United States Patent [19]

Davis

[11] **3,759,210**

[45] **Sept. 18, 1973**

[54] **SAIL GUIDE SYSTEM**

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[73] Assignee: **Hood Sailmakers, Inc.,** Marblehead, Mass.

[22] Filed: **Jan. 21, 1972**

[21] Appl. No.: **219,787**

[52] **U.S. Cl.** **114/105,** 114/108

[51] **Int. Cl.** **B63h 9/04**

[58] **Field of Search** 114/108, 109, 112, 114/114, 105, 102; 24/3, 137

[56] **References Cited**

UNITED STATES PATENTS

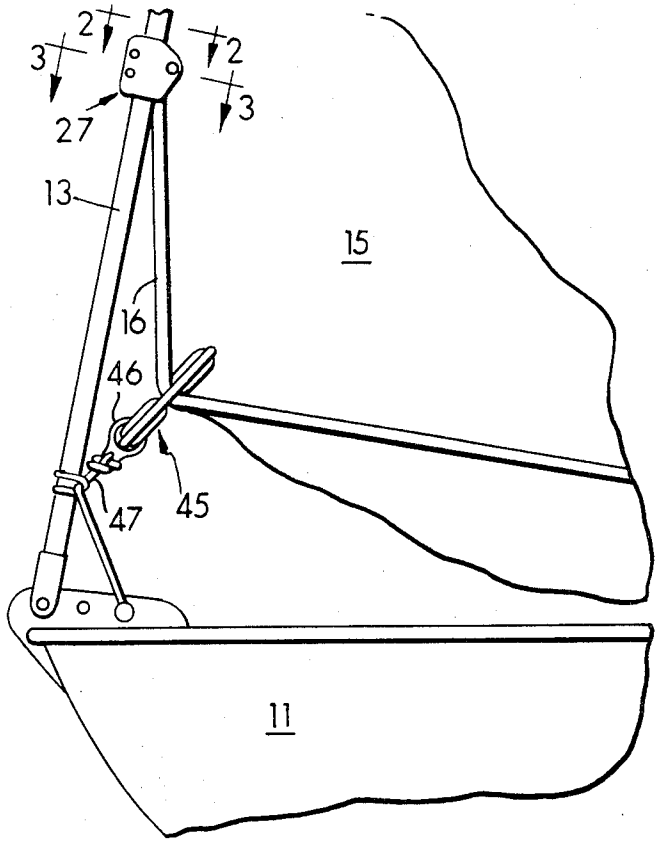
601,282	3/1898	Sands	114/108
2,724,356	11/1955	Szakacs	114/39
3,658,025	4/1972	Hood et al.	114/105

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Assistant Examiner—Stuart M. Goldstein
Attorney—Herbert W. Kenway et al.

[57] **ABSTRACT**

In the system disclosed herein, a generally C-shaped sail guide member, used for leading a bead on the luff of a sail into a keyway, is arranged so that the open side or gap in the C can face to either port or starboard. In raising this sail, the sail then bends around one or the other of a pair of rounded sail-engaging elements mounted on either side of the mouth of the C-shaped guide.

