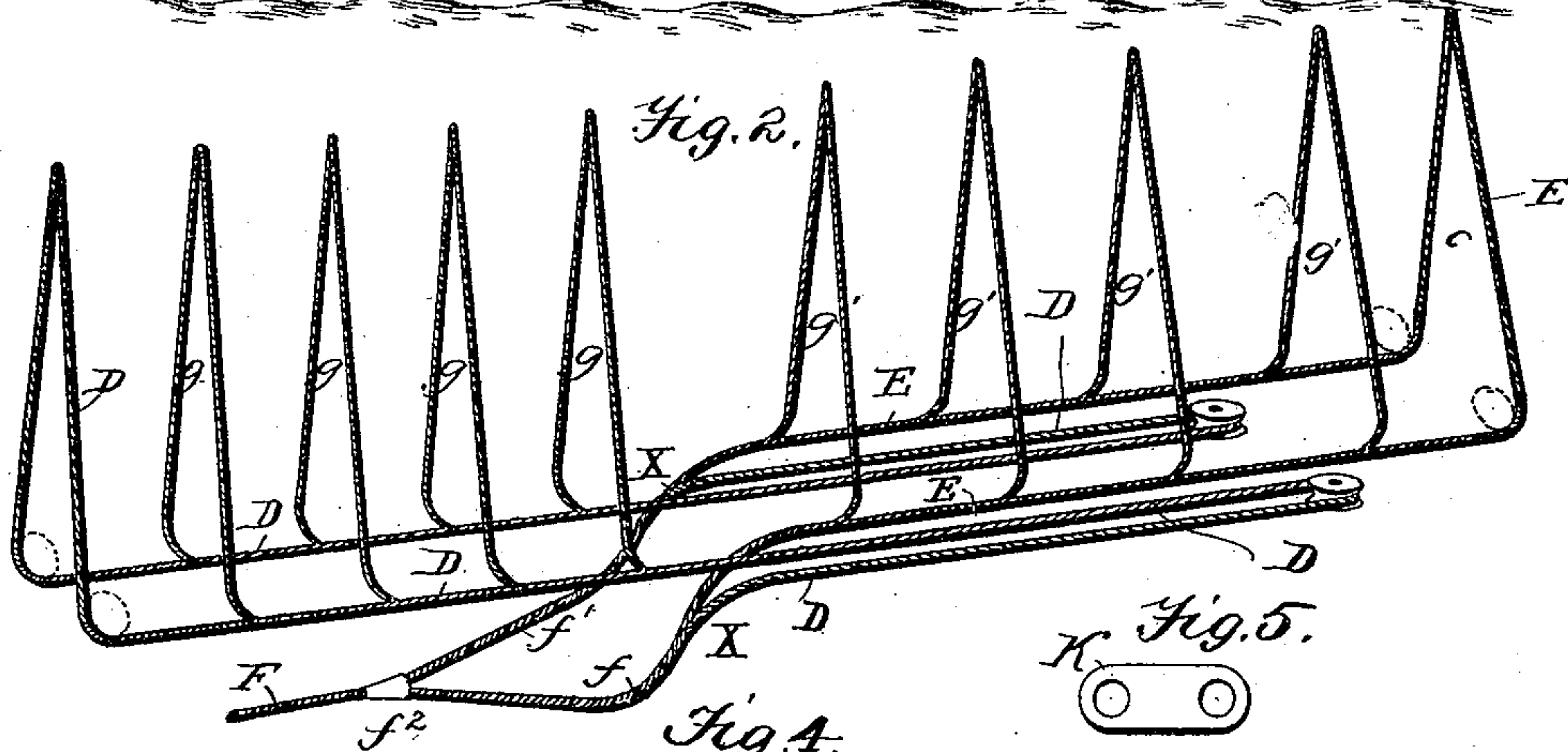
