

(No Model.)

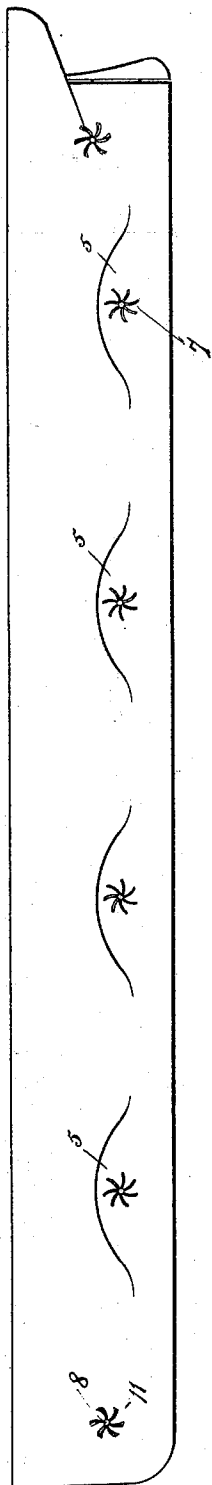
2 Sheets—Sheet 1.

R. B. PAINTON.  
SHIP.

No. 509,553.

Patented Nov. 28, 1893.

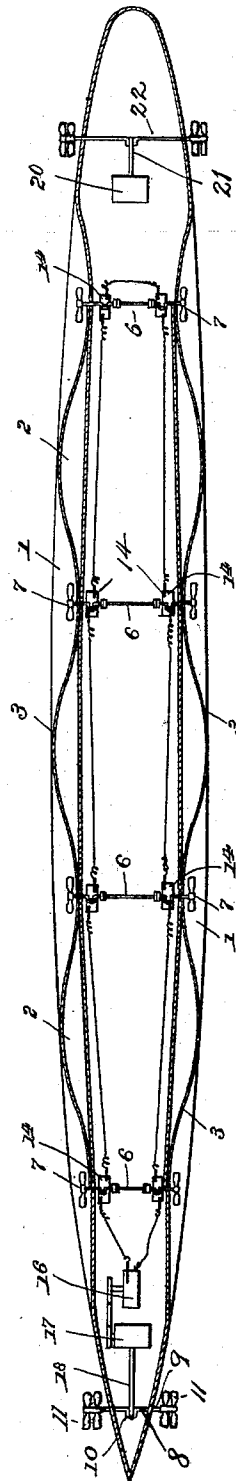
Fig. 1.



Witnesses

*W. S. Duwall*

Fig. 2.



Inventor

By *his* Attorneys, *Richard B. Painton*  
*C. A. Snow & Co.*

(No Model.)

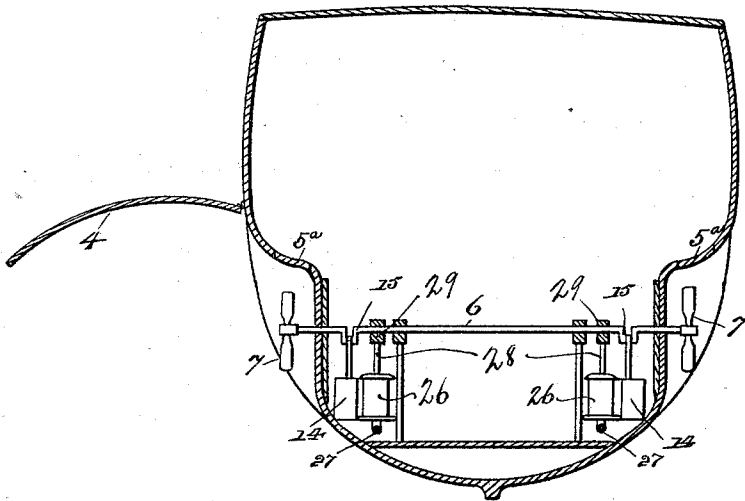
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R. B. PAINTON.  
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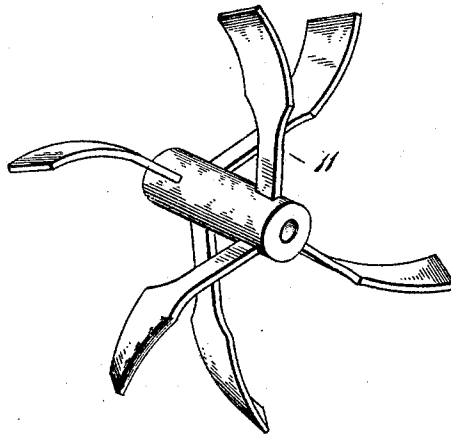
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*Fig. 3.*



