

[54] JIB SAIL RAISING SYSTEM

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[51] Int. Cl. B63h 9/04

[58] Field of Search 114/39, 102, 103, 104-108, 114/112

[56] References Cited

UNITED STATES PATENTS

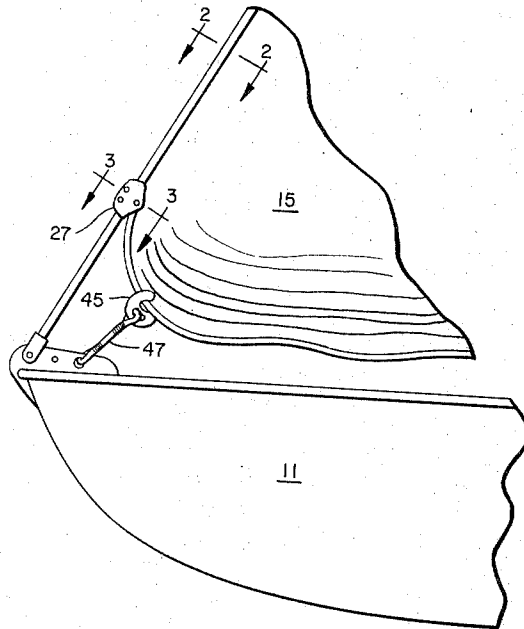
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[57] ABSTRACT

For use with the sail raising system disclosed herein, the luff edge of a jib sail is provided with a bead, by means of which the luff may be retained. This bead is held within a jibstay or headstay having at least one portion which is of generally C-shaped cross-section, the bead being held within the interior of the C with the sail extending through the mount of the C. Near the lower end of the stay a portion is provided where the mouth of the cross-section is relatively open for admitting the bead into the central portion of the stay during raising. A pair of rounded guide members are employed and means are provided for mounting the guide members in spaced relation to each other and to the open mouthed portion of the stay, so that the bead approaches the open mouthed portion of the stay at a relatively shallow angle, thereby inhibiting binding of the bead in the mouth of the C-shaped cross-section during raising of the jib sail.

