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Newman

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[54] **CATAMARAN Rrighting APPARATUS AND METHOD**

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[52] **U.S. Cl.** **114/39,** 114/61, 114/90

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

[58] **Field of Search** 114/39, 61, 90, 100, 103, 114/108, 109

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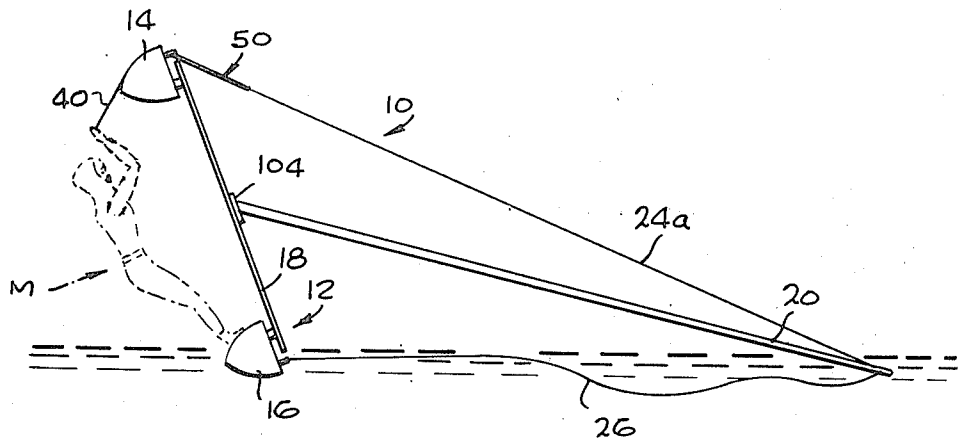
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[57] **ABSTRACT**

A device for righting a capsized catamaran boat of the type that has a mast which is free to pivot in any direction but which is normally held upright by three cables extending from high on the mast to respectively the front of the boat and somewhat rearwardly to each side of the boat. The righting apparatus permits a crewman at a capsized boat to elongate the side cable (shroud cable) that is out of the water and to also move the point of attachment of the lower end of the cable rearward (aft), to thereby allow the hull that is out of the water to tip away from the mast so that its weight aids in righting the boat.

