

No. 636,495.

Patented Nov. 7, 1899.

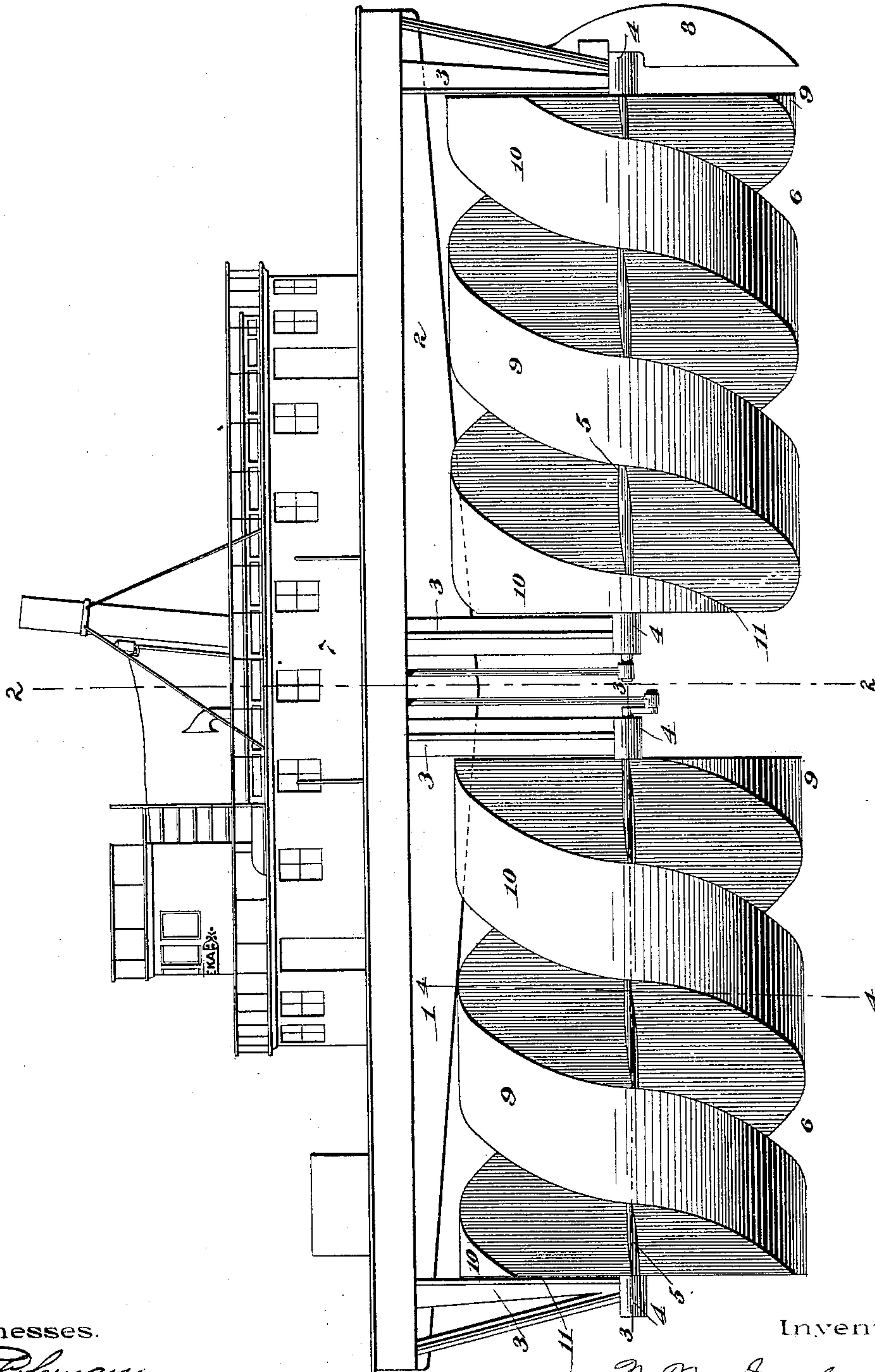
W. W. DAWLEY.
BUOYANT TWIN SCREW VESSEL.

(Application filed Sept. 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1



Witnesses.