8 Claims, 4 Drawing Figures



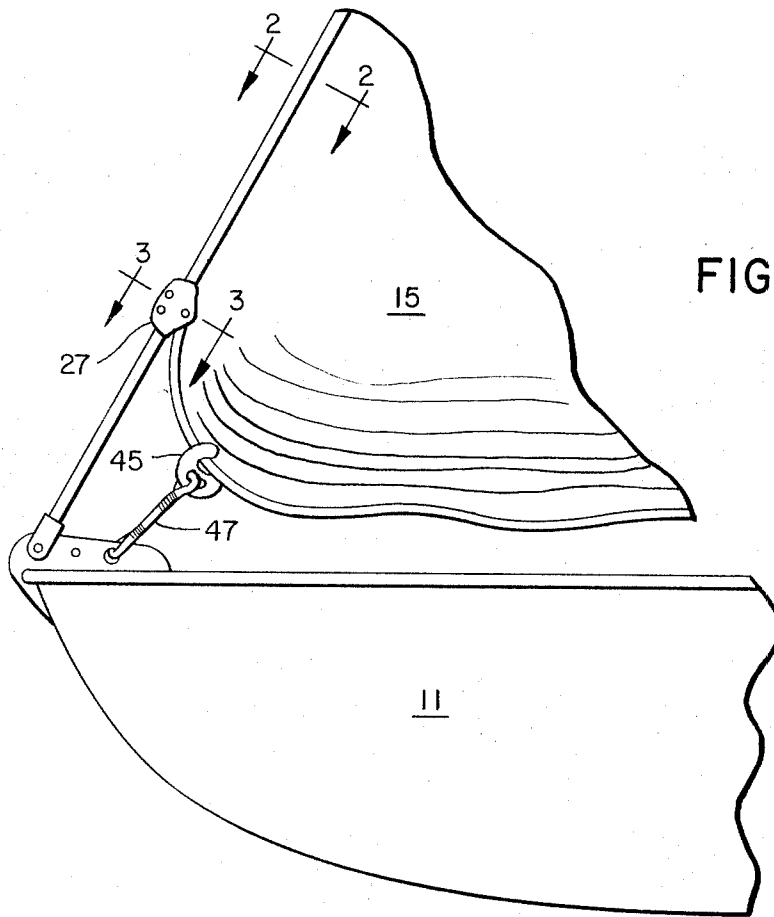


FIG. 1

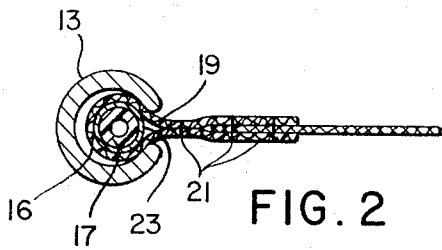


FIG. 2

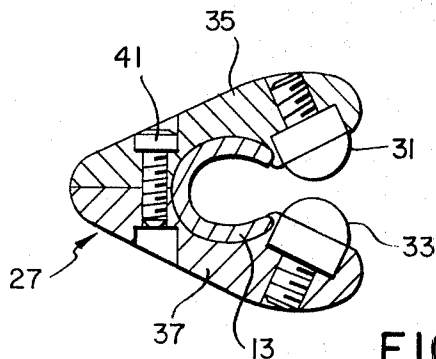


FIG. 3

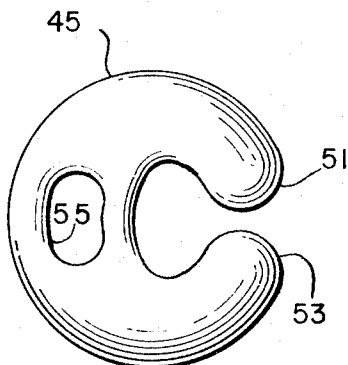


FIG. 4

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JIB SAIL RAISING SYSTEM

BACKGROUND OF THE INVENTION

This invention relates to a jib sail raising system and more particularly to such a system which avoids the use of discrete clips between the luff of the jib and a jibstay or forestay.

While various systems for stayless or roller-furling jibs have been proposed heretofore, such systems have typically been relatively inflexible in that they were intended for use with one particular sail only and the changing of sails as a relatively complicated and time consuming procedure, not suitable for actual sailing or racing conditions.

Among the several objects of the present invention may be noted that the provision of a jib sail raising system in which jib sails can be exchanged relatively quickly and easily; the provision of such a system which avoids the use of discrete clips between each jib sail and a jibstay or headstay; the provision of such a system in which the luff of a jib, once raised, is continuously connected to the jibstay; the provision of such a system which works smoothly and does not tend to jam; the provision of such a system which is reliable and which is relatively simple and inexpensive. Other objects and features will be in part apparent and in part pointed out hereinafter.

SUMMARY OF THE INVENTION

Briefly, a jib sail raising system according to the present invention employs a jibstay having at least one portion of generally C-shaped cross-section, the cross-section being adapted to receive and retain a bead on the luff of a jib sail, with the sail itself extending through the mouth of the C. Near its lower end the stay includes a portion where the mouth of the C-shaped cross-section is relatively open for initially admitting the bead into the central portion of the stay. A pair of rounded guide members are provided and these guide members are mounted in spaced relation to each other for permitting the passage of the sail therebetween while holding the bead. The guide members are spaced close to the stay on the side of the mouth of the C-shaped cross-section and are located essentially at the relatively open portion. Accordingly, the guide members cause the bead to approach the open portion at a relatively shallow angle thereby to inhibit binding of the bead in the mouth of the C-shaped cross-section during raising of the jib sail.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of the bow portion of a sailboat which employs a jib sail raising system constructed in accordance with the present invention;

FIG. 2 is a sectional view, taken substantially on the line 2—2 of FIG. 1, showing the construction of a stay employed with the system of the present invention;

FIG. 3 is a sectional view, taken substantially on the line 3—3 of FIG. 1, showing a first guide member employed in the system; and

FIG. 4 is a plan view of a second guide member employed in the system.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, there is indicated at 11 generally, the bow portion of a sailboat. A headstay 13 extends upwardly, at an angle, from the tip of the bow to the sailboat mast (not shown). As illustrated in FIG. 2, the stay 13 is generally of C-shaped cross-section. As may also be seen from FIG. 2, this cross-section is adapted to hold the luff edge of a jib sail 15 by means of a bead 16 provided on that edge of the sail. The body of the sail itself extends out through the mouth of the C-shaped cross-section. Preferably, stay 13 is a stainless steel strip formed initially with the cross-section (FIG. 2) which exists over most of its length in the finished stay.

