June 1, 1965 C. W. CLEVELAND 3,186,372

SHEET CLEAT

Filed Dec. 20, 1963 2 Sheets-Sheet 1

Fig. 1.

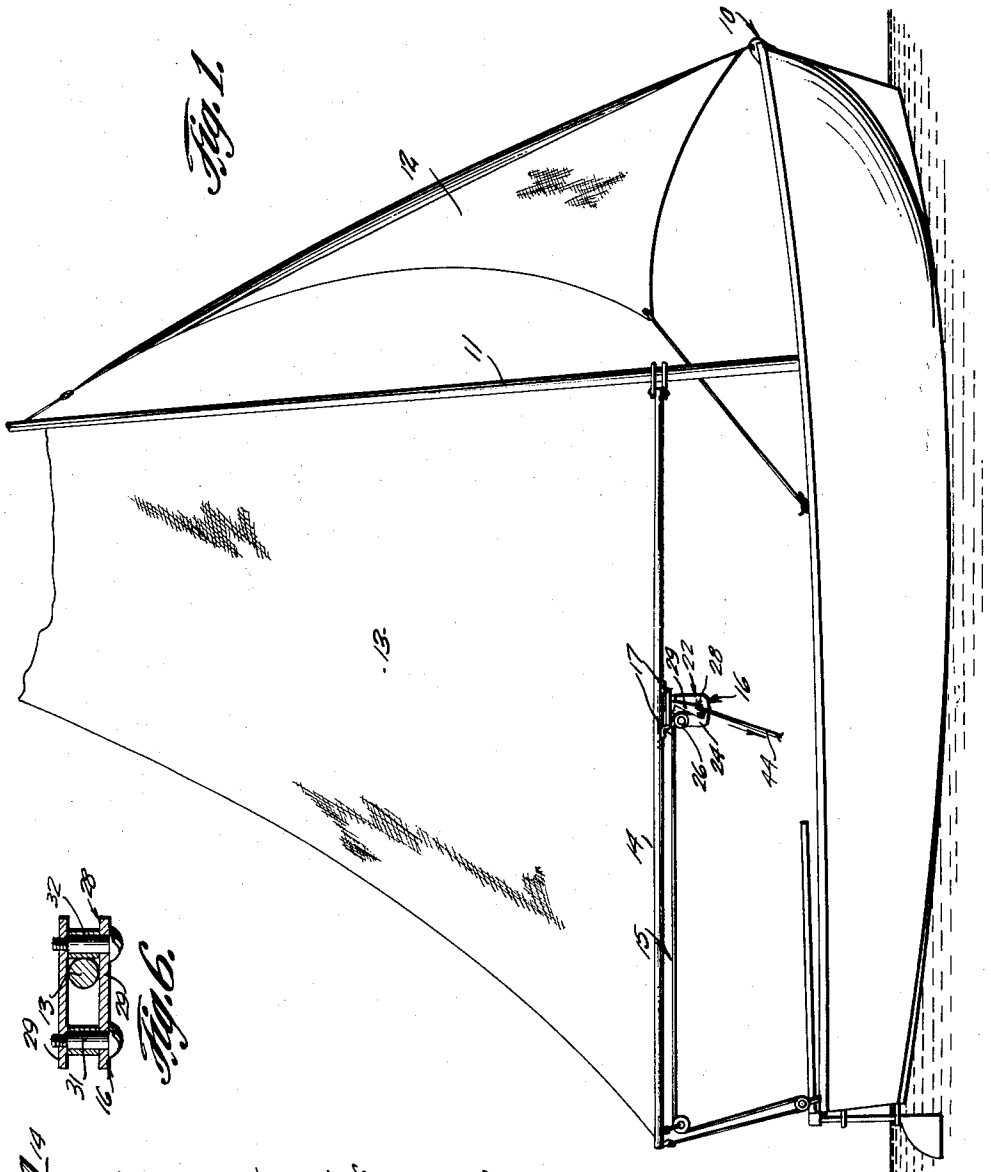
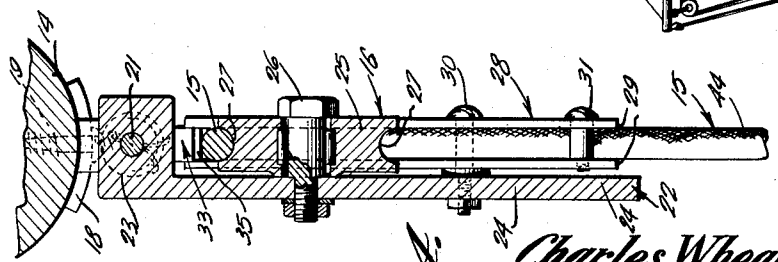


Fig. 3.

