(No Model.) 2 Sheets—Sheet 1.

E. REDMOND.

APPARATUS FOR TRIMMING SHIPS.

No. 545,095. Patented Aug. 27, 1895.

Fig. 1.

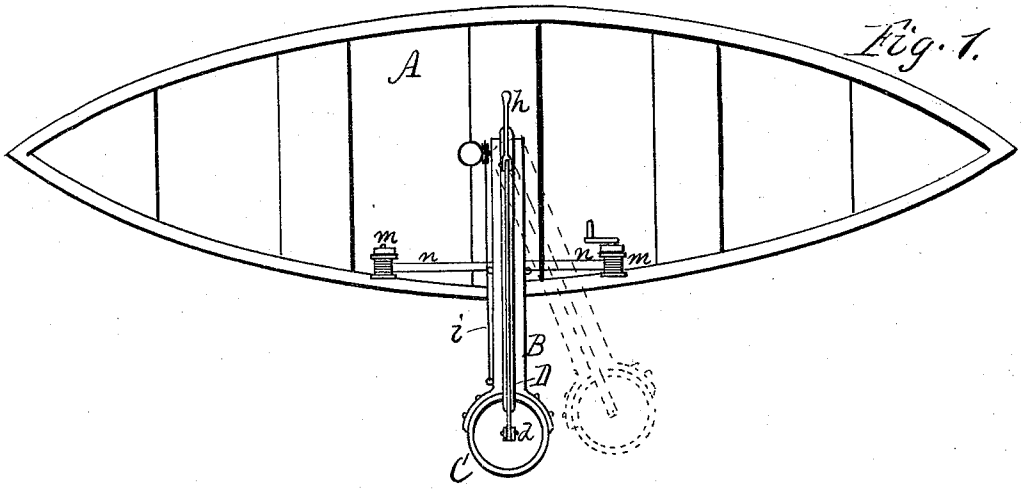


Fig. 2.

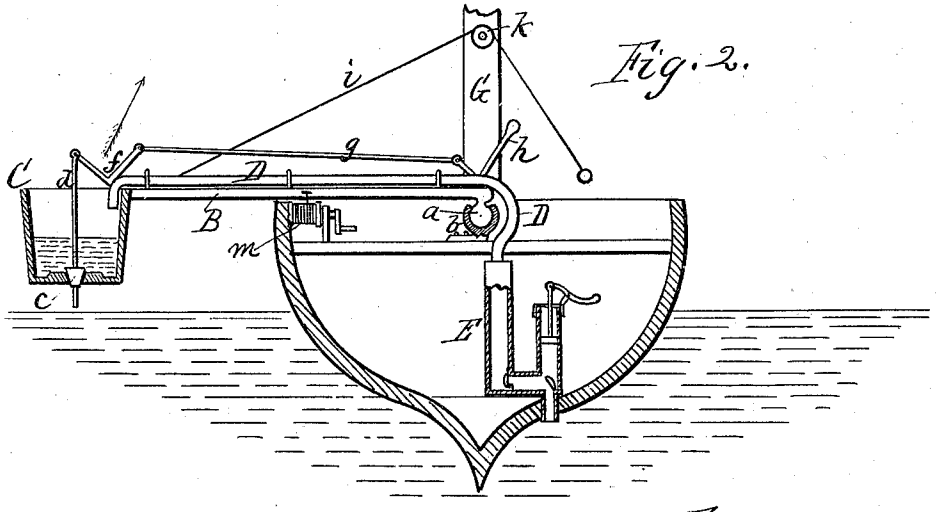


Fig. 3.

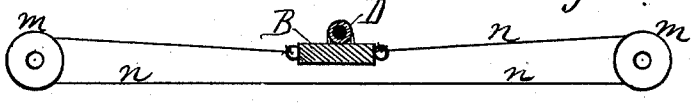
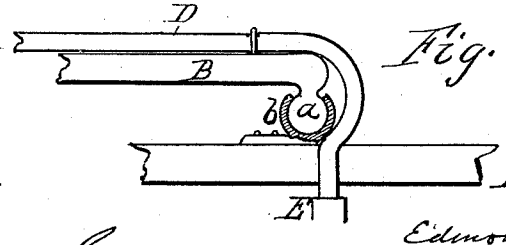


Fig. 4.