14 Claims, 12 Drawing Figures



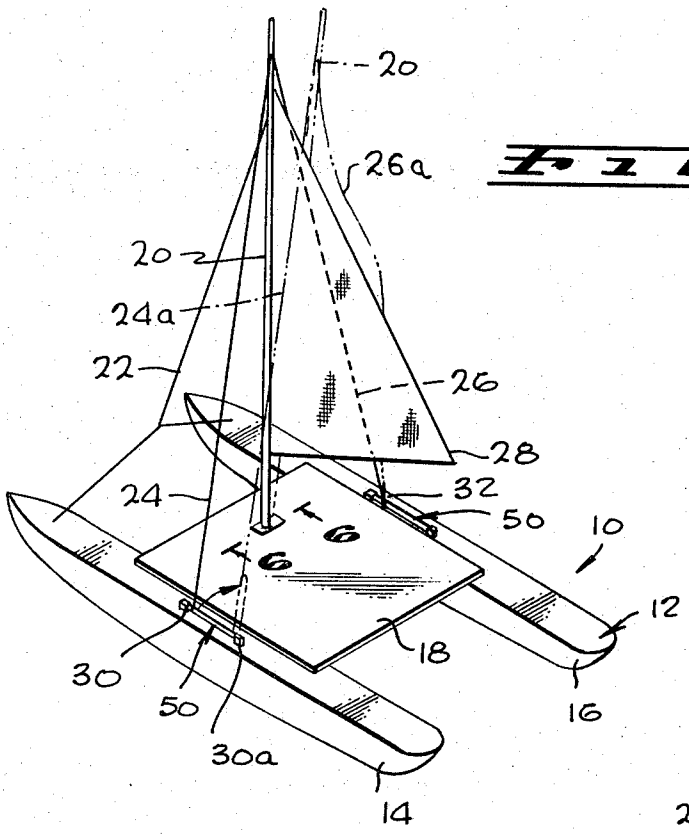


Fig. 1

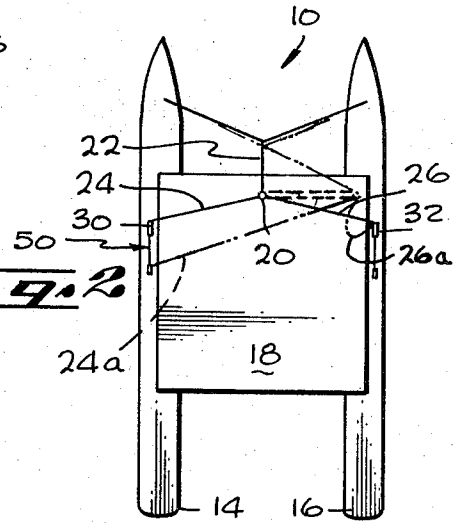


Fig. 2

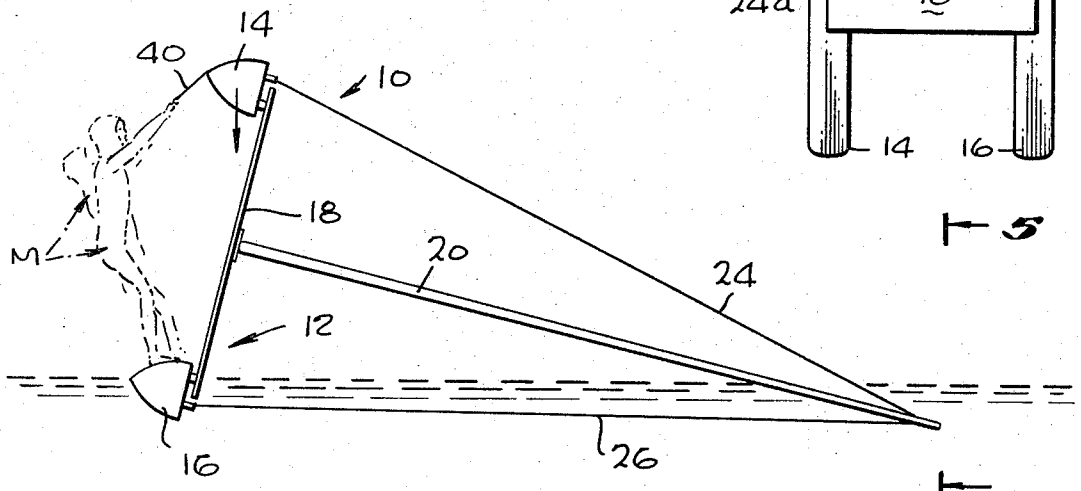


Fig. 3

Fig. 4

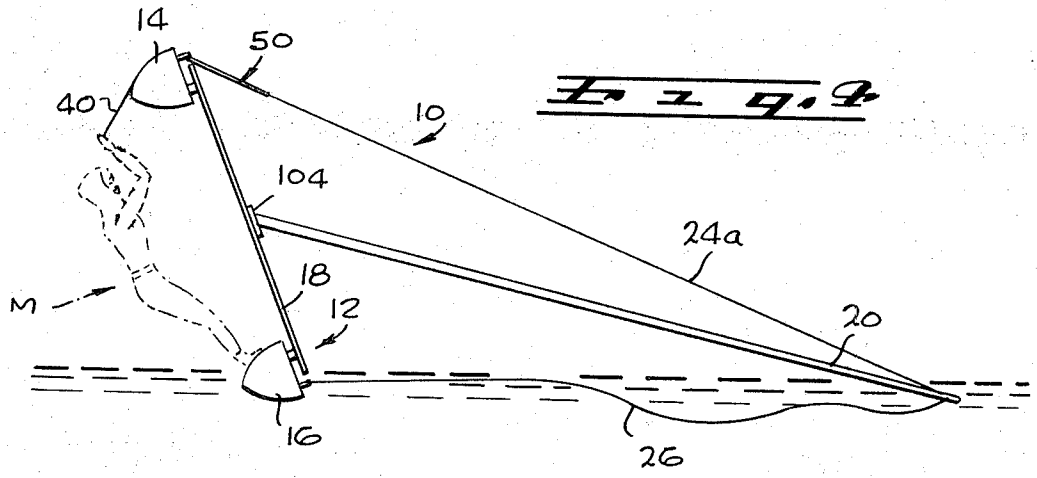


Fig. 5

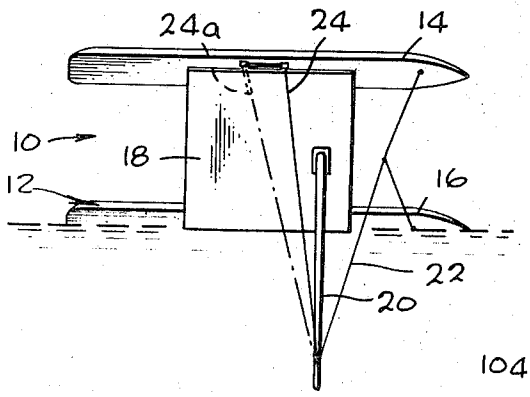


Fig. 7

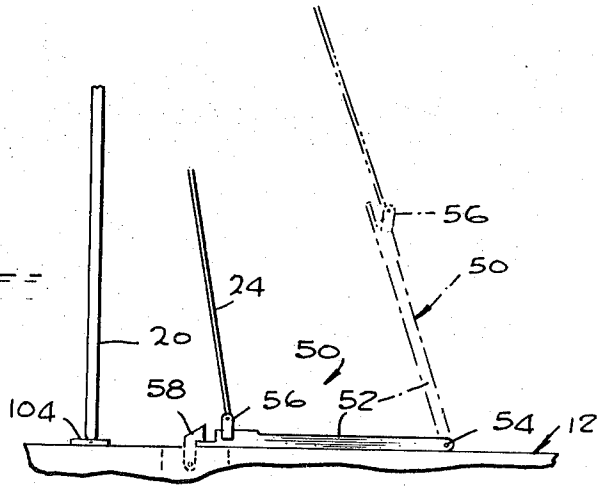


Fig. 6

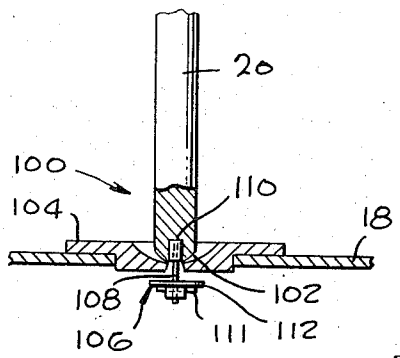


Fig. 8

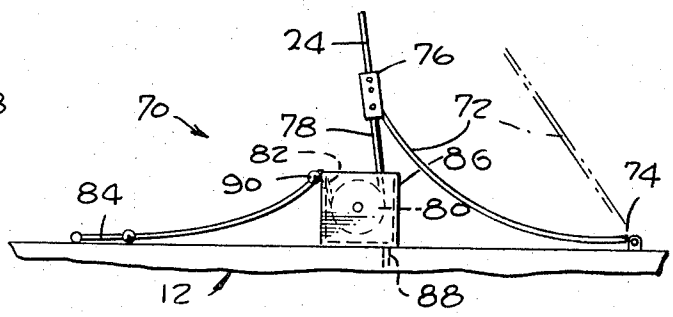


