June 30, 1953 L. SVEINSSON 2,643,628

SAILBOAT CONSTRUCTION

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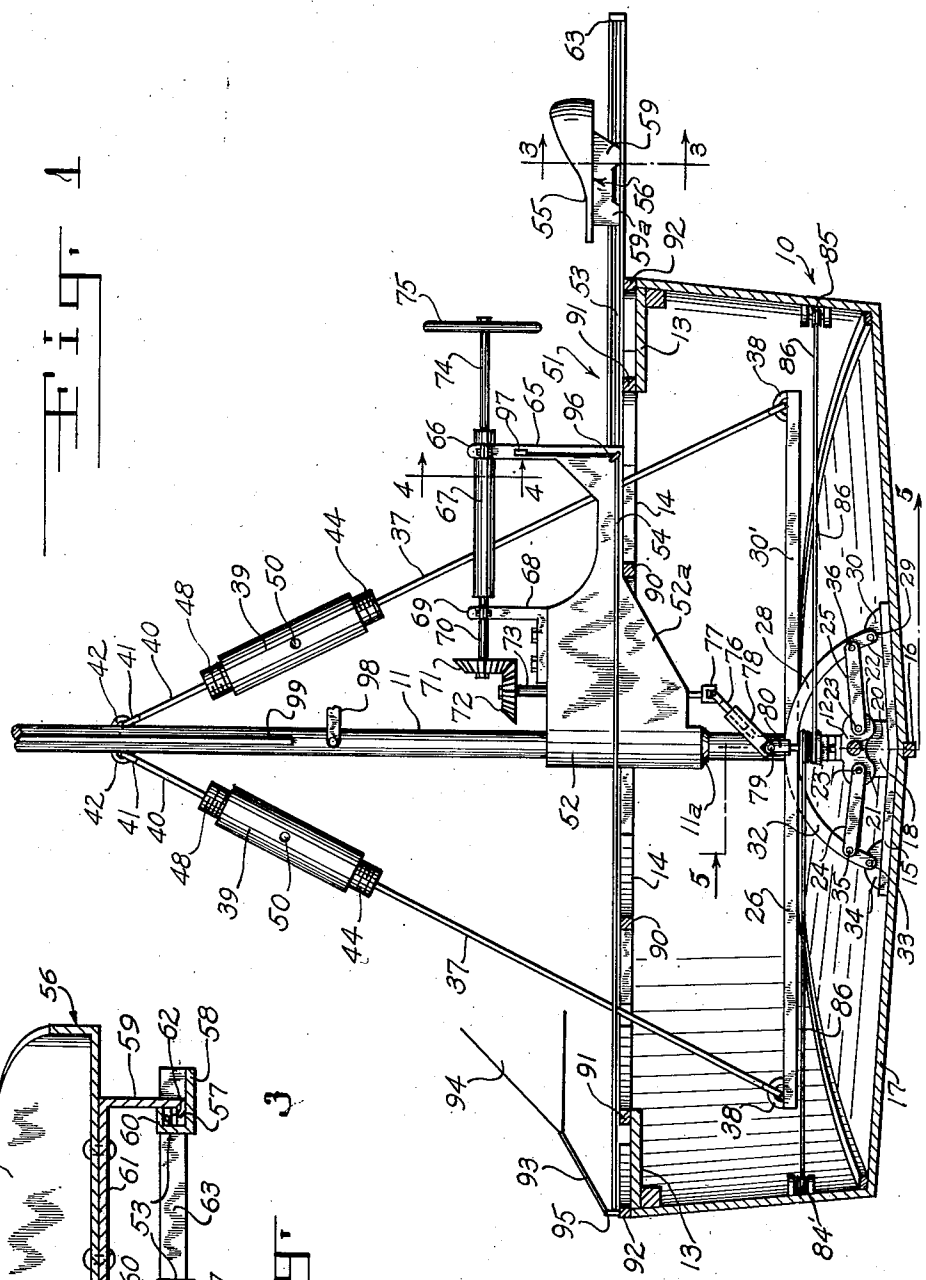


