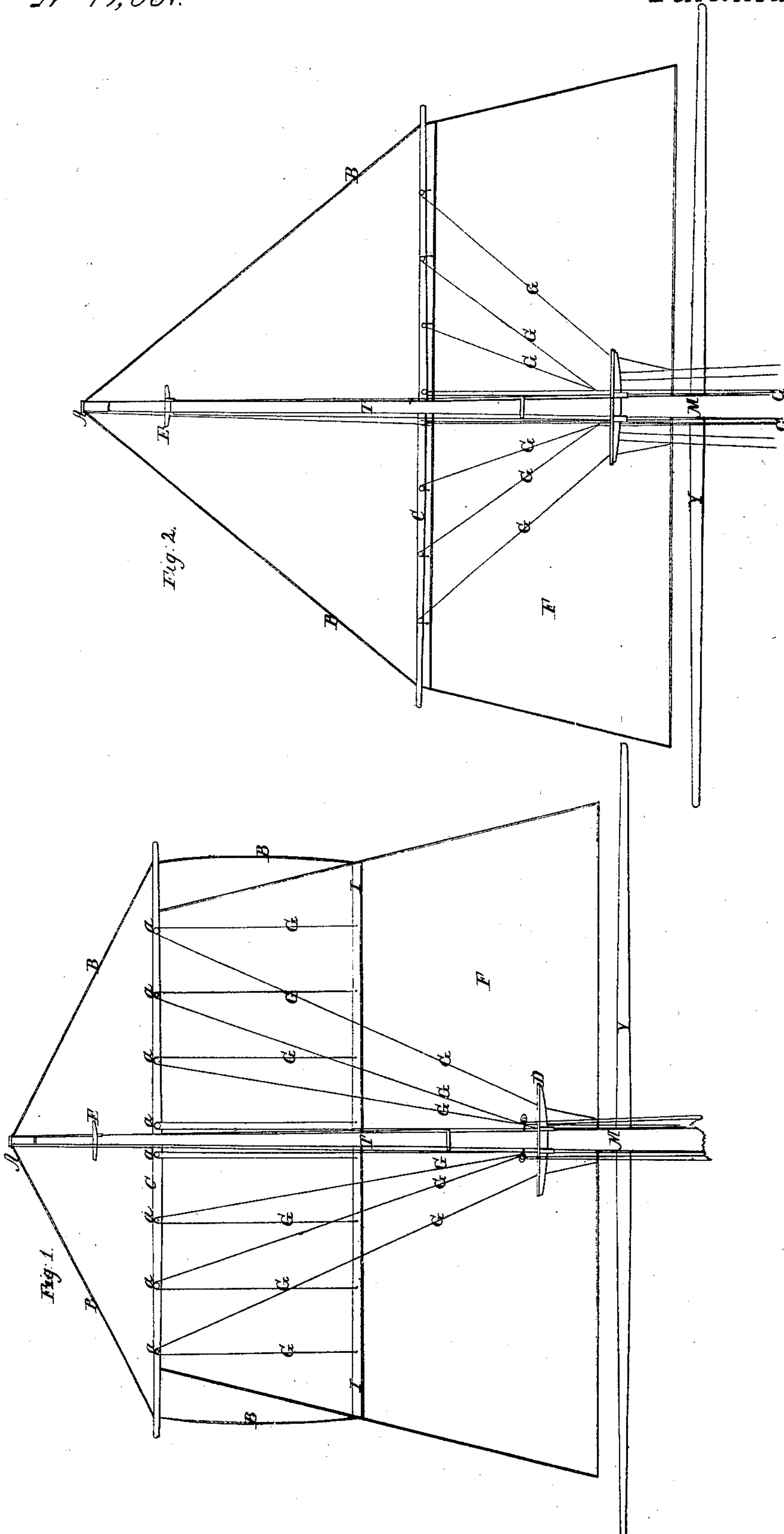


*J. F. Boyd,
Sails & Rigging.*

2 Sheets. Sheet 1.

N^o 19,067.

Patented Jan. 12, 1858.

