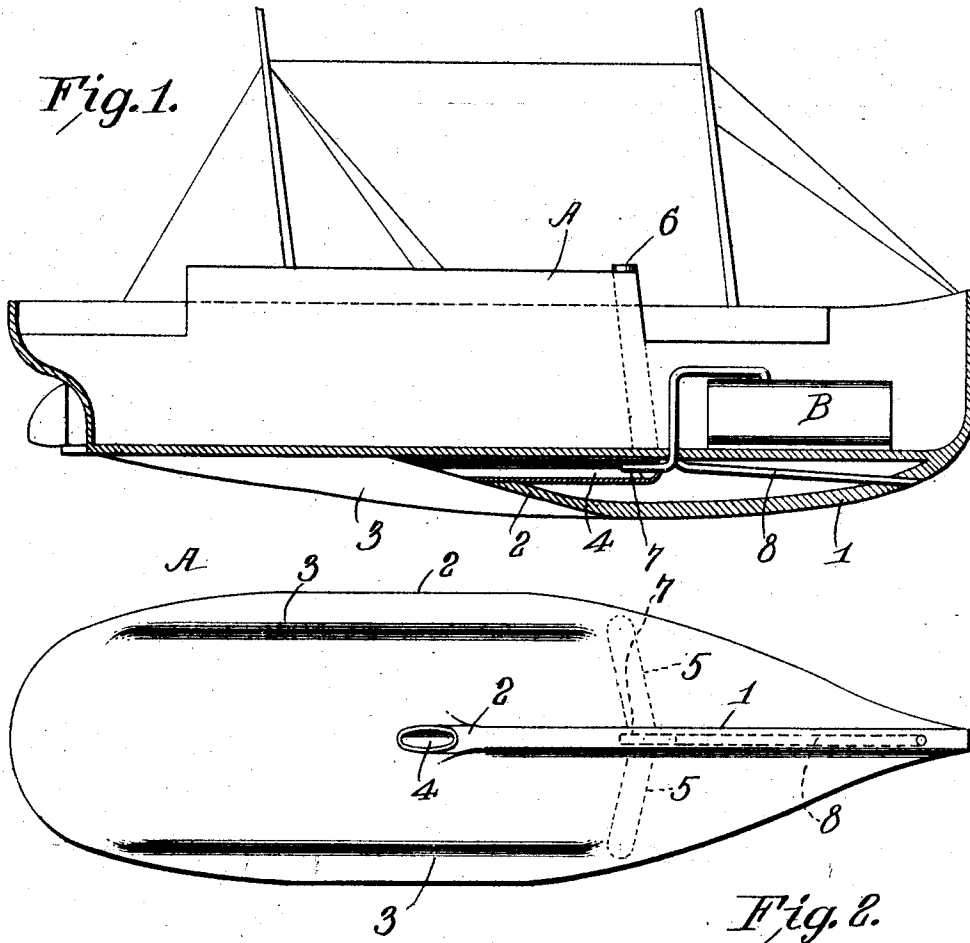
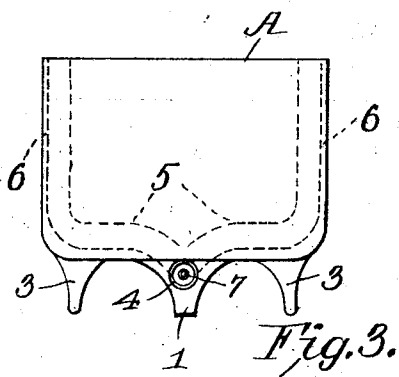
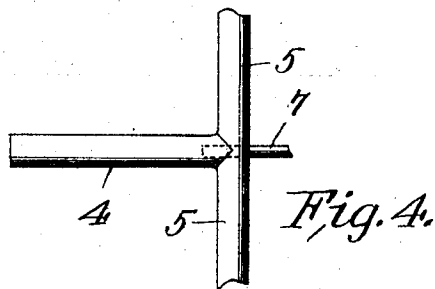


W. T. NASELIUS.
 PROPELLING MEANS FOR VESSELS.
 APPLICATION FILED DEC. 31, 1907.

907,086.

Patented Dec. 15, 1908.



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PROPELLING MEANS FOR VESSELS.

