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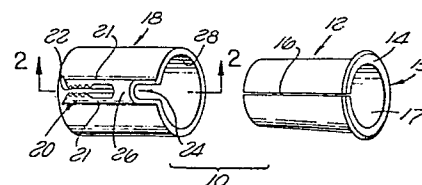
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Positionable jam cleat.

A positionable jam cleat for use on a wind propelled vehicle, e.g. a surfboard, comprising a positioning sleeve (12) having an expandable circumference, slidably mounted on a respective one of the booms (30,31) and a cleat sleeve (18) having an inner diameter of a size such that when brought in contact with the outer surface of the positioning sleeve (12), the cleat sleeve (18) will compress the positioning sleeve (12), thereby increasing the frictional engagement of the boom (30,34) by the positioning sleeve (12), and with the cleat sleeve (18) having a jam cleat (20) formed on the outer surface thereof. The positioning sleeve (12) has an open seam (16) extending the length thereof and an inner diameter sufficiently smaller than the outer diameter of the boom (30,31).

A lip (14) on the positioning sleeve (12) prevents the cleat sleeve (18) from being drawn over the line-receiving end of the positioning sleeve (12). The jam cleat (20) is formed by a pair of upstanding channel sides (21) on the outer surface of the cleat sleeve (18) and has a row of teeth (22) on the inward facings of the channel sides (21) and a bridge (26) joining the upper edges of the channel sides (21) at the line-receiving end thereof.

FIG. 1



1 BACKGROUND AND SUMMARY OF THE INVENTION

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3 Wind driven vehicles, e.g., surf boards, having
4 a sail means attached to the vehicle and a pair of curved booms
5 athwart a spar to which the sail means is mounted, and which
6 booms contain the sail and form a hand-hold means for the user
7 of the vehicle, are well known in the art as shown in the patent
8 to the present Applicant, United States Patent No. 3,487,800.
9 Such vehicles typically have the clew-end of the booms joined
10 with a fitting have a slot through which is passed a clew sheet
11 line attached to the clew of the sail, and used for trimming the
12 sail. The clew sheet typically is attached by passing it through
13 the clew of the sail, without knotting it at the clew, and
14 passing the two ends of the clew sheet through the slot in the
15 clew-end boom fitting, with each end being run along a respective
16 boom and fastened at a point along the boom to a cleat. Thus,
17 the user of the vessel, who provides motor force for the vessel
18 by holding the sail upright against the force of the wind by
19 grasping a respective one of the booms, can trim the sail while
20 grasping either of the booms, simply by loosening the respective
21 end of the clew sheet from the cleat on the boom which the user
22 is grasping and tightening or slackening the clew sheet as
23 desired, followed by again making the clew sheet fast to the
24 cleat. However, with varying wind conditions the position of the
25 user along the boom will vary greatly, thus, making it difficult
26 for the user to reach a single stationary cleat, at least at some

1 times during the sailing of the vehicle. One possible solution
2 would be to have a plurality of cleats spaced along the boom,
3 however, since the user grasps the boom in order to control the
4 sail and the vehicle, the positioning of a plurality of cleats
5 along the boom would serve to hamper the ability of the user
6 to grasp the boom, particularly when the cleats are of the
7 metal variety and protrude significantly outwardly from the
8 surface of the boom.

9 It is thus desirable to have a positionable jam
10 cleat along the boom which is easy for the user of the vehicle
11 to operate to make fast the respective end of the clew sheet,
12 and is also easily and quickly positionable to any of the
13 infinite possible locations along the length of the boom.

14 The present invention relates, therefore, to a
15 positionable jam cleat comprising a positioning sleeve, having
16 an expandable circumference, and slideably mounted on the
17 boom, and a cleat sleeve which has an inner diameter of a size
18 such that when the cleat sleeve is forced over the positioning
19 sleeve, with the positioning sleeve on the boom, the posi-
20 tioning sleeve will be compressed in circumference, thereby
21 increasing the frictional engagement of the boom by the
22 positioning sleeve, and with the cleat sleeve having a jam
23 cleat formed on the outer surface thereof. The positioning
24 sleeve is disclosed in a preferred embodiment to have an open
25 seam extending the length of the positioning sleeve and to

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1 have an inner diameter sufficiently smaller than the outer
2 diameter of the boom such that, when the positioning sleeve is
3 placed on the boom, a gap will be formed at the open seam.
4 Sliding the cleat sleeve over the positioning sleeve com-
5 presses the positioning sleeve, narrowing this gap, suffi-
6 ciently to significantly increase the frictional engagement
7 of the boom by the positioning sleeve.

