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RUDDER AND TILLER FOR SAILING SURFBOARD

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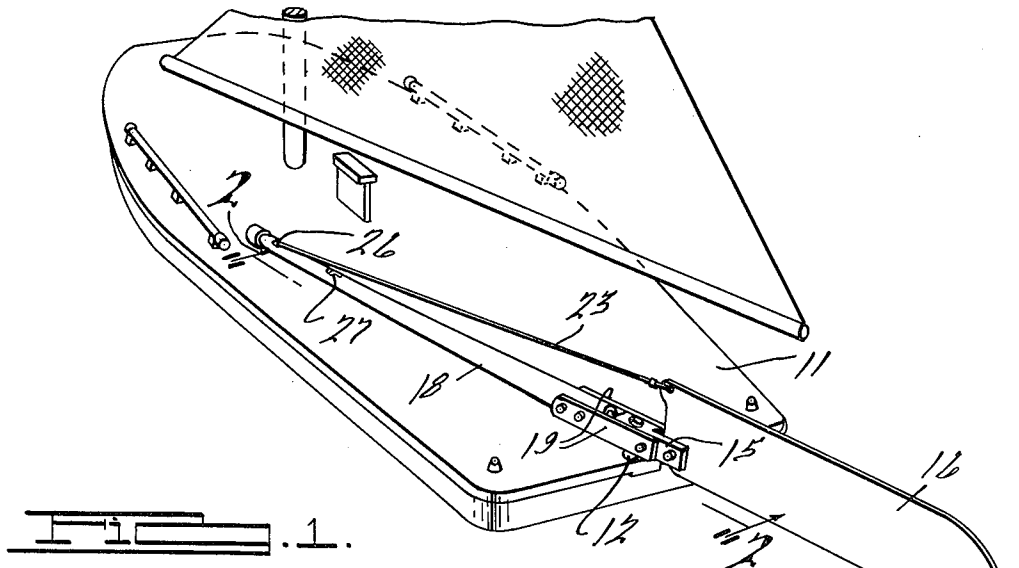


FIG. 1.

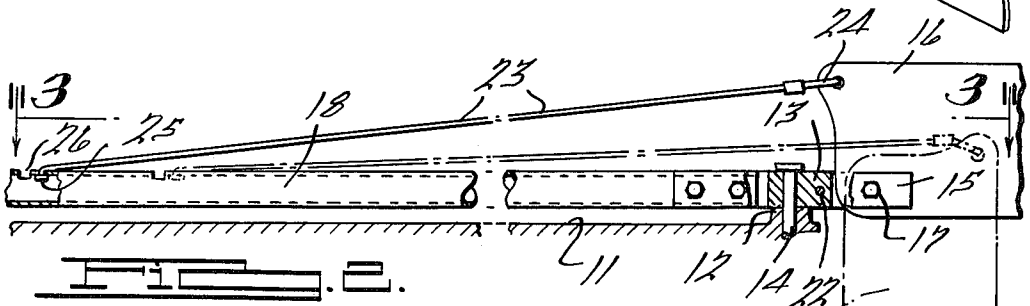


FIG. 2.

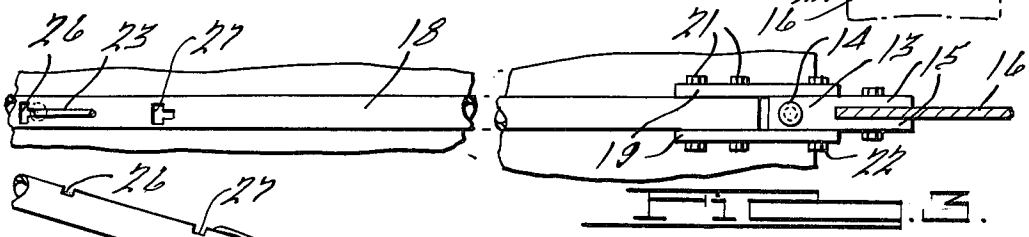


FIG. 3.

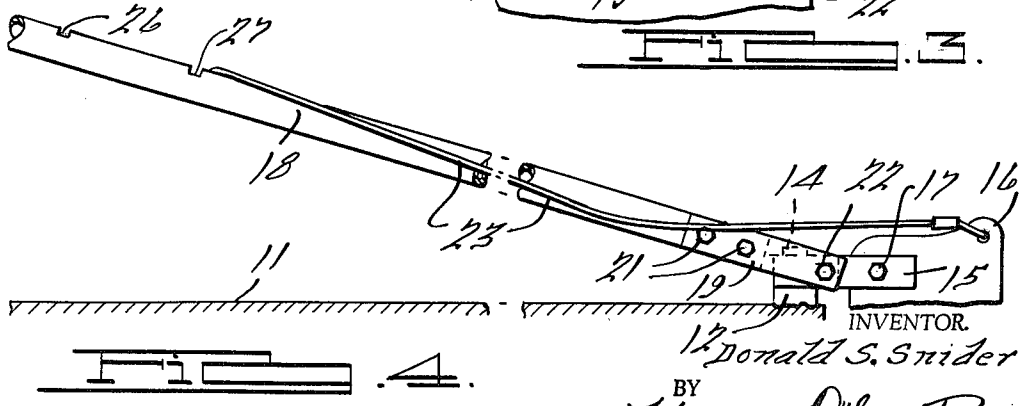


FIG. 4.

