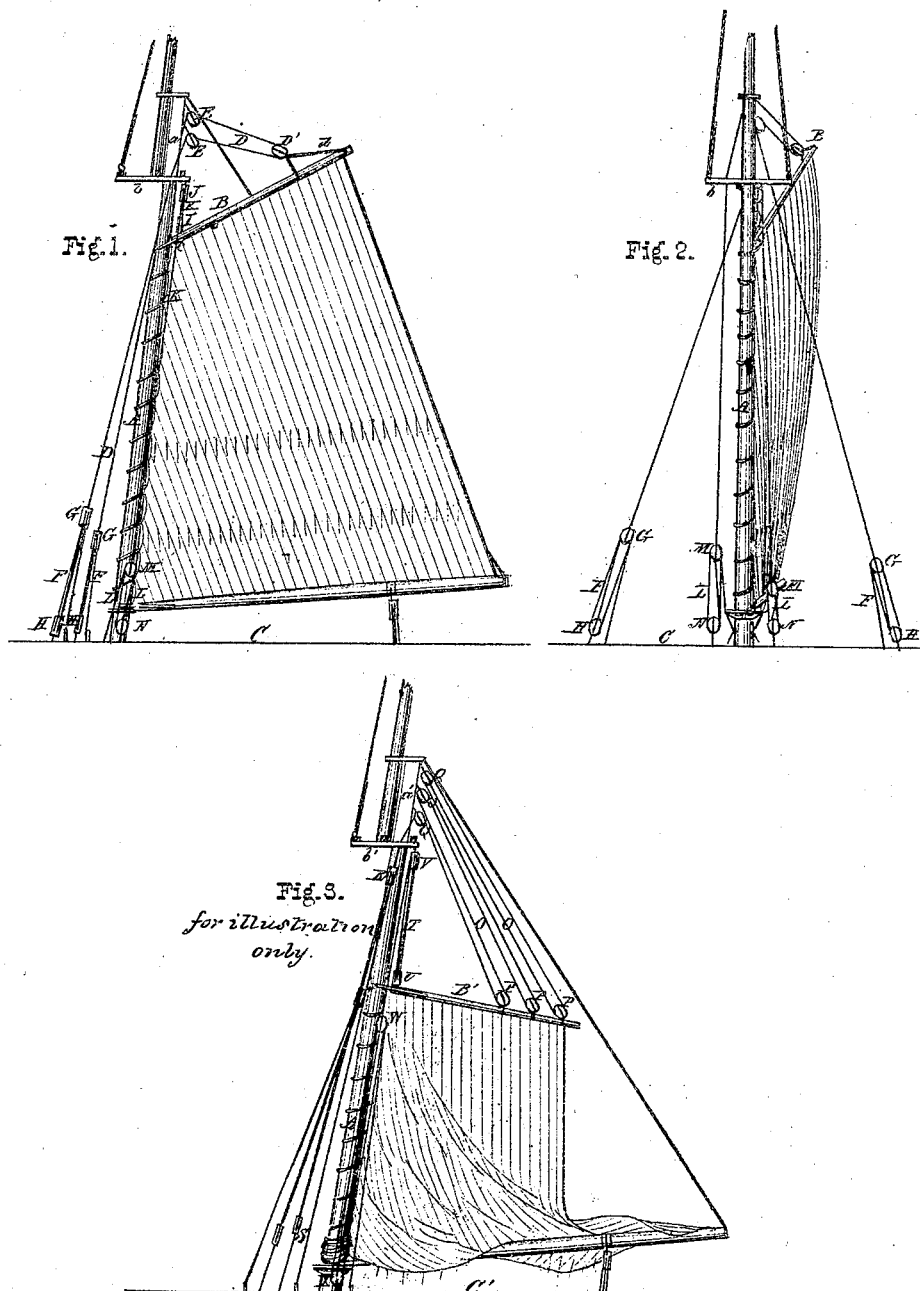


G. A. Ford,
Sails & Rigging.
No. 111,833. Patented Feb. 14, 1871.



Witnesses.

Alfred M. ...
W. L. ...

Inventor.

George A. Ford
by Prindle & Dyer

Attys.

United States Patent Office.

GEORGE A. FORD, OF OSWEGO, NEW YORK.

Letters Patent No. 111,833, dated February 14, 1871.

IMPROVEMENT IN TACKLES FOR HOISTING SAILS.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, GEORGE A. FORD, of the city and county of Oswego, in the State of New York, have invented certain new and useful Improvements in Halliards for Raising Sails of Vessels; and do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side elevation of a mast and a sail upon the same pulley, hoisted, with my halliards in position;

Figure 2, a front elevation of the same; and

Figure 3, a side elevation of a mast and a sail upon the same, half raised, with the halliards rigged in the usual way.

Like letters of like kinds denote similar parts in each figure.

The nature of my invention relates to an improved method for raising sails, particularly the heavy fore-and-aft sails used upon vessels navigating the great lakes, so that the same may be done with fewer men, may be more durable, and less expensive; and

It consists in the peculiar combination of blocks and ropes, with a runner of steel, iron, or hemp-rope, or metal chain, all arranged as more fully hereinafter described and set forth.

