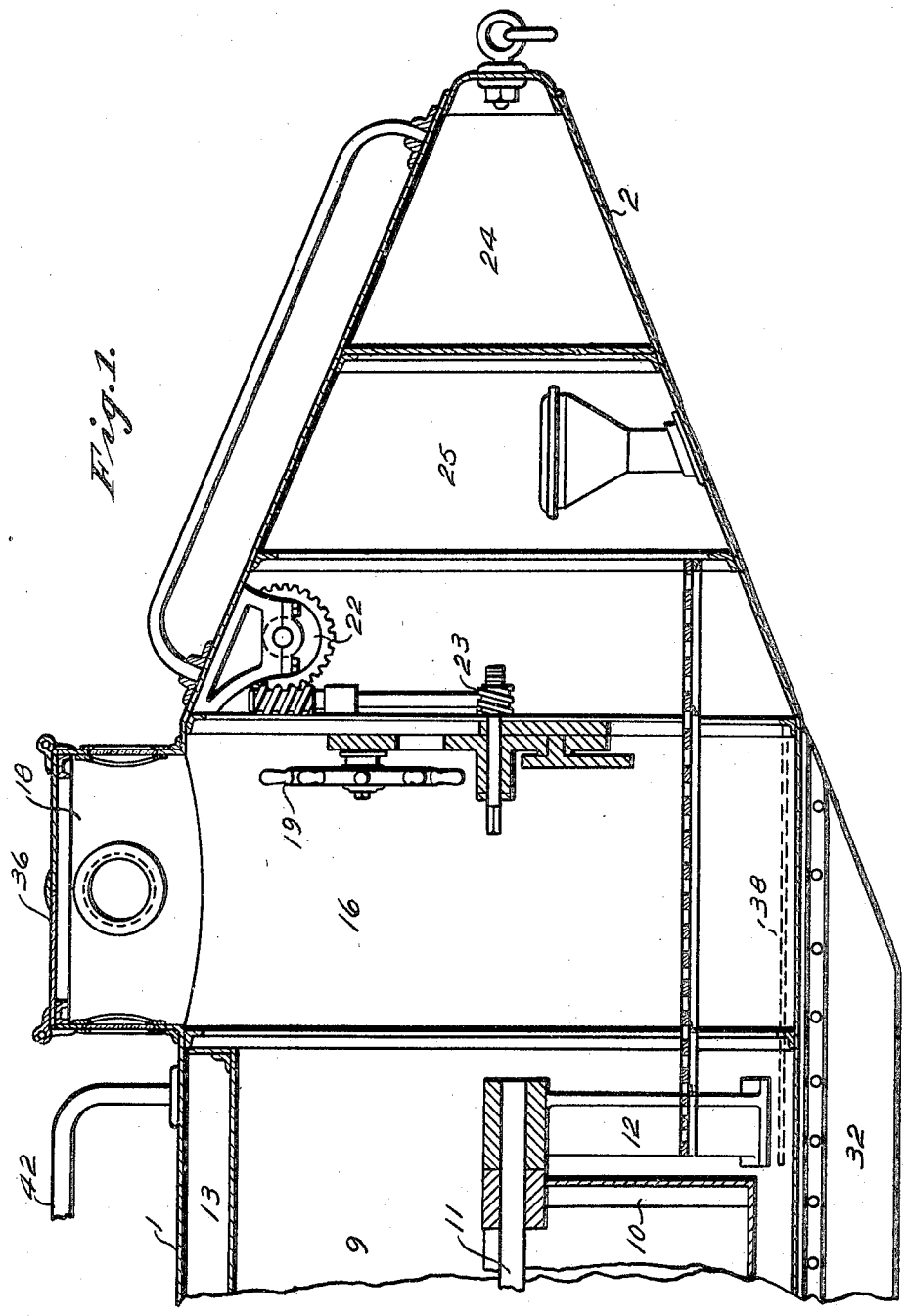
R. A. BROWN.

LIFE BOAT.

APPLICATION FILED APR. 6, 1905.

3 SHEETS—SHEET 1.

Fig. 1.




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3 SHEETS—SHEET 2.