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RUDDER AND TILLER FOR SAILING SURFBOARD

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This invention relates to rudders and tillers for sailing surfboards, and more particularly to retractable rudders for use on sailing vessels of this type which operate in shoal waters.

It is an object of the present invention to provide a novel and improved rudder and tiller mechanism for sailing surfboards which will permit retraction of the rudder when it strikes the bottom or other obstruction in shallow water while sailing, and will automatically return to its normal position after clearing the obstruction, but which nevertheless may be held in a retracted position so that the craft may be launched rearwardly from a beach.

It is another object to provide an improved rudder and tiller mechanism of the above nature which is of extremely economical, simple and reliable construction, requiring relatively few extra parts, and which is not of a bulky or space-consuming character.

It is a further object to provide an improved retractable rudder construction having these characteristics, which may be operated in a simple manner by the helmsman while in his normal position and will not interfere with the normal functioning and movement of the tiller.

Other objects, features and advantages of the present invention will become apparent from the subsequent description, taken in conjunction with the accompanying drawing.

In the drawing:

FIGURE 1 is a perspective view of a sailing surfboard showing the rudder in its retracted position;

FIGURE 2 is a cross-sectional view in elevation taken along the line 2—2 of FIGURE 1 and showing the connection of the cable to the tiller;

FIGURE 3 is a top plan view taken along the line 3—3 of FIGURE 2 and showing the arrangement of the parts; and

FIGURE 4 is a view similar to FIGURE 2 but showing the slack in the cable when the tiller is tilted upwardly with the rudder in its lower position.

In general terms, the illustrated embodiment of the invention comprises a pedestal adjacent the stern of a sailing surfboard on which is mounted a block adapted to pivot on a vertical axis. The portion of the block extending rearwardly from the pedestal is bifurcated, and a blade-like rudder is pivoted thereto on a horizontal pivot so as to be swingable between retracted (upper) and normal (lower) positions. The tiller is also provided with a bifurcated end which is pivoted to the block forwardly of the rudder pivot, so that horizontal rocking of the tiller will swing both block and rudder on the pedestal pivot, while the tiller may still be rocked vertically about its pivotal connection with the block. A cable is attached at one end to the upper portion of the rudder and has a head at the other end adapted to be received by either of two T-shaped slots in the upper surface of the tiller. The forward of these slots is so positioned that when it retains the cable head, the rudder will be held in a fully retracted position, while the other slot will permit sufficient slack in the cable to enable the rudder to stay in its lower or steering position.

Referring more particularly to the drawings, the sailing surfboard is indicated at 11, and a pedestal 12 is formed adjacent the stern thereof, as seen in FIGURES 1 and 2, the pedestal rising a short distance from the deck surface and having a flat top. A block 13 is mounted on the

pedestal 12, being pivoted thereto by a headed pin 14. The block 13 is of generally rectangular shape but has a bifurcated portion 15 extending rearwardly therefrom.

A rudder 16 is pivotally secured to the bifurcated portion 15 of the block 13 by a pivot 17. The rudder 16 is preferably formed of aluminum or other material having a specific gravity greater than 1 and is of flat blade-like shape. The upper forward portion of the rudder 16 is disposed within the slot formed by the bifurcated block portion 15, this slot having sufficient depth to permit pivoting of the rudder in the manner described below. The pivot 17 has a horizontal axis, thus extending at right angles to the vertical axis of the pivot 14. The bifurcated portion 15 of the block 13 extends rearwardly from the stern of the surfboard 11, so that the rudder 16 may swing between a lower or steering position shown partially in dot-dash lines in FIGURE 2, and an upper or retracted position shown in solid lines in that figure. When in the steering position, the long axis of rudder 16 will be approximately vertical, and it will extend a substantial distance below the bottom of surfboard 11. When in its upper or retracted position, rudder 16 will be above the deck level of surfboard 11.

