

D. R. Arnold.
Sails & Rigging.

No. 47,178.

Patented Apr. 11, 1865.

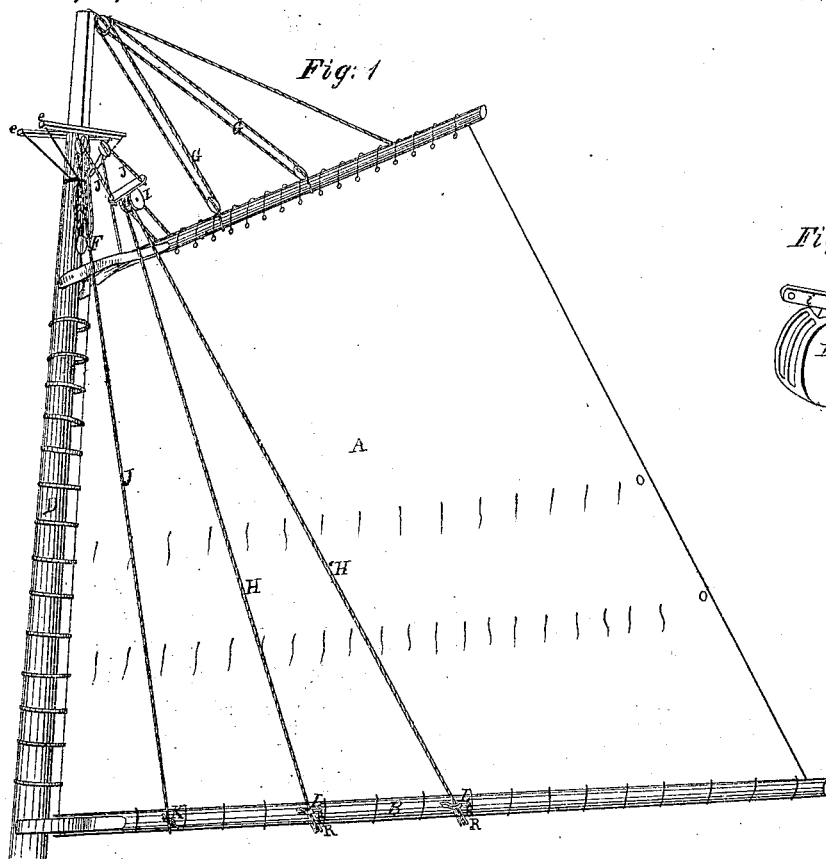


Fig. 2.

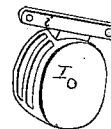


Fig. 3.

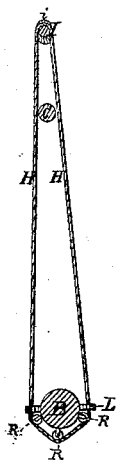


Fig. 4.



Fig. 5.

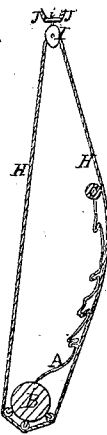
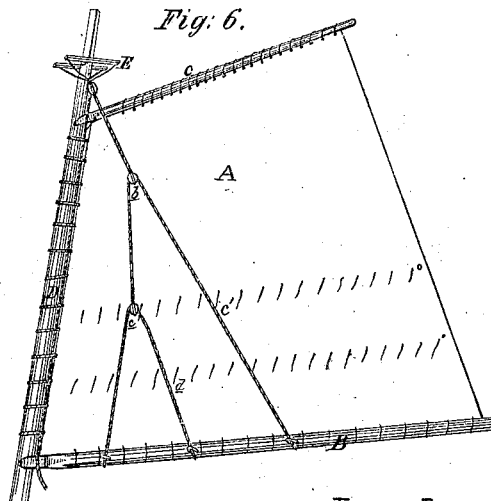


Fig. 6.



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DANIEL R. ARNOLD, OF HADDAM, CONNECTICUT.

IMPROVEMENT IN THE LAZY-JACK FOR VESSELS' SAILS.

Specification forming part of Letters Patent No. 47,178, dated April 11, 1865.

To all whom it may concern:

Be it known that I, DANIEL R. ARNOLD, of Haddam, in the county of Middlesex and State of Connecticut, have invented a new and Improved Lazy-Jack for use on Sailing-Vessels; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, of which—

Figure 1 is a side elevation of a sail and attachments with my invention attached. Fig. 2 is a perspective view of the lazy-jack block and spreader. Fig. 3 a vertical section showing the jack surrounding both boom and gaff. Fig. 4 shows the action of the jack when the sail is pressed to one side by the wind; Fig. 5, the operation of the jack when the sail is being lowered, and Fig. 6 the ordinary arrangement of lazy-jack.

