No. 870,928. PATENTED NOV. 12, 1907.

R. A. BROWN.

LIFE BOAT.

APPLICATION FILED MAR. 9, 1907.

3 SHEETS—SHEET 1.

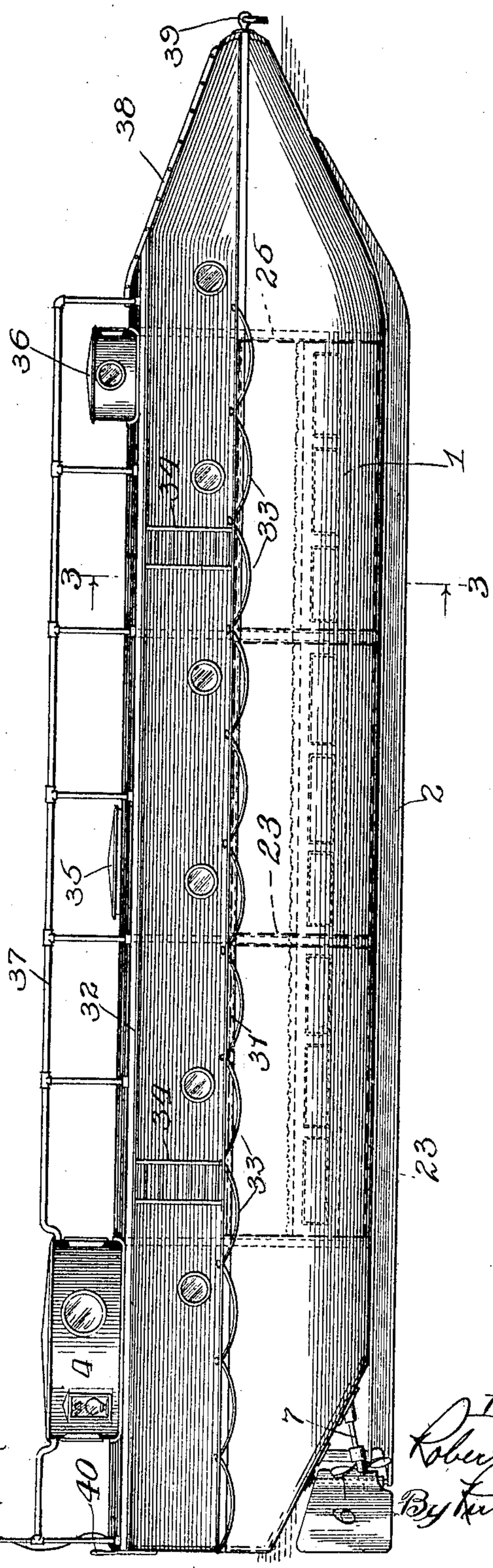

Fig. 1.

Witnesses
Harry R. L. White
Ray White.

Inventor
Robert A. Brown,
By Rummler & Rummler,
Attys

THE NORRIS PETERS CO., WASHINGTON, D. C.

