

Sheet 1, 2 Sheets
Higgins & Brown.
Sails & Rigging.

N^o 19,850. Patented Apr. 6, 1858

Fig. 1.

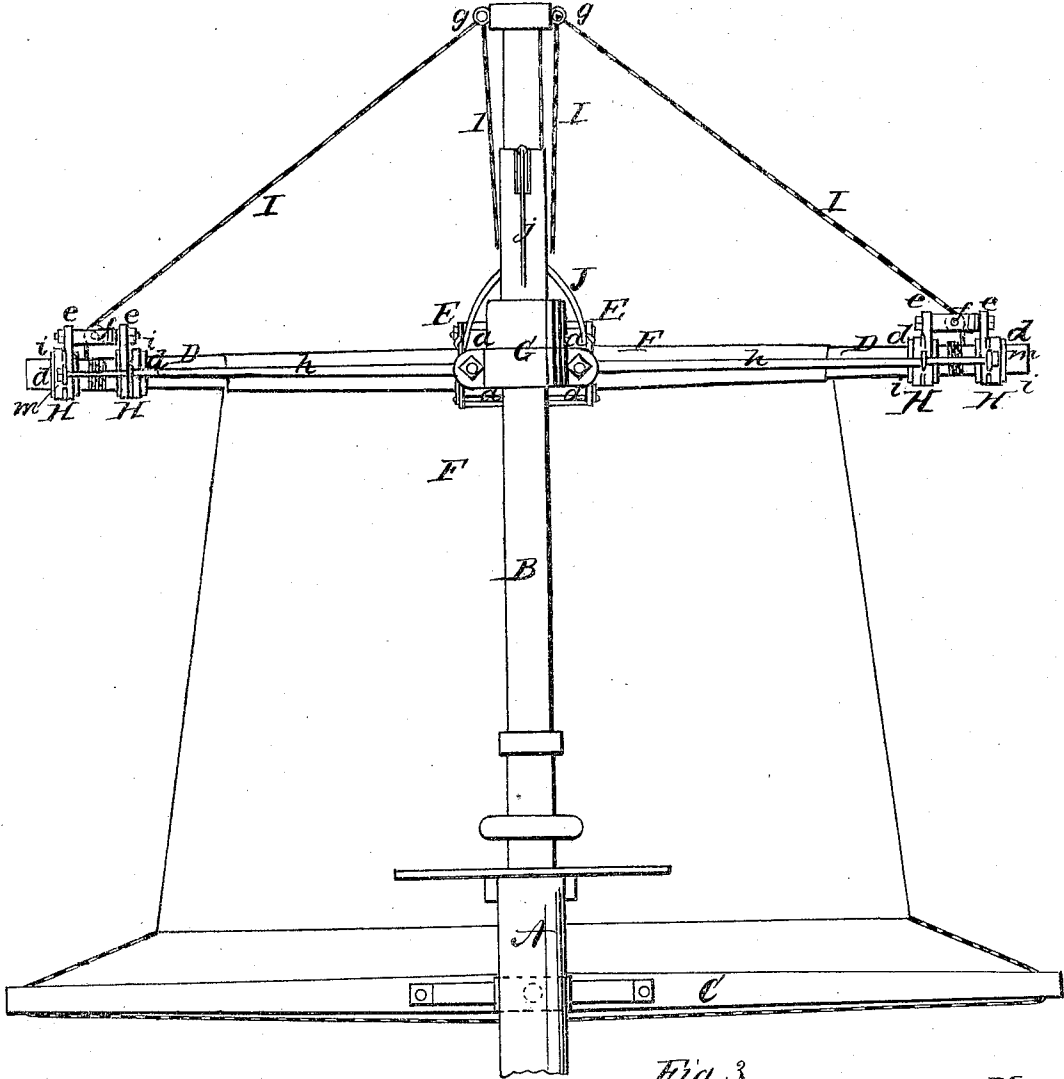
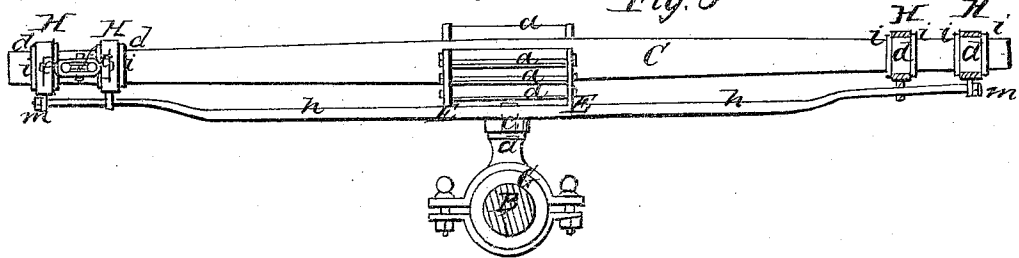
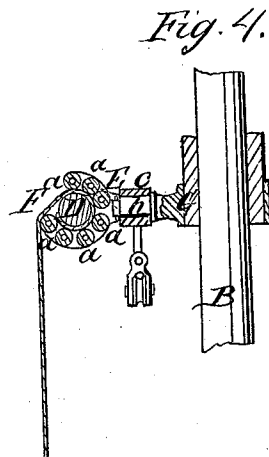
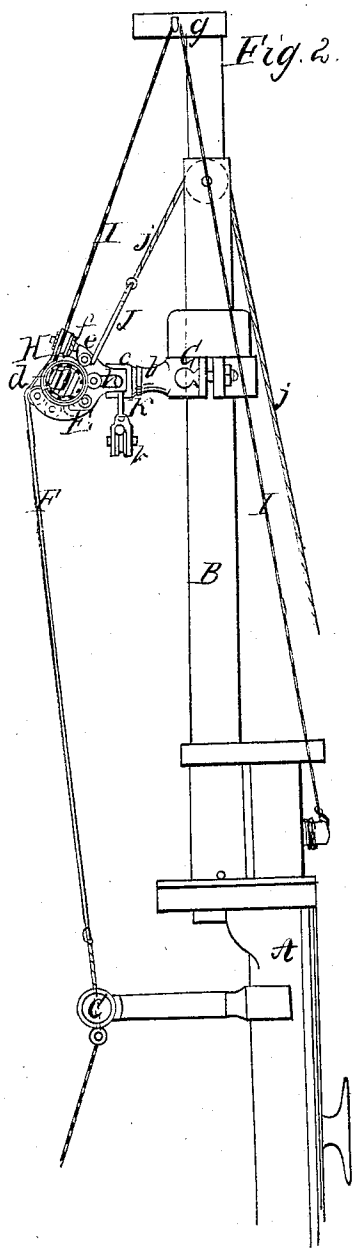


