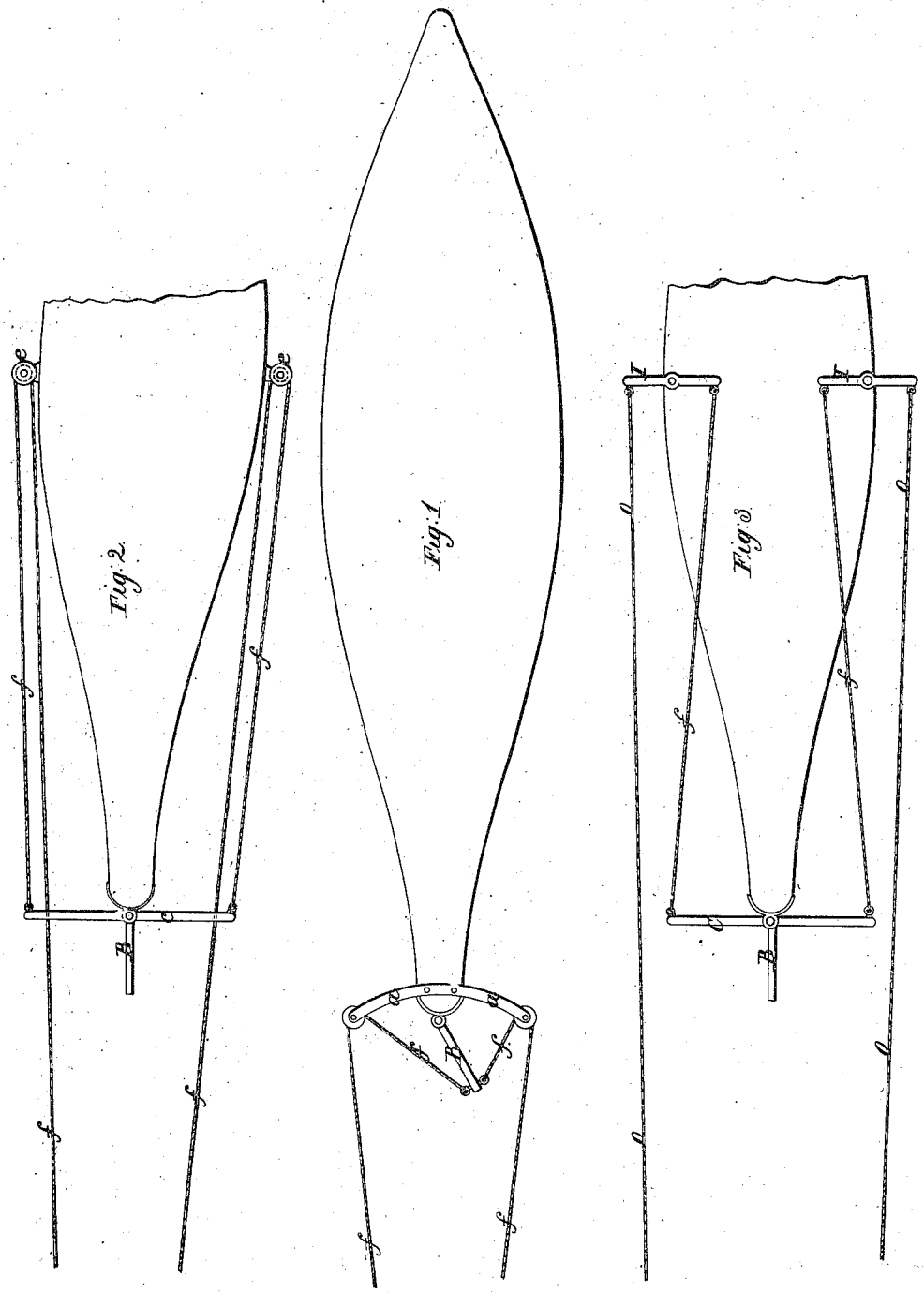
J. D. Willoughby.