FIG. 1

FIG. 3

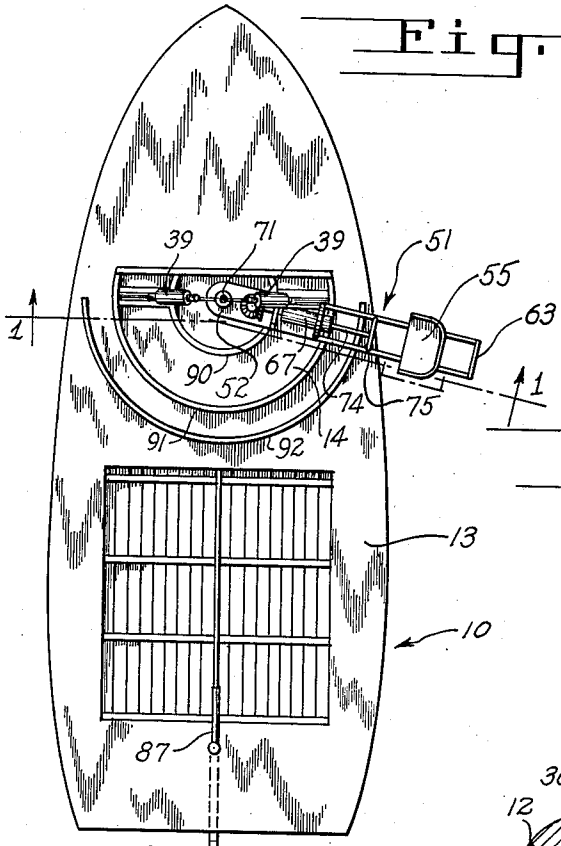
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Fig. 2



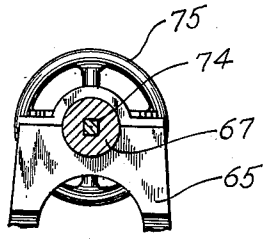


Fig. 4

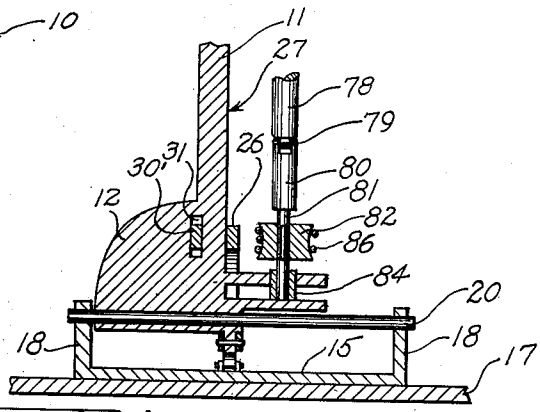


Fig. 7

Fig. 5

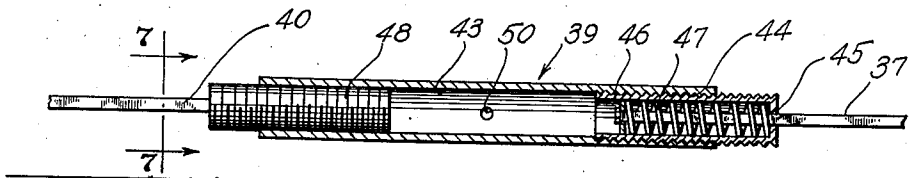


Fig. 6

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SAILBOAT CONSTRUCTION

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4 Claims. (Cl. 114—39)

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This invention relates to a sail boat construction and is directed more particularly to a plurality of means for controlling the boat.

An object of the invention is the provision of a means for stabilizing a rockable mast during storms and changes in direction of the winds, said means including horizontal bars projecting outwardly in opposite directions from the mast step and having inner curved portions crossing each other in contact with the step, the free ends of the curved portions being pivotally connected to the bottom of the boat with links connected between the curved portions and the mast step, the outer free ends of the bars having connections with an upper portion of the mast.

A further object of the invention is the provision of a sail boat construction in which a seat adjustably mounted on rails extending outwardly from a casting pivoted on the mast may be moved around the mast in a semi-circular arc and supported by the rails riding on tracks, the rails extending along the radius of a circle coinciding with the arc, the casting also supporting a hand wheel adjustable in conformity with the position of the seat and actuating means between the wheel and the rudder of the boat so that the occupant of the seat will have control over the rudder while located at various positions around the mast.

This invention is best understood from a consideration of the following detailed description taken in connection with the accompanying drawings, nevertheless, it must be borne in mind that the invention is not confined to the disclosure, but is susceptible of such changes and modifications as shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is an enlarged transverse vertical section of my improved boat construction taken on the line 1—1 of Figure 2.