Fig. 9

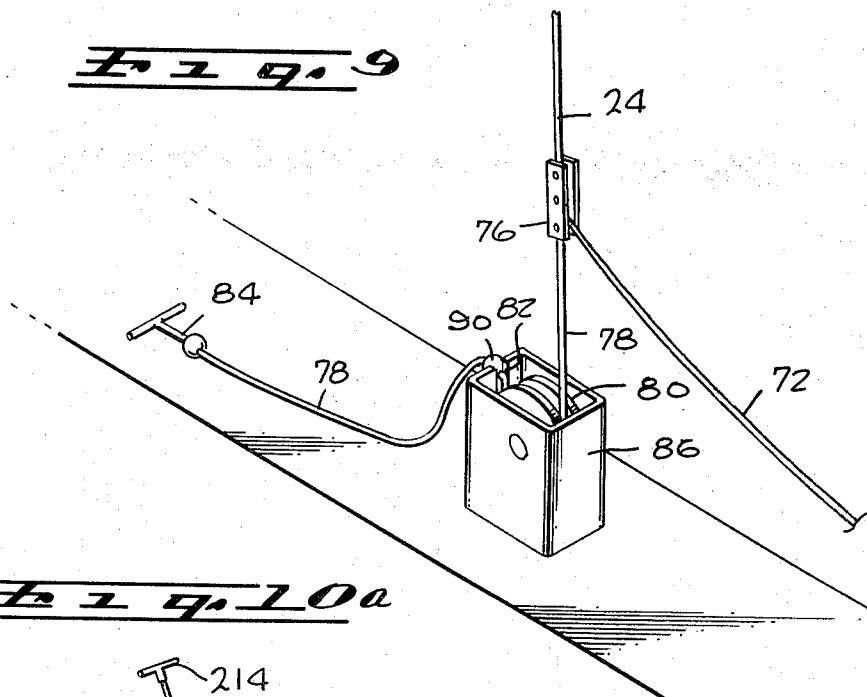


Fig. 10a

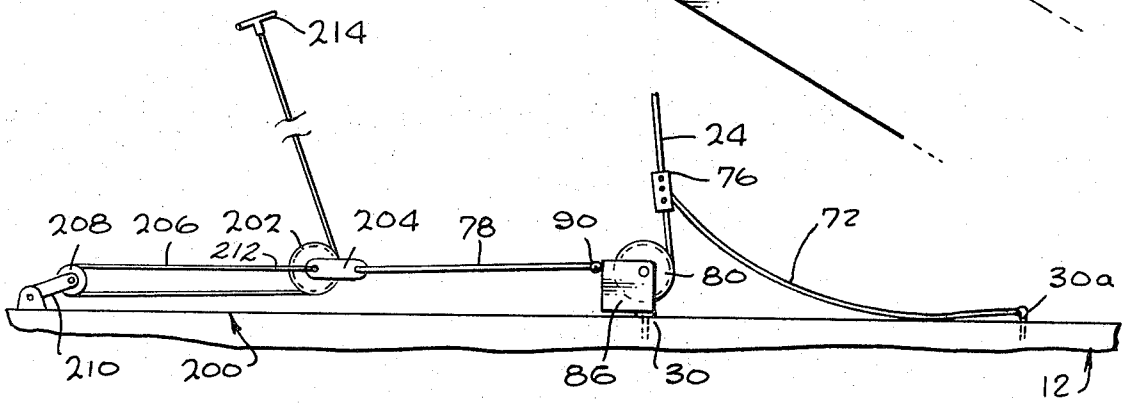


Fig. 10b

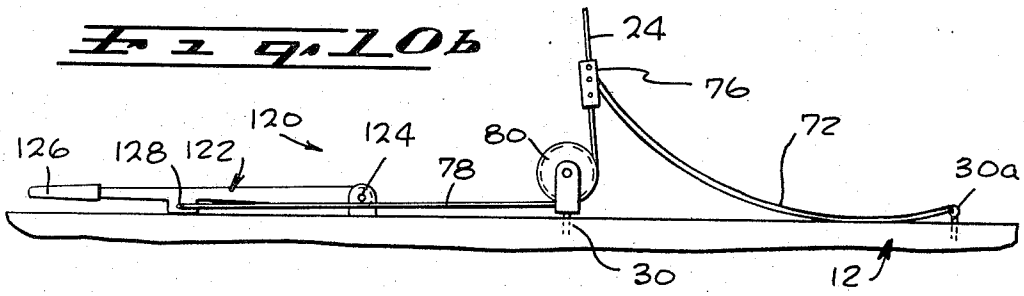
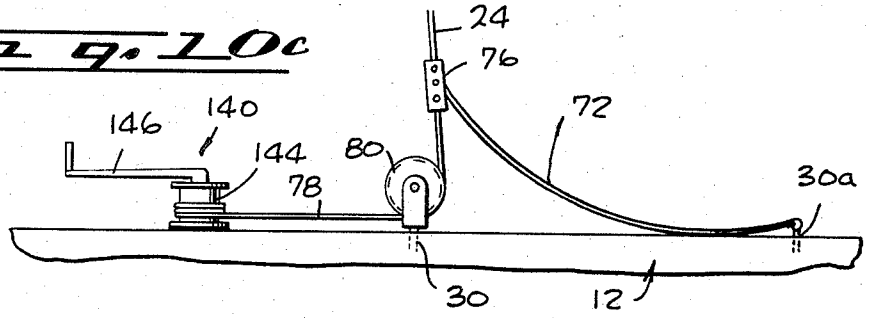


Fig. 10c



CATAMARAN Rrighting APPARATUS AND METHOD

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an improvement in a multihull boat, which facilitates the righting of the boat when it capsizes.