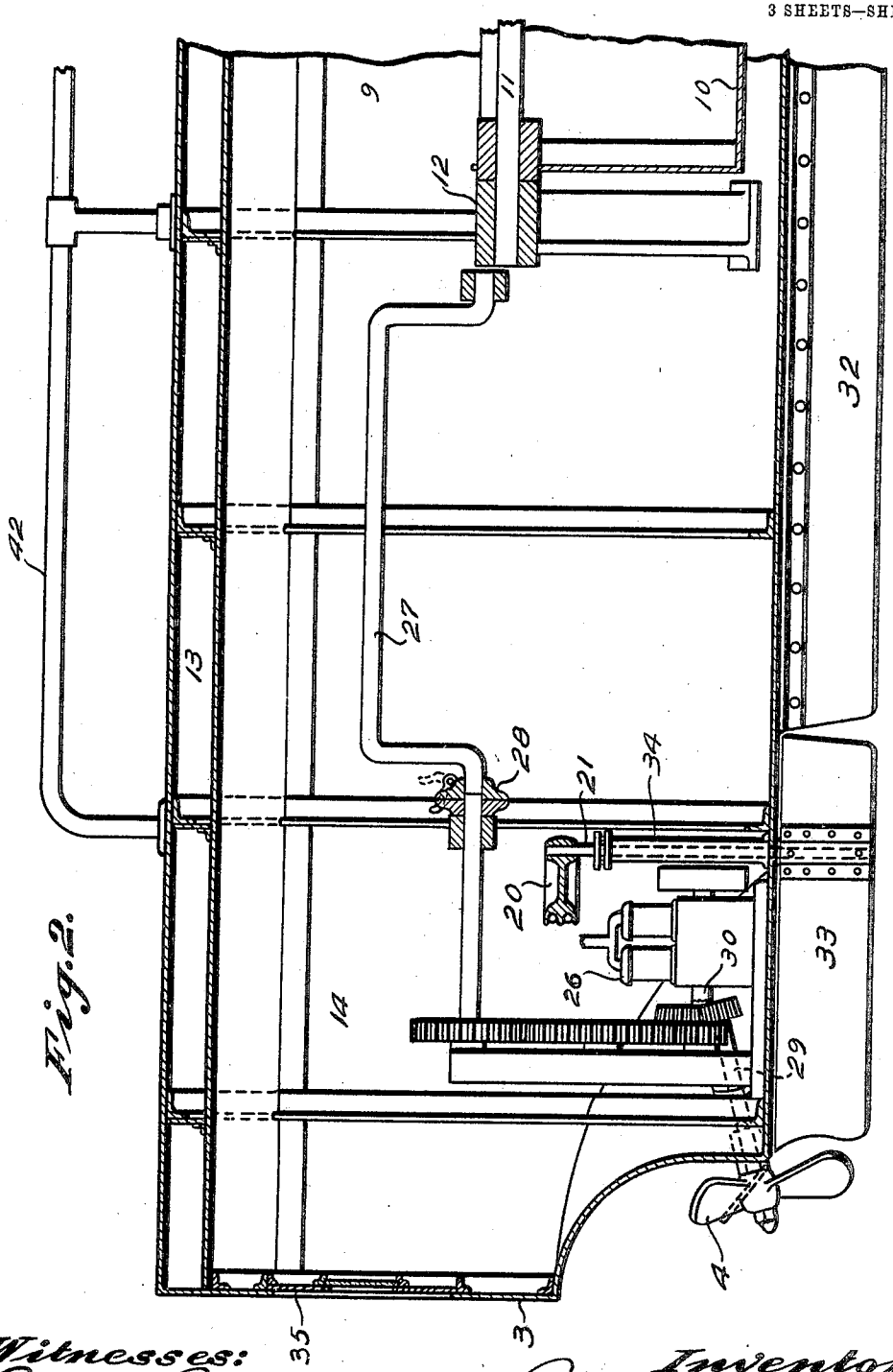



Fig. 2.

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3 SHEETS—SHEET 3.