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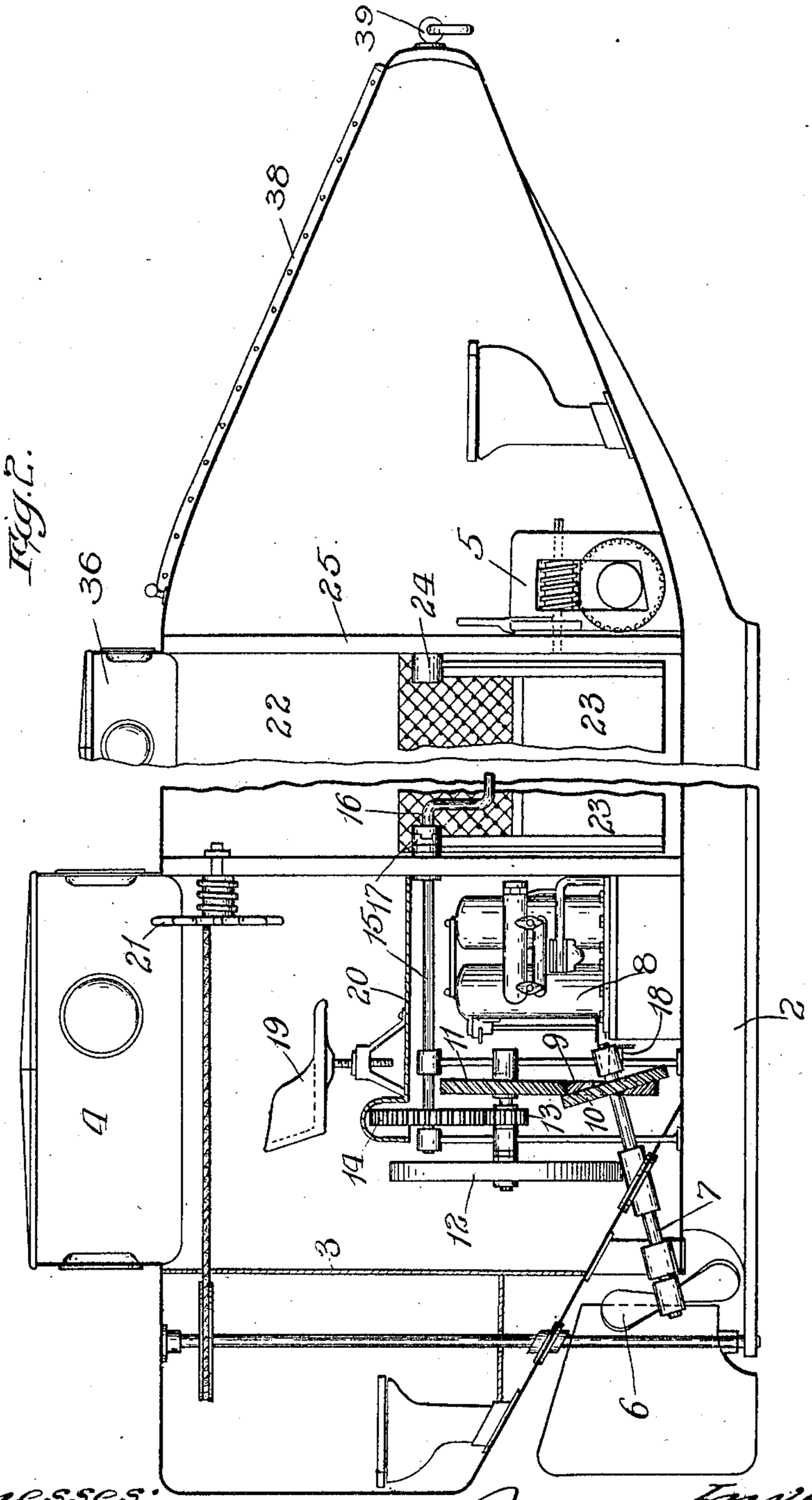
3 SHEETS—SHEET 2.

Fig. 2.



Witnesses:
Rudow Rimmler
K. M. Isuboden.

Inventor,
Robert A. Brown,
by Rimmler & Rimmler,
Attorneys.

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3 SHEETS—SHEET 3.

Fig. 4.