2. Description of the Prior Art

Catamaran boats are often subject to capsizing, particularly because of high speeds and the tendency to sail with one hull well out of the water.

Once a catamaran has capsized onto its side hull, with its mast dragging in the water, a very difficult and potentially hazardous situation is created. The boat is unmanageable in the capsized position and may be swept onto shore or into the path of other boats. Usual righting operation which the crew might conduct are very difficult and often impossible. In very cold water or heavy seas or shark infested areas, the inability of the crew to promptly right a capsized catamaran creates a potentially lethal situation. For larger size catamarans, such as eighteen foot and twenty-two foot and larger catamarans, all of the righting problems are greatly increased, and the safety problems involved have greatly limited the marketing of larger catamarans.

The crew usually rights the boat by attaching a righting line to the uppermost hull (the hull out of the water) and leaning backward while standing on the lower hull. In order for the crew to apply enough righting moment for even a small boat, they normally must have substantial weight and must be athletic enough to lean very far backward. In most cases, a single crewman cannot right the boat, and he must await help from another boat. A relatively simple device that facilitated righting of a catamaran or multihull boat would not only make sailing less troublesome and hazardous, but would also make practical the safe use of larger sizes of catamarans. Such larger boats often permit greater speed, but have heretofore had the disadvantage of being extremely difficult or impossible to right after capsizing.

SUMMARY OF THE INVENTION

In accordance with one embodiment of the present invention, apparatus is provided which is useful on a typical catamaran boat to facilitate the righting of the boat after it has capsized. The typical catamaran boat includes a mast with its lower end positioned in a universal mount on the deck and with its upper end held upright by three cables, including a stay cable extending forwardly and a pair of side cables, usually called shroud cables, extending to either side of the boat and a small distance rearward or aft of the mast. The righting apparatus includes a device for lengthening the shroud cable that lies out of the water on a capsized boat, to permit the upper hull to be easily moved to a position where its weight can aid in the righting of the boat. The device not only lengthens the shroud cable, but also moves its hull attachment point to a position aft of the original attachment point. The purpose of such movement is to prevent the mast from tipping forwardly, instead of laterally, with respect to the hulls. Such aft movement of the attachment point of the shroud cable prevents the partially released mast from collapsing forward, thus preventing further incapacitation of the boat during the righting process. The present invention makes it practical to right capsized catamarans with relative ease, ordinarily with a single crewman.

The novel features of the invention are set forth with particularity in the appended claims. The invention will best be understood from the following description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a catamaran boat constructed in accordance with the present invention, showing it in a normal sailing position;

FIG. 2 is a plan view of the boat of FIG. 1;

FIG. 3 is a front elevation view of the boat of FIG. 1, showing its position on the water after capsizing;

FIG. 4 is a view similar to FIG. 3, but showing the boat after deployment of the righting apparatus of the present invention;

FIG. 5 is a view taken on the line 5—5 of FIG. 3;

FIG. 6 is a partial sectional view taken along the line 6—6 of FIG. 1;

FIG. 7 is a partial side elevation view of the boat of FIG. 1, showing some of the details of the righting apparatus thereof;

FIG. 8 is a partial side elevation view of a righting apparatus constructed in accordance with another emobodment of the invention;

FIG. 9 is a partial perspective view of the righting apparatus of FIG. 8;

FIG. 10*a* is a partial side elevation view of a modified form of the righting apparatus of FIG. 8;

FIG. 10*b* is a partial side view of another modified form of the righting apparatus of FIG. 8; and

FIG. 10*c* is a partial side view of still another modified form of the righting apparatus of FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a typical catamaran boat 10 which includes a mast 20 and a lower boat portion 12 formed by a pair of spaced hulls 14, 16 and a deck structure 18 for joining them. It should be understood that in some catamarans the deck structure 18 may be the top surface of a cabin or other center structure. The mast 20 is held upright on the lower boat portion 12 by three cables that extend downwardly from the upper portion of the mast. The three cables are often referred to as the stay cable 22 which extends to the forward end of the lower boat portion, and a pair of shroud cables 24, 26 which extend to either side of the boat and to positions rearward, or aft, of the mast. The lower ends of the three cables 22–26 may be tied directly to the hulls 14, 16, although it is also possible to make connections to the decking 18. A sail structure 28 is mounted on the mast 20 and can pivot thereon to a variety of positions between the two shroud cables 24, 26. Of course, it should be noted that the items 22–26 referred to as cables may be ropes or other devices that can withstand tension to hold up the mast.

The locations 30, 32, where the lower ends of the shroud cables 24, 26 are attached to the lower boat portion, are ordinarily chosen as a compromise between mast stability considerations and other sailing considerations. Attachment locations far aft of the mast 20 would be desirable in order to prevent the mast

from tipping forwardly. However, in practice the rearward attachment of the shrouds is limited in order to allow clearance for pivoting of the sail **28** within the widest range of positions in order to permit the attainment of the greatest possible sailing speed. It may be noted that additional cables may be utilized to keep the mast upright, but the two shroud cables **24, 26** normally provide the main support against forward tipping of the mast and also determine the limits within which the sail **28** can be positioned.