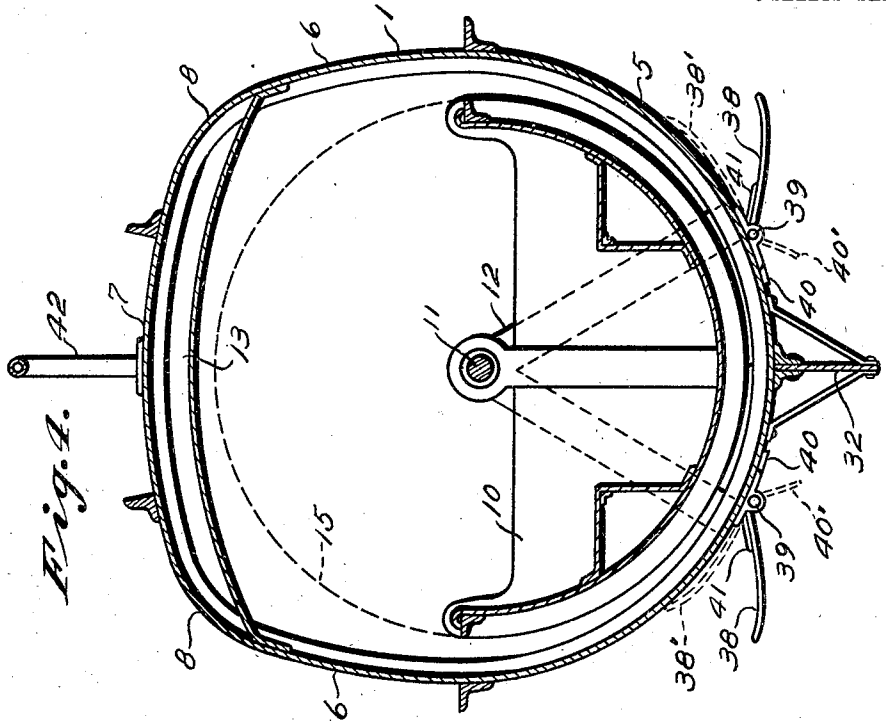



Fig. 4.

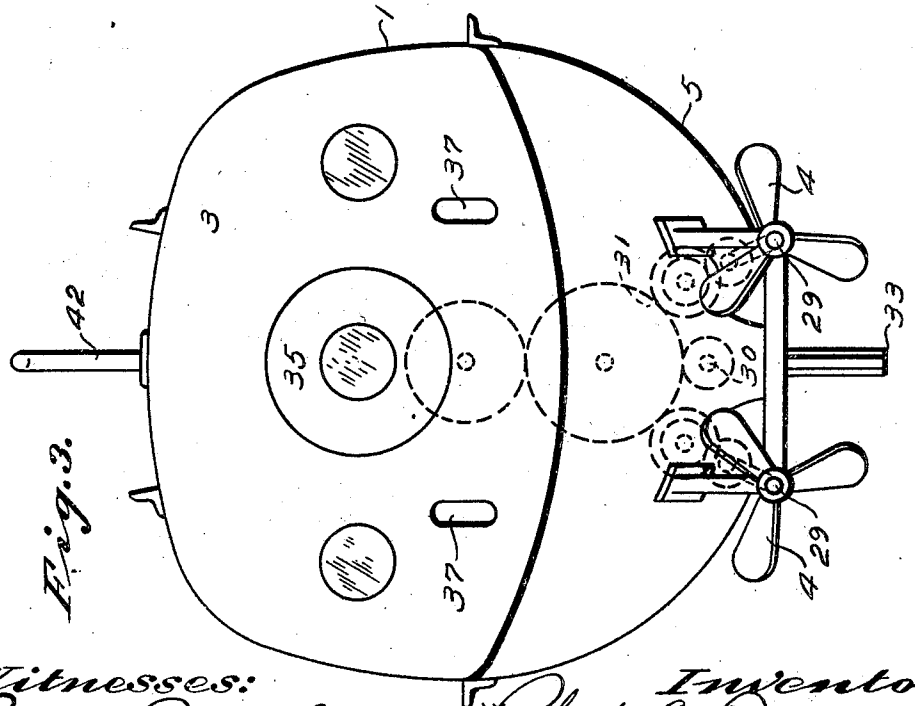



Fig. 3.

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# UNITED STATES PATENT OFFICE.

ROBERT A. BROWN, OF CHICAGO, ILLINOIS.

## LIFE-BOAT.

No. 812,815. Specification of Letters Patent. Patented Feb. 20, 1906.

Application filed April 6, 1905. Serial No. 254,094.

*To all whom it may concern:*

Be it known that I, ROBERT A. BROWN, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Life-Boats, of which the following is a specification.