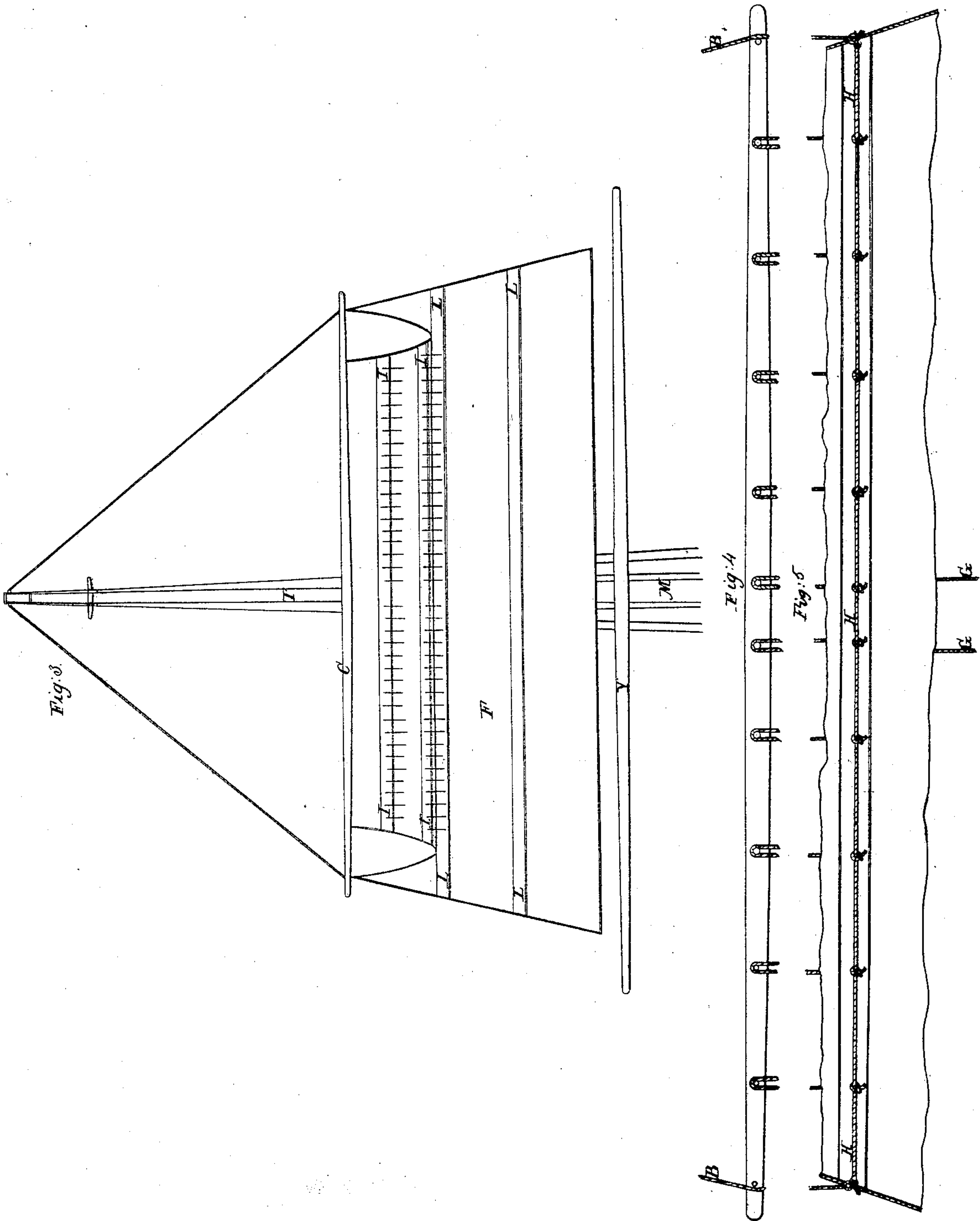


*J. F. Boyd,
Sails & Rigging.*

2 Sheets. Sheet 2.

N^o 19,067.

Patented Jan. 12, 1868.



UNITED STATES PATENT OFFICE.

JOSEPH F. BOYD, OF CHARLESTOWN, MASSACHUSETTS.

REEFING SAILS.

Specification of Letters Patent No. 19,067, dated January 12, 1858.

To all whom it may concern:

Be it known that I, JOSEPH F. BOYD, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented
5 an Improvement in Reefing Sails; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

10 Figure 1, denotes an after side view of a topsail when unreefed and supplied with my improved arrangement of reef tackles, and reefing or band suspension lines. Fig. 2, exhibits an after side of the sail as close
15 reefed; Fig. 3, a front side view of it as close reefed and unfurled. Figs. 4, and 5, are detail views of the topsail yard and part of the fore side of the topsail showing the jack rope, reef tackles, bunt and reef lines
20 and their connections.

In these drawings, M represents the mast; T, the topmast; D, the top; E, the cross-trees; Y, the yard; C, the topsail yard, and F, the topsail.

25 On the fore side of the sail, I extend a jack rope H, and a reef band I, as shown in Figs. 1, and 5, such rope H, serving for the attachment of the reef tackles and reef
30 lines, which are knotted thereto at their lower ends.