The catamaran boat **10** is capable of high speeds, and there is often a tendency to allow the boat to sail in a tipped condition with one hull out of the water. For these reasons and because of sudden wind gusts, excessive tipping leading to capsizing is a common occurrence. The most common condition immediately after capsizing is illustrated in FIG. **3,** wherein the boat has rotated slightly more than 90° from its upright position, and with one hull **16** and the top of the mast **20** lying in the water, while another hull **14** lies out of the water. The mast **20** is constructed so that it is buoyant, in order to minimize the possibility of the boat turning to a complete upside-down or "turtle" position in the water. For this same purpose a float, such as a styrofoam ball, may be mounted at the upper end of the mast to supplement the buoyancy of the mast alone.

Righting of a boat that is in the condition shown in FIG. **3** has been accomplished traditionally by tying a righting line **40** to the upper hull **14.** Ordinarily several members of the crew stand on the lower hull **16** and lean backward holding the line **40** so that the weight of their bodies provides a moment that tends to rotate the boat about the lower hull **16** to an upright position. However, even relatively small sixteen foot boats are difficult to right in this manner. One reason is that the weight of the upper hull **14** and much of the decking **18** or other center structure provide a moment about the lower hull **16** which tends to resist righting of the boat.

In accordance with the present invention, a device is provided which enables the boat to be changed from the configuration shown in FIG. **3** to the configuration shown in FIG. **4,** to minimize the crew weight and righting moment which must be applied to the boat in order to move it from a capsized condition to an upright position or to permit it to right itself without the use of the weight of the crew. The righting apparatus performs two functions; namely, lengthening the out-of-the-water shroud cable **24** to the length shown at **24***a*, and moving the point of attachment **30** of that shroud cable rearward to the location **30***a*. The lengthening of the out-of-the-water shroud cable **24** permits the lower boat portion **12** to pivot with respect to the mast which does not appreciably change its position in the water. In this manner the lower boat portion **12** undergoes the main change in position, by pivoting closer to the position shown in FIG. **4.** The lower boat portion **12** may not automatically pivot to the position shown in FIG. **4,** but a crewman M normally can produce such pivoting by pulling on line **40** with only moderate effort. With the boat in the position of FIG. **4,** the upper hull **14** lies on a side of the lower hull **16** opposite the mast, which results in the weight of the upper hull tending to help in the righting of the boat. As a consequence, a smaller or no effort and righting moment must be applied by the crewman M to right the boat.

The attachment point **30** of the upper shroud **24** is moved rearwardly to the position **30a** to prevent forward collapsing of the mast **20** which would otherwise occur either while the mast is in the water or as the boat begins to right or reaches a righted position. When the upper shroud cable **24** is lengthened, it allows the mast **20** to pivot not only towards the other side of the boat, but also to pivot forwardly. Thus, if the attachment point were not moved, it would be possible for the mast **20** to pivot freely laterally and forward to collapse in a well forward position.

Once the mast has collapsed, especially in a forward position, it is difficult to impossible to reerect it, because of the weight of wet sails and the mast itself and the usual lack of standing positions from which sufficient leverage can be applied to the mast. It is difficult enough to erect the mast alone, without sails, under the best of conditions. If the mast were permitted to collapse during the righting process, the boat would ordinarily become at least a temporary derelict often requiring external rescue operations to bring it to shore.

The amount of lengthening of the upper shroud **24** determines the amount by which the upper hull **14** can be moved in free rotation of the lower boat portion before actual lifting of the mast begins. A moderate amount of lengthening will aid considerably in righting the boat, even if the position of the upper hull **14** does not fully move past or only slightly moves past the center of the lower hull **16.** It is also possible to provide a great enough lengthening so that the boat will right itself. After the boat is righted, it can be sailed, although quite inefficiently, with the mast tilted away from an upright position. However, it is generally desirable to return the mast to its upright position, by shortening the shroud that was earlier lengthened and by reattaching the lower end of the shroud to its original attach point.

The righting apparatus **50,** which is shown in greater detail in FIG. **7,** includes a rigid arm **52** with a rearward end **54** pivotally mounted on the lower boat portion **12** and with a forward end having an eye **56** that is attached to the lower end of the original shroud cable **24.** The forward end of the arm **52** is normally held down to the lower boat portion by a latch **58.** When the latch **58** is released, tension in the shroud cable **24** lifts it up and causes the arm **52** to pivot to the position shown at **24***a*. In this position, the shroud cable **24***a*, which now includes the original shroud cable **24** and the arm **52,** has been lengthened by the length of the arm **52,** and has been moved aft to the pivot point of arm **52.** After the boat has been righted, the mast can be returned to its original upright position by pivoting the arm **52** back to its original position and reengaging the latch **58.** The provision of a stiff pivoted arm **52** facilitates the manipulation of the shroud cable **24** to its original latched position.

It should be understood, as is indicated in FIG. **2,** that in addition to the righting apparatus **50** on hull **14,** a duplicate righting apparatus will ordinarily be provided on the other hull **16** so that, if the catamaran capsizes in the other direction with hull **14** in the water, the duplicate righting apparatus on hull **16** can be actuated so as to right the boat.

FIGS. **8** and **9** illustrate another righting mechanism **70** which facilitates the lengthening of the shroud cable that is out of the water and which moves its attachment point aft. The mechanism **70** includes an additional cable length **72** with one end **74** attached to the lower boat portion aft of the attachment point of the original

shroud cable 24. The additional cable 72 has a forward end attached to a shroud adjuster coupling 76 that is attached to the lower portion of the original shroud cable 24. When the lower end of the shroud cable 24 is released, its length is increased by the length of the additional cable 72, and its attach point is moved aft to the attach point 74.