A tiller 18 is provided, the tiller being shown as having a hollow or tubular shape with a pair of arms 19 secured to the after end thereof and extending rearwardly therefrom. The spacing between the arms 19 is such that they are on opposite sides of block 13, as seen in FIGURE 3, and overlap the portion thereof forwardly of the bifurcated portion 15. The arms 19 are secured to the tiller 18 by bolts 21, and are pivoted to the block 13 by a horizontal pivot 22, this pivot extending through the block 13 between the pivot pin 14 and the bifurcated portion 15. The pivot 22 will thus permit the tiller 18 to be swung vertically between such positions as those shown in FIGURES 2 and 4, respectively. Horizontal rocking movement of the tiller 18, however, regardless of its vertical position, will cause rocking movement of the block 13 about the pivot 14, and the rudder 16 will rock horizontally with the block 13.

A cable 23 is secured at one end 24 to the upper corner of the rudder 16 opposite that which has the pivot 17, this corner having a slight extension as shown in FIGURES 1 and 2. The other end of the cable 23 is provided with an enlarged head 25. Two T-shaped slots 26 and 27 are provided in the tiller 18 as seen in FIGURE 3. Each of these slots has a cross portion adapted to receive the head 25 and a rearwardly extending narrow portion so that the head 25 will be retained therein. The slot 26 is located a substantial distance forwardly of the slot 27, and the locations of these slots relative to the length of the cable 23 is such that the slot 26 will be used when it is desired to hold the rudder in its upper or retracted position, whereas the slot 27 will be used when it is desired that the rudder be in its lower or normal steering position. The width of the rudder 16 is much less than the length of cable 23, and the angle between the cable 23 and the tiller 18 when the head 25 is in the slot 26 will be slight, as seen in FIGURE 2, thus occupying a minimum of space. When the tiller is in its normal position, the head 25 of the cable may be inserted in the slot 26 only by pulling on the cable so as to swing the rudder 16 upwardly into its retracted position, as shown in solid lines in FIGURES 1 and 2. After the head 25 is inserted in slot 26, the moment arm of the rudder 16 about the pivot 17 will tend to tension the cable, thus locking the head 25 in the slot 26. The tiller 18 may be easily held in its horizontal position, either by its own weight or by a person launching the boat, because of the great mechanical advantage created by the relative dimensions of the tiller and rudder described above. Even if the tiller 18 is

tilted slightly upwardly, the outer end of the rudder 16 will not drop an appreciable amount.

In operation, therefore, when it is desired to launch the surfboard 11, the cable 23 will be pulled, swinging the rudder 16 upwardly into its solid line position in FIGURE 2, and the head 25 will be inserted in the slot 26. Alternatively, the tiller 18 may be swung upwardly to an approximately vertical position, the head 25 inserted in slot 26, and the tiller returned to its horizontal position, pulling the rudder up. The boat may then be launched rearwardly, the rudder 16 being held above the level of the surfboard deck and thus not interfering with rearward movement of the surfboard. During this movement, the person launching the boat may hold the tiller, if desired, or in some cases the weight of the tiller itself may be sufficient to hold it in position, counteracting the weight of the rudder 16.

After the surfboard has been launched into water deep enough to drop the rudder, the head 25 will be removed from the slot 26 and inserted in the slot 27. This will create sufficient slack in the cable 23 to allow the rudder 16 to drop into its normal steering position through the force of gravity, as seen in dot-dash lines in FIGURE 2, and in solid lines in FIGURE 4, the rudder swinging about the pivot 17. The tiller 18 may then be used in the normal manner, its horizontal movement causing swinging of the rudder 16 to steer the surfboard, while vertical movement will still be permitted without interference by the retracting mechanism, as seen in FIGURE 4.

Should the rudder strike the bottom or other obstruction, it will swing counterclockwise about the pivot 17 from its dot-dash line position in FIGURE 2 so as to clear the obstruction, the slack in the cable 23 increasing during this movement. Should the obstruction be cleared, the rudder will return by gravity to its normal steering position. It should be observed that this automatic return of the rudder 16 to its normal steering position will be effected regardless of the amount of retractive rudder swinging which may be necessary to clear the obstruction. It will, therefore, be apparent that full steering control of surfboard 11 will be available to the maximum extent possible, without the necessity of adjusting the cable 23 or any other portions of the retracting mechanism. At the same time, damage to the rudder and its allied mechanism due to the striking of obstructions will be averted.

While it will be apparent that the preferred embodiment of the invention disclosed is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claims.

What is claimed is:

1. In a rudder and tiller for a sailing surfboard, the combination including a member mounted on a substantially vertical pivot adjacent the stern of the surfboard, a rudder pivoted to said member rearwardly of said vertical pivot and swingable between an upper retracted position and a lower steering position, a tiller, a horizontal pivot connecting said tiller with said member, and releasable means for holding said rudder in its upper retracted position.