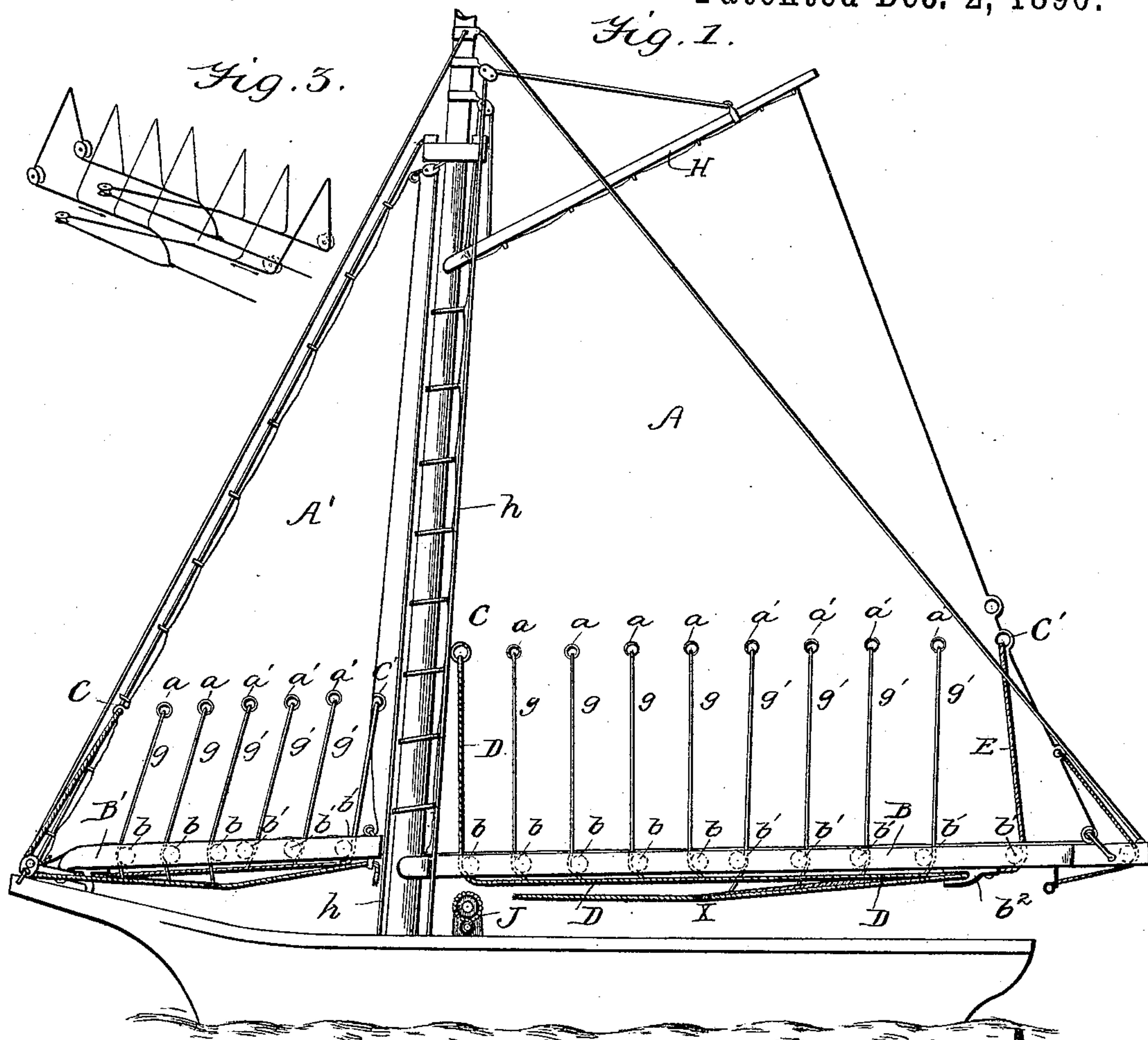