The coupling 76 may be of a conventional type comprising a bracket having two parallel plates having a plurality of aligned holes through which pins are selectively placed to serve as linkage points for the various cables which are attached to the coupling. The coupling 76 which is attached to the shroud cable 24 is held down by an operating cable 78 which extends around a pulley 80, through a catch 82, and forwardly to a handle 84. The pulley 80 is rotatably mounted on a catch block 86 which is tied down to the lower boat portion by a swivel fastener 88. The operating cable 78 has a ball catch 90 mounted thereon which is normally held by the catch 82 of the catch block. Engagement of the ball 90 with the catch 82 prevents the operating cable 78 from moving along the pulley 80 to lengthen the shroud cable 24. However, when a crewman releases the ball 90 from the catch 82, the operating cable 78 is free to move around the pulley and thereby release the shroud cable 24, so that the shroud cable can move upwardly until it is held only by the additional cable 72.

After the boat has been righted, a crewman normally operates the righting mechanism 70 to return the mast to an upright position. This is accomplished by the crewman grasping the handle 84 and pulling it upwardly. When the handle 84 is pulled, the operating cable pulls down the coupling 76 and the shroud 24. When the operating cable has been pulled far enough so that the ball 90 passes the catch 82 the ball 90 can be reengaged with the catch 82 so that the shroud 24 is held in its original position.

FIG. 10*a* illustrates a modified form of righting mechanism, similar to that illustrated in FIGS. 8 and 9, except that it includes a pulley arrangement 200 for providing a mechanical advantage to facilitate the operation of the mechanism. The pulley mechanism 200 includes a movable pulley 202 coupled by a bracket 204 to the operating cable 78 and coupled by a force increasing cable 206 to another pulley 208. The pulley 208 is pivotally mounted on a bracket 210 that is fastened to the deck of the boat. The cable 206 has one end 212 fastened to the bracket 204, and the cable 206 extends around the pulley 208, around the other pulley 202, and extends through a handle 214. When a crewman pulls rearwardly or with an upward directional component on the handle 214, he obtains a mechanical advantage in applying tension to the operating cable 78 to move the mast back to an upright position. This arrangement is especially useful for larger boats, where large tensions may have to be applied to the shroud cable in order to return the mast to its original upright position. Of course, multiple pulleys may be utilized to obtain even greater mechanical advantage.

FIG. 10b illustrates yet another righting mechanism 120 which is arranged to provide a mechanical advantage and to provide a self-locking toggle action. The mechanism 120 includes a lever 122 pivotally mounted at 124 on the lower boat portion and having a handle 126 which can be moved by a crewman. The mechanism includes an operating cable 78 which extends around a deck-mounted pulley 80 and which has one end connected to a coupling 76 that holds the shroud cable 24. The cable 78 has another end 128 which is connected to the lever 122 at a location inbetween the lever pivot point 124 and the lever handle 126. When a crewman wishes to release the shroud cable 124 to right the boat, he merely lifts the lever handle 126 to release the operating cable 78 to allow lengthening of the shroud cable 24. When the crewman wishes to retighten the shroud cable 24, he grasps the lever handle 126 and returns it to its original position as shown in FIG. 10*b*. This lever arrangement provides a mechanical advantage that allows the crewman to apply a large tension force to the operating cable 78 and cable shroud 24. In addtion, the lever acts as a toggle clamp which obviates the necessity for providing a separate latch to hold down the lever. That is, when the lever is moved to the position shown in FIG. 10*b*, tension in the cable tends to retain the lever in this position. The lever 122 can, however, be released by applying only a moderate upward force at the handle 126.

FIG. 10*c* illustrates yet another righting mechanism 140, which employs a conventional winch, to apply tension to an operating cable 78 and to release it. The winch includes a conventional winch drum 144 around which the cable 142 can be wound, a handle 146 for rotating the drum, and conventional pawls (not shown) for preventing unwinding of the drum until the pawls are released. The operating cable 78 extends around a deck-mounted pulley 80 to the coupling 76 which is attached to the shroud cable 24. As in the other righting mechanisms, an additional cable 72 is provided which extends between the coupling 76 and a deck location 30*a* which is aft of the original attachment position 30 at the pulley 80, so that when the operating cable 78 is released the cable shroud 24 extends towards the new attach point at 30a.

In catamaran boats, the mast of the catamaran is normally supported in a simple universal mount which permits the mast to be tilted to a certain extent in any direction. Thus, for example, in one of the most common types of mounting systems, the bottom of the mast is equipped with a ball which engages with a matching socket mounted on the deck of the catamaran. The prior art types of mast mounting systems allow for fore and aft tilting of the mast as may be required in raking the mast in tuning operation to obtain greater sailing speed. The prior art mounts also permit full 90° tilting of the mast as may be required in erection and take down of the mast. They also permit substantial athwartship or sideways tilting of the mast and therefore may be used in the practice of the righting method and apparatus of the present invention.