*Fig. 4.*



Inventor

*Richard B. Painton*

Witnesses:

*A. Johnson*  
*W. S. Duwall*

By *his* Attorneys,

*C. A. Snow & Co.*

# UNITED STATES PATENT OFFICE.

RICHARD B. PAINTON, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF TO WILLIAM G. ELLIOTT, OF SAME PLACE.

## SHIP.

SPECIFICATION forming part of Letters Patent No. 509,553, dated November 28, 1893.

Application filed May 31, 1893. Serial No. 476,123. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD B. PAINTON, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Vessel, of which the following is a specification.

My invention relates to improvements in vessels, and particularly to the propellers thereof.

The objects of the invention are to provide a vessel with propellers so arranged as to avoid impeding the movements of the vessel by the surge of the propellers, and to locate the latter at such points as to obtain the best results; to provide for conveniently repairing any one of the propellers while at sea and without stopping the vessel; and to provide for a ready stoppage of the propellers so as to overcome their momentum.

With these and other objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a side elevation of a vessel constructed in accordance with my invention. Fig. 2 is a horizontal sectional view. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2. Fig. 4 is a detail in perspective of one of the twin propellers employed at the bow of the vessel.

Like numerals of reference indicate like parts in all the figures of the drawings.

The hull of the vessel is provided with a series of water-tight compartments 1 and 2, the same being divided by the intermediate compoundly curved wall 3. From a point in rear of the bow to a point some distance in advance of the stern, the side of the vessel below the water-line is provided with arches or caves 5, and over any one of these may be detachably secured a curved shutter or plate 4 (see Fig. 3) whereby the cave is converted into a compartment. The upper sides of these caves are provided with doors or hatchways 5<sup>a</sup> (see Fig. 3) which during the travel of the vessel are closed. Passing transversely through the hull opposite each of these arches, is a propeller shaft 6, the said shaft terminating at its ends in said arches. Upon the ends of the shaft propeller wheels 7 are lo-

cated, so that, as shown in the present instance we have eight propeller wheels of this character, four on each side, though the number may be increased or diminished as desired. The blades of these propeller wheels may be flat, as shown, or they may be given a slight twist if preferred for the purpose of throwing the water away from the sides of the vessel, and their upper portions operate in comparatively dead water.

A transverse shaft 8 is journaled in bearings 9 immediately in rear of the bow of the vessel, and provided at its center with a crank 10.

The outer ends of the shaft carry twin propellers 11 which I have shown in detail in Fig. 4 of the drawings. The blades 12 of each of these propellers 11 are arranged in an annular series, there being a space between the same, and the blades of one series alternate with those of the other and are given a slight twist so as to deflect the surge water from the bow of the vessel and not impede by its back pressure the movements of the vessel.

Adjacent to each of the transverse shafts 6 there is located an electrical motor 14, and the same is connected with a cranked portion 15 in the said shaft 6 whereby said shaft is operated by the motor. These motors are operated through the medium of a dynamo 16, preferably located in the bow of the vessel, the said dynamo being operated through the medium of the engine 17. The engine 17 operates a connecting rod 18 which is connected with the crank of the shaft 8. A rear engine 20 is located in the stern and operates a connecting-rod 21 that is connected with a transverse shaft 22, and the latter is provided with propellers 25 located at the sides of the stern of the vessel and having the blades thereof slightly twisted so as to dispose of the surge water.

From the foregoing description it will be seen that the two sets of wheels 7 are arranged at the sides of the vessel so as to secure the best results and propel said vessel with greater speed through the water. The bow and stern propellers have their blades twisted so as to dispose of the surge water and in a manner cleave the same, throwing it to each side of the vessel, and being located

in rear of the cut water of the vessel no surge water is thrown into the path to impede the progress of the vessel.