8 Examples of the more important features of the
9 present invention have thus been summarized rather broadly in
10 order that the detailed description thereof that follows may
11 be better understood, and in order that the contribution to
12 the art may be better appreciated. There are of course
13 additional features of the invention which will be described
14 hereafter and which will also form the subject of the appended
15 claims. Other features and advantages of the present in-
16 vention will become apparent with reference to the following
17 detailed description of a preferred embodiment thereof, in
18 connection with the accompanying drawings, wherein like
19 reference numerals have been applied to like elements, in
20 which:

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22 BRIEF DESCRIPTION OF THE DRAWINGS

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24 FIGURE 1 depicts a perspective view of the posi-
25 tioning sleeve and the cleat sleeve of the present invention;
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1 FIGURE 2 is a cross sectional view of the cleat
2 sleeve shown in FIGURE 1, along lines 2-2 of FIGURE 1;

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4 FIGURE 3 is a perspective view of the positioning
5 sleeve and cleat sleeve in the normal operating configuration
6 on the boom, with one end of a clew sheet made fast in the jam
7 cleat formed on the cleat sleeve;

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9 FIGURE 4 shows a partially cut away view of the clew
10 sheet line passing through the clew of the sail, and through
11 the clew-end boom fitting, and with the respective ends
12 thereof made fast in positionable jam cleats according to the
13 present invention.

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16 DETAILED DESCRIPTION OF THE PREFERRED

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18 EMBODIMENT OF THE INVENTION

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Turning now to FIGURE 1 a positionable jam cleat
10 according to the present invention is shown in perspective
view. The positionable jam cleat 10 has a positioning sleeve
12 and a cleat sleeve 18. The positioning sleeve 12 is of
expandable inner diameter and has an annular lip 14 at the clew
sheet line-receiving end 15 of the positioning sleeve 12.
The positioning sleeve 12 is shown in the embodiment of FIGURE
1 to have an open seam 16 extending along the longitudinal

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1 length thereof such that the inner diameter of the positioning
2 sleeve 12 can be expanded by placing the positioning sleeve 12
3 over one of the respective booms (not shown in FIGURE 1) with
4 the inner surface 17 of the positioning sleeve 12 contacting
5 the boom, as discussed in more detail below.

6
7 The cleat sleeve 18 has a jam cleat 20 formed on
8 the outer surface thereof. The jam cleat 20 is shown to consist
9 of two upstanding channel sides 20 forming a channel therebetween
10 having a row of teeth 22 on the inwardly facing surfaces of the
11 channel sides 21. At the line receiving end of the cleat sleeve
12 18 a bridge 26 connects the upper edges of the channel sides 21
13 to form a line receiving passage 24, into which the clew sheet
14 (not shown in FIGURE 1) is inserted, as more fully described
15 below. The bridge 26 serves to prevent the clew sheet line from
16 pulling away from the teeth 22 of the jam cleat 20, thus insuring
17 that the clew line will be made fast in the jam cleat 20. The
18 cleat sleeve 18 has an inner surface 28 having an inner diameter
19 of a size such that when the cleat sleeve 18 is forced over the
20 positioning sleeve 12, with the positioning sleeve 12 on the
21 boom, the gap 16 will be narrowed, thereby increasing the fric-
22 tional engagement of the boom by the positioning sleeve 12, and
23 locking the positionable jam cleat 10 in a desired position on
24 the boom.

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1 FIGURE 2 shows a cross sectional view of the cleat
2 sleeve 18 along lines 2-2 in FIGURE 1. The teeth 22 are shown
3 to be comprised of a row of spaced apart elevated ridges formed
4 in the inwardly facing surface of the respective channel side 21,
5 and at an angle of approximately forty-five degrees to the
6 longitudinal axis of the cleat sleeve 18. The clew line (not
7 shown in FIGURE 2) is inserted through the line receiving
8 passage 24 under the bridge 26 and into the region of the jam
9 cleat 20 containing the teeth 22, wherein the teeth engage and
10 lock the clew sheet line at a desired position along the clew
11 sheet line. The positioning sleeve 12 and cleat sleeve 18 are
12 conveniently constructed of a molded plastic material which has
13 the added advantage of facilitating the sliding of the cleat
14 sleeve 18 onto the positioning sleeve 12, with the positioning
15 sleeve 12 on the boom, because of the relatively friction free
16 engagement between the surfaces of the positioning sleeve 12 and
17 cleat sleeve 18.