Figure 2 is a plan view of the boat.

Figure 3 is an enlarged transverse vertical section of a seat taken along the line 3—3 of Figure 1.

Figure 4 is an enlarged transverse vertical section of an element for operating manually the tiller from the seat, taken on the line 4—4 of Figure 1.

Figure 5 is an enlarged transverse vertical section of the mast step and associated parts taken on the line 5—5 of Figure 1.

Figure 6 is an enlarged longitudinal section

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taken along the center of a combined cushioning means and turnbuckle, and

Figure 7 is a greatly enlarged transverse section taken along the line 7—7 of Figure 6.

Referring more particularly to the drawings, 10 designates a sail boat having a mast 11 supported at the lower end by a step 12. The deck 13 of the boat has an opening 14 adjacent the bow of the boat through which the mast projects. A base 15 is secured to the keel 16 and bottom 17 of the boat. Spaced brackets 18 rise in integral formation from the base and provide supports for an axle 20 which is received by a bore in the step 12 at the lower end of the mast.

The step has a pair of arms 21 and 22 radiating from the axle. These arms are each perforated to receive a pin 23. A pair of ears on one end of a link 24 straddling the arm 21 is pivotally connected by one of the pins to an ear on the link with the other pin connecting pivotally a pair of ears on a link 25 to the free end of the other arm 22.

A bar 26, rectangular in cross section, extends inwardly from one side of the boat and at one side of the mast to the step 12 where it is in contact with a flat vertical face 27 of the step (Figure 5). The inner end of the bar (Figure 1) is in the form of a quadrant 28 which has its lower end pivoted at 29 on a bracket 30 rising from the base at the opposite side of the mast. A second bar 30', square in cross section, extends from the other side of the boat and transversely thereto and through an elongated passage 31 in the mast step (Fig. 5) where it terminates in a depending quadrant 32 pivoted at 33 on a bracket 34 rising from the base at the opposite side of the mast. The outer end of the link 24 is pivoted at 35 to the lower end of the quadrant 32 while the outer end of the link 25 is pivoted at 36 to the lower end of the quadrant 28. This construction permits the mast to rock on the axle 20 in opposite directions while maintaining the mast in a transverse vertical plane.

The mast is stabilized in the vertical plane by a reinforcing means at each side thereof which includes a combination of cushioning means and turnbuckles. Since these reinforcing means are identical in construction, only one will be described in detail. A rod 37, square in cross section, is connected pivotally at 38 to the outer end of each bar 26 and 30'. The pivotal connections are such that turning of said rods will be prevented (Figure 1). Turnbuckles 39 attach the upper ends of the inclined rods 37 passing through the opening 14 in the deck, to the lower

ends of rods 40 also square in cross section. The upper ends of the rods 40 have eyes 41 received by diametrically disposed eyes 42 fixed to the mast.

Each turnuckle consists of a tube 43, internally threaded at the opposite ends. A sleeve 44 is threaded into the lower end of the tube and has a closed outer end 45 provided with a square passage to receive the upper end of the associated rod 37. A disk 46 is fixed to the inner end of said rod and a coil spring 47 is located within the sleeve and between the disk and the closed end 45 thereof.

A second sleeve 48 is threaded into the upper end of each tube 39 and has a closed outer end provided with a square opening to neatly receive the square rod 40. This sleeve is identical in construction with the sleeve 44 and includes an enclosed spring to cushion the rod 40 in a manner similar to the action of the spring 47. Each tube 39 has alined openings 50 for the reception of a bar or other suitable implement for rotating said tubes to vary the tension on the pairs of springs therein.

An outrigger generally designated by the numeral 51 includes a casting 52 resting on an adjustable thrust bearing 11a on the mast and having a vertical passage to receive the lower end of the mast so that the outrigger may swing substantially in a horizontal plane over the deck through an arc of 180°. The casting acts as a bearing and support for the outrigger. A pair of parallel rails 53 (Figures 2 and 3) is secured to an extension 54 of the bearing 52. These rails support a seat 55 in a manner which will be described presently. An operating means for the tiller of the rudder is also mounted on the outrigger within reach of the occupant of the seat 55.

