

(No Model.)

R. FOLSOM.

VESSEL AND PROPELLING MECHANISM THEREFOR.

No. 518,028.

Patented Apr. 10, 1894.

Fig: 1.

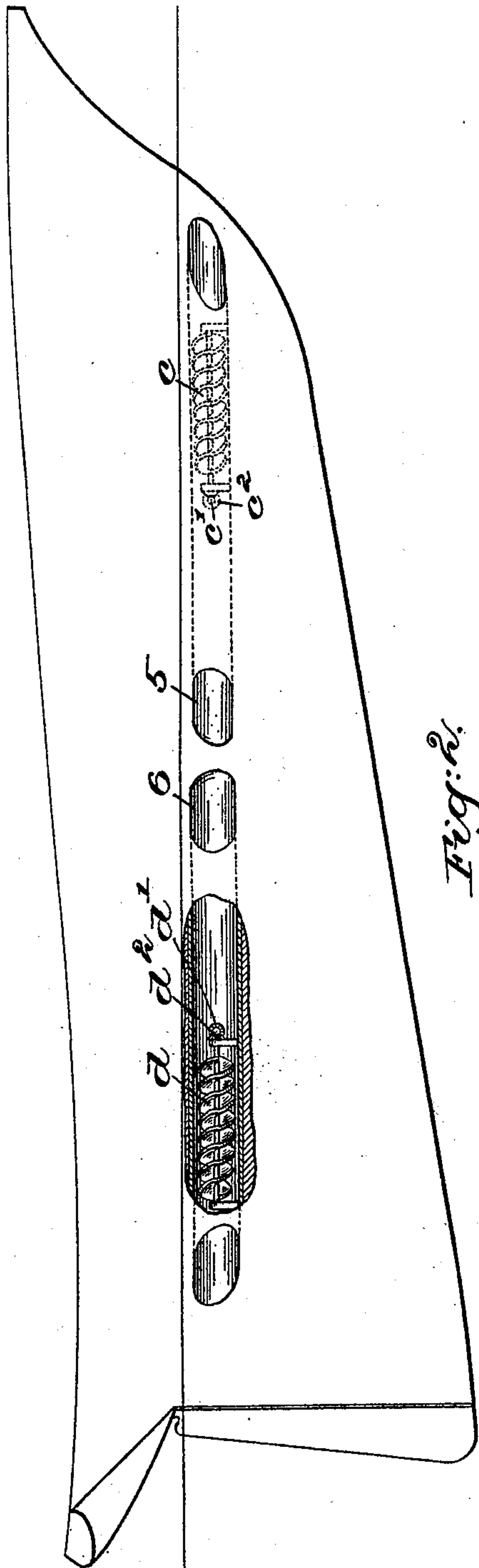
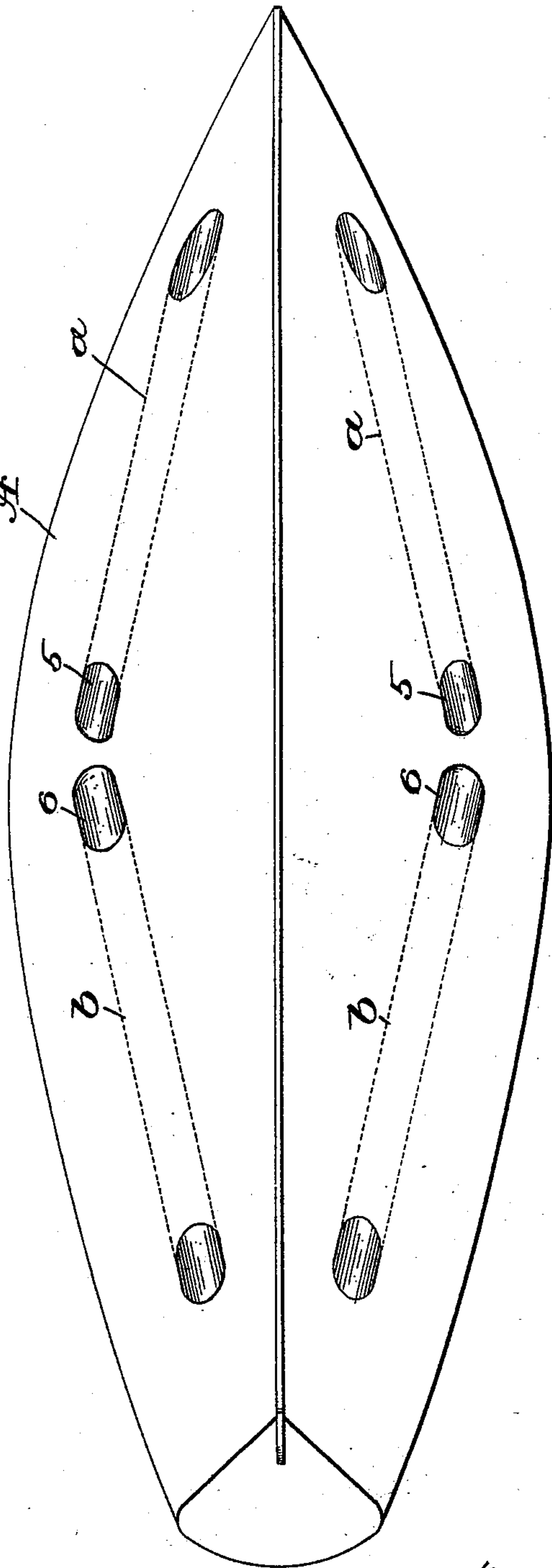


Fig: 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

RUFUS FOLSOM, OF CHELSEA, ASSIGNOR OF ONE-HALF TO GEORGE A. FOLSOM, OF BOSTON, MASSACHUSETTS.