As illustrated, a preferred method of forming the bead 16 is to employ a plastic rod or tube as indicated at 17 in FIG. 2. Readily available nylon pressure tubing is suitable for the tube 17. Tube 17 is preferably attached to the luff edge of jib sail 15 by means of an elongate tape 19 of heavy sailcloth material which is folded over the tube and stitched on either side of the body of the sail, as indicated at 21 in FIG. 2. Preferably, the tube 17 is first wrapped with a double-backed adhesive tape, as indicated at 23, which prevents relative sliding or bunching of the sail relative to the tube. In order to reduce friction between the bead and the stay itself, threads of teflon (polytetrafluoroethylene) may be interwoven with the usual synthetic sailcloth fibers, e.g., dacron. This construction is preferred, as compared with a conventional bolt rope, in that a smoother, more uniform bead is obtained. However, it should be understood that a more conventional bolt rope might also be used as the bead in accordance with the invention.

Over most of the length of the stay 13, the mouth of the C-shaped cross-section is relatively closed as indicated in FIG. 2. However, at one portion near its lower end, the mouth of the C-shaped cross-section is opened, as illustrated in FIG. 3, to permit initial entrance of the bead 14 into the interior of the stay. As the local opening of the mouth of the C produces a tapering of the slot which constitutes the mouth, a guide structure, as indicated generally at 27, is provided for leading the bead into the stay.

The guide structure 27 comprises a pair of rounded guide members 31 and 33 which are mounted on respective bracket halves 35 and 37. The brackets halves 35 and 37 are clamped on the stay 13, by means of a pair of cap screws 41, so that the rounded guide members 31 are supported in spaced relation to each other at the open mouthed portion of the stay. The lateral separation between the two guide members 31 and 33 is such that the body of the sail 15 itself can pass therebetween but the bead 14 will be held. Thus, during raising of the jib sail, the bead is caused to approach the open portion at a relatively shallow angle which inhibits binding of the bead in the tapered portion of the mouth of the C-shaped cross-section. While spherical guide members of polished metal such as those indicated at 31 and 33 in FIG. 3 well serve the purpose in most situations, it should be understood that rotatable wheels or rollers might also be used.

While the guide structure 27 prevents jamming right at the open mouthed portion of the stay itself, rapid raising and lowering of the jib sail is facilitated if the bead 14 is initially aligned or constrained in its approach to the stay. For this purpose, a second guide element 45 is provided which is relatively loosely located or positioned relative to the base of the stay, by means of a flexible link 47. The element 45 is also generally C-shaped, providing a pair of rounded extremities 51 and 53 for guiding the bead at the luff of a jib sail. Again, the spacing between the smooth, rounded extremities 51 and 53 is such that the body of the sail 15 itself can pass therebetween but the bead 14 is held. Preferably, the element 45 is cast as an integral structure with an aperture 55 by means of which the flexible link 47 may be attached. Preferably, the flexible link 47 is somewhat elastic. For example, a preferred material for link 47 is so-called "shock cord" which has a limited elasticity. The length of the flexible link 47 is chosen so that, as the bead 14 is drawn into the stay 13 from inboard on the boat, it approaches the open portion of the stay at a relatively shallow angle, complementing that established by the guide structure 27, so that jamming and tangling of the sail is avoided even during a relatively rapid raising during racing conditions.

As will be apparent, the jib, when raised, is continuously connected to the jib or headstay 13 so that there is no chance of "scalping" as may occur when discrete clips are used. Further, this smooth configuration of the luff edge of the jib is provided without applying a high stress through the halyard and downhaul. Further, since the use of discrete clips is avoided, a relatively clean aerodynamic leading edge is provided.

