A. CROSBY & A. VIVARTTAS.

PROPELLING AND STEERING VESSELS.

No. 185,301. Patented Dec. 12, 1876.

Fig. 1.

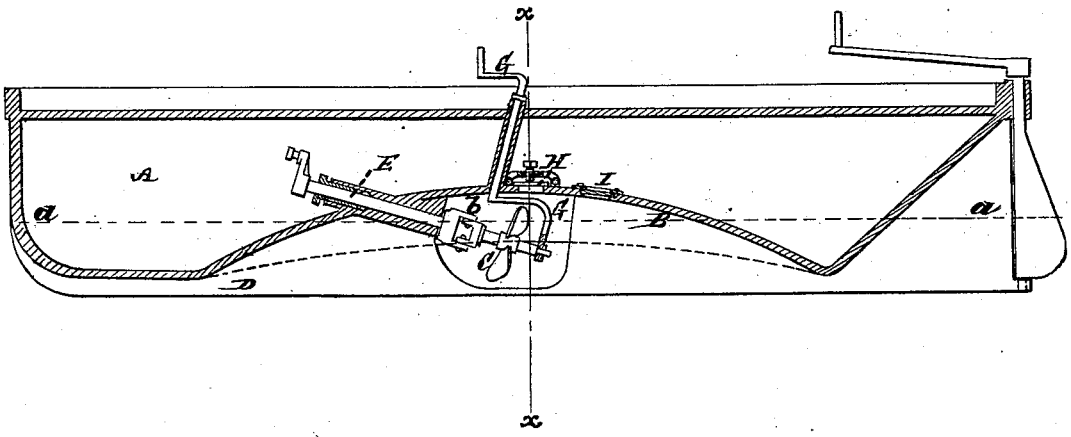
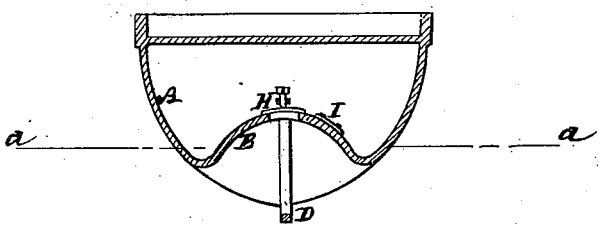


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

ADDISON CROSBY AND ALOHA VIVARTTAS, OF NEW YORK, N. Y., ASSIGNORS TO THE CENTRAL PROPELLING COMPANY, OF SAME PLACE.

IMPROVEMENT IN PROPELLING AND STEERING VESSELS.

Specification forming part of Letters Patent No. **185,301**, dated December 12, 1876; application filed November 4, 1876.

To all whom it may concern:

Be it known that we, ADDISON CROSBY and ALOHA VIVARTTAS, both of the city, county, and State of New York, have invented certain new and useful Improvements in Means of Propelling and Steering Vessels; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention consists in certain novel constructions and combinations of parts relating to a propelling or steering wheel arranged to work within or under cover of the hull, and means for controlling or operating said wheel, and for facilitating examination and repair of the working parts, substantially as hereinafter described.

Figure 1 represents a longitudinal vertical section of a boat with propeller applied in accordance with our invention. Fig. 2 is a transverse section of the same, on the line *x x*, with the propeller omitted.

In this invention the hull A of the vessel is provided, in its lower part, with one or more cavities or chambers, B, in which is placed the propeller or steering wheel C. The chamber B has its one side (preferably its bottom) wholly or partially open for the admission of the water.

The form of the cavity or chamber B is generally flaring or dished; but both that and the form of its opening to the water are subject to variation, as circumstances may require.

In the example illustrated in the drawing, the keel or longitudinal brace D of the vessel is carried across the opening of the cavity or chamber B; but it may be entirely omitted, or it may be carried up and divide the cavity wholly or in part, as desired for strength and steering purposes; or a rudder may be located in the same.

In the chamber B are placed one or more steering or propelling wheels, C, of screw or other form, the shafts of such wheels being placed at such angles, both laterally and vertically, relatively to the true fore-and-aft line of the boat, as shall tend to throw the water in the desired direction, either to avoid increased friction upon the surfaces of the chamber B or to steer the boat in such direction as may be desired, for which latter purpose the shaft E of the wheel C may be made movable or variable in its angular relation with the fore-and-aft line of the boat; or the wheel C may be connected with its driving-shaft E by a universal joint, *b;* and, by means of a frame and tiller, G, the wheel C may be given the necessary angle without affecting the rotating or driving mechanism.

In ordinary cases, when the wheel C is used only for propulsion, the angle of the shaft E may be fixed, and the stuffing-box, thrust-bearing, and couplings or connections with the driving power made in the usual manner, and in this case the propeller C may have an outboard bearing.

The chamber B is provided with one or more man-holes, H, and covers or plates, for convenience of access to said chamber for cleaning and repairing purposes. It is also desirable to provide the cavity or chamber B with one or more glazed peep-holes or covers, I, which may be in the man-hole plate, if preferred, and through which light can be thrown, and the chamber and its contents examined without opening the man-hole H. The chamber B may also have the condenser of the engine arranged within it, where it will be convenient of access for repairs, and at the same time be protected from injury.

By arranging the propelling, steering, and condensing devices within the chamber B, a great advantage will be obtained in the application of the invention to war-vessels, by reason of the protection which the hull will afford to the parts that are generally the special objects of attack.

The cavity or chamber B will be generally located in the bottom of the vessel; but its upper or interior part may rise above the water-line *a a*, while its open side is wholly below the water-line, and the action of the propeller C will be such as to cause a current in the water which will quickly exhaust any air that may be in the chamber B, and cause the latter to fill with water by suction or pneumatic pressure. In this way a very large propeller may be kept in full action under a very light draft, or in exceedingly shoal water, thereby

giving capacity for both great velocity or headway to the boat, and great power to it for towing or other purposes.

We claim—

1. The combination, with the hull A, constructed with the chamber B, with or without one or more peep-holes, of the longitudinal keel D, the shaft E, and the laterally-adjustable propeller C, arranged in said chamber B, as and for the purpose described.

2. The combination, with the chamber B, of the shaft E and wheel C, made laterally adjustable relatively to the hull, to vary the angular relation of said shaft and wheel to the fore-and-aft line of the vessel, substantially as described.

3. The tiller and frame G, in combination with the wheel C, the universal joint or coupling *b*, and the chamber B in the hull, substantially as and for the purpose herein set forth.

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