(No Model.)

J. N. FURMAN.

REEFING ATTACHMENT FOR SAILS.

No. 436,231. Patented Sept. 9, 1890.

Fig. 1.

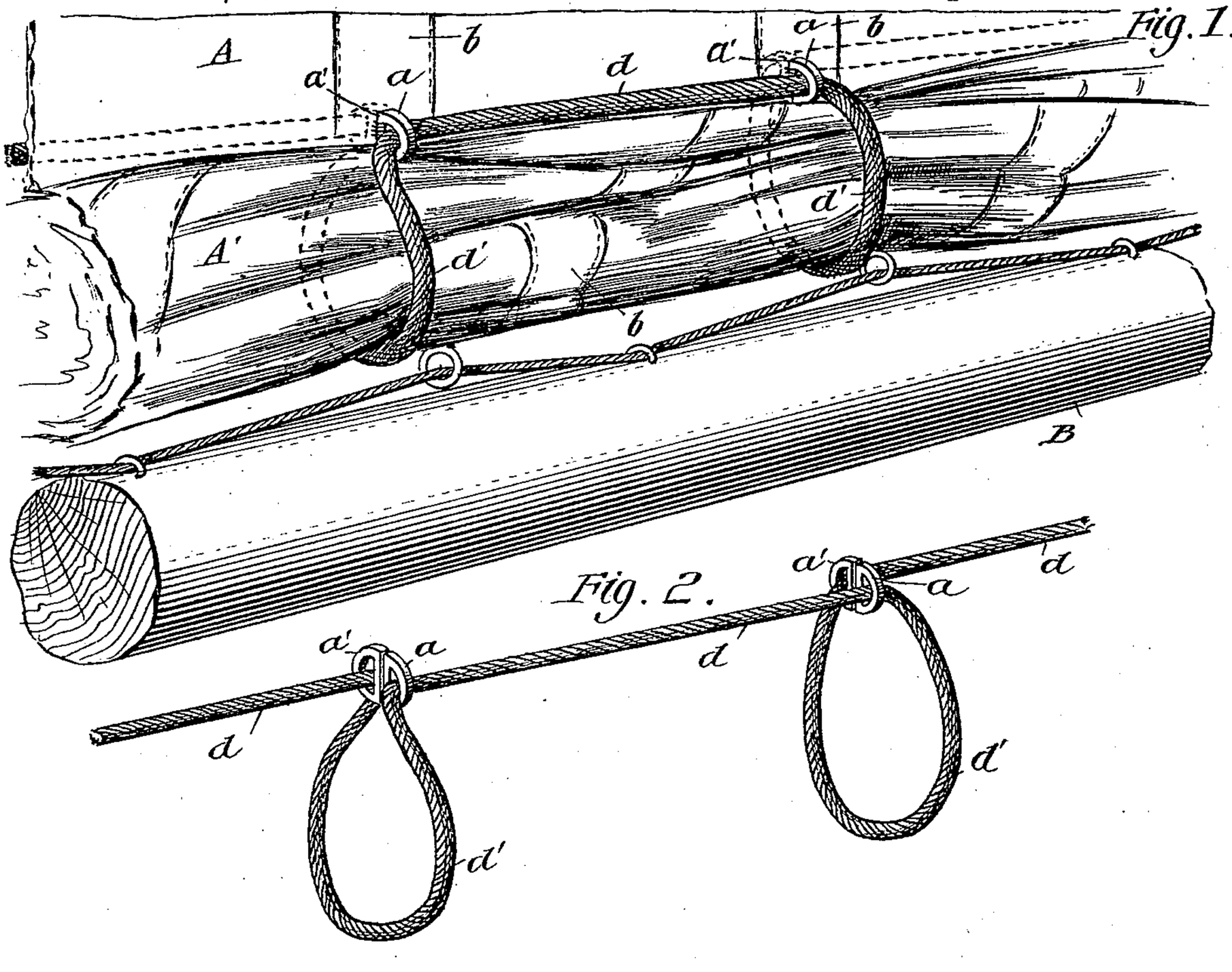


Fig. 2.

Fig. 3.

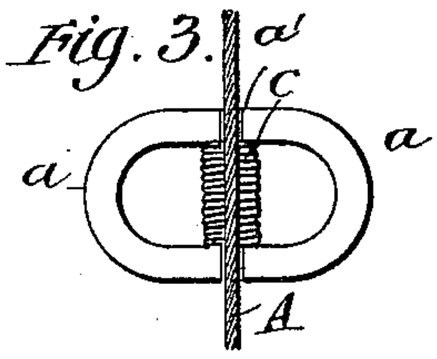


Fig. 4.

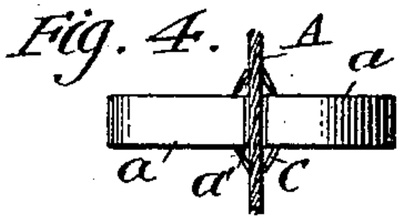


Fig. 5.