No. 907,086.

Specification of Letters Patent.

Patented Dec. 15, 1908.

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To all whom it may concern:

Be it known that I, WALFRID TH. NASELIUS, a subject of the King of Sweden, residing at Kennedy, in the county of Kittson and State of Minnesota, have invented new and useful Improvements in Propelling Means for Vessels, of which the following is a specification.

This invention relates to vessels, and more particularly to propelling means therefor whereby steam or other elastic fluid may be employed in connection with air for acting on the water to propel the vessel.

The invention has for one of its objects to provide means for efficiently utilizing steam or other fluid in such a manner as to inject a large volume of air under the vessel so as to propel the latter and at the same time operate to maintain a body of elastic fluid under the vessel for producing a lifting effect whereby friction with the water is materially diminished.

A further object of the invention is to provide a hull having a novel arrangement of keels especially designed for the utilization of air in the manner referred to.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a longitudinal section of a boat having a hull equipped with the improved propelling mechanism. Fig. 2 is a bottom plan view of the hull. Fig. 3 is a stern view of the hull. Fig. 4 is a fragmentary detail view of the injector device.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawing, A designates a hull of any approved size, shape and material which is formed with a central keel 1 which is approximately one third the length of the boat and projects rearwardly from the bow thereof, the rear portion of the keel being inclined upwardly as at 2. From a point where the keel terminates are two parallel side keels 3. Disposed within the central keel is an injector tube 4 that extends hori-

zontally and has its rear end open so as to discharge under the vessel at a point between the two keels 3, and the front end of the tube connects with two horizontal branches 5 that terminate in vertically extending air suction tubes 6. Projecting into the tube 4 at the front end thereof and between the point of union of the branches 5 is a pipe 7 discharging steam or other elastic fluid under pressure, the pipe being of considerably less cross-sectional area than the injector tube 4 so that a large quantity of air can be drawn into the injector tube by the jet of steam, as for instance, a proportion of one unit of steam to ten of air will work effectively. Arranged within the vessel is a generator B of any suitable character that is connected with the pipe 7. If desired, the motive fluid may be acetylene gas or other suitable fluid. Extending forwardly through the keel 1 and preferably chambered, is a steam discharging pipe 8 which is employed for the purpose of reversing the direction of travel of the vessel, it being understood, of course, that the discharge of steam through the injector tube 4 will be stopped during reversing.

In practice, when the vessel is idle, water fills the space between the two side keels and fills the injector tube 4 and when the vessel is to be started, steam is supplied from the boiler through the pipe 7 and this steam forces the water out of the tube 4 and draws in air through the tube 6, imparting high velocity to the air and discharging it rearwardly under the stern part of the vessel and through the side keels which latter keels serve to prevent the air and steam from escaping laterally from under the vessel and causing the steam to have its full effect in propelling the vessel and elevating the same. When it is desired to reverse the vessel, the supply of steam to the tube 4 is stopped and steam is discharged through the pipe 8 at the bow.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the appa-

ratus shown is merely illustrative and that such changes may be made when desired as are within the scope of the claims.

Having thus described the invention, what I claim is:—

1. The combination of a hull having a central keel extending longitudinally from the bow to midship and terminating at its rear in an upwardly-inclined surface, an injector discharging rearwardly and terminating in the said inclined surface, side keels disposed parallel to each other with their front ends disposed at opposite sides of the central keel and in overlapping relation to the rear end of the latter, an air pipe disposed within the hull with its lower end connected with the injector and its upper end open to the atmosphere, and means for supplying fluid under pressure to the injector.

2. The combination of a hull having a cen-

tral longitudinal keel extending rearwardly and terminating at a point intermediate the ends of the hull, longitudinally-extending parallel side keels, a central injector tube in the rear end of the central keel, vertically extending air tubes connecting with the injector tube, a generator in the hull, a pipe connected with the generator and discharging fluid under pressure into the injector tube, and a fluid discharging pipe extending forwardly through the central keel and discharging at the bow of the vessel for reversing the same.

In testimony whereof I affix my signature in presence of two witnesses.

WALFRID TH. NASELIUS.

Witnesses:

JUSTUS ANDERSON,

JOHN R. STENSRUD.