18
19 FIGURE 3 shows the positionable jam cleat 10 according
20 to the present invention in place on a boom 30 with the cleat
21 sleeve 18 in place over the positioning sleeve 12. The lip 14 of
22 the positioning sleeve 12 prevents the cleat sleeve 18 from being
23 pulled, by the force exerted on the cleat sleeve 18 due to
24 tension on a clew line 34 engaged by the teeth 22 of the jam
25 cleat 20, over the line-receiving end 15 of the positioning

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sleeve 12. The clew line 34 passes under the bridge 26 and through the line-receiving passage 24 into the teeth 22 of the jam cleat 20. The bitter end 32 of the clew sheet 34 is shown to be hanging slacked after passing through and being engaged by the teeth 22 of the jam cleat 20.

FIGURE 4 shows a convenient arrangement for the rigging of the clew sheet, which allows for trimming of a sail 32 contained between the booms 30, 31 from a position along either of the booms 30, 31. The booms 30, 31 are joined at the clew-end thereof by a clew-end boom fitting 38. The clew sheet 34 passes through a clew 36 on the sail 32, without being knotted at the clew 36, and both ends of the clew sheet are then passed through an opening 39 (shown in cut away view in FIGURE 4) in the clew-end boom fitting 38, and having curved bearing surfaces 40. The clew sheet line 34 passes over the bearing surfaces 40 and each end thereof is drawn back along the booms 30, 31 and made fast in a positionable jam cleat 10, constructed according to the present invention, and positioned at a desired location on either boom 30, 31.

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SUMMARY OF THE ADVANTAGES AND SCOPE
OF THE PRESENT INVENTION

It will be appreciated that in constructing a positionable jam cleat according to the present invention, certain significant advantages are provided. In particular, the positionable jam cleat of the present invention provides the user of the vehicle with a jam cleat which is quickly and conveniently positionable to any desired location along the length of the boom, in order to keep the jam cleat within ready reach for trimming the sail when the user is standing at one of a number of different possible positions along the boom. The jam cleat does not interfere with the gripping of the boom even at the location of the jam cleat. The bridge at the line-receiving end of the jam cleat enables tightening the clew sheet with one hand, simply by pulling on the clew sheet generally parallel to the longitudinal axis of the jam cleat and releasing the clew sheet, whereupon the teeth of the jam cleat will be in engagement with the clew sheet. Similarly, the clew sheet can be slackened by using one hand to lift the clew sheet out of engagement by the teeth, slackening as desired and re-engaging the clew sheet in the teeth.

The foregoing description of the invention has been directed to a particular preferred embodiment in accordance with the requirements of the patent statutes and for the

1 purposes of explanation and illustration. It will be apparent,
2 however, to those skilled in this art that many modifications
3 and changes in both apparatus and method may be made without
4 departing from the scope and spirit of the invention. For
5 example, the particular form of the jam cleat itself and the
6 teeth of the jam cleat may be modified to a number of well
7 known jam cleat forms presently used in the art. Also, the
8 particular rigging of the clew line shown in FIGURE 4 is only
9 one of a number of such riggings well known and used in the
10 art. Further, the particular shape of the positioning sleeve
11 and the cleat sleeve may be modified so long as the posi-
12 tioning sleeve expands in circumference when placed on the
13 boom and the cleat sleeve, when inserted over the positioning
14 sleeve, serves to compress this expanded circumference in order
15 to tighten the positioning sleeve against the boom. Finally, the
16 clew-end boom fitting is illustrative only and may be modified,
17 e.g., by placing pulleys along or in place of the curved bearing
18 surfaces.

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20 It will be further apparent that the invention may
21 also be utilized, with other suitable modifications within the
22 state of the art, which will be apparent to those skilled in
23 this art. It is the applicant's intention in the following
24 claims to cover all such equivalent modifications and varia-
25 tions as fall within the true spirit and scope of the invention.

