

(No Model.)

S. LACAVALERIE.  
MARINE VESSEL.

No. 516,395.

Patented Mar. 13, 1894.

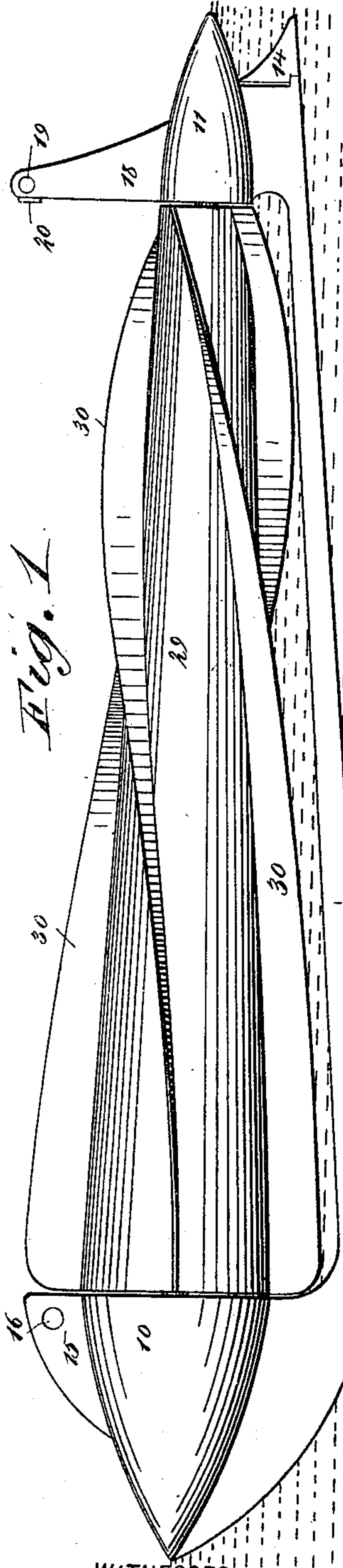


Fig. 1

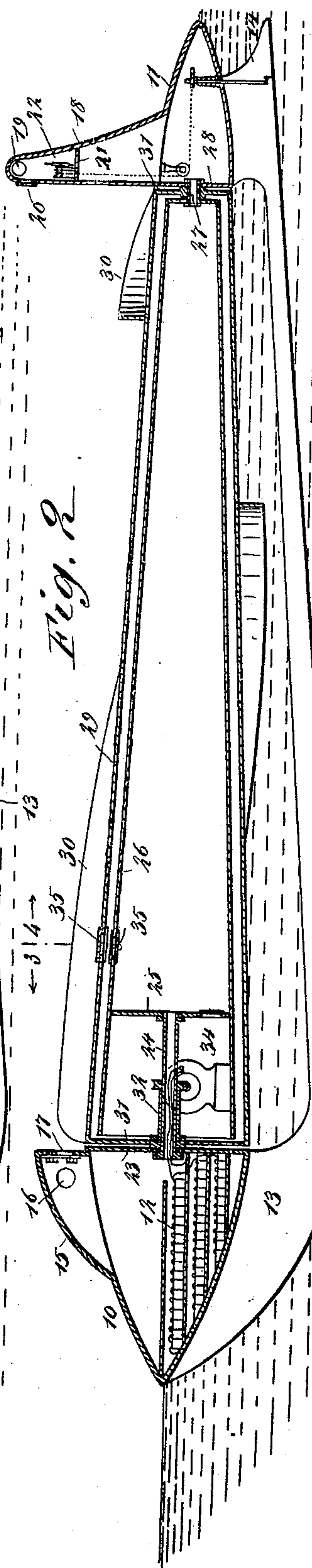


Fig. 2

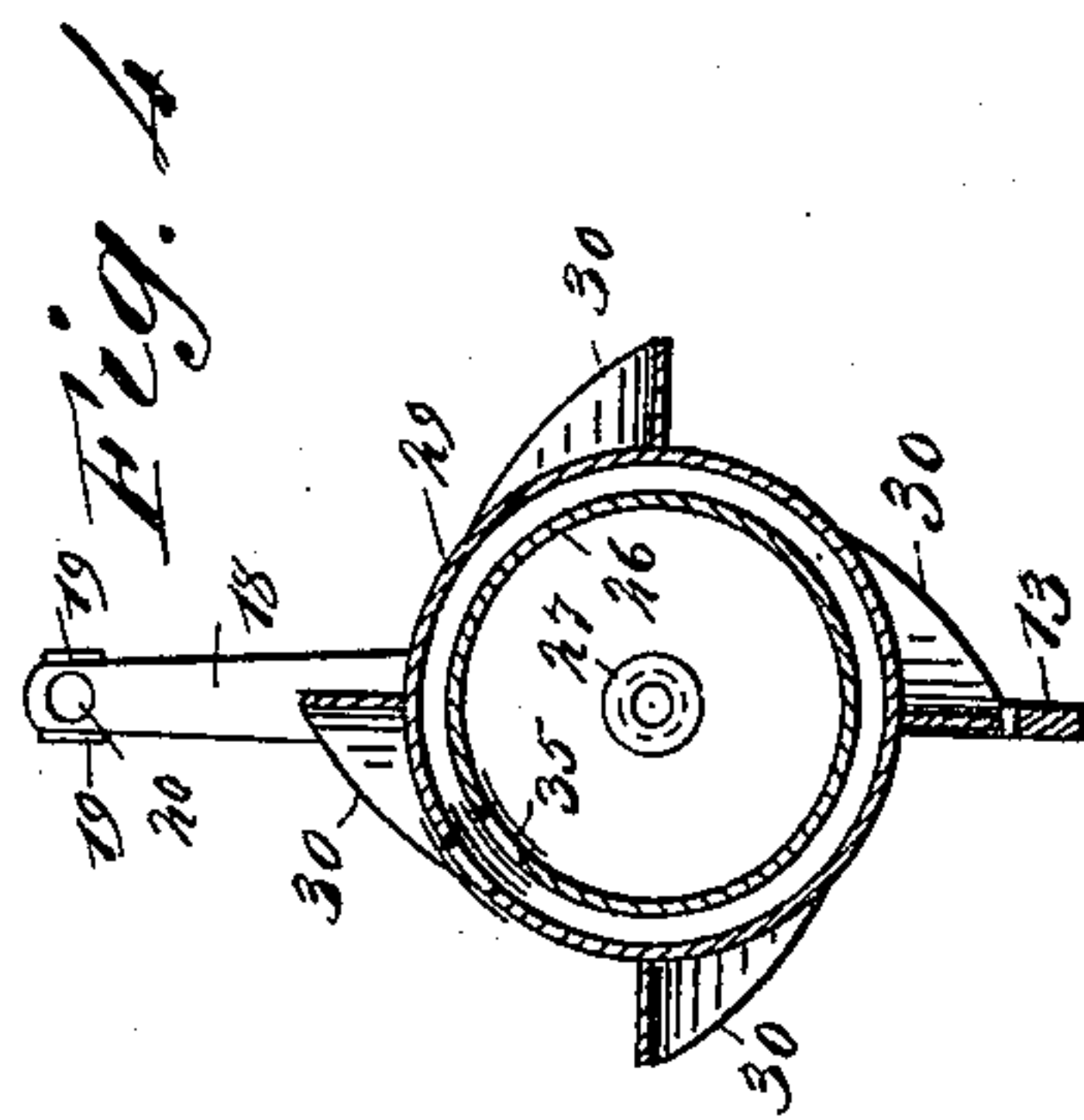


Fig. 3

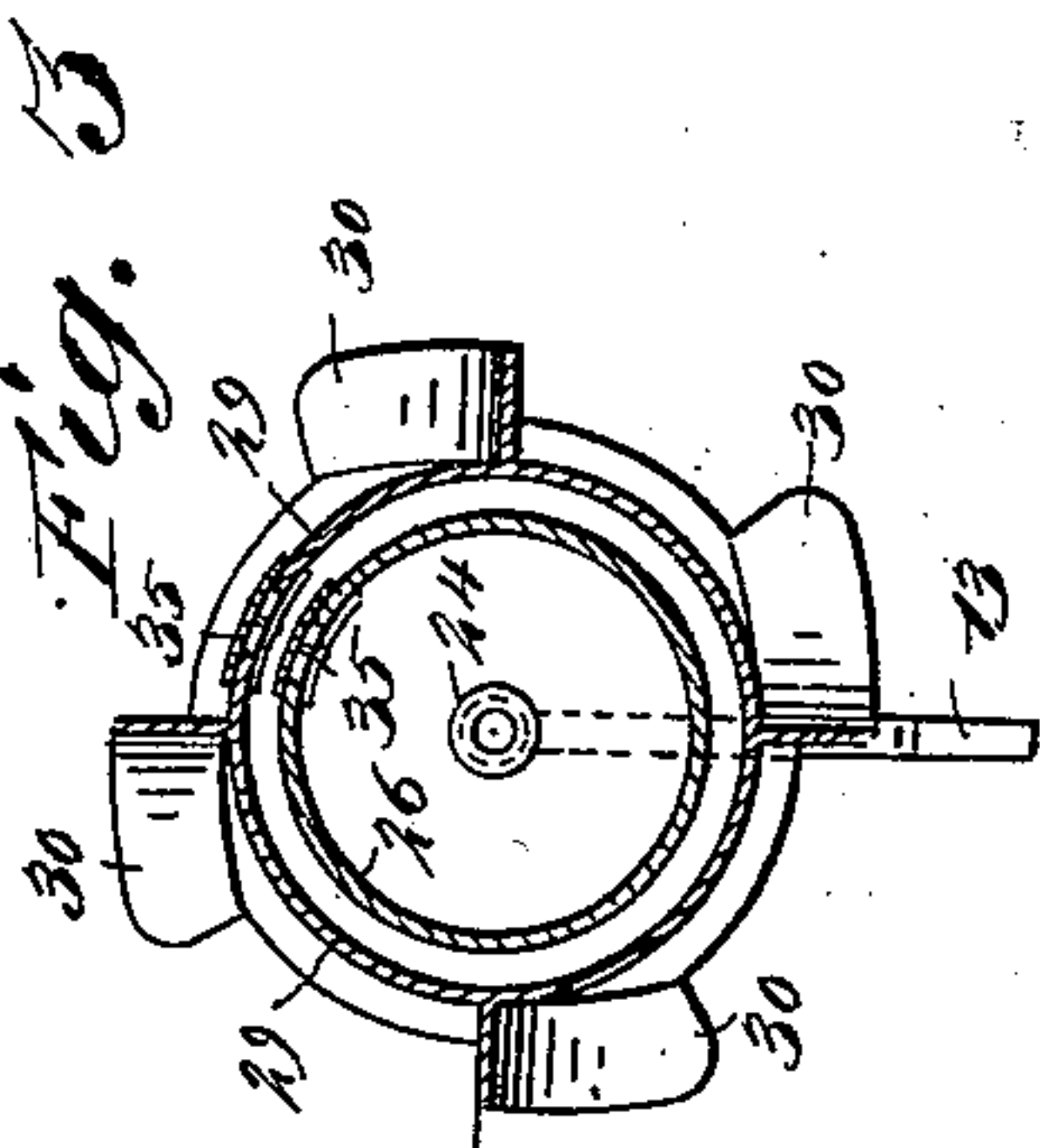


Fig. 4

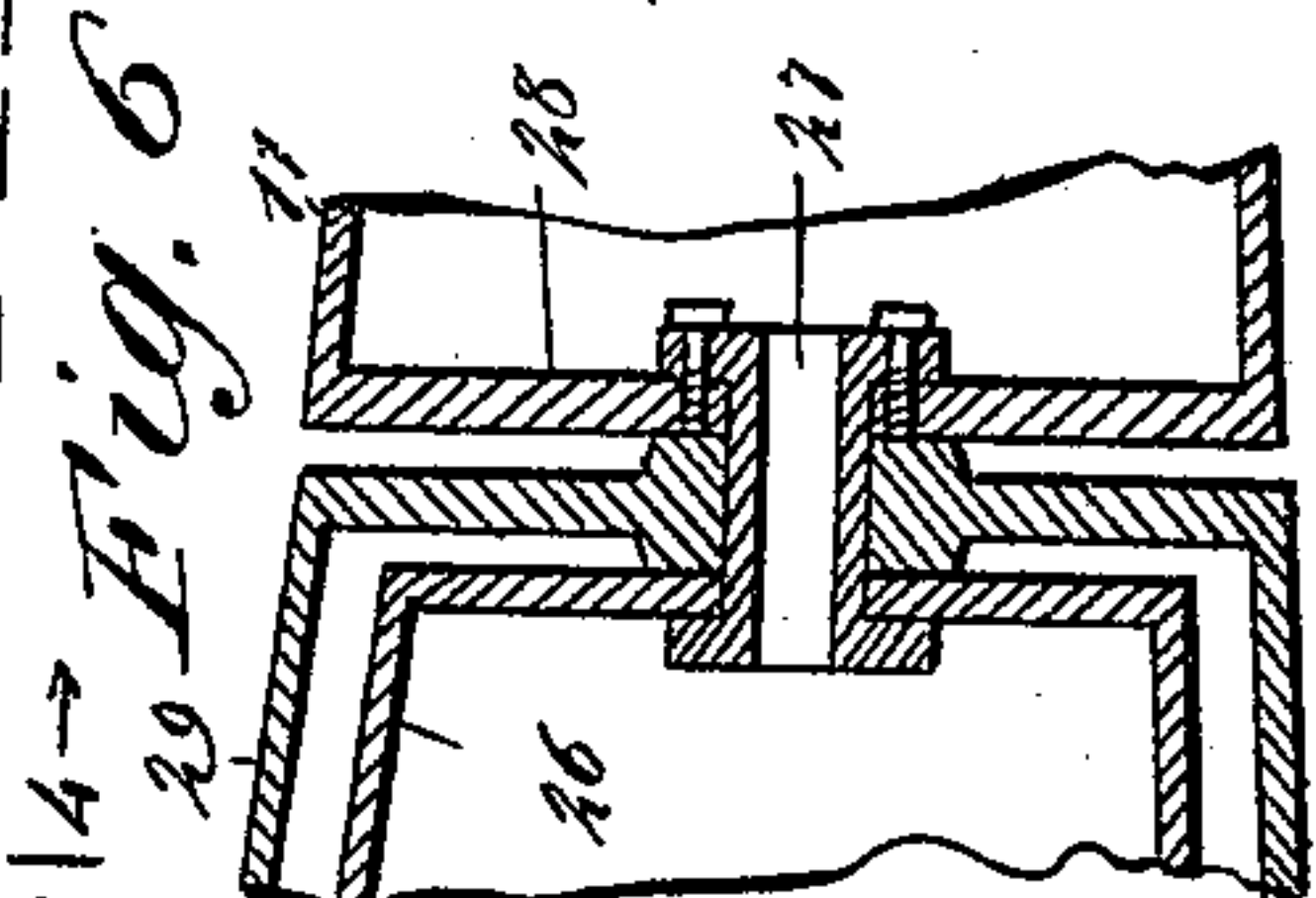


Fig. 5

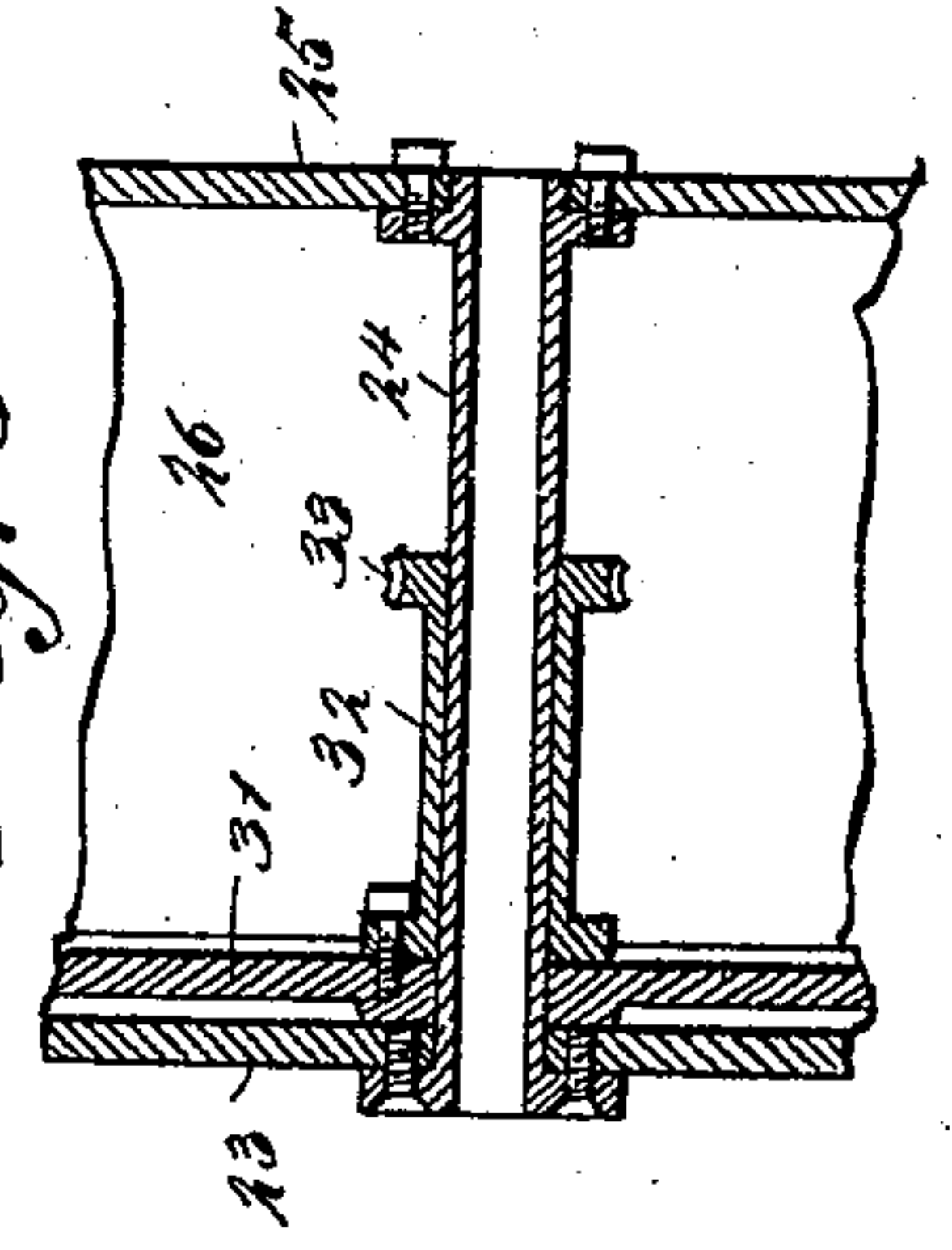


Fig. 6