Fig. 4.



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SHEET CLEAT

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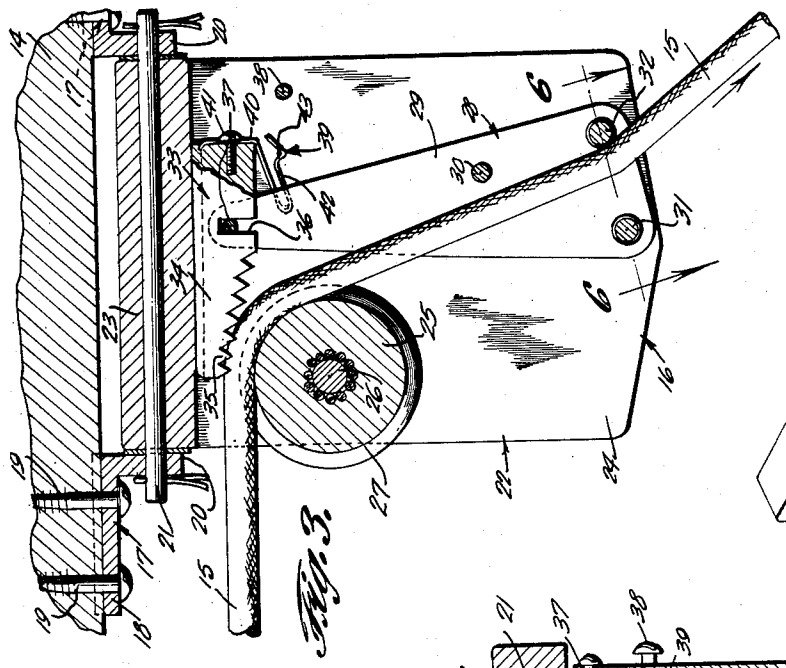


Fig. 3.

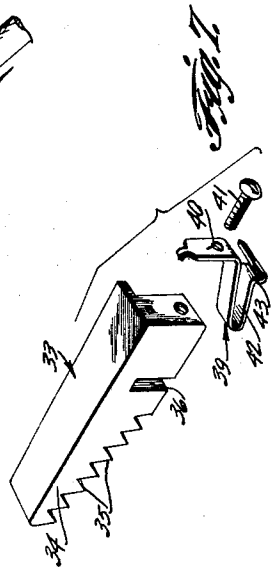


Fig. 1.

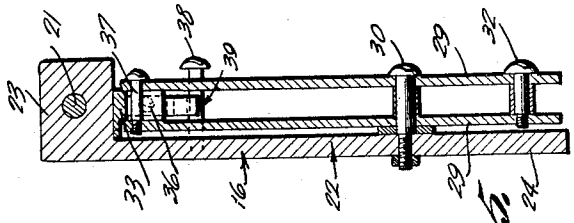


Fig. 2.

Fig. 4.

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3,186,372

SHEET CLEAT

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2 Claims. (Cl. 114—199)

The present invention relates to a sailboat, and more particularly to a cleat for the main sheet of a sailboat.

The object of the invention is to provide a sheet cleat which is adapted to be used for holding the line or sheet that is attached to the sail so that with the sheet shortened or slackened to control the set of the sail, the cleat of the present invention can be used for holding the sheet immobile in its adjusted positions.

Another object is to provide a sheet cleat which is adapted to be used for effectively and efficiently controlling a line such as the main sheet, and wherein the line can be quickly and readily secured against a sheave or pulley, and wherein the line can be instantly released when desired so as to permit the line to run freely over the sheave, and wherein the present invention provides a means for securing or releasing the line such as a main sheet against a sheave with minimum linear travel of the line at the time of securement or release of the line, and wherein a line can be held in position so that it will be readily available for instant control of the line, and wherein accidental securing of the main sheet or line will be prevented.

Another object of the invention is to provide a sheet cleat which will increase the safety factor in the use of a sailboat, and wherein the cleat is readily applicable for use on jibsheets, halyards, lanyards, boomjacks, and centerboard pennants, with the same instantaneous micrometer control.

A further object is to provide a sheet cleat of the type stated that provides for instant variable adjustment of a line such as the main sheet, and wherein the present invention embodies a self energizing lock for holding any setting for the line that is desired, and wherein there is a positive holding action, the sheet cleat being constructed and arranged so that the operator of a sailboat can conveniently actuate the same.

