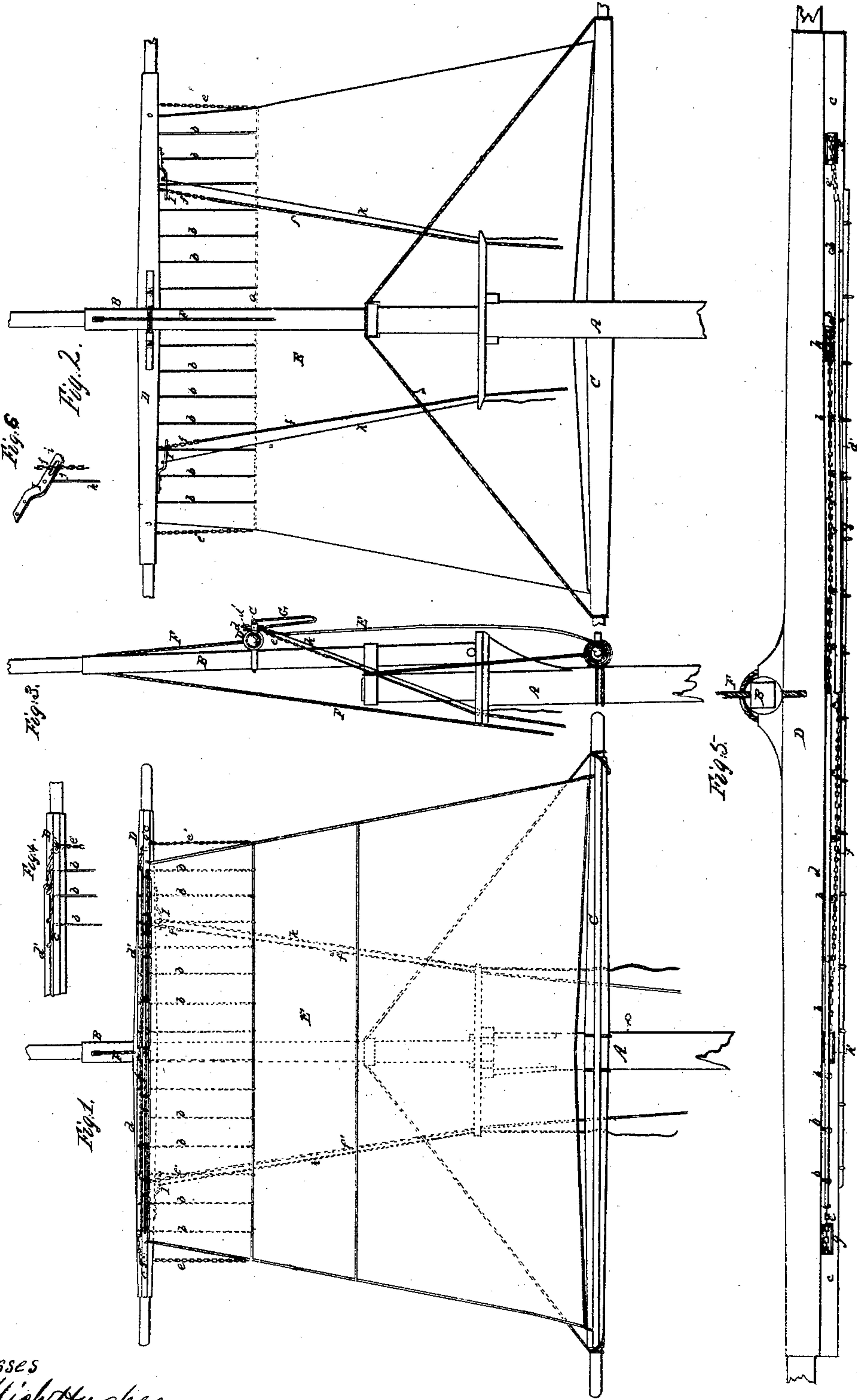


H. Bessling.
Mode of Reefing Sails.

Nº 24,854.

Patented Jul 26, 1859.



Witnesses

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HENRY BESSLING, OF NEW YORK, N. Y.

REEFING SAILS.

Specification of Letters Patent No. 24,854, dated July 26, 1859.

To all whom it may concern:

Be it known that I, HENRY BESSLING, of the city, county, and State of New York, have invented a new and Improved Method of Reefing Sails from the Decks of Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, is a front view of a ship's top-sail and part of the lower mast and top mast illustrating my invention representing the sail all spread. Fig. 2, is a back view of the same. Fig. 3, is a side view of the same. Fig. 4, is a front view of a portion of the yard and the reefing apparatus. Fig. 5, is a top view of the same on a larger scale than the other figures. Fig. 6, is a perspective view of one of the stop pawls of the reef-pendants.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in extending the reef-points from the back of the sail up to the yard and connecting them to slides which are fitted to work along the yard, and to which are attached the reef-pendants. The said slides being caused to move longitudinally by hauling on the reef-pendants are caused to draw up the reef-points and so to reef the sail.