VESSEL AND PROPELLING MECHANISM THEREFOR.

SPECIFICATION forming part of Letters Patent No. 518,028, dated April 10, 1894.

Application filed December 29, 1892. Serial No. 456,623. (No model.)

To all whom it may concern:

Be it known that I, RUFUS FOLSOM, of Chelsea, county of Suffolk, State of Massachusetts, have invented an Improvement in Vessels and Propelling Mechanism Therefor, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 Prior to this invention vessels have been constructed with their hulls provided with tubes extending from the bow through to the stern to permit a certain quantity of water to flow through the tubes to the stern without passing around the sides of the vessel, the friction caused by the movements of the vessel through the water being thereby lessened. In my efforts to improve vessels of this class, I have discovered that the tubes may be more quickly filled and emptied during rolling movements of the vessel by providing these tubes with inlets and outlets amidships, or at the sides of the vessel. In accordance with this invention, therefore, I provide the vessel with at least two sets of tubes, the bow set comprising at least two tubes entering the vessel at the bow at each side of its stem and extending diagonally backward through the vessel terminating or leaving the vessel at its sides amidships, while the second or stern set of tubes enter the sides of the vessel near the points at which the bow tubes leave and extend diagonally backward and inward to the stern of the vessel at opposite sides of the stern-post. As the vessel is moved through the water a certain quantity of the water instead of passing around the sides of the vessel will enter the bow tubes and pass directly through the same and out at the sides of the vessel, while other water will enter the rear tubes at the sides of the vessel and pass directly through the latter to the rear or stern of the vessel without passing around the hull. If desired, propellers may be placed in any or all of these tubes by which to propel the vessel through the water.

Figure 1, represents in elevation a vessel provided with water tubes in accordance with this invention; and Fig. 2, an under side view of the same.

Referring to the drawings, particularly to

Fig. 2, *a, a*, represent the bow tubes which enter the vessel A near the bow and below the water line at each side of its keel or stem and extend divergently backward through the vessel leaving the latter at the sides amidships, the said tubes, as herein shown, leaving the vessel at the point 5. The second, or stern set of tubes *b*, enter at the sides of the vessel amidships, preferably as herein shown, at the points 6, close to and just back of the termination or outlets of the bow tubes, the said stern tubes extending through the vessel and terminating at the stern thereof at each side of the stern-post or rudder. These stern tubes will preferably be of greater diameter than the bow tubes.

In the movements of the vessel through the water, a portion of the water, instead of being displaced by the vessel and compelled to pass around the sides of the latter to the stern, will enter the bow tubes *a* and flow directly through the said tubes and out at the sides of the vessel, while a portion of the water will also enter the stern tubes *b* at the sides of the vessel and flow directly through the latter to the stern, and in practice, a portion of the water which passes through the bow tubes will flow directly through the stern tubes. In the rolling and pitching of the vessel it is desirable that these tubes fill and discharge as quickly as possible, and by providing two sets of tubes, as shown, the tubes may both fill and discharge not only at the bow and stern of the vessel, but at the sides as well, so that the lengths of the tubes, between their inlets and outlets are only half what the lengths would be were the tubes extended continuously from the bow to the stern as heretofore. I have also shown the tubes as provided with screw propellers *c, d*, which may be driven in any suitable manner, as by means of the beveled gears *c', d'* and driving-shafts *c², d²* entering the sides of the vessel. I have also shown the rear propellers as larger in diameter than the bow propellers.

This invention is not limited to the particular construction herein shown, for the construction and arrangement may be varied considerably without departing from the general arrangement of the tubes as herein shown

and described as constituting the essence of this invention.

The formation of the inlets and outlets at the sides of the vessel may be varied in various ways, yet I consider any arrangement wherein water entering the tubes at the bow may leave the tubes at the sides, and water also entering at the sides and leave at the stern, as within the scope of this invention.

10 I claim—

1. A vessel provided with straight or substantially straight bow and stern tubes, the bow tubes entering the vessel at its bow and extending divergently rearwardly toward and terminating at the sides thereof, and the stern tubes entering the vessel at the sides and extending convergently rearwardly toward and terminating at the stern thereof, whereby a direct flow of water may be had through said tubes to reduce the frictional

resistance of the vessel when moving through the water, substantially as described.

2. A vessel provided with bow and stern tubes, the bow tubes entering the vessel at its bow and extending divergently rearward toward and terminating at the sides thereof, and the stern tubes entering the vessel at the sides and extending convergently rearward toward and terminating at the stern thereof, whereby a direct flow of water may be had through said tubes combined with propellers located within the tubes, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RUFUS FOLSOM.

Witnesses:

FREDERICK L. EMERY,
JOHN C. EDWARDS.