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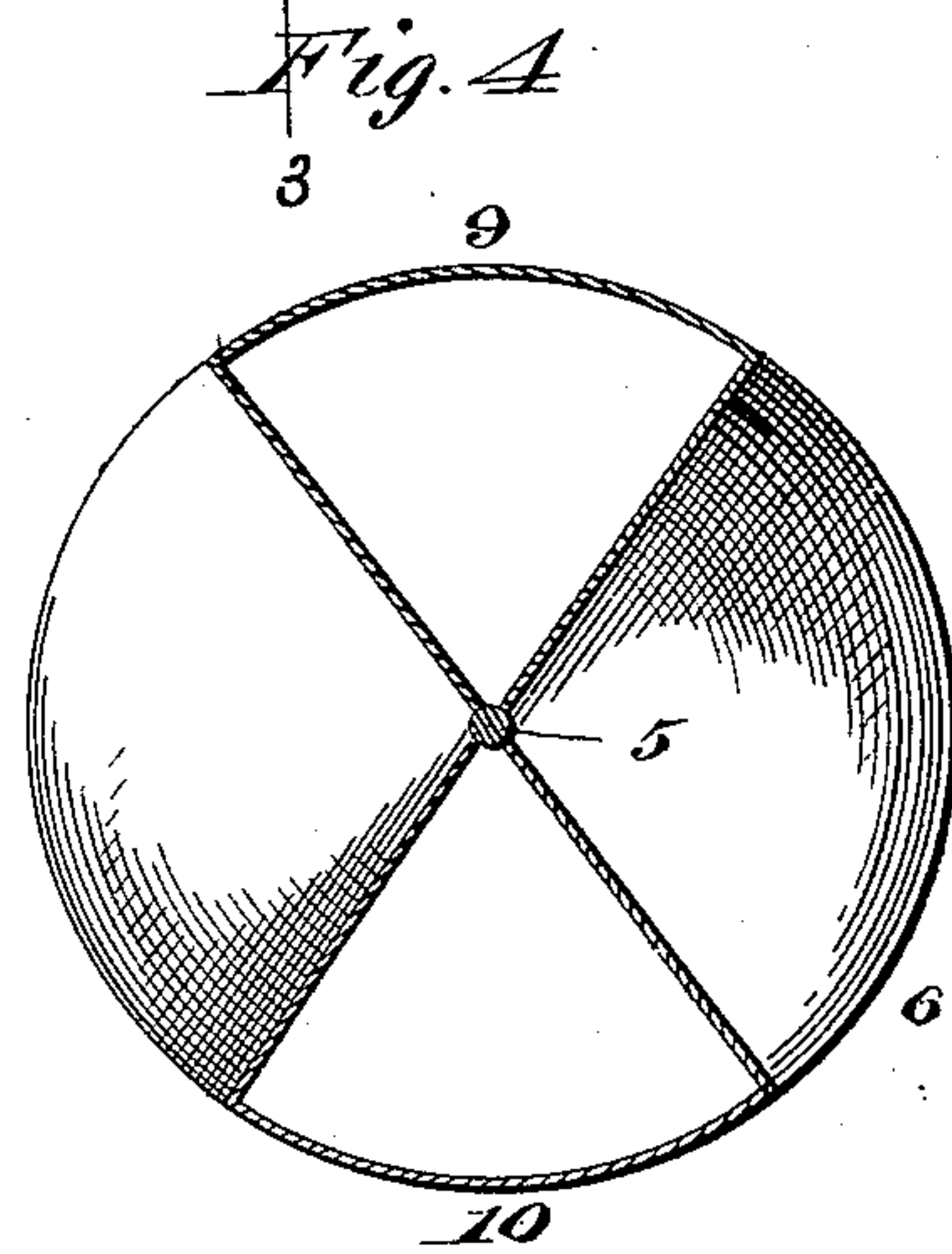
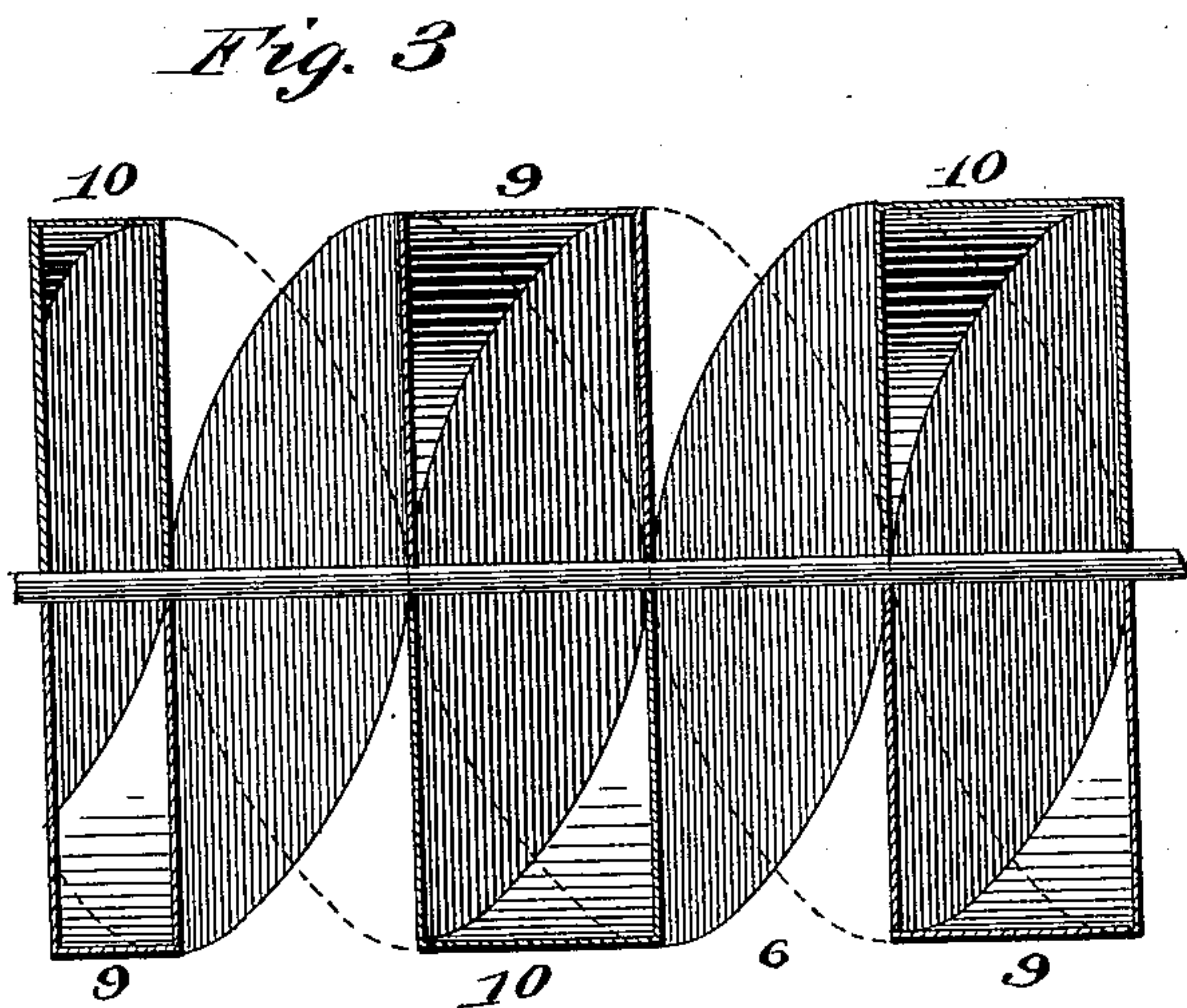
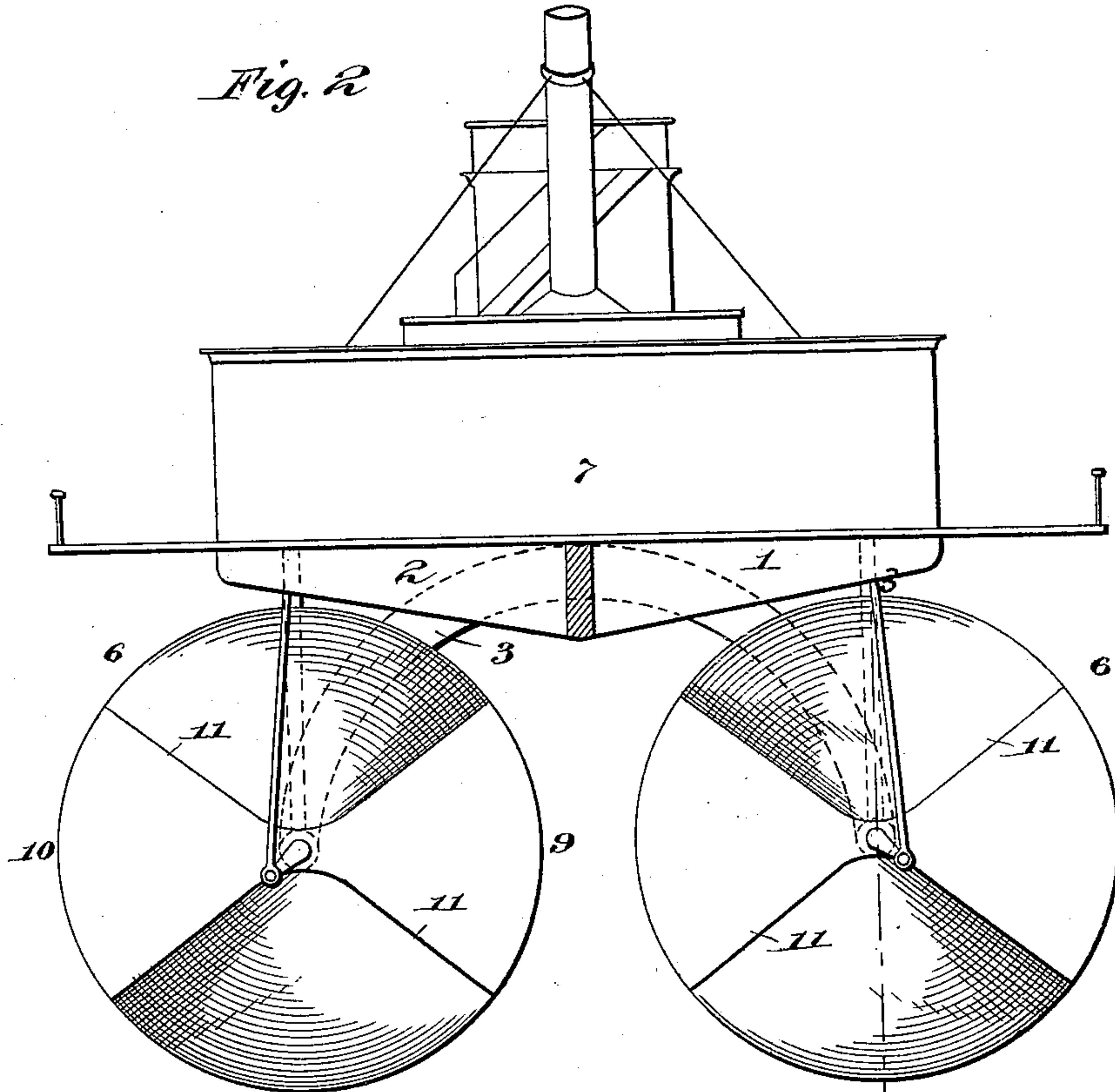
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2 Sheets—Sheet 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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BUOYANT TWIN-SCREW VESSEL.

