

W. Woodbury.
Sails and Rigging.

N^o 55,213.

Patented May. 29, 1866.

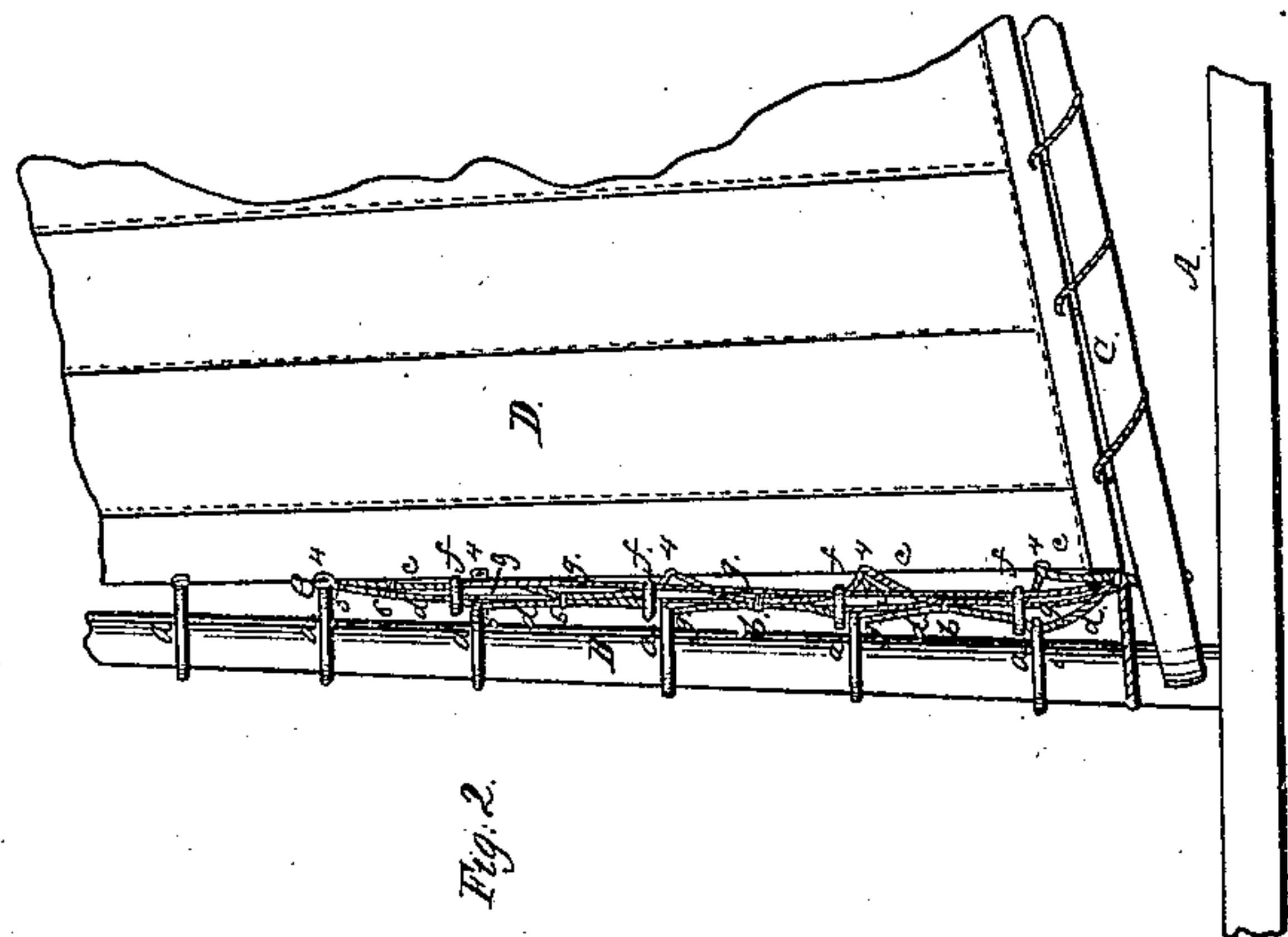


Fig. 2.