A still further object of the present invention is to provide a means for securing a line such as the main sheet without cluttering the deck or marring the same with deck mounted cleats, and wherein a line such as the main sheet can be adjusted without causing tangling, and wherein adjustment of the device can be accomplished without the necessity of the operator removing his eyes from other action or duties on which they may be focused, and wherein gravity is used to assist in the initial motion of securing the line such as the main sheet in place.

Another object is to provide a device of the character described that may be utilized speedily and with precision by even inexperienced operators, and further objects and advantages are to provide improved elements and arrangements thereof in a device of the character described that is economical to produce, durable in form, and conducive to the most economical use of materials and uniformity of members formed therefrom.

Still further objects and advantages will become apparent in the subsequent description in the specification.

In the drawings:

FIG. 1 is an elevational view of a sailboat showing the sheet cleat of the present invention attached to the boom.

FIG. 2 is an enlarged elevational view of the sheet cleat showing the parts in released position.

FIG. 3 is a view generally similar to FIG. 2 but with certain parts in section and broken away, and showing the main sheet and coacting parts in locked position.

FIG. 4 is a sectional view taken on the line 4—4 of FIG. 2.

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 2.

FIG. 6 is a sectional view taken on the line 6—6 of FIG. 3.

FIG. 7 is a fragmentary perspective view showing the wedge and spring member and showing the parts separated for clarity of illustration.

Referring in detail to the drawings, the numeral **10** indicates a conventional sailboat which includes the usual mast **11**, jib **12**, main sail **13**, boom **14**, and main sheet **15**.

According to the present invention there is provided a sheet cleat which is indicated generally by the numeral **16**, and as shown in FIG. 3 for example, there is provided a pair of spaced apart brackets **17** which each have a substantially L-shape, and each of the brackets **17** embodies a horizontally disposed section **18** that is secured in place to the lower surface of the boom **14** by means of securing elements or screws **19**. Each bracket **17** further includes a vertically disposed section **20**, and the numeral **21** indicates a rod or pin that extends between the sections **20** of the pair of brackets **17** and which is supported thereby.

The sheet cleat **16** is shown to include a support member that is indicated generally by the numeral **22**, and the support member **22** embodies a top portion **23** that is mounted on the rod **21**, and the top portion **25** is interposed between the vertical sections **20** of the brackets **17**. The support member **22** further includes a depending wall portion **24**, and the numeral **25** indicates a pulley or sheave that is journaled to or rotatably connected to the wall portion **24** by means of a pin or securing element **26**. As shown in FIG. 3 for example, the outer periphery of the pulley **25** is provided with an annular groove **27** for engagement by a portion of the sheet **15**.

The numeral **28** indicates a lever that is pivotally connected to the wall portion **24** of the support member **22** by means of a pivot pin **30**, and the lever **28** is shown to comprise a pair of spaced parallel plates **29** of generally triangular shape or formation, and a pair of spaced parallel pins **31** and **32** extend between the lower portions of the plates **29** and are connected thereto. A portion of the main sheet **15** projects between the pair of plates **29** and extends between the pair of pins **31** and **32**, as for example as shown in FIG. 3.

The sheet cleat **16** further includes a movable block or wedge **33** which is shaped to include a tapered portion **34** that has teeth **35** on the lower surface thereof for selectively engaging the portion of the sheet **15** that is arranged in engagement with the groove **27** of the pulley **25**, as for example when the parts are in the locked position of FIG. 3. There is provided in the lower portion of the wedge **33** a slot **36**, and the numeral **37** indicates a pin or stud which is connected to the upper ends of the plates **29**, and the stud **37** is arranged in engagement with the slot **36** of the wedge **33**. The numeral **38** indicates a holding member or element which is in the nature of a pin that is connected to the wall portion **24** of the support member **22**, and there is provided a spring member **39** which provides a catch for coaction with the holding element **38**. As shown in FIG. 7 for example the spring member **39** includes a portion **40** which is connected to an end of the wedge **33** by means of a screw or securing element **41**, and the spring member **39** further includes a portion **42** which is provided with an offset section **43** that defines a shoulder that is adapted to selectively engage the holding element **38**.

