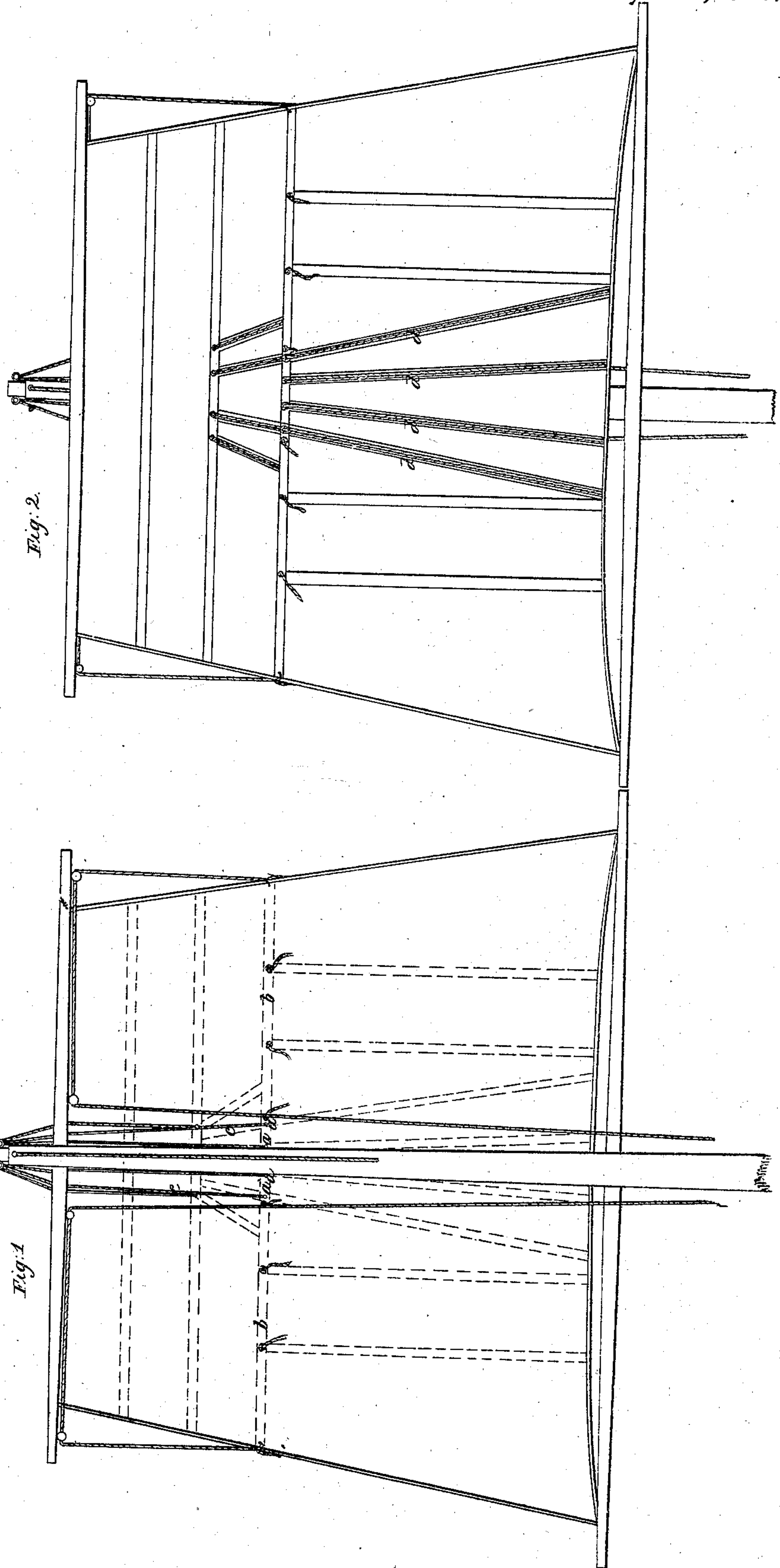


*I. Boss,
Sails & Rigging*

N^o 15,754.

Patented Sept. 23, 1856.



UNITED STATES PATENT OFFICE.

ISAAC I. BOSS, OF BROOKLYN, NEW YORK.

REEFING TOPSAILS.

Specification of Letters Patent No. 15,754, dated September 23, 1856.

To all whom it may concern:

Be it known that I, ISAAC I. BOSS, of the city of Brooklyn, Kings county, and State of New York, have invented a new and Improved Mode of Keeping and Reducing Topsails; 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, in which—

Figure 1 is the rear view and Fig. 2 the front view of topsail.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

My arrangement consists in making eyelet holes, *a, a, a, a*, in the reef the first two being about two feet from the center of the sail on either side—the outer holes about four feet from the center. The lines *c*, reef from aft forward having knots in the ends of the lines, bringing the knots close to the holes—the lines then run up between the head of the sail on a straight line and the forepart of the yard—thence to the mast-head direct with a block at the mast head reefing from forward aft—and thence leading on deck or in the top. So continue with as many lines as may be deemed necessary according to the size of the topsail. These lines should be made fast according to the lifts of the yard; that is when the yard is down the close reef will be in its place. For reefing the second and 1st reef slack the lines of the first reef, *b*, giving the 2nd and 1st reef a chance to come to the yard.

Another great advantage in this rig is that it relieves the reef-tackle of at least $\frac{3}{4}$ of the ordinary strain—thus requiring but one-fourth the number of men and consequently $\frac{1}{4}$ the expense in accomplishing the work. To accomplish this method of reefing

without injury to the sail, I strengthen the latter by running bands, *d, d, d, d*, about a foot wide or more, from the close reef, making them about 3 or 4 feet apart and diverging them 4 or 5 feet as they approach the bottom of the sail, I then take the bite of the line and place it close on the upper part of the hole where the reef line goes through. I then fetch the two ends down to the foot of the sail placing the two lines side by side as represented in Fig. 2, my mode of fastening those lines is to stick a needle with twine through and through—by this means the ropes neither draw the sail nor injure it in its set in any way whatever. So the other reefs can be arranged above as occasion may require. If requisite a similar arrangement may be used on the other side of the sail—so that by adopting this mode it can be made the strongest part of the sail. This rig is equally applicable to ships of the navy as well as to merchant ships as the expense is very trifling—the gear for rigging is light and does not interfere with any other part of the sail and saves a great deal of labor.

What I claim as new and desire to secure by Letters Patent is—

1. The running of lines from the reef between the head of the topsail and the forepart of the yard—thence direct to the top-mast head.

2. I claim the arrangement of reef-tackle beneath the yard running from the end of the yard to the quarter on deck.

3. I also claim the peculiar mode of strengthening the sail by bands and double ropes as above described.

ISAAC I. BOSS.

Witnesses:

JOHNS S. HOLLINGSHEAD,
JNO. E. EVANS.