5 Claims, 5 Drawing Figures



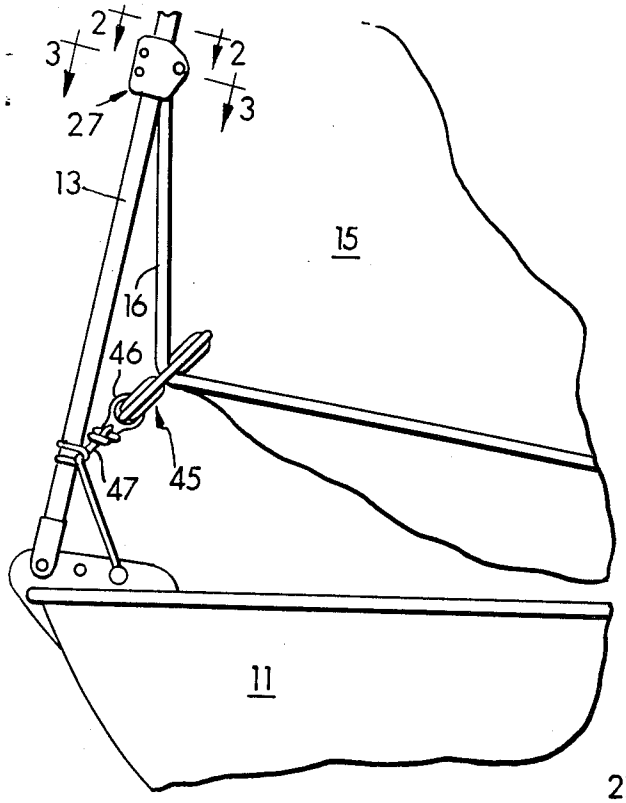


FIG. 1

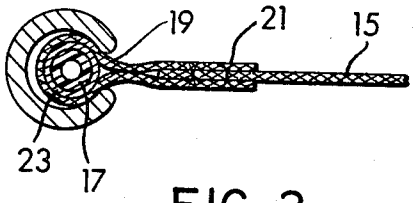


FIG. 2

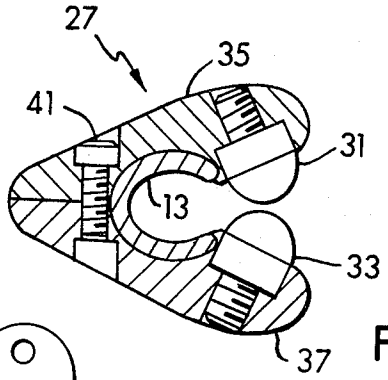


FIG. 3

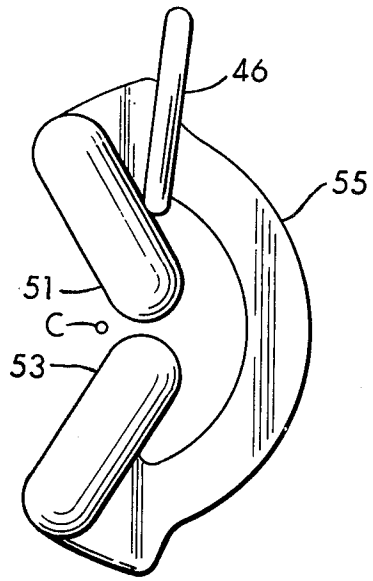


FIG. 4

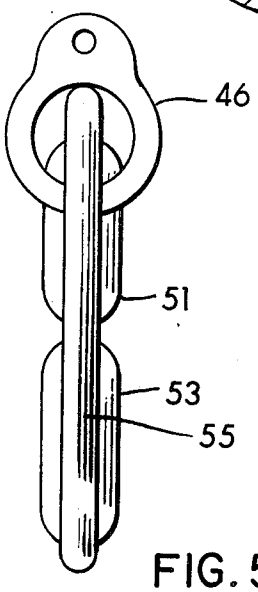


FIG. 5

SAIL GUIDE SYSTEM

BACKGROUND OF THE INVENTION

This invention relates to a sail guide system and more particularly to a sail guide which is an improvement over that disclosed in a co-pending application of myself, Frederick E. Hood, and Harry T. Davis, Ser. No. 90,990, now U.S. Pat. No. 3,658,025 filed Nov. 19, 1970 and is entitled Jib Sail Raising System.

As is disclosed in that earlier application, the raising of a jib sail provided with a luff edge bead fitting into a slotted headstay is facilitated if the bead is led in its approach to the stay through a C-shaped guide having a narrow mouth through which the body of the sail extends with the bead being retained. In the earlier guide, the gap or mouth in the C-shaped guide faced aft so that the rounded guide elements on either side of the mouth engaged the bead, rather than the sail itself.