SPECIFICATION forming part of Letters Patent No. 636,495, dated November 7, 1899.

Application filed September 9, 1897. Serial No. 651,107. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD W. DAWLEY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to vessels where-in a platform containing the propelling machinery and serving as a support for the cabins and cargo-space is carried above the surface of the water by means of hollow cylindrical floats, usually two in number. Heretofore these cylinders have been provided with screw-threads or a spiral feather thereon and by revolving serve to propel the vessel. The advantages of such a type of vessel are many, among which are great speed and stability, with correspondingly-reduced cost of construction and reduced running expenses. Furthermore, the new type of vessel will draw much less water than one of the old type of the same displacement, the cargo may be handled easier, all being above the water, and for the same reason the quarters for the passengers and crew will be more comfortable and convenient and will be capable of thorough ventilation. In addition to this the type of vessel will be of great service in waters covered with ice, as the large screws will thoroughly break a passage through ice of a thickness greater than can be now accomplished with vessels of the usual form.

My invention relates to vessels of this new type, but more particularly relates to the shape and construction of the supporting-floats themselves. In these floats it is necessary to provide means for supporting not only the floats themselves, but the engines, cargo, and passengers and to provide means whereby the entire structure may be propelled by the rotation of the floats. Heretofore the floats have been of two general styles—first, a cylinder with or without tapering ends, provided for a greater part of its length with a spiral feather or web, and, second, some form of screw, spiral or helix, formed with hollow walls, so as to provide the proper amount of buoyancy. The float forming my invention

belongs to the latter type; and it consists, essentially, of a cylindrical screw formed without taper, without a core, and with two threads. Such a screw is similar to an auger. The advantages are that it provides the maximum amount of buoyancy with the minimum of surface friction. Furthermore, such a screw having no core it may be immersed much deeper than is permissible with other screws. The edges of the threads are preferably left square, so as to possess the maximum amount of buoyancy-space.