My invention relates to life-boats, and has particular reference to the class of life-boats in which an inner car for passengers is mounted so as to remain in equilibrium regardless of the rolling of the outer hull.

The main objects of this invention are to provide an improved shape of hull for life-boats of this class, to provide improved arrangement of the interior compartments, to provide improved means for checking the longitudinal pitching of the boat when riding seas, and to provide improved devices for assisting the steering mechanism in holding the head of the vessel toward the seas and preventing the waves from swinging the vessel into the trough of the seas.

A further object of this invention is to provide an arrangement of air-spaces within the vessel, whereby when the same is partly full of water it will tend to remain in its normal upright position.

I accomplish these objects by the device shown in the accompanying drawings, in which—

Figure 1 is a longitudinal section of the forward part of a life-boat constructed according to my invention. Fig. 2 is a longitudinal section of the after part of the same, being a continuation of Fig. 1, with a portion of the middle part of the hull broken away. Fig. 3 is a stern elevation of the same. Fig. 4 is a transverse section of the same at a point intermediate between Figs. 1 and 2 and looking forward.

In the construction shown in the drawings the hull 1 is substantially cigar-shaped in form, being pointed at the forward end 2 and cut away at the after end 3 below the water-line to receive a pair of twin propellers 4. The hull extends over the propellers so as to protect the same from contact with obstructions.

The outer hull 1 is tubular for the greater part of its length intermediate of its ends. The lower part 5 of the transverse section of said tubular part is substantially semicircular, while the upper part of said transverse section lies outside of the continuation of the circle of the lower part 5. The sides 6 of said upper part have a slight curvature and "tumble home" and are connected with the uppermost or deck portion 7 by parts 8 of sharp curvature.

The hull 1 is entirely inclosed, and its interior is subdivided into three main compartments, located one before the other and each extending across the entire width of the hull. The middle compartment 9, which is mostly broken away in the drawings, is the longest of these compartments and has a car 10 for passengers. This car is suspended from a substantially horizontal shaft 11, which is disposed longitudinally of the hull and journaled at its ends in brackets 12. The car is free to rotate about the axis of said shaft, and thus remains normally in equilibrium regardless of the rolling of the outer hull.

An air-compartment 13 is formed in the interior of the boat immediately below the deck 7 and extends throughout the length of the middle compartment 9 and the after compartment 14. The bottom of the air-tank 13 is disposed at a suitable elevation to clear the path of the swinging of the car 10. Said path is indicated by the dotted line 15 in Fig. 4. The capacity of the air-tank 13 is preferably greater than that of any closed air-compartments which are below the center of the hull, so that in case of accident when the hull has taken in water the air-tank 13 will cause the boat to remain upright.

The forward compartment 16 of the hull is provided with a turret 18, which extends above the deck 7 and forms an observation-tower from which the helmsman can see out for the purpose of directing the course of the vessel. The steering-wheel 19 is mounted in the compartment 16 in convenient position for the helmsman and is connected by means of the usual steering-ropes with a quadrant 20 on the rudder-post 21 in the after compartment 14. The compartment 16 also contains a winch 22 for handling lines, such as the anchor-cable or the cables by means of which the life-boat is lowered from the deck of a vessel. This winch is provided with worm-gearing 23, so that its operation, as in the case of lowering the life-boat from a vessel, may be controlled by a single man. The extreme forward end of the compartment 16 is taken up by a water-tank 24 and toilet-room 25.

The after compartment 14, which extends between the rear end of the car 10 and the stern of the boat, forms an engine-room and

crew-space and contains the driving mechanism for operating the propellers 4. This mechanism consists of an engine 26 and a crank 27. The crank is provided with a coupling 28, so that it may be disconnected and hang idle when the propellers are turned by the engine. The engine 26 is arranged between the two propeller-shafts 29, and the shaft 30 of the engine is connected with each of the propeller-shafts 29 by a system of gears to which the crank 27 is also connected. This arrangement of gears is indicated by the dotted lines at 31 in Fig. 3, said dotted lines indicating the pitch-circles of the gears.

The hull 1 is provided with a rigid keel 32, and the rudder 33 forms a continuation of the keel 32 and is of the counterbalanced type, having a part extending forward of the rudder-post. The rudder-post 21 extends upwardly through a trunk 34 and has at its upper end the quadrant, which has already been mentioned.