The nature of my invention consists in the application of one or more endless ropes to the purpose named in such a way that each of said ropes passes entirely around both boom and gaff, so that when the sail presses against one side that side becomes longer and the other correspondingly shorter, and when the sail is being lowered it will not slide down the rope, but the rope will render over its rollers or equivalent devices, and that side against which the sail presses will "come down" with the sail, while the other side, which is free, will go up at the same time.

That others may understand the construction and operation of my invention, I will more particularly describe it.

A is the sail of a sloop or schooner. B is the boom. C is the gaff. D is the mast. E E are the cross trees. F is the throat-halyards. G G, the peak-halyards; H H, the lazy-jacks; I, the lazy-jack block, and J J the lazy-jack pennants.

In constructing my lazy-jacks, I take an ordinary block, I, (commonly double,) of suitable size, and to the head of it I prefer to attach a cross-piece or spreader, *i*, Fig. 2. Through holes in the ends of this cross-piece the ends of the pennants J are inserted and secured. These pennants (I prefer to use two, as being more convenient than one) pass upward through bull's-eyes secured to the under side of the cross-trees, thence downward on either side of the gaff, and are secured to cleats *k* on the sides of the boom, not far from the

mast. Over each sheave of the block I, I pass a rope, H H, of sufficient length to pass down around the boom and back again. The two ends of each of these ropes are joined, and I thus have two endless ropes surrounding the gaff, sail, and boom. One of these ropes should be considerably longer than the other, so that they may be spread a considerable distance apart at the points where they pass under the boom.

In order that the boom may not be chafed or cut, as well as to render the jacks more durable, I place small rollers R on the under side of the boom, as shown in Fig. 3, so constructed and placed as to prevent the jack from escaping therefrom.

If the boom is very long, the jacks H H may be made of ropes sufficiently large to afford some support to the center of the boom.

The ordinary construction of lazy-jacks is shown in Fig. 6. A bull's-eye, *b*, is secured by a short rope to an eyebolt on the under side of the cross-trees. Another bull's eye, *c*, is attached to a longer rope, *e*, which passes through *b*, and thence downward to the boom, where it is rigidly secured. Still another rope, *d*, is secured in the same manner to the boom a little distance forward of the end of *e*; thence it passes upward through *c* and downward again to the boom at a point not far from the mast D, where it is secured to a cleat. It is evident that by pulling upon this end of *d* the whole may be drawn tight, for *d* passes freely through *c*, and *e* passes freely through *b*. A similar arrangement is placed also upon the other side of the sail, the object being to prevent the sail when being lowered from falling overboard or upon the deck, but to compel it to gather down upon the boom, where it is to be secured.

In practice it is found that when it is necessary to lower the sail while the wind is pressing upon it the jacks are frequently more a detriment than a benefit, the sail being sure to fold upon itself, as shown in Fig. 5, and the pressure upon the jack become so great that it will not slide down more than half-way. An old sail will be torn by this rubbing very often, and the chafing is always a serious detriment to the sail, whether old or new. Under these circumstances the only remedy is to loosen the jack by slacking up the rope *d* and pulling the sail down. It is also ob-

vions that as the sail swells out with the wind it presses upon the jacks on one side, while the jack upon the other side is correspondingly slackened, and the strain is therefore unequal. It is to remedy these defects that my arrangement has been devised. It will be clearly seen by reference to Fig. 4 that if the jack is designed to support the boom the pressure will be equalized, for as one side yields to the pressure of the sail the other side becomes correspondingly shorter, as the rope II can slip freely not only through the block I, but under the boom; and if when the sail is lowered it presses upon the side opposite the wind, as it will do, there will be little or no chafe nevertheless, because the jack being an endless rope, as shown in Fig. 5, sliding freely around the boom and through the block I, it will come down on that side with the sail, while it runs upward on the other, which is the free side, as shown clearly by the arrows

in Fig. 5. That the fold of the sail may not be drawn under the rollers on the boom, a small cleat, L, with a hole for the jack, may be secured to the boom immediately above the upper rollers, or any other equivalent device may be used.

It is obvious that the number of the endless ropes used will depend upon the size of the sail, or the convenience or taste of the sailor.

I do not desire to confine myself to the number shown, nor to that precise arrangement of details; as

What I claim to be new, and desire to secure by Letters Patent, is—

A revolving lazy-jack surrounding the boom, sail, and gaff, substantially as set forth and described.

DANIEL R. ARNOLD.

Witnesses:

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