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WHAT IS CLAIMED IS:

1 1. A positionable jam cleat for use on a wind-
2 propelled vehicle having a sail means, attached to a spar
3 attached to the vehicle, and contained between two curved
4 booms extending athwart the spar, comprising:

5 a positioning sleeve having an expandable circum-
6 ference and slideably mounted on the respective boom and
7 having an outer surface;

8 a cleat sleeve having an inner surface and an inner
9 diameter of a size such that when the positioning sleeve
10 is placed on the boom, and the cleat sleeve is placed on the
11 positioning sleeve with the inner surface of the cleat sleeve
12 in contact with the positioning sleeve, the cleat sleeve
13 compresses the positioning sleeve, thereby increasing the
14 frictional engagement between the positioning sleeve and the
15 boom; and,

16 the cleat sleeving having a jam cleat formed
17 thereon.

1 2. The apparatus of claim 1 wherein the positioning
2 sleeve has a line-receiving end and an annular lip on the
3 line-receiving end of sufficient size to prevent the cleat
3 sleeve from passing over the line-receiving end of the posi-
4 tioning sleeve.

1 3. The apparatus of claim 1 wherein the positioning
2 sleeve has a longitudinal open seam extending the length
3 thereof and has an inner diameter sufficiently smaller than
4 the outer diameter of the boom such that when the positioning
5 sleeve is placed on the boom a gap is formed at the open seam
6 of sufficient size, such that, when the cleat sleeve is placed
7 over the positioning sleeve sufficient compression of the
8 positioning sleeve occurs, narrowing the gap, to thereby
9 significantly increase the frictional engagement between the
10 boom and the positioning sleeve.

1 4. The apparatus of claim 1 wherein the jam cleat
2 is formed by a pair of upstanding channel sides formed on the
3 outer surface of the cleat sleeve, each having a row of
4 inwardly facing jam cleat teeth.

1 5. The apparatus of claim 4 wherein the channel
2 sides are connected at the upper edges of each at the

3 line-receiving end of each by a bridge, which along with the
4 channel sides forms a line passage into the region of the jam
5 cleat containing the teeth.

1 6. A positionable jam cleat for use on a wind
2 propelled vehicle having a sail means, attached to a spar
3 attached to the vehicle, and contained between two curved
4 booms extending athwart the spar, comprising:

5 a positioning sleeve having a longitudinal open seam
6 extending the length thereof and an inner diameter suffi-
7 ciently smaller than the outer diameter of the boom, such
8 that when the positioning sleeve is placed on the boom, a
9 gap is formed at the open seam;

10 a cleat sleeve having an inner surface and an inner
11 diameter of a size such that, when the positioning sleeve
12 is placed on the boom and the cleat sleeve is placed on
13 the positioning sleeve, with the inner surface of the
14 cleat sleeve in contact with the positioning sleeve,
15 sufficient compression of the positioning sleeve occurs,
16 narrowing the gap, to thereby significantly increase the
17 frictional engagement of the boom by the positioning
18 sleeve;

19 the cleat sleeve having a jam cleat formed by a pair
20 of upstanding channel sides formed on the outer surface
21 of the cleat sleeve, each channel side having an inwardly
22 facing row of teeth; and,

23 the channel sides are connected at a line-receiving
24 end of the jam cleat, on the upper edges of the
25 channel sides, by a bridge, forming with the channel
26 sides a line passage into the region of the jam cleat
27 containing the teeth.

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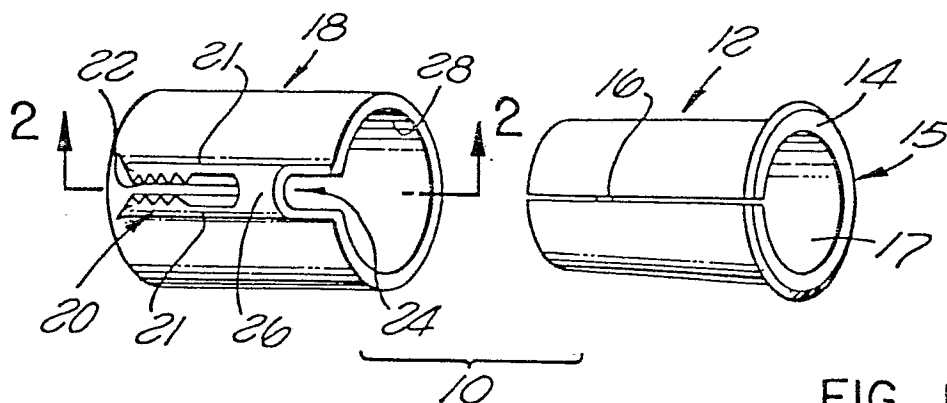


