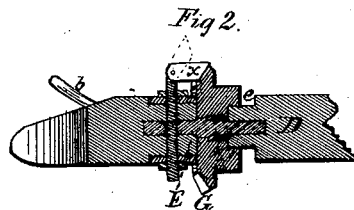
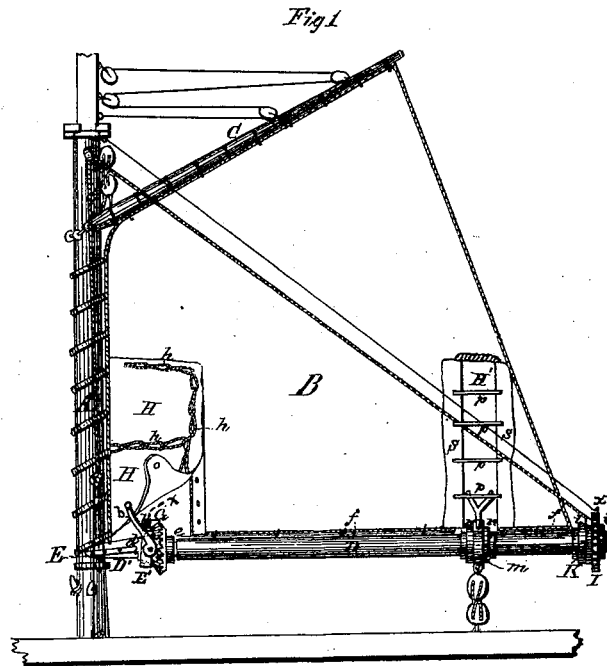


J. WHITTINGTON.
Device for Reefing Sails.

No. 164,242.

Patented June 8, 1875.



WITNESSES.

Wm. Garner?
Chas. M. Lemon.

INVENTOR.

John Whittington
per J. A. Lehmann *att'y*

UNITED STATES PATENT OFFICE.

JOHN WHITTINGTON, OF ELIDA, OHIO.

IMPROVEMENT IN DEVICES FOR REEFING SAILS.

Specification forming part of Letters Patent No. **164,242**, dated June 8, 1875; application filed April 17, 1875.

To all whom it may concern:

Be it known that I, JOHN WHITTINGTON, of Elida, in the county of Allen and State of Ohio, have invented certain new and useful Improvements in Devices for Reefing Sails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to that class of sails which are arranged to be reefed or unreefed by means of a revolving boom or gaff, or both; and it essentially consists in the construction and arrangement of certain devices for readily accomplishing such end, as hereinafter set forth and claimed.

The annexed drawing fully illustrates my invention, and in which A represents the mast; B, the sail, with the gaff C along its upper edge. The sail is connected to the mast, and hoisted and lowered by the usual means employed for that purpose, and which, therefore, do not need any description here. The boom is made in two pieces, D and D', the latter piece being simply the fork that straddles the mast A. The outer end of this section is provided with a round band with a square socket, E, and on the outside provided with horizontal bearings for the ends of the shafts of the two pinions *d* to work in. These pinions gear with a bevel-wheel, G, secured on a tenon, *e*, formed on the inner end of the boom D, said tenon having its bearings in the socket E, and forming the journal on which the boom revolves. The sail is attached to a rod, *f*, fastened in the boom D, and at the inner end of the sail, over the gearing just described, are bonnets H H, attached to the sail by loops *h h*. In reefing the sail it is only necessary to take the end loose of this looping, when the bonnets will come off, leaving an opening in the sail for the gearing. The outer end of the sail is attached to a staple in the boom, and the ordinary lifts are attached to a loose collar or band, K, placed between flanges *i i* on the boom, the outer one of these flanges being provided with a cogged wheel, I. At a

suitable point on the boom is another loose collar, *m*, also placed between stationary flanges *n n* thereon. This collar is, by the usual block-and-tackle arrangement, connected to the deck of the vessel, and at the top it is connected to a metal bar, *p*. Immediately above the collar *m* there is an opening made in the sail, the side edges of which are provided with guides *s s*, made of rope covered with leather. On these guides slide a series of horizontal bars, *p p*, forked at each end, to which an apron, H', is connected, and the lowest one of the said bars is connected to the collar.

When the sail is entirely unfurled, the boom D is held stationary by means of two pawls, X X, pivoted, respectively, to the frame E' and collar K, and dropping into the wheels G and I.

When it is desired to take in one or more reefs, one or more of the bonnets H is removed, the pawls then thrown back from their wheels, and the boom rotated by working the cranks *b b*, when the sail will be wound up thereon, the metal bars *p* sliding upward on the guides S, carrying the apron H' with them out of the way. The pawls are then thrown into their wheels again, making the boom fast.

Having thus fully described my invention, I claim—

In a sail adapted to be reefed by a revolving boom or gaff, or both, the herein-described arrangement of pinions and gear-wheel at the forked end of the boom, and the loose collar for connection with the sheet upon the revolving end thereof, the devices at the forked end being unobstructed by the sail in their operation, by reason of the bonnet H therein, and the apron H' over the loose ring on the revolving end, permitting the sail to be reefed without interference, all substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 13th day of April, 1875.

JOHN WHITTINGTON. [L. S.]

Witnesses:

R. E. JONES,
JAMES NICHOLAS.