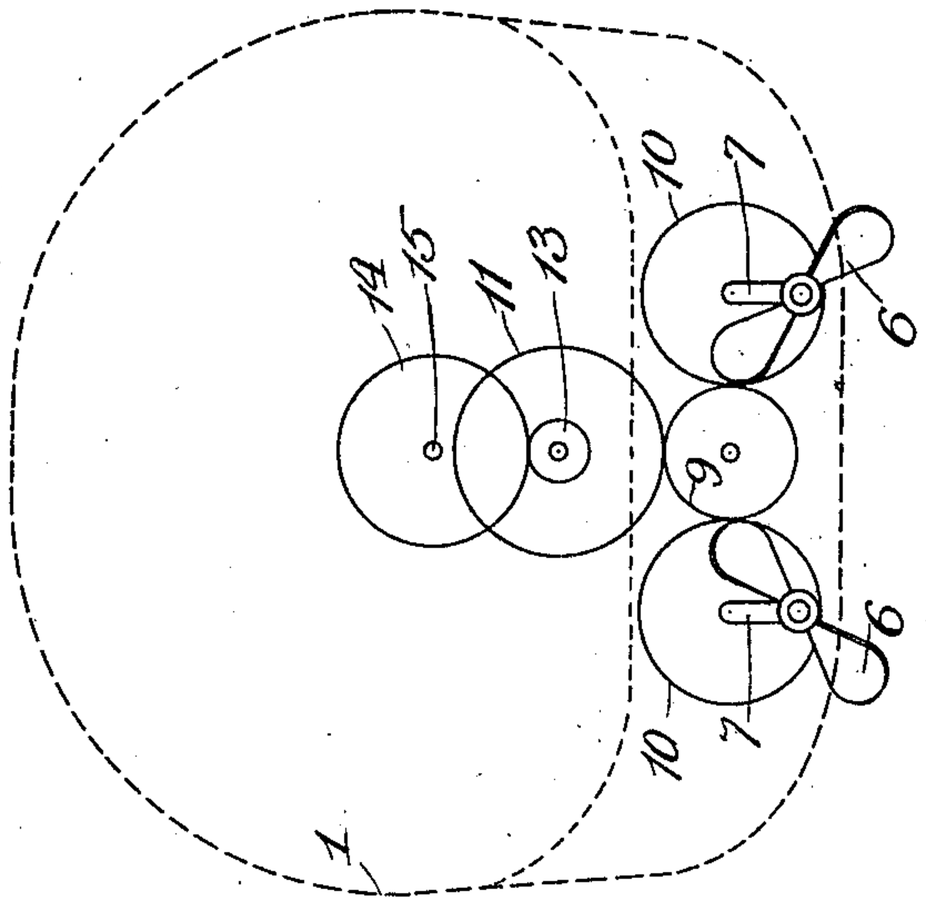
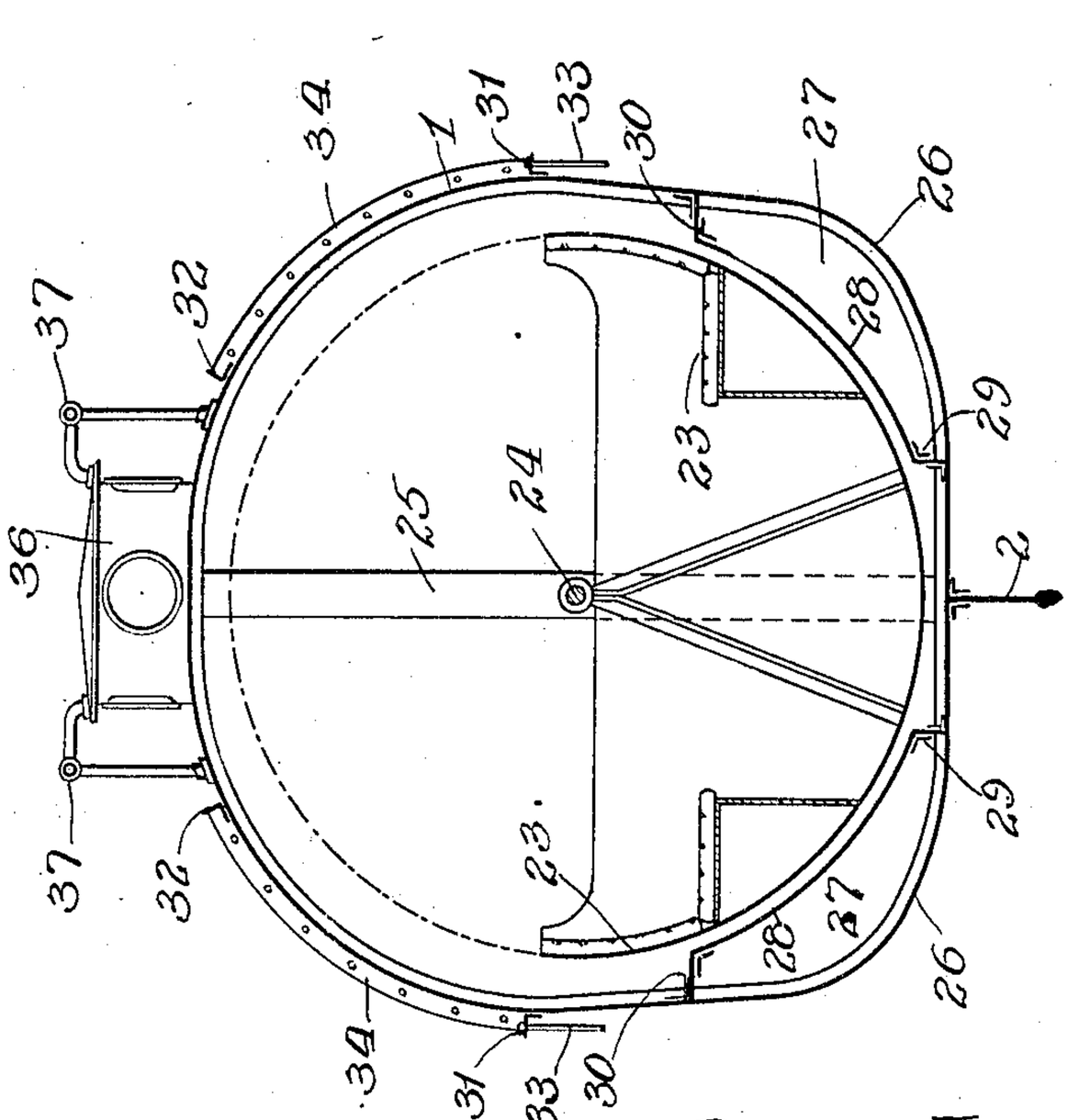