FIG. 1

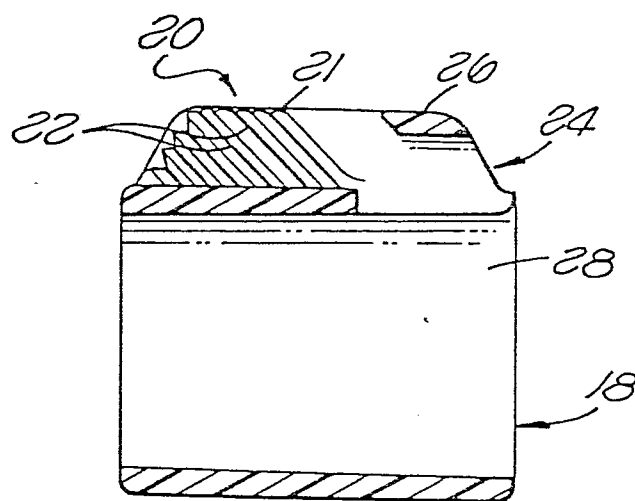


FIG. 2

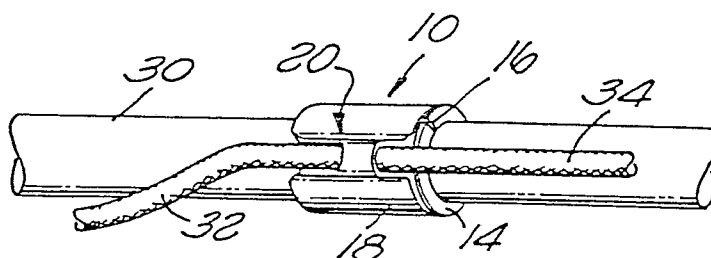


FIG. 3

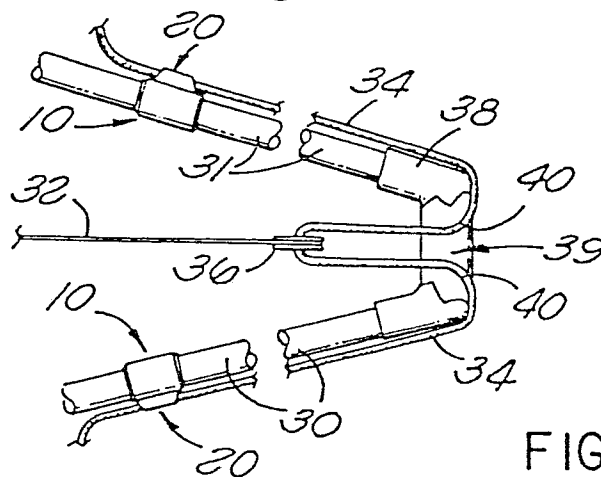


FIG. 4



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<u>FR - A - 2 411 126</u> (MARKER) * Page 6, line 31 to page 7; figure 5 * --- <u>DE - A - 2 837 534</u> (DORNFELD) * Page 6; figures 1 and 2 * --- <u>DE - A - 1 908 513</u> (BURFORD) * Page 3 and 4; figure 1 * --- <u>FR - A - 2 112 889</u> (SOL KESILMAN) * Page 2, lines 34-40; page 3; figures 2 and 4 * & US - A - 3 675 598 -----	1 1 1 1-3	B 63 B 35/72 21/08 TECHNICAL FIELDS SEARCHED (Int. Cl.) B 63 B B 63 H A 47 B CATEGORY OF CITED DOCUMENTS X. particularly relevant A: technological background O non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons & member of the same patent family corresponding document
X	The present search report has been drawn up for all claims		
Place of search The Hague		Date of completion of the search 20.07.1981	Examiner ZIMMER