In carrying out my invention, I make use of reef tackles B, B, which are respectively applied to the two edges or leeches of the sail; and from thence each is led toward
35 and through a block, A, placed at or near the head of the topmast, the line continuing from the said block downward to the top or to the deck. Besides these reef tackles and in connection with them, I employ a series
40 of reefing lines or reef buntlines represented at, G, G, G, in the drawings, they being arranged at equal distances, asunder, and each being attached to the sail at the reef band and jack rope; and from thence
45 carried up to and around one of a series of sheaves *a, a, a*, supported by the topsail yard C. From thence the reef line is led to the top D, or through it and finally down to the deck.

50 While, during the process of reefing the sail from either the top or the deck, the reef tackles suspend or hold up that part of the sail which is below the reef band, and prevent it from hanging loose at the leech
55 ropes, the reef buntlines not only aid in

supporting the sail at intermediate points but operate to facilitate the descent of the topsail yard when the halyard is let go.

I do not claim extending both the reef
60 tackles and the reef band suspension lines of a topsail upward from the reef band to and through leading blocks or sheaves applied to the topsail yard. Nor do I claim
65 extending both the reef tackles and the reef band suspension lines of a topsail upward from the reef band to and through leading blocks or sheaves applied to the topsail
70 yard, thence toward the topmast and through other leading blocks or sheaves, applied to the topsail yard, thence upward to and through leading blocks suspended
75 from the topmast at or near its head and from thence to the deck of the vessel, as I am aware that such an arrangement and application of reef tackles and reefing lines
80 is exhibited in the patent granted to William H. Foster, on the 5th of September A. D. 1854. Nor do I claim in combination with two reef tackles applied respectively
85 to the outer edges or leech ropes of the sails, and from thence carried up and through leading blocks appended to the topsail yard; thence underneath the yard toward the top-
90 mast; thence through other leading blocks, and from thence to the deck, the application or arrangement of reef band suspension
95 lines to the middle part of the sail and their leading blocks or equivalent devices applied to the topmast head, the same being as exhibited in the drawing of the specification
100 of the patent granted to Isaac Boss, on the 23rd of September A. D. 1856. With this latter arrangement, the middle part of the sail only will be held up, while the yard is being lowered down, all the remainder or
105 outer portions of the parts of the sail below the reef band, being slack and loose until drawn tight by a force applied to the reef tackles. As hereinbefore stated with my ar-
110 rangement the outer edges of the reef band of the sail are supported by the reef tackles while the yard is being lowered, the intermediate parts of the sail being also sup-
ported by the reefing lines and the reefing lines so made to act on the yard as to assist in hauling it downward. Therefore by my improved arrangement or application of two reef tackles and a series of reefing lines the sail is not only better supported during the process of reefing it, but, the yard as-

sisted in its descent by the reefing lines. In the arrangement of reef tackles and reefing lines as shown in the drawings of the said Foster's patent, the yard has no downhaul
5 from its reefing lines, they being arranged so as to operate in a manner to obstruct rather than facilitate its descent. With Foster's arrangement, a separate downhaul is designed to be employed, and becomes
10 necessary by the method in which each of his reefing lines is applied to the yard and the topmast, viz. by running it through two blocks on the yard-arm, and thence to and through a block at the topmast head the
15 descent of the yard is obstructed rather than facilitated by the reefing lines, for each when pulled on at the top or deck tends to lift the yard as much as to depress it, and consequently the yard in its descent is re-
20 tardated by the friction of the rope through the block. In my arrangement as no second block or sheave applied to the yard close to the topmast is employed for either reef tackle B, and so as to cause such reef
25 tackle when pulled on from the top or the deck to exert a lifting action on the yard, the reef tackle being carried over but one block or sheave attached to the yard arm and from thence directly to the block at the
30 topmast head, the draft on the reef tackles

B, B, tends to facilitate the depression of the yard.

What therefore, I claim is—

My improved arrangement or application of the two reef tackles B B and the series of 35 intermediate reefing lines G G G to the sail, the mast and topsail yard, the same consisting in carrying the two reef tackles of the outer edges of the sail upward through
40 blocks at the topmast head and thence downward to the top or deck without in the meantime leading them through any blocks or their equivalents, by which when said lines are pulled they shall tend to fit the yard in
45 connection with arranging the intermediate reefing lines so that they may extend upward from the reef band to and around sheaves in the topsail yard and thence
50 downward to the top or deck in manner as specified without in the meantime leading them up to and through a block or blocks appended to the topmast head.

In testimony whereof, I have hereunto set my signature this 24th day of November, A. D. 1857.

JOSEPH F. BOYD.

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.