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# UNITED STATES PATENT OFFICE.

SEBASTIEN LACAVALERIE, OF CARÁCAS, VENEZUELA.

## MARINE VESSEL.

SPECIFICATION forming part of Letters Patent No. 516,395, dated March 13, 1894.

Application filed April 26, 1893. Serial No. 471,849. (No model.)

*To all whom it may concern:*

Be it known that I, SEBASTIEN LACAVALERIE, of Carácas, Venezuela, South America, have invented a new and Improved Marine Vessel, of which the following is a full, clear, and exact description.

My invention relates to improvements in marine vessels, and the object of my invention is to produce a novel marine vessel of very simple construction, which is thoroughly sea-worthy and practically unsinkable, and also and chiefly, to produce a vessel which is capable of maintaining an extraordinarily high rate of speed.

A further object of the invention is to produce a vessel which may, if desired, be propelled beneath the surface of the water, and to construct and arrange the vessel so that it may be used advantageously as a torpedo boat.

To these ends, my invention consists of a vessel, the construction of which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a vessel embodying my invention. Fig. 2 is a longitudinal section of the vessel. Fig. 3 is a cross section on the line 3—3 in Fig. 2, looking in the direction of the arrows. Fig. 4 is a cross section on the line 4—4 in Fig. 2, looking in the direction of the arrows. Fig. 5 is an enlarged detail longitudinal section of the connections between the forward portion of the revoluble body and the stationary portion of the body; and Fig. 6 is a similar detail section of the connections between the after portions of the stationary body and the revoluble shell or hull.