From the foregoing, it is apparent that there has been provided a sheet cleat for use with a sailboat or the like,

and in use with the parts arranged as shown in the drawings, it will be seen that the cleat 16 is adapted to be mounted below an intermediate portion of the boom 14, and the brackets 17 of the cleat are fixed in place to the boom 14 by means of the securing elements such as the screws 19. The support member 22 has its top portion 23 supported on the rod 21, and the pulley 25 is rotatably connected to the wall portion 24 of the support member 22 by means of the securing element 26. The lever 28 which includes the pair of plates 29 is pivotally connected to the wall portion 24 by means of a pivot pin 30, and the stud 37 carried by the upper end of the lever 28 is arranged in engagement with the slot 36 of the shiftable or movable wedge 33. A portion of the sheet or line 15 is trained over the grooved portion 27 of the pulley 25, and the sheet 15 is extended or projected between the pair of plates 29 and between the pins 31 and 32, as for example as shown in FIGS. 2 and 3. With the parts arranged as shown in FIG. 2 it will be seen that the teeth 35 of the wedge 33 are out of engagement with the sheet 15 so that adjustment of the sheet 15 can be readily effected, and with the parts arranged as shown in FIG. 3 it will be seen that a locking action takes place between the teeth 35 and the portion of the sheet 15 on the pulley 25.

The parts can be made of any suitable material and in different shapes or sizes.

The sheet 15 is adapted to consist of a rope or line that is attached to the lower corner of the sail and the sheet is adapted to be shortened or slackened in the usual manner to control the set of the sail.

According to the present invention there has been provided an automatic sheet cleat which is adapted to be mounted on the under side of the boom 14 between the operator's normal operating position and the mast 11, and this permits the device to respond to the same hand part of the main sheet motion on any point of sailing. The main sheet 15 is adapted to extend aft to the boat transom, as for example as shown in the left side of FIG. 1, and the spring member 39 includes the shoulder 43 which functions as a safety catch for coaction with the holding element or pin 38. FIG. 2 shows the automatic sheet cleat open, and FIG. 3 shows the device closed. The portion of the main sheet 15 as for example which is arranged below the cleat 16 is the hand part of the main sheet and this portion of the main sheet which is indicated by the numeral 44 can be manually pulled or directed in any direction from aft to down, so that release of the main sheet can be readily accomplished. When the operator leads, directs or pulls the hand part 44 of the main sheet 15 in any direction from aft to downward, the main sheet presses against the pin 31 and pulls the toothed wedge 33 away from the pulley 25 and main sheet 15 so as to permit the main sheet 15 to run free. The safety catch 39 engages the holding element or pin 38 and holds the toothed wedge 33 away from the pulley and main sheet.

This prevents accidental locking of the main sheet. The operator must move the hand part 44 of the main sheet forward to release the safety catch. The hand part 44 of the main sheet 15 can be led, pulled or directed forward so as to lock the main sheet.

When the operator leads, directs or pulls the hand part 44 of the main sheet forward or towards the mast or stem, the main sheet applies pressure on the pin 32 of the lever 28 and pulls the toothed wedge 33 against the pulley 25 and main sheet 15. The toothed wedge 33 is shaped so that the main sheet is engaged in the toothed wedge which is pulled home. The harder the pull of the sail on the main sheet, the more positive the hold. The toothed wedge is unbalanced on its pivot rod or stud 37 so that gravity assists in contact of the toothed wedge to the main sheet.

Some of the important aspects or features of the present invention are as follows. The present invention provides

a means of controlling a line such as a main sheet instantly securing the line against a sheave or instantly releasing the line so as to permit the line to run freely over the sheave. In addition the present invention provides a means of securing or releasing a line such as the main sheet against a sheave with minimum linear travel of the line at the time of securement or release of the line. In addition the present invention provides a means of holding a line such as the main sheet in a position so as to be always ready and available for instant control of the line, and the present invention also provides a means of preventing accidental securing of a line such as a main sheet.

The automatic sheet cleat of the present invention provides an instant action cleat for a line such as a main sheet, and it also provides instant infinitely variable adjustment to and from of a line such as a main sheet, and also provides teeth and a wedge having a tapered or angled portion and a securing mechanism to match materials used for construction of the same and materials used in lines by those who practice the art of sailing. Also the present invention embodies a self-energizing lock for holding any setting that is chosen for a line such as a main sheet under tension, and there is also provided a positive holding action that operates at exact position chosen by the operator with absolute minimum "give" before lock is achieved so as to provide a "micrometer" adjustment of a line such as a main sheet. In addition the present invention provides a highly convenient means for the operator of a sail for performing his duties of sail adjustment, and the present invention also provides a means of securing a line such as a main sheet without cluttering the deck or marring the same thereby with deck mounted cleats. Also there is provided an adjustment of a line such as a main sheet without possible tangling of the spare line and accidental mistakes arising therefrom, and there is also provided a means of operating a line such as a main sheet without ever having to observe the mechanism or even feel the same for getting any setting desired so as to make it possible for the operator to keep his attention and eyes focused on other action or duties. Furthermore the present invention provides a means of utilizing the energy or "pull" in a line such as a main sheet to activate a holding mechanism to positively secure a line such as a main sheet, and the present invention also provides a cleat such as a main sheet cleat which is fastened immediately to and under the boom swiveling on its hinges to permit proper and instantaneous adjustment of a line such as a main sheet on any point of sailing, and the present invention also provides a means of using gravity to assist the toothed wedge in the initial motion of securing a line such as a main sheet.