Fig. 3.



Witnesses:
Rudow Rummler
K. W. Iselboden

Inventor,
Robert A. Brown,
by Rummler & Rummler,
Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROBERT A. BROWN, OF CHICAGO, ILLINOIS.

LIFE-BOAT.

No. 870,928. Specification of Letters Patent. Patented Nov. 12, 1907.

Application filed March 9, 1907. Serial No. 361,434.

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, county of Cook, State of Illinois, have invented certain new and useful Improvements in Life-Boats, of which the following is a specification.

The main objects of this invention are to provide an improved construction for life boats of the type shown and described in my Patents No. 748,919, January 4, 1904; No. 776,641, December 6, 1904; and No. 812,815, February 20, 1906, in which an inner car, journaled on a longitudinal axis within an outer closed hull, is adapted to remain normally in equilibrium regardless of the rolling of the outer hull: to provide an improved life boat of this character in which water ballast may be used for maintaining the equilibrium of the outer hull while permitting of the use of a relatively large inner car and providing a correspondingly large passenger capacity with a minimum height of the outer hull; to provide an arrangement of water ballast compartment which when emptied of water and filled with air will form a valuable addition to the buoyancy of the passenger car in keeping the vessel afloat even after the outer hull is punctured; and to provide an improved arrangement of the interior of a life boat of this kind whereby the mechanism for controlling the same may all be within the reach of a single operator. These objects are accomplished by the device shown in the accompanying drawings in which:

Figure 1 is a side elevation of a life boat constructed according to this invention. Fig. 2 is a longitudinal section of the same on a larger scale, the middle part being broken away. Fig. 3 is a transverse section on the line 3—3 of Fig. 1. Fig. 4 is a diagrammatic view illustrating the arrangement of the gears connecting the manually driven and power driven mechanisms, the gears being indicated by their pitch lines and the transverse contour of the hull being indicated by dotted lines to show the relative positions of the gears therein.

In the construction shown in the drawings, the shell of the outer hull is substantially cigar-shaped in form, being of substantially uniform transverse section throughout the greater part of its length and pointed at its forward end. The hull is provided with a keel 2 extending throughout the greater part of its length.

The passenger compartment occupies the greater part of the interior of the boat. The rearward compartment 3 contains the propelling machinery and is also provided with a turret 4 extending above the deck so that the helmsman may have an unobstructed range of vision. Forward of the passenger compartment is a storage space and toilet room; this space also contains the winch 5 by means of which the boat is handled when being lowered from the deck of the vessel.

The boat is driven by twin screws 6 which are mounted upon propeller shafts 7, substantially parallel to each other but preferably inclined downwardly and rearwardly. The power motor 8 is preferably an internal combustion engine and its main shaft is horizontal and provided with a gear having spiral teeth meshing with corresponding spiral teeth on the gears 10 of the propeller shafts. A gear 11, mounted on a shaft journaled above the gear 9, is also provided with spiral teeth to mesh with those on the gear 9. This shaft is provided with a fly-wheel 12 and is connected by gears 13 and 14 with a crank shaft 15 which may be rotated by cranks 16 adapted to be operated by persons in one of the passenger cars. The cars are provided with means indicated at 40 for locking them against rotation with respect to the outer hull when desired. A clutch 17 permits the crank 16 to be thrown into or out of service and a clutch 18 which is partly hidden from view in Fig. 2 by the bearing of the shaft 7 permits the motor to be thrown into or out of connection with the gear 9. The fly-wheel 12 is so located that it steadies the operation of the propeller-wheels both when driven by the motor 8 and when driven by the cranks 16.