However, because universal mast mounts of the prior art are not specifically designed to permit tilting of the mast, as may be desirable in the practice of the righting method of the present invention, such prior art devices may in such use present several deficiencies. They may, for example, have a tendency to permit the mast in its fully tilted position to pop out or slip out of its mounting socket. To compensate for this deficiency, it is usually desirable, when using prior art mast mounts, to provide auxiliary means for capturing or retaining the bottom of the mast in position. This is done, for example, by connecting a cable to the bottom of the mast and tethering the mast with the cable to the deck so as to hold the mast bottom in position without interfering

with the operation of the universal mount. Alternatively, a redesigned mast mount may be utilized, both in new manufacture of catamarans and in retrofitting of old catamarans, which is specifically designed for utilization in the righting operation, having an integral capturing system and adapted to permit such sidewise tilting of the mast as may be desirable in the righting operation.

Referring now to FIG. **6**, a preferred embodiment of a universal mast mount **100** is illustrated. As shown in FIG. **6**, the mast **20** is held in the simple universal mount **100**, the mount being formed by a convexly rounded lower end **102** of the mast and a concavely rounded socket member **104**, which is mounted on the deck **18** of the universal mount, and which permits the mast to pivot to either side, through tilt angles of 30° to 40° without interference. As shown in FIG. **6**, a capturing device **106** is mounted on joint **100** to prevent the lower end of the mast from leaving the socket **104** during righting operations. The capturing device **106** includes a short length of cable **108** held by a fastener **110** to the lower end of the mast and fastened by a quick-disconnect cotter pin **111** to a large washer **112** at its other end, which lies below the socket member **104**. The cable **108** is long enough so that it is loose and does not interfere with the free pivoting of the mast is its socket. However, the cable **108** limits upward and sideward translation of the lower mast end which could otherwise cause the mast to slip out or pop out of its socket during righting operations.

It is clear that the invention provides a relatively simple mechanism which can be utilized on a typical catamaran boat to facilitate righting of the boat when it has capsized. The device includes apparatus for holding the shroud cables at positions that maintain the mast normally upright, but each of the holding means being releasable to allow the lengthening of a shroud cable so that the mast is able to tip towards the opposite side of the boat. The apparatus also includes means for fixing the position of a lower shroud cable to prevent the mast from tipping primarily forwardly, so that mast tipping is confined primarily to a lateral direction. This can be accomplished by moving the point of attachment of the released shroud cable in an aft direction. The mechanism is designed to be operated easily by the crew (ordinarily by a single crewman) at a capsized catamaran or other multihull boat, to shift the position of the upper hull so that righting of the boat is made very much easier. After righting of the boat, the shroud cables may be rapidly replaced in their original positions, so that the mast is upright and the boat can be sailed in a normal manner.

Although particular embodiments of the invention have been described and illustrated herein, it is recognized that modifications and variations may readily occur to those skilled in the art and consequently, it is intended that the claims be interpreted to cover such modifications and equivalents.

What is claimed is:

1. In a multihull boat having a lower boat portion with first and second outboard hulls, a mast with a lower end universally pivotally mounted on the lower boat portion and normally extending upwardly therefrom, and a plurality of cables extending from the upper end of the mast to the lower boat portion, including a stay cable extending towards a first end of the boat and a pair of shroud cables extending towards opposite sides of the boat and with directional components towards a second end of the boat opposite the first end, the improvement of apparatus for facilitating the righting of the boat when it capsizes on its side with one hull out of the water, comprising:

first and second holding means for releaseably attaching a point at the lower end of a respective shroud cable to the lower boat portion, to maintain the mast substantially upright for normal sailing;

first and second tensile means, each having a forward end attached to the lower end of a respective shroud cable and having a rearward end; and

first and second attach means for holding the rearwards ends of the respective tensile means to the lower boat portion at positions closer to the second end of the boat than said holding means, whereby when a holding means is released to allow the mast of a capsized boat to pivot away from the hull that is out of the water, the mast is constrained to pivot primarily athwarthships.

2. The improvement described in claim **1** wherein:

each of said tensile means includes an extension cable with a forward end joined to a respective shroud cable and a rearward end held to an attach means; and

each holding means includes a pulley mounted on the lower boat portion, and an operating cable having a first end coupled to a shroud cable and a second pullable end extending about the pulley, the holding means also including a first latch portion mounted on the lower boat portion and a second latch portion attached to the operating cable and releaseably engaged with the first latch portion, the latch portions being disengageable to allow the shroud cable to release upwardly until only the extension cable is tensioned to couple the shroud cable to the lower boat portion, and the pullable section of the operating cable being pullable to return the shroud cable back to its original position so that the latch portions can engage again.

3. The improvement described in claim **1** wherein:

each of said tensile means includes a lever having a first end attached to a shroud cable and a second end pivotally mounted on one of said tensile attach means.

4. The improvement described in claim **1** wherein:

each of said tensile means includes an extension cable with a forward end joined to a respective shroud cable and a rearward end held to an attach means; and

each holding means includes a pulley mounted on the lower boat portion, and an operating cable having a first end coupled to a shroud cable and a second pullable end extending around the pulley;

and further including means for tensioning the pullable second end portion of said operating cable to hold the mast to an erect position; and

means for releasing the tension on said pullable end portion of said operating cable to permit the shroud cable to release upwardly until only the extension cable is tensioned to couple the shroud cable to the lower boat portion.

5. The improvement described in claim **4** wherein said means for tensioning the second end portion of said operating cable includes mechanical advantage apparatus coupled to the second end portion of the oper-

ating cable for multiplying manually applied tensioning force.

6. The improvement described in claim 4 wherein said means for tensioning the second end portion of said operating cable includes a releasable catch for normally locking said operating cable in a fixed position to maintain tension in said shroud cable.