In view of the foregoing, it may be seen that several objects of the present invention are achieved and other advantageous results have been attained.

As various changes could be made in the above constructions without departing from the scope of the invention, it should be understood that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A jib sail raising system comprising:

a stay having at least one portion of generally C-shaped cross-section adapted to receive and retain a bead on the luff of a jib sail with the sail extending through the mouth of the C, said stay having near its lower end a portion where the mouth of the cross-section is relatively open to admit the bead into the central portion of the stay;

a pair of rounded guide members;

means for mounting said guide members in spaced relation to each other for permitting the passage of said sail therebetween and for holding said bead, said guide members being also spaced close to the stay on the side of the mouth of the C-shaped cross-section and being substantially at said relatively open portion, whereby said guide members cause said bead to approach said open portion at a relatively shallow angle thereby to inhibit binding of said bead in the mouth of the C-shaped cross-section during raising of the jib sail.

2. A jib sail raising system comprising:

a stay having at least one portion of generally C-shaped cross-section adapted to receive and retain a bead on the luff of a jib sail with the sail extending through the mouth of the C, said stay having near its lower end a portion where the mouth of the cross-section is relatively open to admit the bead into the central portion of the stay;

a pair of rounded guide members;

a pair of bracket halves, each carrying a respective one of said guide members;

means for clamping said bracket halves together with the relatively open portion of said stay held therebetween, said guide members being thereby held in spaced relation to each other for permitting the passage of said sail therebetween and for holding said bead, said guide members being also spaced close to the stay on the side of the mouth of the C-shaped cross-section and being substantially at said relatively open portion, whereby said guide members cause said bead to approach said open portion at a relatively shallow angle thereby to inhibit binding of said bead in the mouth of the C-shaped cross-section during raising of the jib sail.

3. A jib sail raising system as set forth in claim 2 wherein said stay is formed by a stainless steel strip formed initially to said C-shaped cross-section.

4. A jib sail raising system as set forth in claim 2 wherein said guide members are polished spherical metal surfaces.

5. A jib sail raising system as set forth in claim 2 wherein said bead comprises a plastic rod secured to the luff edge of the jib sail.

6. A jib sail raising system as set forth in claim 2 wherein said bead comprises a plastic rod contained within a fabric tape sewn to the luff edge of the jib.

7. A jib sail raising system comprising:

a stay having at least one portion of generally C-shaped cross-section adapted to receive and retain a bead on the luff of a jib sail with the sail extending through the mouth of the C, said stay having near its lower end a portion where the mouth of the cross-section is relatively open to admit the bead into the central portion of the stay;

a C-shaped member the extremities of which are rounded and spaced to hold the bead of said jib sail with the sail extending between the rounded extremities; and

a flexible link connecting said member to the base of said sail below said open portion and on the mouth side of the C-shaped stay cross-section,

whereby the luff of a jib sail being raised into said stay from behind said stay is guided so as to approach said open portion at a relatively shallow angle thereby to prevent binding of said bead in the mouth of said C-shaped cross-section.

8. A jib sail raising system comprising:

a stay having at least one portion of generally C-shaped cross-section adapted to receive and retain a bead on the luff of a jib sail with the sail extending through the mouth of the C, said stay having near its lower end a portion where the mouth of the cross-section is relatively open to admit the bead into the central portion of the stay;

a pair of rounded guide members;

means for mounting said guide members in spaced relation to each other for permitting the passage of said sail therebetween and for holding said bead, said guide members being also spaced close to the stay on the side of the mouth of the C-shaped cross-section and being substantially at said relatively open portion;

a C-shaped guide member the extremities of which are rounded and spaced to hold the bead of said jib sail with the sail extending between the rounded extremities; and

a flexible link connecting said C-shaped guide member to the base of said stay below said open portion and on the mouth side of the C-shaped stay cross-section,

whereby the luff of a jib sail being raised into said stay from behind said stay is guided so as to approach said open portion at a relatively shallow angle thereby to prevent binding of said bead in the mouth of said C-shaped cross-section.

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