My invention also consists in securing the reef by means of pawls applied to the yard to operate in combination with portions of the reef-pendants which are made of chain.

To enable others to apply my invention to use, I will proceed to describe it with reference to the drawings.

A, is the lower mast; B, the top-mast; C, the lower yard; and D, the top-sail yard.

E, is the top-sail, secured to the two yards at its head and foot in the usual manner; and F, is the halyard applied in the usual manner for raising and lowering the yard D.

To prevent confusion of the parts in the drawing I have represented the sail with but one reef.

a, is the reef-band; and *b*, *b*, are the reef points, secured to the sail at about the usual distances apart and extending upward at the back of the sail through separate holes in the jack-stay *c*, of the yard D.

d, *d*', are the slides to which the reef-points are attached, two in number consisting each of a piece of light flat bar iron of

a length about equal to half the width of the head of the sail. These slides rest upon the jack-stay *c*. The reef-points *a*, *a*, may be attached to the said slides in any suitable and secure manner; those belonging to one half of the width of the sail being attached to one of said slides and those belonging to the other half to the other slide.

e, *f*, and *e*', *f*', are the two reef pendants, the parts *e*, *e*', of which, passing over sheaves *g*, *g*', (Figs. 1 and 5) in the jack-stay connect their respective slides with the leeches of the sail at the ends of the reef-band, and the parts *f*, *f*', attached to the other end of the slides passing over sheaves *h*, *h*', (Fig. 5) in the jack-stay, and thence down through guides or pulley blocks attached to the round-top, below which they are connected with the reef-tackles (not shown). The sheaves *h*, *h*', are in the opposite arms of the yard to the reef-points that are connected with their respective reef-pendants.

The operation of reefing is effected through the agency of the slides *d*, *d*', without sending a man aloft by merely letting go the halyards and hauling down the portions *f*, *f*', of the two reef-pendants by means of their connected reef-tackles which operation draws the slides *d*, *d*', along the yard toward their respective sheaves *h*, *h*', and by that means draws up all the reef-points through the jack-stay and along the top thereof, as shown in Fig. 4, till the bottom of the reef comes close up under the jack-stay leaving the reef hanging down loose in front of the portion of the sail below it as shown at G, in Fig. 3. The reef may be allowed to remain in this condition till it is convenient to send a man or boy aloft to secure its outer edges or leeches by suitable means which may be provided for the purpose.

The portions *e*, *e*', of the reef-pendants and the upper parts of the portions *f*, *f*', thereof which work over the sheaves *g*, *g*', and *h*, *h*', are represented in the drawing as being made of chain. This provides for the wear to which these portions of the pendants are subject, and in the case of the portions *f*, *f*', provides for the application of the pawls I, I', by which the reef is secured. These pawls are made each of a single piece of spring steel, having near one end a circular hole *i*, (Fig. 6) large enough for the chain to pass freely through, and having on

the side of this hole farthest from the said end a slit *j*, just wide enough to permit a link of the chain to be placed edgewise within it. The other end of the pawl is secured 5 firmly to the bottom of the jack-stay in such a position that when the part of the pawl containing the slit *j*, is close under the jack-stay the said slit will be in a position to receive a link of the chain and so will prevent 10 the chain being drawn up through the jack-stay and hence will secure the reef when the latter is taken in. This kind of pawl does not however prevent the chain moving downward in reefing as such movement of 15 the chain draws the pawl down away from the jack-stay and the movement of the pawl being in an arc brings the hole *i*, into the path of the chain and so permits the chain to work through the pawl. To provide for 20 the liberation of the pawls for the purpose of letting the reef out of the sail, each pawl has attached a lanyard *k*, which extends downward to the deck; and by hauling down the pendant a little way and with it 25 the lanyard, the pawl is drawn down away from the yard far enough for the chain to get out of the slit *j*, into the wide opening *i*, of the pawl; and by then letting go the pendant but still holding down the pawl by

means of the lanyard, the chain is allowed 30 to run up through the jack-stay while the yard is hauled up by the halyard *F*.

It is hardly necessary to mention that each reef of the sail, when two or more reefs are used, as is almost invariably the case, re- 35 quires a separate pair of slides for its reef-points and a separate pair of reef-pendants. Two or more reefs may be taken in at once or each one singly.

What I claim as my invention and desire 40 to secure by Letters Patent, is—

The slides *d*, *d'*, applied to work along the jack-stay or other suitable portion of the yard in combination with reef-points extended from the back of the sail up through 45 the jack stay or yard and with the reef-pendants substantially as herein described, and without confining myself to the particular construction of the pawls *I*, *I*, I claim securing the reef by means of pawls applied to 50 the yard to operate in combination portions of the reef pendants made of chain, substantially as herein described.

HENRY BESSLING.

Witnesses:

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