Subsequent to the development of this original jib sail raising system, I found that sail raising is further facilitated if a guide member is provided in which the bead retaining gap faces to either port or starboard, i.e., sideways relative to the bead-retaining keyway, and the sail is caused to bend or warp around one or the other of a pair of rounded sail-engaging elements mounted on either side of the gap. Since it can be expected that a jib may have to be changed while sailing on either tack, the guide member is arranged in a generally C-shaped configuration and mounted so that it can flip, relative to a supporting link, from one side to the other so that the gap can face to either port or starboard.

SUMMARY OF THE INVENTION

Briefly, a guide system according to the present invention is adapted for leading, into a keyway on a luff-supporting member, a bead on the luff edge of a sail. The keyway may, for example, be provided by a slotted headstay. The guide system employs a guide member having a pair of rounded sail-engaging elements and a generally C-shaped yoke connecting and supporting the sail-engaging elements in spaced relationship with a predetermined gap therebetween and with a generally open area included within said elements and said C-shaped yoke. The size of the gap permits passage of the sail between the sail engaging portions, while retaining the bead. A linking means is provided for connecting the guide to a relatively fixed point adjacent the base of the keyway, the yoke itself being formed in an arcuate form around the gap which permits the guide to rotate relative the linking means so as to enable the side of the gap opposite the yoke to face to either port or starboard. Accordingly, a sail being led into the keyway by the guide bends over one or the other of the rounded sail-engaging elements with the body of the sail lying to one side of the guide. Preferably, the portions of the yoke adjacent the rounded sail-engaging elements are spaced further from the gap than the portion of the yoke opposite the gap so that the orientation of the guide tends to be stable with the linking means under tension.

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;

FIG. 4 is a plan view of a second guide member employed in the system in accordance with the present invention; and

FIG. 5 is an edge view of the guide of FIG. 4.

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 hollow and slotted, i.e., generally of C-shaped cross-section. As may also be seen from FIG. 2, this cross-section provides a keyway which 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.

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 or keyway 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 16 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, as illustrated in FIG. 3, a pair of rounded guide members 31 and 33 which are mounted on respective bracket halves 35 and 37. The bracket 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 16 will be held. Thus, during raising of the jib sail, the bead is guided into the stay at the open portion so as to inhibit

binding of the bead in the tapered portion of the mouth of the C-shaped cross-section.

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 **16** is initially aligned or constrained in its approach to the stay from aft on the boat where the sail is held prior to and during raising. For this purpose, the improved guide element **45** of the present invention is provided which is relatively loosely located or positioned relative to the base of the stay, by means of a tie-ring **46** and a cord **47.**

As illustrated in FIGS. **4** and **5,** the improved guide **45** comprises a pair of rounded, sail-engaging members **51** and **53** which are held in spaced relationship by a generally arcuate C-shaped yoke **55.** The sail-engaging members **51** and **53** project inwardly from the C-shaped yoke and the spacing between the members **51** and **53** is again such that the body of the jib sail **15** can pass therebetween but the head cannot. In operation, the tie-ring **46** links the yoke **55** so as to be slidable along its C-shaped length. The members **51** and **53** together with the yoke **55** are preferably constructed as an integral assembly, e.g., by casting.

The center of curvature of the arcuate yoke **55,** indicated at C in FIG. **4,** is outside of the gap between the sail-engaging members **51** and **53,** that is, the portion of the yoke directly opposite the gap is closer to the gap than the portions of the yoke adjacent the members **51** and **53.** Thus, when the raising of the sail from a position aft produces tension at the gap due to the bending of the sail at this point, the guide tends to flip to one side or the other so that the gap faces laterally, i.e., to port or starboard.

With the guide **45** in its naturally occurring, laterally facing position, the sailcloth adjacent the luff bead tends to bend over the rearward one of the sail-engaging members **51** and **53,** with the main body of the sail lying to one side or the other. This rolling movement of the sail has been found to provide a smoother sail raising than the prior arrangement in which a C-shaped guide with an aft-facing slot or gap was used. In the present arrangement, the bead and the adjacent portion of the sailcloth tend to bend around an axis lying generally parallel to the fabric in the gap. In the prior arrangement, the portion of the bead passing through the guide tended to bend around an axis transverse to the sailcloth in the gap and the sailcloth tended to resist this movement and to bunch.