Towing.

No. 48,124. Patented Jun. 6, 1865.



UNITED STATES PATENT OFFICE.

J. D. WILLOUGHBY, OF WASHINGTON, DISTRICT OF COLUMBIA.

MPROVED DEVICE FOR STEERING BOATS FROM ANOTHER BOAT.

Specification forming part of Letters Patent No. 48,124, dated June 6, 1865; antedated November 25, 1864.

To all whom it may concern:

Be it known that I, J. D. WILLOUGHBY, of Washington city, District of Columbia, have invented a new and improved mode of steering a boat without any person being on board to steer it.

The object aimed at is to send a small boat without any person in it to points of danger to accomplish some end, such as blowing up an enemy's vessels, or to drag a grappling-iron through the water to remove torpedoes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in steering a boat by two lines or cords, or their equivalents. These cords being each some miles long are wound on two reels that work independently of each other. The reels are placed on land or any boat where the steersman wishes to stand. The loose end of each cord is attached to each end of the cross-tiller *c*, and then passes around some pulley or point on the boat, as in Figures 3 and 4; or each end of the cord may pass around a pulley and be fastened directly to the rudder, as seen in Fig. 2.

Fig. 1 is a plan view of the boat. Figs. 2 and 3 are top views of a portion of the stern.

A in Fig. 1 is a cross-bar inclining to a circle, which is firmly attached to the stern of the boat.

B is the rudder, which swings or turns freely upon its bearings.

f f are cords, which are attached to the rudder B, and pass through a hole or around a pulley on each end of the cross-bar *a*. The other end and body of the cords are on two reels, which are independent of each other and revolve easily when the cords are pulled by the boat as it moves away from the reels. Tension is produced on the cords, when desired, by bringing friction-breaks to bear upon the periphery of the reels. If it is desired to steer the boat to the right then the friction-brake must be pressed on the right-hand reel, which will draw the rudder B into the position it now stands in, as seen in Fig. 1. While the tension on the right-hand cord is continued the pulling of the cord on the right-hand side of the cross-bar *a* and also the position of the rudder both incline the front end of the boat to the right.

Figs. 2 and 3 are modifications of the steering device, as shown in Fig. 1. In Fig. 2 the cord *f f* passes from the end of the tiller *c* around pulleys *e e*, and back to the reels, which reels are not shown, as they are no part of this invention. By producing tension on these cords the same results are obtained as in Fig. 1. Fig. 3 shows short cords *f f* extending from the tiller *c* to the levers I I. The cords *o o* run from the outer end of I I to the reels, and are operated the same as the other figures. Other modifications might be shown; but enough has been presented to show how the tension of the cords and the position of the rudder can be made to mutually assist in steering the boat.

It is evident that if the cords were attached to each side of the boat, and in no way connected with the rudder, that tension on the right-hand cord would incline the boat to the right, just in proportion to the tension applied and the distance the cord was attached from the center of the boat longitudinally.

It is also obvious that if the cords were attached to the cross-tillers *c*, and in no other way connected with the boat, that tension on the right-hand cord would throw the rudder to the left, in which case the rudder would incline the boat to the left, but the tension of the cord which holds the rudder being on the right-hand side of the boat would incline the boat to the right, in which case each force would operate against the other; but by attaching the cords to the cross-tiller *c* or rudder B, and then around some point on the boat, as shown, the tension of the cords and position of the rudder both act in the same direction and make it an easy matter to steer a boat by the use of two cords, as described and represented.

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

Attaching the steering-cords *f f* to the cross tiller *c* or rudder B, and passing them around some point on the boat, so as to cause the tension of either cord to pull the rudder into position that will incline or steer the boat in the same direction that it is inclined by the tension of the cord, substantially as described and represented.

J. D. WILLOUGHBY.

Witnesses:

R. D. O. SMITH,

ANDREW WHITELEY.