The vessel is of a general cigar shape, and is of the greatest diameter near the bow. It has a cone-shaped bow 10, and a similarly shaped stern 11, but the bow cone is larger than the stern cone, and is intended to provide a convenient storage space for a storage battery 12, which furnishes power to propel the vessel as hereinafter described, but the vessel may be propelled by steam or other power without departing from the principle

of my invention. The conical bow and stern portion of the vessel are connected by a depressed keel 13, at the rear end of which is the usual rudder 14. On the bow cone 10, at the top, is an upwardly-extending portion 15, having openings or ports 16 and 17 therein, which are adapted to admit air to the interior of the vessel, and which may be closed by suitable closures, any convenient closures being provided. The stern cone 11 has also an upwardly-projecting portion 18, which has ports or openings 19 and 20 in front and on the sides, and the upper portion of this upwardly-extending projection is provided with a floor 21, on which the steering gear 22 is located, and this part of the vessel serves as a pilot house. The steering gear may be of any usual kind. The bow cone 10 is closed at its rear end by a transverse partition 23, which is water-tight, and a hollow tube or shaft 24 extends from this partition to a partition 25 in the inner stationary body 26 of the vessel, and the rear end of this body is connected in a similar way with the cone 11, a hollow shaft or tube 27 connecting the body with the forward partition 28 of the rear cone. These hollow shafts 24 and 27 provide for a free circulation of air, which enters through the ports 16 and 17, passes downward and inward through the interior of the cone 10 and shaft 24, and then passes outward and upward through the shaft 27 to the pilot house and the ports 19 and 20, or the air may pass in the reverse direction according to circumstances. The stationary body 26 is incased by a revoluble shell or hull 29, which is provided with long spiral screw-blades 30, arranged parallel with each other and extending the entire length of the hull, and the vessel is propelled by rotating this outer shell, and the screw blades acting on the water, move the vessel forward or backward according to the direction in which the shell is turned. It will be seen that this screw shell has an enormous grip on the water, and when sufficient power is provided to turn it, it causes the vessel to be moved with great rapidity and this result is also facilitated by the peculiar shape of the boat. The shell 29 has inwardly-extending end walls 31, which are parallel with the partitions 23 and



28 of the bow and stern cones, and these end walls are journaled on the shafts 24 and 27. The forward wall 31 is rigidly secured to a sleeve 32, which turns on the shaft 24, and  
 5 which is geared to an electric motor 34 which is arranged preferably forward of the partition 25, and the space forward of this partition constitutes an engine room. The motor 34 may be of any suitable construction and  
 10 it is connected in the usual way with the storage battery 12, but if desired, other motive power may be used instead of the electric motor.

It will be observed that the revolution of  
 15 the sleeve 32 turns the screw shell 29 and propels the vessel. Access is had to the interior of the vessel through manholes 35 in the outer shell 29 and in the top of the body 26, and it will be of course understood that  
 20 the outer manhole must be made to register with the inner one to provide means for ingress and egress. The manholes may be closed by any usual closure plates.

The conical shape of the bow and stern of  
 25 the vessel enables it to be propelled through the water with great speed as it offers little resistance to the water, and the screw shell, extending as it does nearly the entire length of the vessel, has a great bearing surface on  
 30 the water, and the only thing necessary then to produce a tremendous high rate of speed, is to provide sufficient power to turn the shell. It will be understood that by closing the air ports and providing a suitable sup-

ply of compressed air, the vessel may be sunk 35 beneath the water and successfully operated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A marine vessel, comprising conical bow 40 and stern portions connected by a depressed keel, a stationary body arranged between these portions, and a revolving screw shell incasing the body, substantially as specified.

2. A marine vessel, comprising conical bow 45 and stern portions connected by a depressed keel, and provided with upwardly-extending parts or housings having air inlets and outlets therein, a stationary body suspended between the bow and stern and in connection 50 therewith, and a revoluble screw shell incasing the body and turning between the bow and stern, substantially as specified.

3. A marine vessel, comprising conical bow and stern portions having upwardly-extending 55 parts or housings with suitable ports therein, a depressed keel connecting the bow and stern portions of the vessel, a stationary body suspended between these bow and stern portions, hollow shafts connecting the conical 60 parts of the vessel with the body and forming the supports of the body, and a revoluble screw shell incasing the body and journaled on the shafts, substantially as specified.

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