I do not of course limit my invention to the employment of electricity as a motive power for operating these propellers, but I prefer the same, in that I obviate the use of so many engines for this purpose and therefore economize to a great degree the space that would be otherwise necessary. Attention is called to the fact that by the employment of the propellers and their locations as herein shown and described, the engine for operating the motors, the motors themselves, or if steam be used, the engines and boilers, may all be located far below the water-line, which is not the case in vessels now built, and hence I would obviate the necessity in war vessels of the excessive armor with which each vessel is provided for the purpose of protecting these vital parts, in that in such vessels it is customary, by reason of the location and disposition of the propeller shaft, to locate the said vital parts above the water line, whereas, by my invention they are located below the water-line, the water serving as a protector for the parts. Under each of the shafts I locate a brake-cylinder 26, connecting the same by a steam-pipe 27 to the engine. These cylinders have their pistons 28 connected at their upper ends to brake-shoes 29 that embrace the shafts 6, so that when steam is admitted and the pistons forced upward, the shoes are applied to the surface of the shaft, and hence the momentum of the latter overcome, and a quick reversal of the engine may take place and immediately be effective.

I do not limit my invention to the various details of construction herein shown and described, but hold that I may vary the same to any degree and extent within the knowledge of the skilled mechanic without departing from the invention or sacrificing the advantages thereof. If by accident any one of the propellers 7 should become impaired it will be seen that the outer plate 4 may be positioned over the arch in which the shaft is located, thus producing a compartment filled with water. The hatchway 5<sup>a</sup> over this compartment is then removed and the water pumped out, after which the repair is made within the vessel, the shaft or propeller placed in position and the plate elevated aboard and the hatchway closed. In this manner it will be seen that repairs may be made upon the high seas, and this, too, without stopping the vessel, which may continue on its way under the influence of the remaining propellers.

Having described my invention, what I claim is—

1. The combination with the hull of a vessel provided with arches or cavities formed therein at intervals along its side, and adapted to be covered by a shutter and provided with removable hatches of a series of transverse shafts arranged coincident with the cavities

and terminating in the same, propellers carried by the shafts, and means for operating the shafts, substantially as specified.

2. The combination with a vessel provided at intervals along its side with arches or cavities, of a series of transverse shafts arranged coincident with and terminating in the arches, propellers mounted on the shafts within the arches, and front and rear propeller-carrying shafts arranged at each side of the bow and stern of the vessel, propeller wheels arranged upon the outer ends of the front and rear shafts, the blades of said wheels being twisted, and means for operating the transverse and the front and rear shafts, substantially as specified.

3. The combination with the hull of a vessel, the sides of which are provided with cavities, of a series of propeller-carrying shafts arranged coincident with and terminating in the cavities, front and rear shafts arranged at the bow and stern, respectively, means for operating the same and the transverse shaft, twin propeller wheels mounted upon each of the front and rear shafts, said wheels having their blades spaced apart and arranged in annular series, the blades of one series alternating with those of the other, substantially as specified.

4. The combination with a vessel, a series of transverse shafts arranged therein and extending from its sides, and front and rear shafts carrying propeller wheels, of a rear engine for operating the rear shafts, the front engine for operating the front shafts, an electric motor arranged adjacent to each of the transverse shafts, a dynamo connected therewith, and connections between the front engine and the dynamo and from the dynamo to the motors, substantially as specified.

5. The vessel having an inner wall, combined with an outer wall compoundly curved and at intervals contacting with the inner wall of the vessel, forming a series of watertight compartments, and between the same a series of caves, propellers arranged in the caves, and means for operating said propellers, substantially as specified.

6. The combination with a vessel having an inner wall and an outer wall compoundly curved and alternately contacting with the inner wall thus forming a series of watertight compartments, and intermediate arches, of transverse shafts terminating in the arches, propellers carried by the shafts, and means for operating the shafts, and an outer wall for removably covering the arches, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RICHARD B. PAINTON.

Witnesses:

J. H. SIGGERS,  
BERNICE A. WOOD.