(No Model.)

T. O. MAHONEY.
REEFING GEAR FOR SAILING VESSELS.

No. 441,680.

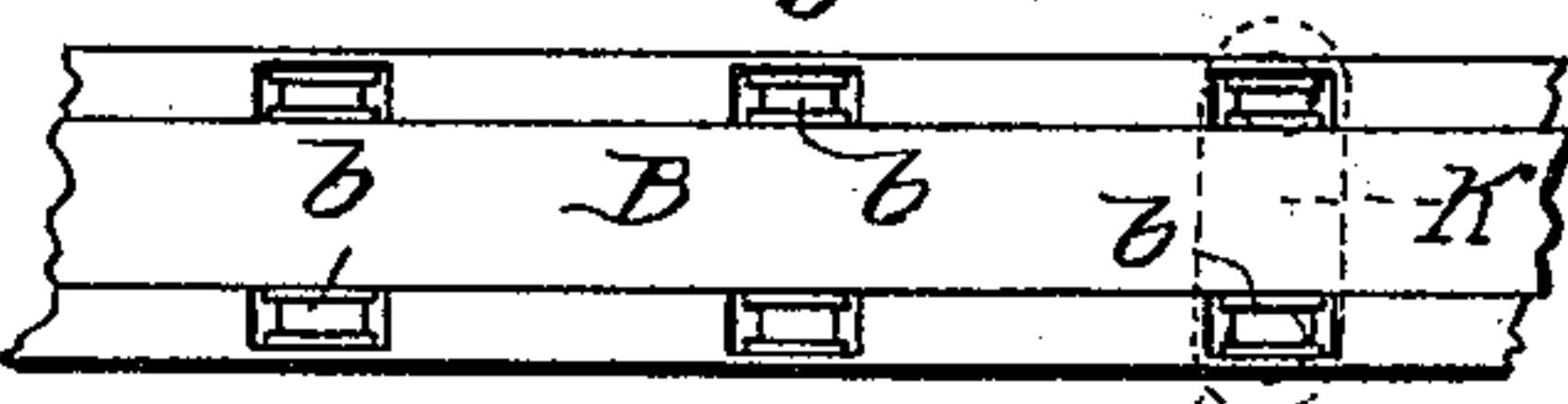
Patented Dec. 2, 1890.



WITNESSES:

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THOMAS O. MAHONEY, OF BROOKLYN, NEW YORK, ASSIGNOR TO ELLEN
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REEFING-GEAR FOR SAILING-VESSELS.

SPECIFICATION forming part of Letters Patent No. 441,680, dated December 2, 1890.

Application filed December 24, 1889. Serial No. 334,816. (No model.)

To all whom it may concern:

Be it known that I, THOMAS O. MAHONEY, a subject of the Queen of Great Britain, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Reefing-Gear for Sailing-Vessels, of which the following is a specification.

My invention relates to reefing-gears for vessels. Its object is to provide means whereby the sails may be quickly and neatly reefed by operators occupying a safe position on the deck of the vessels.

In patents previously granted for apparatus of this class it is observed that in the process of reefing it is necessary to haul in long lengths of rope, which is inconvenient to handle, and also increases the time and labor of operation. The ropes or reefing-points also are hauled through eyes in the sail for one-half of their length, and therefore become worn, besides increasing the labor of the reefing operation.

The principal feature of my invention is that with a minimum of time and labor I am enabled to perform the operation of reefing with a haul of rope only equal to the length of the reef desired to take in. My apparatus also prevents any choking at the sheaves. To obtain these results I employ a simple arrangement of ropes and sheaves, which I will now proceed to describe with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a vessel, showing my improvements attached to the mainsail and jib. Fig. 2 is a diagrammatical view of the operating-ropes for the mainsail. Fig. 3 is a similar view of the operating-ropes for the jib. Fig. 4 is a plan of a portion of the boom, and Fig. 5 is a detail.

Referring to Fig. 1, A represents the mainsail and A' the jib, both of which are rigged to the mast in the usual manner.

To the luff and leech of the sails are attached the cringles C C' at distances above the booms equal to the length of the reef. In a straight line between these cringles are inserted in the sail a row of eyes $a a'$.