2. In a rudder and tiller for a sailing surfboard, the combination including a member mounted on a substantially vertical pivot adjacent the stern of the surfboard, a rudder pivoted to said member rearwardly of said vertical pivot and swingable between an upper retracted position and a lower steering position, a tiller, a horizontal pivot connecting said tiller with said member, a cable having one end secured to said rudder at a point spaced rearwardly of the pivot connection of said rudder with said member when the rudder is in its lower position, and means for detachably securing the upper end of said cable to said tiller at either of two spaced locations, said locations being so disposed relative to the length of said cable as to hold said rudder in its upper position when the cable is secured at one of said locations and permit the rudder to be in its lower position when the cable is secured at said other location.

3. In a combined rudder and tiller for sailing surfboards a pedestal adjacent the stern of said surfboard, a block pivotally mounted on said pedestal for movement about a vertical axis, a bifurcated portion on said block extending rearwardly from said pivot, a blade-like rudder having an upper portion disposed within said bifurcated block portion and secured thereto by a horizontally disposed pivotal connection which permits the rudder to swing between an upper retracted position and a lower steering position, an elongated tiller having arms at its after end extending on opposite sides of said block, a horizontally disposed pivotal connection between said arms and said block, a cable secured at one end to the upper portion of said rudder at a point spaced rearwardly from the pivotal connection of said rudder with said block, and means for detachably connecting the other end of said cable to said tiller at longitudinally spaced forward and after locations, said locations being so disposed relative to the length of said cable as to hold said rudder in its upper position when the cable is attached at the forward location and permit the rudder to hang in its lower position when the cable is attached at the after location.

4. In combination with a sailing surfboard, a combined rudder and tiller including a pedestal adjacent the stern of said surfboard, a block pivotally mounted on said pedestal for movement about a vertical axis, a bifurcated portion on said block extending rearwardly from said pivot, a blade-like rudder having an upper portion disposed within said bifurcated block portion and secured thereto by a horizontally disposed pivotal connection which permits the rudder to swing between an upper retracted position and a lower steering position, a normally horizontal elongated tiller having arms at its after end extending on opposite sides of said block, a horizontally disposed pivotal connection between said arms and said block, a cable secured at one end to the upper portion of said rudder at a point spaced rearwardly from the pivotal connection of said rudder with said block, and means for detachably connecting the other end of said cable to said tiller at longitudinally spaced forward or after locations, said locations being so disposed relative to the length of said cable as to hold said rudder in its upper position when the cable is attached at the forward location and permit the rudder to hang in its lower position when the cable is attached at the after location.

5. In a combined rudder and tiller for sailing surfboards, a pedestal adjacent the stern of said surfboard, a block pivotally mounted on said pedestal for movement about a vertical axis, a bifurcated portion on said block extending rearwardly from said pivot, a blade-like rudder having a specific gravity greater than 1, said rudder having an upper portion disposed within said bifurcated block portion and secured thereto by a horizontally disposed pivotal connection which permits the rudder to swing between an upper retracted position and a lower steering position, an elongated tiller having arms at its after end extending on opposite sides of said block, the width of said rudder being substantially less than the length of said tiller, a horizontally disposed pivotal connection between said arms and said block between said vertical pivot and said bifurcated portion, a cable secured at one end to the upper portion of said rudder at a point spaced rearwardly from the pivotal connection of said rudder with said block, an enlarged head at the other end of said cable, and a pair of T-shaped slots in said tiller at longitudinally spaced locations, the slots being capable of detachably retaining said headed cable end, the positions of said slots being such that when the cable head is retained by the forward slot, said rudder will be held in its upper position and when the cable

head is retained by the after slot, the rudder will be permitted to hang in its lower position.

6. In combination with a sailing surfboard, a combined rudder and tiller mechanism including a pedestal adjacent the stern of said surfboard, a block pivotally mounted on said pedestal for movement about a vertical axis, a bifurcated portion on said block extending rearwardly from said pivot, a blade-shape rudder having a specific gravity greater than 1, said rudder having an upper portion disposed within said bifurcated block portion and secured thereto by a horizontally disposed pivotal connection which permits the rudder to swing between an upper retracted position and a lower steering position, a normally horizontal elongated tiller having arms at its after end extending on opposite sides of said block, the width of said rudder being substantially less than the length of said tiller, a horizontally disposed pivotal connection between said arms and said block between said vertical pivot and said bifurcated portion, a cable secured at one end to the upper portion of said rudder at a point

spaced rearwardly from the pivotal connection of said rudder with said block, an enlarged head at the other end of said cable, and a pair of T-shaped slots in said tiller at longitudinally spaced locations, the slots being capable of detachably retaining said headed cable end, the positions of said slots being such that when the cable head is retained by the forward slot, said rudder will be held in its upper position and when the cable head is retained by the after slot, the rudder will be permitted to hang in its lower position.

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