Fig. 3



Sheet 2, 2 Sheets.

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UNITED STATES PATENT OFFICE.

L. HIGGINS, OF JERSEY CITY, NEW JERSEY, AND A. BROWN, OF NEW YORK, N. Y.

REEFING SAILS.

Specification of Letters Patent No. 19,850, dated April 6, 1858.

To all whom it may concern:

Be it known that we, LEWIS HIGGINS, of Jersey City, in the county of Hudson and State of New Jersey, and ALEXANDER BROWN, of the city, county, and State of New York, have invented certain new and useful Means Providing for the Reefing of Square Sails from the Decks of Vessels; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a back view of a topmast, part of the lower mast and a topsail with my improvements applied. Fig. 2, is a side view of the same with the yard arm in section. Fig. 3, exhibits a central section of the truss of the topsail yard. Fig. 4, is a top view of the topsail yard and truss.

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

In most of the plans heretofore used for reefing topsails from the decks of vessels, the sail has been rolled on a roller or as it is termed "jack yard" attached to the yard, to avoid the necessity of dividing the sail vertically as has been done in most if not all cases where the sail has been rolled on the yard itself. The advantage that would result from rolling the sail on the yard itself if it could be done without dividing the sail and the yard be made to work freely, is very generally admitted by nautical men; and the object of our invention is to obtain this result.

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

A, is the lower mast B, is the topmast.

C, is the lower yard applied in the usual manner.