Access to the interior of the boat is had through a water-tight door 35 in the stern and through a hatch 36 in the top of the turret 18. The stern of the boat is also provided with apertures 37, which are normally closed by suitable covers, but are available for steering the boat by means of an oar in case of accident to the regular steering apparatus.

A pair of horizontally-disposed fins 38 are hinged at 39 at each side of the keel near the forward part of the boat. The axes of the hinges for said fins are disposed longitudinally of the hull and the fins are free to rotate on their hinges between the positions shown by full lines in Fig. 4 and a position against the side of the boat indicated by dotted lines 38′ in Fig. 4. Each of the fins 38 has an arm 40, adapted to engage the shell of the hull and act as a stop for limiting the position of the fin 38 and preventing the movement of said fin below the position shown by full lines. The fins are normally held in the position shown by full lines by gravity and by springs 41. The fins 38 offer no resistance to the entrance of the vessel into a wave, but are intended to resist the lifting of the bow when struck by a wave.

The operation of the car 10 will be readily understood from the drawings. It is preferred to journal said car at a point considerably below the center of depth of the hull, so that the weight of the car will normally tend to assist in resisting the rolling of the outer hull. In case through accident to the outer hull the interior thereof becomes partly or wholly filled the air-tank 13 will serve to keep the deck uppermost, so that the passengers and crew may still cling to the life-rail 42, which extends along said deck. The fins 38 serve to help the vessel to maintain its course, as they serve to cause the boat to cut into the waves and prevent the bow from being lifted by a wave and swung toward one side. For example, when the vessel's course is at an angle to the waves one or both of the screws will always be submerged, so that the propulsion will be continuous, and the fins 38, by preventing the bow from lifting on a wave, cause the boat to penetrate the waves, and thereby prevent its slipping into the trough of the sea. Other features of the operation will be readily understood from the drawings and the foregoing description.

It will be seen that numerous details of the construction shown may be altered without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a boat of the class described, the combination of a hull, a propeller mounted at the stern of said hull, side fins hinged to the hull near its forward end, on horizontal axes, and stops to brace said fins against swinging below a substantially horizontal position, said fins being arranged to swing upward and being adapted to normally assume said horizontal position and resist the lifting of the bow of the hull when struck by a wave.

2. In a boat of the class described, the combination of a hull, twin propellers mounted at the stern of said hull, side fins hinged to the hull near its forward end, on horizontal axes, and stops to brace said fins against swinging below a substantially horizontal position, said fins being arranged to swing upward and being adapted to normally assume said horizontal position and resist the lifting of the bow of the hull when struck by a wave.

3. A boat having an overhanging end and having a pair of horizontally-disposed side fins hinged at opposite sides of the hull and near said end, said fins being free to fold upwardly against the hull, and stops for limiting the extended position of said fins when submerged, whereby said fins will act to check the lifting of said end of the boat when struck by a wave.

4. In a boat of the class described, the combination of an outer hull, an inner car journaled on a longitudial axis within said hull and adapted to remain in equilibrium during the rolling of said outer hull, said hull being arranged to float in a normally upright position and having an air-tight compartment along its upper part adapted to cause said hull to assume an upright position when said hull is partly filled with water, the bottom of said air-tight compartment being of flatter curvature than that of an imaginary cylinder having its center coincident with the axis of said car and lying wholly outside of the circular path of rotation of said inner car.

5. In a boat of the class described, the combination of a hull, a car suspended within said hull and adapted to swing about a longitudinal axis and remain in equilibrium regardless of the rolling of said hull, a propeller mounted at the stern of said hull, side fins

hinged to the hull near the forward end, on horizontal axes, and stops to brace said fins against swinging below a substantially horizontal position, said fins being arranged to swing upwardly and being adapted to normally assume said horizontal position and resist the lifting of the bow of the hull when struck by a wave.

6. In a boat of the class described, the combination of a hull ovate in transverse section for the greater part of its length intermediate of its ends; said transverse section having an inner contour which is substantially semicircular in its lower part and which has side and top portions of flatter curvature than that of said lower part but lying wholly outside of a continuation of the circle of said lower part, and a car suspended within said hull and rotatable about a longitudinal axis which is below the center of said lower semicircular part of the hull.

Signed at Chicago this 1st day of April, 1905.

ROBERT A. BROWN.

Witnesses:
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EUGENE A. RUMMLER.