B is the main-boom, and B' is the jib-boom. They are provided on both sides with a row of vertical sheaves $b b'$ corresponding in

number and relative position to the eyes $a a'$, two sheaves being provided for each eye. These sheaves are housed in cleats or moldings fastened to each side of the boom. 55

Beginning at cringles C in the mainsail, an earing D passes down to and around the forward side of the first sheave b , thence aft along the under side of the boom, around the horizontal pulley b^2 , and return to a point X about midway of the boom. 60

I have described only one side of this earing; but by reference to Fig. 2 it will be plainly seen that the same arrangement is repeated on the other side of the boom, the earing D being a single length of rope looped through the cringle C. Looped through the cringle C' is a second earing E, the ends of which pass down to and around the aft side of the sheaves $b' b'$ and forward to the point X, where it is spliced in the earing D. At the points X there are run two separate lines f and f' , which may be secured together at f^2 and extend in a single line F to form the main hauling-rope. Through each of the eyes $a a'$ are passed small ropes $g g'$, which constitute the reefing-points. The points g are brought down on each side of the sail and passed around the forward side of sheaves b and are spliced to the earing D, traveling with the said earing in the direction of the arrow. The points g' are passed around the aft side of the sheaves b' and are similarly connected to earing E and travel with said earing in a direction opposite to that of earing D. 85

I reef the sail in the following manner: The gaff H is lowered by means of halyards h in the usual manner, and simultaneously therewith the line F is hauled in toward the mast. This operation causes the earing D, with the series of points g , to travel aft toward the horizontal sheave b^2 and the earing E, with the series of points g' , to travel forward. Thus all the points $g g'$ are drawn down evenly and at precisely the same time, folding the sail securely and compactly on the top of the boom. The halyards and line F are then made fast, and the operation is completed. 95

It will be observed that the earing D has points attached to it for only a portion of its length, and the part which travels over the 100

sheaves b^2 is entirely free from knots or obstructions of any kind, the operation of reefing being completed before the spliced portions reach said sheaves.

5 From the above description and by reference to Fig. 3 the operation of reefing the jib will be readily understood.

K represents a small strip of iron or other suitable material provided with a perforation
10 at each end. These strips are placed over the sheaves $b b'$, as shown in dotted lines in Fig. 4, and the points $g g'$ pass through the perforations. This guides the points properly and prevents them from choking in
15 sheaves. These guides also prevent the reefed sail from interfering in any way with the sheaves.

To make a half reef it is only necessary to haul the points half down. This will leave
20 the reefed portion confined between the points, and it cannot flap and beat itself.

The hauling in of the earings may be accomplished either by hand or by a winch placed on deck near the mast. This is represented at J.
25

Having thus described my invention, I claim—

1. In a reefing device for vessels, the combination of two main lines or earings, each
30 having attached to it an independent series of reefing-points, substantially as described.

2. A reefing-gear for vessels, consisting of two earings looped through cringles in the luff and leech of the sail, respectively, and
35 both passing down on each side of the sail and over sheaves attached to the boom, thence along the boom toward each other, and joining together near the middle of the boom, in combination with two series of reefing-points
40 looped through eyes in the sail, each point

consisting of a single rope passing down each side of the sail, the ends of one series of said points being connected with one of the said earings and the ends of the other series of points being connected with the other earing, 45 substantially as described.

3. A main earing passing through a cringle fixed in the luff of the sail at the reefing-line and running down both sides of the sail, over sheaves at the forward end of the boom, 50 thence aft along the boom, and over two sheaves at its after end, and finally back toward the mast, in combination with a second main earing passing through a cringle fixed in the leech of the sail at the reefing-line 55 and running down both sides of the sail, over sheaves at the after end of the boom, thence forward along the boom to the end of the other main earing, to which it is connected, and reefing-points divided into two sets, the 60 forward set being connected with the first-mentioned earing and the after set with the second-mentioned earing.

4. In a sail-reefing device, the combination, with the boom, of a series of pairs of sheaves, 65 one sheave of each pair being on one side of the boom and the other sheave being on the other side, earings and reefing-points passing over said sheaves, and a guiding-strip placed over each pair of sheaves and having a hole 70 at each end for the rope passing over the sheave, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THOMAS O. MAHONEY.

Witnesses:

WM. A. ROSENBAUM,
THOMAS K. TRENCHARD.