A seat 19 for the helmsman is mounted upon a platform 20 above the motor 8. The steering-wheel is indicated at 21. The middle or passenger compartment 22 of the hull is provided with one or more cars 23 which are journaled in axial alinement and mounted to rotate freely about an axis disposed longitudinally with respect to the outer hull. Two such cars are indicated by dotted lines in Fig. 1 of the drawings. The cars 23 are mounted on trunnions 24 carried by uprights 25. Each car 23 is preferably constructed of sheet metal and is water-tight so that it will assist in keeping the vessel afloat in case of puncture of the outer hull.

The outer shell of the hull is comparatively flat at the bottom and is so formed as to provide a considerable space 27 at each side of the cars 23. These spaces are inclosed by an inner shell 28 which is water-tight so that the compartments 27 may be used either for water ballast or for air as conditions may require. The water in the compartment 27 may be forced out by air under pressure as is commonly done in the ballast compartments of other forms of vessels. The ballast compartments may also be subdivided by transverse water-tight partitions, not shown, so that damage to the shell will only affect the part of the tank in the immediate

vicinity of the puncture. The valves and mechanism for controlling the inflow and outflow of water and air from the compartments 27 are not shown in the drawings and may be of any usual form.

It is preferred to have the inner edges of each of the compartments 27 spaced away from the middle of the hull so as to permit the car to be hung as low as possible. The inner walls 29 of the compartments 27 are upright and serve as keelsons to give longitudinal stiffness to the bottom of the hull. The upper walls 30 of said compartment perform a similar function for the sides of the hull. In addition to the longitudinal stiffening members 29 and 30, the hull is stiffened longitudinally by the keel 2 and the longitudinal stringers 31 and 32.

The stringer bars 31 also form a convenient means for suspending life lines 33 along each side of the hull. Ladders 34 lead up from the stringer bars 31 to the top of the hull. The hull is entered through a hatch 35 in the deck. An observation turret 36 is also provided at the forward end of the hull. Railings 37 extend along the sides of the deck and a ladder 38 extends from the deck down to the hoisting-eye 39 at the bow. A corresponding eye 40, Fig. 1, is provided at the stern.

The device is operated as follows: Passengers enter the boat through the hatch 35. After the boat is launched, the hatch is sealed up and the cars released. The cars then remain in equilibrium regardless of the rolling of the outer hull. The boat is then controlled by one man stationed in the rearward compartment where he can easily control the engine from his position at the steering-wheel. In case of break-down of the engine, the rearward car may be locked against rotation, and the propellers may then be driven by means of the cranks. Under normal conditions the ballast tanks 27 are kept full of water so as to give the boat ample draft and hold it steady in the water. If through accident to the outer hull the boat leaks badly, then the water may be forced out of such ballast compartments as are intact and the buoyancy of such compartments utilized to assist that of the inner cars in keeping the vessel afloat and preventing water from reaching the interior of the cars.

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

1. A life boat comprising a closed outer shell, a car journaled within said shell on an axis disposed longitudinally of said shell and being free to rotate with respect to the outer shell, said outer shell being of non-circular transverse section below the axis of said car and being closer to said car at each side of the axis thereof and near the middle of the bottom than at intermediate points, and ballast compartments formed at each side of the middle in the space between the car and hull, the inner surfaces of said compartments being of substantially circular transverse section and concentric with the axis of said car and said compartments being spaced apart to allow the car to hang close to the outer hull between them.

2. A life boat comprising a substantial cigar-shaped outer hull, a car within the hull and relatively rotatable therein on an axis disposed longitudinally of the hull, the bottom of said hull being of non-circular transverse section, being flat in the middle and sharply turned at each side to meet the sides of the hull, and a separate closed water-tight compartment formed in said hull at each side of said car below the axis thereof, the inner walls of said compartments being close to and concentric with the path of said car and said compartments being spaced apart to allow the car to hang close to the outer hull between them.

3. A life boat, comprising a closed outer sheet metal hull of ovate transverse section, a car within the hull and relatively rotatable therein on an axis disposed longitudinally of the hull, the bottom of said car being of substantially circular transverse section, the bottom of the hull being closer to said car at the middle of its bottom and at each side of its axis than at intermediate points, water-tight ballast compartments formed within the hull at each side of the middle of its bottom, and arranged to give longitudinal stiffness to said bottom, the shell of the hull being close to the path of the car above the axis thereof, and longitudinal stiffening members secured outside of the hull at points above the axis of the car.

Signed at Chicago this 7th day of March 1907.

ROBERT A. BROWN.

Witnesses:

FELICIE STREYCKMANS,

E. A. RUMMLER.