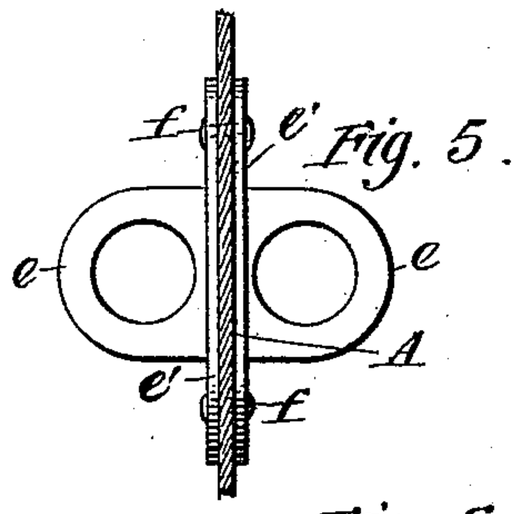
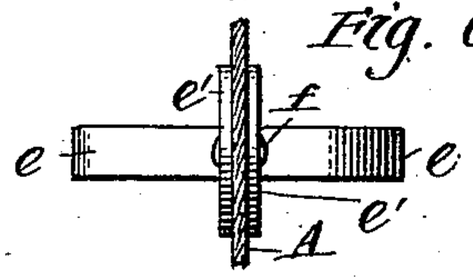


Fig. 6.



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JOEL N. FURMAN, OF BLUE POINT, NEW YORK.

REEFING ATTACHMENT FOR SAILS.

SPECIFICATION forming part of Letters Patent No. 436,231, dated September 9, 1890.

Application filed February 20, 1890. Serial No. 341,130. (No model.)

To all whom it may concern:

Be it known that I, JOEL N. FURMAN, of Blue Point, in the county of Suffolk and State of New York, have invented a new and Improved Reefing Attachment for Sails, of which the following is a full, clear, and exact description.

My invention relates to reefing attachments for sails; and the object of my invention is to provide an attachment by means of which a sail may be quickly and easily reefed and fastened in such a manner that it will not chafe, to provide an attachment that will be light and durable and easily applied to a sail, and by means of which a reef may, if necessary, be instantly shaken out and released.

To this end my invention consists in a reefing attachment constructed and arranged substantially as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a broken perspective view of a sail and boom provided with my attachment; Fig. 2, a detail view showing the formation of the loops by which the reef is fastened; Figs. 3 and 4, details of the eyes applied to a light sail; and Figs. 5 and 6, details of the eyes applied to heavy sails.

The sails in ordinary use are provided with reef-points consisting of strips of rope which are attached to the sails at regular intervals, and which are tied around the sail when a reef is taken in the same. These reef-points are cumbersome, causing a great amount of friction upon the sail and adding greatly to the weight thereof. Moreover, they afford a slow means of taking a reef.

In my attachment I provide the sail A upon each side with metal eyes *a*, which are attached to the seams *b* of the sail, so as to extend across the same in horizontal lines, as shown, the lines being a convenient distance apart. The eyes *a* are formed with an oval outer surface, as shown, and with a flat base *a'*. They are placed upon opposite sides of the sail, so that the bases *a'* will press together, with the thickness of the sail A between them, and are securely sewed to the sail in this position by strong thread *c*.

When a reef is to be taken in the sail A, the sail is lowered and the slack A' gathered above the boom B in the usual manner. A lace-line *d* which may be first made fast to the sail, is then passed through an eye *a* upon one side of the sail, thence under the sail and through the opposite eye on the other side of the sail, thence to the next pair of eyes, through which it is passed in the same manner, and so on across the sail, where the end of the line is again made fast to the sail. It will thus be seen that the reef A' of the sail will be firmly bound in a roll in such a manner that it cannot chafe. It will be observed, too, that in passing the lace-line *d* through the eyes *a* in this manner a peculiar loop *d'* is formed, which is necessary to firmly bind the reef of the sail, and which can only be formed by means of the eyes *a*.

In Figs. 5 and 6 I have shown a form of eye *e* having a flanged base *e'*, which is especially adapted for heavy sails. The eyes *e* are arranged upon a sail A in the manner already described, with the flanged bases opposite each other and on opposite sides of the sail, and the bases are attached to each other and to the sail by means of metal rivets *f*, which pass through the sail and flanges. A reef is taken in the sail A and the lace-line passed through the eyes in the manner already described with reference to the eyes *a*. When the reef A' is shaken out and the sail A raised, the lace-line *d* is removed and there is nothing to strain or chafe the sail.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a sail, of eyes suitably attached thereto and arranged in parallel lines and upon both sides of the sail, substantially as and for the purpose specified.

2. The combination, with a sail, of metal eyes arranged in parallel lines thereon and attached thereto in pairs, so that the eyes composing said pairs will be upon opposite sides of the sail, substantially as described.

3. The combination, with a sail having eyes arranged upon each side thereof, as shown,

of a lace-line passing through an eye on one side of the sail around the reef, through a corresponding eye upon the opposite side and thence to the next pair of eyes, as described.

4. The combination, with the sail A, having eyes arranged upon opposite sides thereof, as shown, of the lace-line *d*, passing through said eyes and around the reef A′ in such a manner as to form a series of loops *d*′, substantially as described, and for the purpose specified.

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