7. In a multihull boat having a lower boat portion with first and second outboard hulls, a mast with a lower end universally pivotally mounted on the lower boat portion and normally extending upwardly therefrom, and a plurality of mast supporting cables extending from the upper end of the mast to the lower boat portion, including a stay cable extending toward a first end of the boat and a pair of shroud cables extending to predetermined attachment positions on opposite sides of the boat and with directional components towards a second end of the boat opposite the first end, the improvement of apparatus for facilitating the righting of the boat when it capsizes on its side with one hull out of the water, comprising:

first means coupled to the shroud cable that is out of the water and manually operable for releasing the shroud cable from its predetermined attachment position; and

second means coupled to said first means and responsive to operation of said first means for lengthening the shroud cable a predetermined amount and coupling the lengthened shroud cable to a new attachment position which is closer to the second end of the boat than the predetermined attachment position,

whereby the lower boat portion and the mast of a capsized boat are permitted and constrained to tilt primarily sidewise with respect to each other to facilitate righting of the capsized boat and prevent forward collapse of the tilted mast.

8. The improvement defined in claim 7 wherein said second means includes returning apparatus manually operable for substantially simultaneously reshortening the shroud cable to its original length and reattaching the shroud cable to its predetermined attachment position to thereby permit reerection of the mast from a sidewise tilted position.

9. The improvement defined in claim 7 in which said second means includes a tensile member having substantial length and having a first end portion thereof coupled to the shroud cable adjacent its predetermined attachment position and a second end portion thereof coupled to the new attachment position.

10. The improvement defined in claim 9 in which said tensile member includes a lever having a first end portion attached to the shroud cable and releasably attached to the lower boat portion and a second end portion pivotally mounted adjacent the new attachment position.

11. A multihull boat easily rightable after it has capsized on its side with one hull out of the water, comprising:

a lower boat portion with first and second outboard hulls;

a mast with a lower end universally pivotally mounted on the lower boat portion and normally extending upwardly therefrom;

a plurality of mast supporting cables extending from the upper end of the mast to the lower boat portion, including a stay cable extending toward a first end of the boat and a pair of shroud cables extending towards predetermined attachment positions on opposite sides of the boat and with directional components towards a second end of the boat opposite the first end;

first means coupled to the shroud cable that is out of the water and manually operable for releasing the shroud cable from its predetermined attachment position;

and second means coupled to said first means and responsive to operation of said first means for lengthening the shroud cable a predetermined amount and coupling the lengthened shroud cable to a new attachment position which is closer to the second end of the boat than the predetermined attachment position,

whereby the lower boat portion and the mast of a capsized boat are permitted and constrained to tilt primarily sidewise with respect to each other to facilitate righting of the capsized boat and prevent forward collapse of the tilted mast.

12. A method for righting a multihull boat which has capsized and which includes a mast buoyant at the top and free to pivot in any direction on the deck and normally maintained upright on the deck between first and second opposite hulls by cables extending downwardly from the upper portion of the mast to the hull and deck assembly, including a stay cable extending forwardly and a pair of shroud cables extending with an aft direction component and in opposite laterally directions, comprising:

releasing the lower end of the shroud, which lies out of the water, from the hull and deck assembly, and adding a length of a tensile member thereto which is fixed to the hull and deck assembly at a location aft of the position at which the lower end of said shroud was originally attached to the hull and deck assembly, whereby to allow the mast to tip away from the hull that is out of the water while preventing the mast from merely tipping forward, so that the hull that is furthest out of the water can move to a position where its weight does not prevent uprighting of the boat.

13. In a catamaran boat having a lower boat structure with a pair of hulls coupled by a center member, a mast with a lower end pivotally mounted on the lower boat structure and having a buoyant upper portion, a stay cable extending downwardly from the upper portion of the mast in a forward direction, and a pair of shroud cables extending downwardly from the upper portion of the mast in largely opposite lateral direction, the improvement of apparatus for righting the boat after it has capsized, comprising:

first and second maintaining means mounted on the lower boat structure for maintaining the lower portions of the respective shroud cables at positions rearward of the mast pivot location, to thereby hold the mast against pivoting to either side as well as against pivoting forwardly, each of said means being operable to release its respective shroud cable a predetermined amount to thereby permit the mast to tilt a limited amount towards the opposite side of the boat; and

fixing means operable in conjunction with said maintaining means, for fixing the position of a lower portion of one of said shrouds to prevent the mast from tipping primarily forwardly, said fixing means

including a length of cable with a first end connected to the lower end of a shroud cable and a second end attached to the lower boat structure at a location behind a corresponding maintaining means.

14. In a catamaran boat having a lower boat structure with a pair of hulls coupled by a center member, a mast with a lower end pivotally mounted on the lower boat structure and having a buoyant upper portion, a stay cable extending downwardly from the upper portion of the mast in a forward direction, and a pair of shroud cables extending downwardly from the upper portion of the mast in largely opposite lateral direction, the improvement of apparatus for righting the boat after it has capsized, comprising:

first and second maintaining means mounted on the lower boat structure for maintaining the lower portions of the respective shroud cables at positions rearward of the mast pivot location, to thereby hold the mast against pivoting to either side as well as against pivoting forwardly, each of said means being operable to release its respective shroud cable a predetermined amount to thereby permit the mast to tilt a limited amount towards the opposite side of the boat;

fixing means operable in conjunction with said maintaining means, for fixing the position of a lower portion of one of said shrouds to prevent the mast from tipping primarily forwardly;

said mast having a lower end pivotally mounted on said lower boat portion, and including a retainer cable having a first end fastened to the mast near the lower end thereof and a second end fastened to the lower boat portion near the support position of the mast to thereby prevent the mast from leaving its pivotal mount.

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