In designing the hulls for my improved vessel I preferably form them in the shape of a cylinder, each having a portion removed therefrom in the shape of a spiral thread, which will leave a spiral groove between the threads. The grooves and threads are preferably the same width, and both are formed without taper and of even thickness through the center. It will be seen that by forming the threads and grooves of equal width and depth one-half of the bulk of the cylinders will be removed. Consequently the two screw-cylinders forming the vessel will be of equal bulk to a plain cylinder of the same length and diameter. The screws are preferably formed without an enlarged core, the threads in themselves being stiff enough to sustain the entire structure. A shaft, however, may be run through the center of each screw to support the journals of the platform and to provide driving connections for revolving the cylinders.

In order to more thoroughly support the platform and to also simplify the means for driving the cylinders, I preferably cut each cylinder in two in the center and separate each end a short distance. By this means I am enabled to get an additional bearing in the center and to form the supporting-shaft with suitable driving connections—either a sprocket-wheel to connect by a chain with the engine or a series of cranks which will connect directly with the connecting-rods of the driving mechanism. The entire vessel is steered, preferably, by means of rudders arranged on the stern of each float.

My invention, in addition to the before-described novel supporting-floats, consists in an improved truss-frame for the supporting-platform. This frame consists, essentially,

of a fore-and-aft member running down the center of the platform underneath the same and formed with tapered ends in combination with similarly-tapering athwartship supporting members. The connections between the platform and the floats are formed of arched frames, preferably four in number, each connecting with one end of each half-float.

10 In order that the invention may be better understood, attention is directed to the accompanying drawings, forming part of this specification, and in which—

15 Figure 1 is a side view of the completed vessel; Fig. 2, a sectional view taken on the lines 2 2 thereof. Fig. 3 is a longitudinal section taken on the lines 3 3 of Fig. 2, and Fig. 4 is a lateral section taken on the lines 4 4 of Fig. 1.

20 In all of the several views like parts are represented by the same figures of reference.

The platform or deck of the vessel is supported, namely, by means of two diagonal trusses or braces 1 2, which cross each other at the center of the platform, as shown. Suitable curved arched pieces 3 3 are halved over the member 1 and rigidly secured to the members 2 2, the lower extremities of these arched pieces containing bearings 4 4, through which 30 pass the shafts 5 5 of the floats 6 6. The shafts between the central bearings thereof are provided with suitable driving connections, either a sprocket wheel and chain or, as shown, two cranks which connect the connecting-rods of the propelling machinery 35 within the cabin 7 7.

8 8 are the rudders, which are secured to the after arched piece 3 and are controlled in any suitable manner from the deck.

40 The floats 6 6 are constructed in any suitable way, preferably of an angle-iron frame covered with steel plates welded together.

In Figs. 3 and 4 the peculiar construction of the floats is shown. It will be noticed that

the floats are formed with two threads, each of 45 the same size and of equal thickness throughout, united in the center to a shaft 5. The threads are indicated by the numerals 9 and 10. The extremities of the threads are formed at a right angle with the axes thereof, which 50 form the sharp edges 11 and which reduce the resistance of the floats in revolving.

Preferably the float or floats at one side are provided with right-hand threads and at the other side with left-hand threads, thereby reducing the tendency of lateral movement, as 55 would be observed if all the floats were threaded in one direction. By making the floats as explained they will be of great buoyancy and will have relatively little friction. Such character of floats by being composed entirely of 60 threads and having no body portion in the accepted sense are composed in their entirety of operative surfaces and possess no portion which will require to be dragged through the 65 water, as is the case with all vessels of this type heretofore suggested so far as I know.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows: 70

In a vessel, the combination with the platform, the supporting-floats thereunder, shafts in said floats, said supporting-floats consisting each of a hollow cylindrical body having removed therefrom a continuous portion approximately equal to one-half the bulk of said 75 cylinder, the remaining thread being formed with sides perpendicular to the shaft and at a right angle to the periphery of the cylinder, the said thread being no thicker at the center, 80 than at the periphery, substantially as set forth.

This specification signed and witnessed this 5th day of August, 1897.

WINFIELD W. DAWLEY.

Witnesses:

L. W. YOUNG,
H. DEVNEY.