Witnesses.
R. F. Osgood.
E. W. Redmond.

Inventor.
Edmond Redmond

(No Model.)

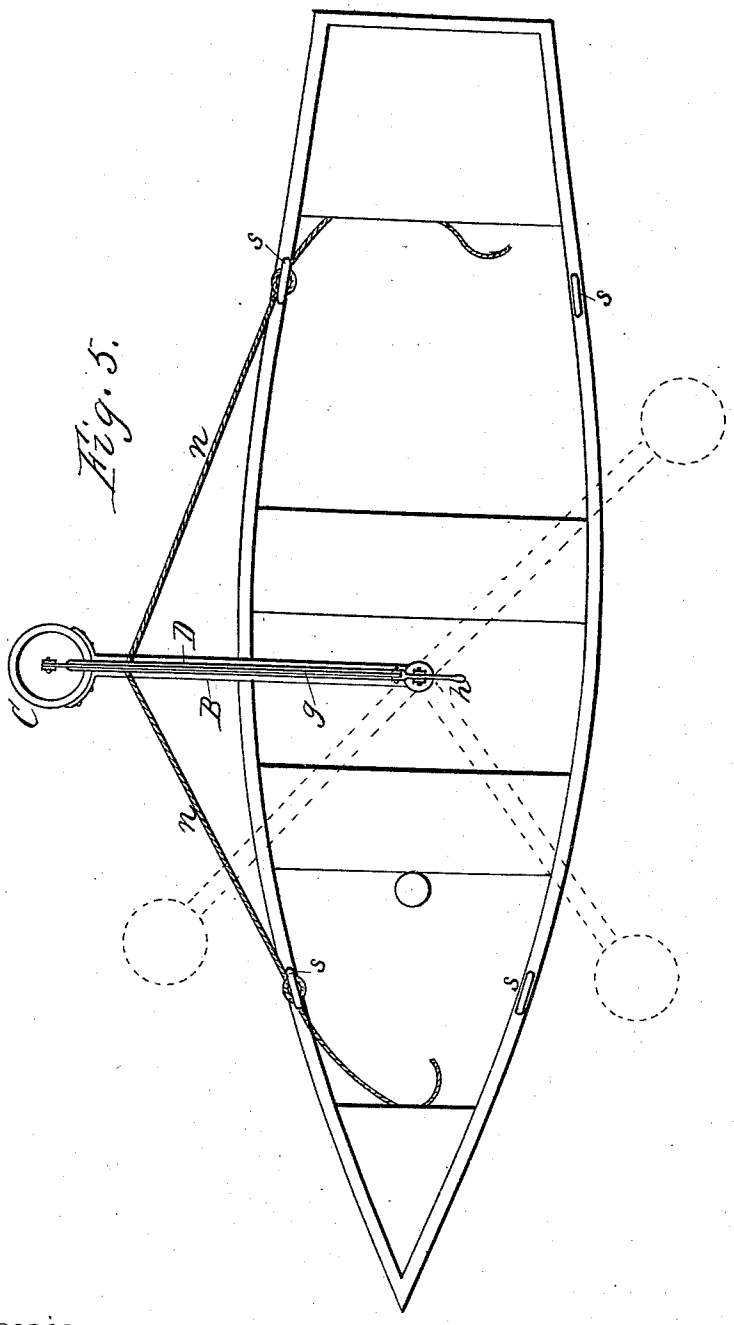
2 Sheets—Sheet 2.

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APPARATUS FOR TRIMMING SHIPS.

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Fig. 5.



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UNITED STATES PATENT OFFICE.

EDMOND REDMOND, OF ROCHESTER, NEW YORK.

APPARATUS FOR TRIMMING SHIPS.

SPECIFICATION forming part of Letters Patent No. 545,095, dated August 27, 1895.

Application filed April 5, 1894. Serial No. 506,516. (No model.)

To all whom it may concern:

Be it known that I, EDMOND REDMOND, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Apparatus for Trimming Ships, of which the following is a full and accurate description, which will enable others skilled in the art to which it appertains to use the same.