Since the guide **45** operates in a flip-flop mode and is stable in orientation with the gap facing to either side, it can be seen that jib raising on either port or starboard tack is accommodated. If desired, a second bead can be incorporated adjacent the luff of the sail, spaced a small distance from the main bead **16,** so as to prevent any substantial amount of sail-cloth from gathering within the guide under various conditions.

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 guide for leading, into a keyway on a luff-supporting member, a bead on the luff edge of a sail, said guide comprising:

a pair of rounded sail-engaging elements;

a generally C-shaped yoke connecting and supporting said sail-engaging elements in spaced relationship with a predetermined gap therebetween and with a generally open area included within said elements and said C-shaped yoke, the size of the gap permitting passage of said sail between said sail-engaging portions while retaining said bead within said open area; and

means linking said yoke for connecting said guide to a relative3y fixed point adjacent the base of said keyway, said yoke being shaped in an arcuate form around said gap permitting said guide to rotate relative said linking means to enable the side of said gap opposite said yoke to face to either side of said keyway, the portions of said yoke adjacent said rounded sail-engaging elements being spaced further from said gap than the portion of said yoke opposite said gap whereby the orientation of said guide tends to be stable with said linking means under tension when said gap is facing one side or the other and tends to be unstable with said linking means located opposite said gap whereby a sail being led into said keyway by said guide bends over one or the other of said rounded sail-engaging elements with the body of the sail lying to one side of said guide.

2. A guide as set forth in claim **1** wherein said sail-engaging elements are integral with said yoke.

3. A guide as set forth in claim **1** wherein said linking means includes a tie-ring slidable along said yoke.

4. A guide for leading, into a keyway on a luff-supporting member, a bead on the luff edge of a sail, said guide comprising:

a generally C-shaped yoke;

a pair of rounded sail-engaging elements extending inwardly from the ends of said C-shaped yoke to a gap therebetween, there being a generally open area included within said elements and said C-shaped yoke, the size of the gap permitting passage of said sail between said sail-engaging portions while retaining said bead within said open area, the center of curvature of at least the inner surface of said yoke being outside of said gap relative said yoke; and

a ring linking and slidable along said yoke by means of which said guide is flexibly connected to a relatively fixed point adjacent the base of said keyway, said yoke being shaped in an arcuate form around said gap permitting said guide to rotate relative said ring to enable said gap opposite to face to either port or starboard as a sail is raised from aft of said luff-supporting member, whereby the orientation of said guide tends to be stable with said gap facing starboard or port and tends to be unstable with said gap facing aft whereby a sail being led into said keyway by said guide bends over one or the other of said rounded sail-engaging elements with the body of the sail lying to one side of said guide.

5. A jib sail system comprising:

a hollow, slotted headstay adapted to receive a bead on the luff edge of a jib with the body of the sail extending through the slot, a portion of the slot being

opened to a width which will receive said bead, and a guide including:

a generally C-shaped yoke;

a pair of rounded sail-engaging elements extending inwardly from the ends of said C-shaped yoke to a gap therebetween, there being a generally open area included within said elements and said C-shaped yoke, the size of the gap permitting passage of said sail between said sail-engaging portions while retaining said bead within said open area, the center of curvature of at least the inner surface of said yoke being outside of said gap relative said yoke;

a ring linking and slidable along said yoke; and

means flexibly connecting said ring to a relatively fixed point adjacent the base of said headstay, said guide being rotatably relative said ring to enable said gap opposite to face to either port or starboard as a sail is raised from aft of said headstay, whereby the orientation of said guide tends to be stable with said gap facing starboard or port and tends to be unstable with said gap facing aft whereby a sail being led into said keyway by said guide bends over one or the other of said rounded sail-engaging elements with the body of the sail lying to one side of said guide.

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