In the drawing—

A represents the mast.

a, the head of the mast.

b, the trestle-tree.

B, the gaff.

c, the throat of the same.

C, the deck of the vessel.

D, the peak-runner, and

D', its runner-block.

d, the pennant, to which the same is attached.

E E, the blocks attached to the mast-head, through which the peak-runner is rove.

F F, the peak-halliards.

G G, the upper, and

H H, the lower purchase-blocks to the same.

I, the throat-runner block.

J, the block attached to after part of the trestle-tree, through which the throat-runner is rove.

K, the throat-runner.

L L, the throat-halliards.

M M, the upper blocks, and

N N, the lower blocks of the same, all as shown in figs. 1 and 2.

In fig. 3, A' represents the mast.

a', the head of the same.

b', the trestle-trees.

B', the gaff.

c', the throat of the same, and

C', the deck of the vessel.

O, the peak-halliards.

P, the peak-blocks.

Q, the mast-head blocks.

R, the upper purchase-blocks.

S, the lower purchase-blocks to the same.

T, the throat-halliards.

U, the lower throat-blocks.

V, the upper throat-blocks.

W, the upper purchase-blocks, and

X, the lower purchase-block of the same.

In my invention the peak-runner, which is made of steel or iron, rope or chain, or of tarred hemp-rope, is rove through the single block D', which is attached to the pennant, one end of which is secured to the outer end of the gaff B, and the other end to a point inside of the same, at a suitable distance.

Each end of the runner is then rove through a single block, E, attached to the mast-head, and terminates, when the sail is hoisted, at a point near the deck of the vessel.

To one end of this runner a double block, G, is attached, through which the peak-halliard F is rove, passing also through another double block, H, attached to the main rail, or to the deck at the side of the vessel.

The other end of the runner has a similar purchase arranged in the same way, except that the lower block should be a single block.

The throat-runner K, similar to that of the peak in material and construction, is rove through a single block, I, arranged athwart ship, and the ends passed in opposite directions through the double block J, attached to the after part of the trestle-tree, and also arranged athwart ship, and the ends brought down toward the deck, where they are attached to the upper halliard blocks M M, which have the halliards L rove through them, and through the lower blocks N N, attached to the deck near the foot of the mast.

As in the instance of the peak-halliards, one of the lower blocks for the throat-halliards should be a single block.

The blocks D' and I, and the blocks E E and J, through which the runners are rove, should be blocks with larger and thinner sheaves than those usually employed in such places.

In the old method, shown in fig. 3, one end of the peak-halliard O, passing up from the deck where the other end was fastened, was rove through one of the mast-head blocks Q, then through one of the peak-blocks P, then through another of the blocks Q, and another of the blocks P, and through a third block, Q, and a third block, P, all being single blocks, and then brought down toward the deck, where it had attached to it a purchase of a double block, R, and a single block, S.

Likewise the throat-halliard T was carried up from

the deck where one end of it was made fast, and rove through a treble block, V, secured to the after part of the trestle-tree b', and through a double block, U, attached to the throat c', and the end brought down toward the deck, where it was attached to a purchase double block, W, and single block X in the same manner as the peak-halliards.

In the use of my method of rigging the halliards the sail is first hoisted a large part of the distance with the double and single purchase, and the hoisting is completed and the sail tautened up by the use of the two double purchases.

In the old method the sail is hoisted a large portion of the distance by the use of the single fall of the halliard, and the hoisting completed with double and single purchase.

The merit of my invention lies in the arrangement of the blocks, so that a runner may be used; in the use of the runner as described; and in the arrangement of the purchase in connection with the runner.

By the old method the only rope which could be used for halliards, on account of the requirements of handling and coiling the same, was a Manila-rope, which had the disadvantage of wearing out very fast, particularly in such places as come within the blocks when the sail was hoisted, and also in the great expense of a very large and long rope.

With the old arrangement of blocks a wire or tarred rope, or chain cannot be used, because, by the great number of sheaves, and the frequent bends of the

rope, the friction would be too great, and such a rope or chain could not be handled or hauled upon at all seasons of the year, and could not be coiled away conveniently or safely.

In my method the runner is very durable, and with its blocks does not give so much weight aloft as the old rig, and, taken in connection with the small size of the rope required for halliards, my rig does not cost over two-thirds as much as the old rig.

My purchase has the advantage over the old method of having greater power, as may be seen on inspection of the drawing.

Having thus set out the nature, description, and merits of my invention,

What I claim therein as new is—

1. The combination of the runner D, the blocks D', E E, G G, and H H, and the halliards F F, all constructed, arranged, and operated as described and shown, for the purposes set forth.

2. The combination and arrangement of the devices employed for raising fore-and-aft sails, consisting of the runners D and K, the blocks D', E E, G G, H H, I, M M, and N N, and the halliards F F and L L, all constructed and operated substantially as described and shown, for the purposes set forth.

GEO. A. FORD.

Witnesses:

N. J. VANDER WEYDE,
GILMAN P. BRIGGS.