My invention relates to means for making ships maintain an upright position in the water during a cross-wind, or at other times when a vessel would ordinarily heel. Heretofore vessels were trimmed by shifting weights from the lee to wind ward side. This plan made it necessary to carry a large extra weight of ballast, in order that it might have the required effect when it was shifted from one side of the ship to the other, and on yachts it was not available.

My invention consists of an outrigger or counter-weight applied to the windward side of the ship, the main weight of which counterpoise consists of water carried in a tank at the outer extremity of the outrigger.

In the drawings, Figure 1 shows a deck view of a boat equipped with the apparatus. Fig. 2 is a vertical cross-section of a boat provided with the apparatus. Fig. 3 is a device by which the counterpoise can be drawn in or out laterally. Fig. 4 shows a vertical section of the universal joint by which the fixed end of the outrigger-arm is attached to the boat, together with the tube by which water is conveyed to the tank. Fig. 5 shows the outrigger extended over the side of the ship and held in position by the ropes *n n*, which are attachable at their free ends to the cleats *s s*, and form a simple way of adjusting and controlling the horizontal movement of the tank-arm.

Similar letters refer to similar parts throughout the several views.

The tank C, extended out from the side of the ship A by the arm B, to which it is attached, will hold water, the weight of which, being on the windward side, will counteract the tendency of the ship to heel to leeward. The water is conveyed to the tank through the pipe D from the pump E drawing from the body in which the ship is floating.

When the ship is changed in her course from one tack to another, and the outrigger is to be changed from one side of the ship to the opposite, the water in the tank is first let out by raising the valve *c*, by means of the lever *h*, and working the rod *g*, bell-crank *f*, and valve-rod *d*. When the water is discharged from the tank, the outrigger can be raised by the rope *i* running over the pulley K on the mast G, and drawn in by the contrivance shown in Fig. 3, in which the rope *n*, working on the pulleys *m m*, is attached to the outrigger-arm B, which it moves back or forth as the pulley *m* is revolved by the crank shown in Fig. 1. I do not confine myself to the use of the apparatus shown in Fig. 3 for controlling the motion of the arm B. Ropes attached to each side of the arm B, midway of its length and running to cleats on the gunwale or deck, would serve to control the horizontal motion of the outrigger, and a block and tackle connecting G and D in the line *i* would answer to lift the outrigger. A pump set in the tank and worked from the ship could be employed to fill the tank, drawing water through a pipe let down from the bottom of the tank. The end of the outrigger-arm on deck is provided with a ball-and-socket joint *a b*, or its equivalent, which, being fixed to the ship, forms a fulcrum for the lever-arm B. The weight of the tank will rest on the gunwale of the ship or on the tackle *i*, or other suitable support, as may be desirable. The tube D, for carrying water from the pump to the tank, can be flexible where it is used in conjunction with an independent arm B; or, for small boats, the tube may serve as the arm to support the tank, in which case it would be of metal and have a suitable joint where attached to the pump to allow it the requisite motion.

When the apparatus is to be put in operation, the arm which carries the tank must be extended from the ship and secured. Water is then forced into the tank through the pipe extending thereto from the pump. As the water rises in the tank its weight, acting on the lever formed by the arm, tends to depress the side of the vessel from which it is extended, and the ship is thereby brought nearer to the position in which it will sail fastest—that is, on even keel.

On sailing yachts designed for speed the in-

vention must be specially desirable, as it will hold the vessel upright in a beam-wind and enable her to sail closer to a head-wind. Where desirable the tank C can be made of canvas or other flexible material, so as to be collapsible when stowed away.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination in an outrigger for ships, of the arm B, joint *a b* connecting said arm to the deck, tank C, secured to the free end of said arm, valve *c* in the bottom of said tank, and means for operating said valve, pump E, located on the ship, tube D connecting said pump and tank, and means for controlling the movement of the arm substantially as described.

2. In the art of trimming a ship an outrigger consisting of an adjustable arm that is extended from the side of the vessel and which carries at its extremity a tank that is held above the water in which the ship is floating, by said arm; the tank to be connected with apparatus by which water can be thrown into it or discharged therefrom.

EDMOND REDMOND.

Witnesses:
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