D, is the topsail yard to which the upper edge of the topsail F, is attached in the usual manner. This yard instead of being connected with the topmast by a truss of the usual construction is fitted to roll within a truss consisting of a metal frame E, E, somewhat like the ordinary truss but extended at its ends in the form shown in Figs. 2 and 4, to carry the journals or axles of a number of rollers *a, a*, of wood or metal which are arranged to surround about three fourths of the circumference of the yard, and thus to form a kind of box in which the yard though capable of rolling is confined

in such a manner as to prevent its being blown away. The rollers *a, a*, would be arranged to encircle the yard entirely were it not that it is necessary that there should be room for the sail F, to pass in being rolled up on or unrolled from the yard. The sail rolls up within the rollers. The form of the frame E, E, is fully represented in Figs. 2, 3 and 4. The said frame is made like the ordinary truss with a socket *c*, fitted to turn in the same manner on a stud *b*, attached to a ring or band G, which is capable of turning on and sliding up and down the topmast.

Each arm of the topsail yard is furnished with a pair of metal bands *d, d*, which are firmly secured in place thereon. Each pair of bands *d, d*, have fitted loosely to them two rings H, H, on which there are two lugs *e, e*, to receive journals on the ends of a pulley block *f*, through which passes one of the two rolling lifts I, I, which are wound around the yard arms between the bands *d, d*, for the purpose of rolling the yard. These lifts pass through small blocks *g, g*, at the head of the top-mast and from thence down to the deck. The rings H, H, two of which are shown in section in Fig. 3, are connected with the truss frame by means of iron rods *h, h*, which we call rolling stays on account of their duty resembling that of the so called appendages of the ordinary yard, and which serve to prevent the rings H, H, and blocks *f, f*, which we call traveling leads, from rolling along with the yard and at the same time to keep them at the proper distance from the truss. The outbound rings H, are secured to the stays *h, h*, by nuts *m, m*. The bands *d, d*, are provided with collars *i, i*, outside the rings H, H, and these collars prevent the yard moving longitudinally within the truss frame. The truss frame E, E, has attached to it an iron bail J, by which it is connected with the halyard *j*, and has also another bail K, attached below to carry the down haul block through which passes the downhaul, to haul down the yard in case it does not descend freely.

The method of reefing is as follows. The halyard is let go easily to lower the yard which descends by its own weight; and the rolling lifts being held by men on deck so to produce a proper degree of tension upon them gives the yard a rolling motion by its descent thereby causing the sail to be rolled up on it. When the yard has been lowered

sufficiently the halyard is made fast, and the rolling lifts hauled taut to draw the sail taut and then made fast. When it is desired to let out the reef, the rolling lifts are let
 5 go and the yard hauled up by the halyard, and when the yard is high enough the halyard is made fast and the rolling lifts hauled taut and made fast as before.

It will be readily understood that by constructing the truss in the manner represented and fitting it with a system of rollers
 10 *a, a*, to embrace the yard in the manner described the truss need not interfere at all with the sail and its division down the center is unnecessary while at the same time the
 15 center of the yard is firmly held to the mast. It will be also readily understood that though the yard is not confined longitudinally by the truss in the usual manner, the
 20 rolling stays *h, h*, the rings *H, H*, and shouldered collars *d, d*, confine it in that direction.

In applying the invention to the lighter yards of vessels it will hardly be necessary to use two collars *d, d*, and rings *H, H*, on
 25 each yard arm but a single collar and ring will be necessary and each of the pulley blocks *f, f*, will only require a journal at one

end to fit and swivel in the lug *e*, of the single ring *H*.

We do not claim the rolling of the sail 30 on the yard itself; but

What we claim as our invention and desire to secure by Letters Patent is—

1. The truss frame *E, E*, constructed and fitted with a series of rollers *a, a*, which embrace the yard and rolled up position of the
 35 sail, substantially as described to hold the yard, to the mast but to permit the rolling of the sail thereon without the necessity of dividing the sail down the center. 40

2. The combination of the rings *H, H*, which carry the traveling leads *f*, with the yard and with the truss by means of the collared bands *d, d*, and the rolling stays *h, h*,
 45 in the manner substantially as described to prevent longitudinal movement of the yard and the rolling of the traveling leads with the yard.

LEWIS HIGGINS.
 ALEXANDER BROWN.

Witnesses:

W. TUSCH,
 R. W. BROWN.