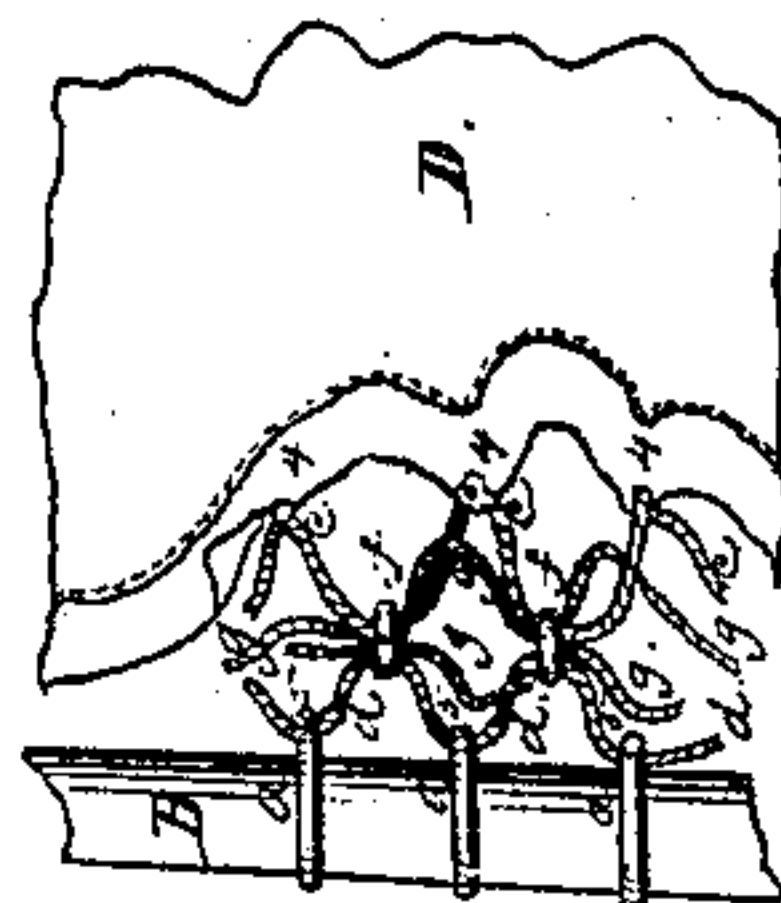


Fig. 3.