It is desired to emphasize the safety features in the use of the sheet cleat of the present invention, and an important feature of the cleat is to help prevent unnecessary capsizing and swampings of sailboats. The sheet cleat will increase the safety factor in the use of the sailboat. For example, in the event of a sudden knockdown or potential capsize from an extremely strong gust of wind, the natural human reaction is to grab the main sheet and uncleat it. The time delay between the strong gust and the uncleating of the main sheet with any other type cleat, many times, allows the vessel to go out of control. Because of the construction and design of this cleat, any time the main sheet is in routine or normal use, the main sheet is automatically in the "free to run" position and instead of a capsizing, the main is started, relieving the turning moment, thus preventing a ducking or possible loss of life. An abnormal motion must be used to cleat the main, any normal motion relieving the main. Holding the main in the hand causes the self-energizing force to the main sheet to release the wedge, allowing the main sheet to be ready to run free if the operator so desires. The lever operated wedge action is so quick that the capsizing hazard is greatly reduced.

As shown in the drawings, the wedge is only a fraction of an inch from jamming the main sheet, even though the main sheet is free to run. This cleat is in fact believed to be the safest main sheet cleat device in existence. The cleat of the present invention is capable of different uses as, for example, is readily adapted for use on jibsheets, halyards, lanyards, boomjacks, and centerboard pennants, with the same instantaneous micrometer control.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to an actual practice, if desired.

What is claimed is:

1. In a sailboat of the type that includes a mast, a jib, a main sail, a boom, and a main sheet, the improvement consisting in providing a sheet cleat which comprises a pair of L-shaped brackets secured to the lower surface of said boom intermediate the ends thereof, said brackets each including a horizontally disposed section and a depending vertically disposed section, a rod supported by the vertically disposed sections of said bracket, a support member including an upwardly disposed enlarged top portion interposed between the vertically disposed sections of said brackets and mounted on said rod, a vertically disposed wall portion depending from said top portion, a pulley journaled on said wall portion and said pulley having an annular groove in the outer periphery thereof for engaging said main sheet, a lever including a pair of spaced parallel generally triangular plates pivotally connected to said wall portion, a pair of spaced apart pins extending between the lower portions of said plates, and a portion of said main sheet projecting between said plates and extending between said last named pins, a wedge movably mounted contiguous to the lower surface of the top portion of said support member, and said wedge including a tapered portion having teeth on the lower surface thereof for selectively engaging the portion of the main sheet that is engaging the groove of the pulley, there being a slot in the lower portion of the wedge, a stud connected to the upper ends of said plates and said stud engaging the slot in said wedge, a holding element connected to the wall portion of said support member, and a spring member having a portion thereof affixed to said wedge and said spring member including a section having an offset portion defining a shoulder for selectively engaging said holding element.

2. A cleat for a sheet comprising a pair of brackets each including a horizontally disposed section and a depending vertically disposed section, a rod supported by the vertically disposed sections of the brackets, a support member including an upwardly disposed enlarged top portion interposed between the vertically disposed sections of said brackets and mounted on said rod, a vertically disposed wall portion depending from said top portion, a pulley journaled on said wall portion and said pulley having an annular groove in the outer periphery thereof for engagement by said sheet, a lever including a pair of spaced parallel generally triangular plates pivotally connected to said wall portion, a pair of spaced apart pins extending between the lower portions of said plates and a portion of the sheet projecting between said plates and extenidng between said last named pins, a wedge movably mounted contiguous to the lower surface of the top portion of said member, and said wedge including a tapered portion having teeth on the lower surface thereof for selectively engaging the portion of the sheet that is in the groove of pulley, there being a slot in the lower portion of said wedge, a stud connected to the upper ends of said plates and said stud engaging the slot in said wedge, a holding element connected to the wall portion of said support member, and a spring member having a portion thereof affixed to said wedge and said spring member including a section having an offset portion defining a shoulder for selectively engaging said holding element.

No references cited.

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