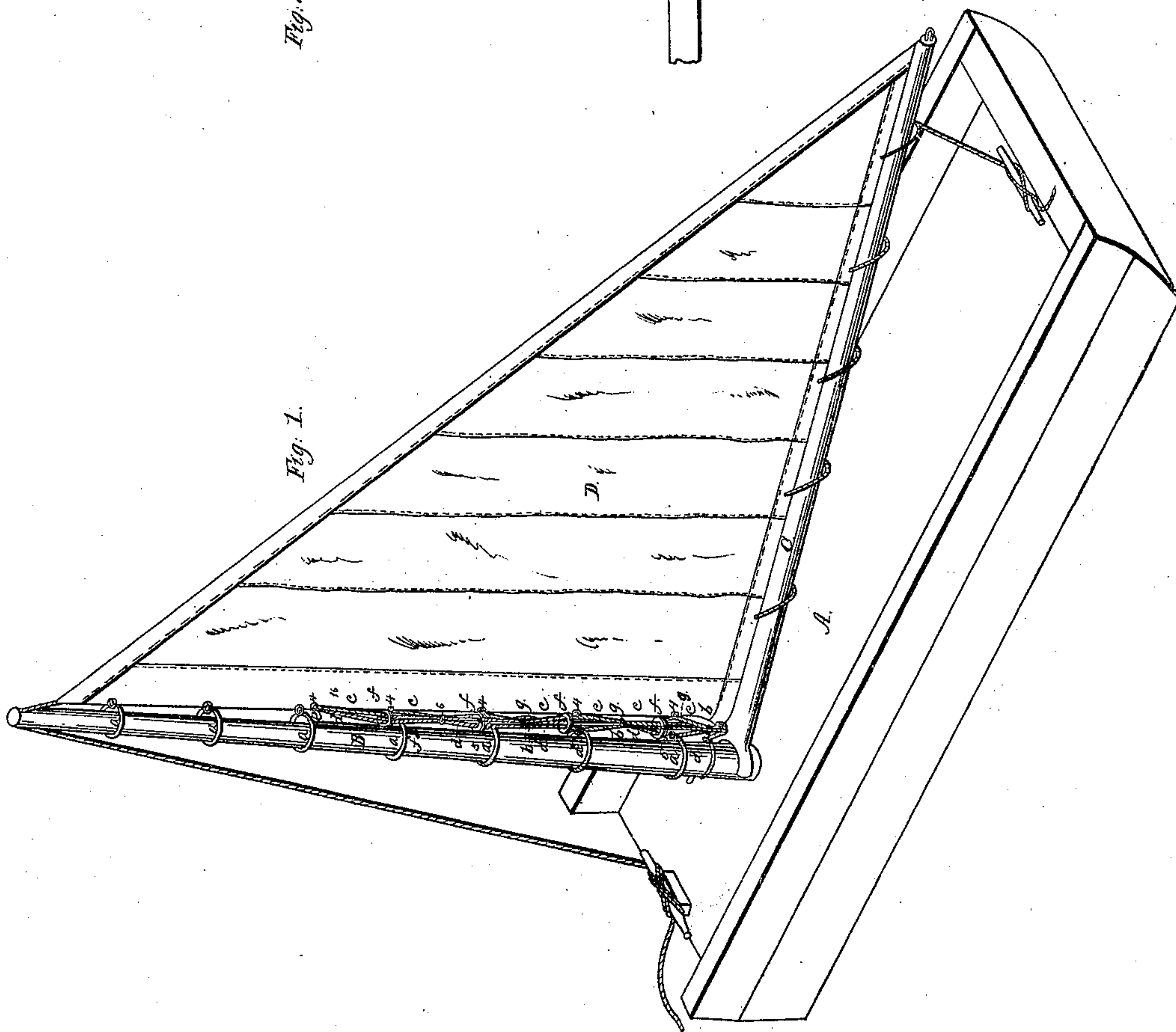


Fig. 1.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM WOODBURY, OF CHELSEA, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND MELLEN BRAY.

IMPROVEMENT IN BENDING FORE-AND-AFT SAILS.

Specification forming part of Letters Patent No. 55,213, dated May 29, 1866.

To all whom it may concern:

Be it known that I, WILLIAM WOODBURY, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Bending Fore-and-Aft Sails of Vessels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents the deck of a vessel with the mast, boom, and sail, the latter being bent after my improved method. Fig. 2 is a side elevation of a portion of the mast and sail, showing more clearly the manner in which the sail is bent. Fig. 3 is a detail to be referred to.

When the mast of a fore-and-aft rigged vessel rakes or inclines, the lower portion of the sail cannot be attached directly to the mast-hoops, on account of the drag upon the sail when being lowered, for which reason the lower portion of the sail is attached by means of a jack-rope, which is passed up between the hoops and the mast and attached to the sail midway between the hoops, at intervals of twenty-four inches, or thereabout, which allows the sail to be drawn off from the mast in lowering a distance equal to about one-half of that between the points where the jack-rope is attached to the sail. This slack, however, is found to be insufficient, and in case the sail should shrink or become wet it would be liable to be torn or injured in hauling it down; and the distance between the points where the jack-rope is attached cannot be increased to give more slack, for the reason that the sail could not then be properly held up to the mast when set, and even when the jack-rope is secured to the sail, as above described, in a stiff breeze the hoops are liable to be crowded up, so that the sail cannot be held near enough to the mast.

My invention has for its object to overcome these difficulties; and it consists in the employment of two jack-ropes, one of which is merely attached to the sail at distances of twenty-four inches, or thereabout, apart, without being first passed through the mast-hoops, while the other is secured to the mast-hoops, both jack-ropes being seized or fastened together at points midway between the hoops, by which arrangement I am enabled to obtain all the

slack required for lowering the sail, while it is held properly up to the mast when set; and my invention also consists in the employment of a series of rings of small diameter, through which both jack-ropes are rove, the rings being all attached to a rope or ropes, by which they are held down in a position to keep both jack-ropes together, and thereby prevent the sail when set from being drawn away from the mast.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the deck of a vessel; B, the mast; C, the boom, and D the sail, the bottom of which is secured to the boom in the usual manner.

The upper mast-hoops, *a*, are secured directly to the sail, while the sail is held up to the remainder of the hoops in a manner which I will now describe.

c d are two jack-ropes, one of which, *c*, is merely secured to the sail at points 4, at intervals of twenty-four inches, or thereabout, apart, while the other, *d*, is secured to the mast-hoops *a* at points 5, opposite to the points 4, where the rope *c* is attached to the sail, and is also secured to the sail at the point *e*. The two jack-ropes *c d* are seized or fastened together at the points 6, half-way between the hoops.

This arrangement of ropes allows the sail to be drawn away from the mast while being lowered a distance nearly equal to that between the points 4, as seen in Fig. 3, or about double the distance that it could be drawn away from the mast with the arrangement heretofore used, thereby preventing the sail from being torn or stretched apart at the seams, or stretched out of shape, while, when the sail is set, it is held as near to the mast as with the old method.

For the purpose, however, of holding the sail when set still closer to the mast, especially in a stiff breeze, I employ a series of rings, *f*, of small diameter, through which both jack-ropes, *c d*, are rove; and these rings are attached to ropes *g*, the lower ends of which are fastened to the sail or boom, so that when the sail is hoisted up the rings will be drawn down close to the mast-hoops into the position seen

in Figs. 1 and 2, thus keeping both jack-ropes close together and serving to hold the sail close up to the mast as required; and when the sail is being lowered the slack of the ropes *g* allows the rings *f* to be forced up to the points 6, where the jack-ropes are united, as seen in Fig. 3, so as to permit the jack-ropes to be drawn apart as required.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The two jack-ropes *c d*, in combination with the sail *D* and mast-hoops *a*, arranged and operating substantially as set forth.

2. In combination with the above, the rings *f*, or their equivalents, operating substantially as and for the purpose described.

WM. WOODBURY.

Witnesses:

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N. W. STEARNS.