The seat (Figure 3) has a pair of depending runners 56 provided with inturned flanges 57 which rest normally on the lower and wider flanges 58 of the U-shaped rails 53. The upper flanges 60 have the free edges thereof in engagement with the inner walls of the runners which are joined together by a plate 61, upon which is secured the seat 55. Each runner consists of a centrally disposed leg 59 and an inwardly positioned leg 59a. A strip of wood 62 is fixed securely in any approved manner to the underface of each upper flange 60 of the U-shaped rails 53. Due to the distance between the flanges 57 and the strips 62, the seat may be rocked, that is, the front of said seat may be raised when the occupant leans backwardly so that the front edges of the flanges 57 will bite into the wood strips 62 and thereby retain the seat against movement after said seat has been shifted to a predetermined position along the rails. The outer ends of the rails are connected together rigidly by a bar 63 as shown in Figures 1 and 3.

A bracket 65 rises in integral formation from the outer end of the extension 54 of the bearing 52 and is provided with a journal 66 for the outer end of a hollow shaft 67. A bracket 68 is bolted to the casting 52 and has a bearing 69 for a reduced portion 70 of the shaft 67. A gear 71 secured to the free end of the shaft 70 meshes with a gear 72 fixed to the upper end of a vertical shaft 73 mounted in a bearing in the casting. An operating rod 74, square in cross section, is slidably mounted in a passage of the hollow shaft, also square in cross section. A helm or hand wheel 75 is attached to the outer free end of the rod 74. This rod may be drawn towards the seat as the seat is moved outwardly. However, means (not shown) are employed between the inner end of the rod and the hollow shaft to prevent said rod from being fully withdrawn from said shaft.

A link 76 has one end hinged at 77 to the lower end of the shaft 73 and is received by a longitudinal passage in a sleeve 78. Both the link and passage are square in cross section so that said link will rotate the sleeve which has its lower end hinged at 79 on the upper end of a vertical shaft 80 as shown in Figure 5. This shaft has a reduced portion 81 upon which is keyed a pulley 82. The lower end of the reduced portion is mounted in a bearing 84 supported by a pair of parallel projections extending integrally from the step 12.

Pulleys 84' and 85 are mounted at the sides of the boat, and cable 86 is trained on the pulleys 82, 84' and 85 and has its ends fastened to a tiller 87 which operates a rudder 89.

A semi-circular track 90 fastened to the deck of the boat supports the arm or extension 54 on the casting 52. A pair of semi-circular tracks 91 and 92 of greater diameter than the track 90 and concentric therewith are secured to the deck and support the rails 53. It will be noted that the helmsman in the seat 55 may swing around the mast 11 in a semi-circle while at the same time sliding the seat outwardly along the rails until stopped by the bar 63. The helm 75 will also be drawn outwardly. The casting has a cam edge 52a which will ride at times on the track 90.

A sheet 93 which is attached to foresail 94 is trained through a lead block 95 which is fastened to a rail 92. This sheet extends through a block 96 and continues to a cleat 97 where it may be adjusted for length and made fast. With this arrangement and position of the sheet 93 it is apparent that when the boat comes about and the outrigger swings to the other side it automatically trims the foresail 94 to the opposite side of the boat putting said sail in its proper position to receive the wind and when the boat has come about, boom 98 will be operatively engaged with the sail track 99.

The operation of my mechanism is as follows:

The mast is shown in Figure 1 in a vertical position when the boat is acted on by the wind in a normal manner. When the mast is tilted towards the seat, the cam edge 52a of the casting 52 will ride upwardly upon the track 91 by virtue of the inclination of the cam edge 52a and thereby cause the casting and its associated elements to be raised on the mast. The step 12 will bring into play counter-acting forces regardless of the direction and forces of the wind upon the mast. These counteracting forces also prevent jamming of the mast when the winds change suddenly in direction and overcome the danger of upsetting the boat, regardless of the swinging position of the outrigger.

The operator of the boat when adjusting the seat 55 to a predetermined position along the tracks 53 will lean forwardly so that the flanges 57 of both legs 59 and 59a will lie flat on the out turned flanges 58 of the rails to permit free sliding movement of the runners. When the proper position has been reached, the operator will lean backwardly so that the seat will tilt and cause the flanges 57 on the legs 59a to bite into the wood strips 62.

The shaft 74 is moved inwardly or outwardly

of the hollow shaft 67 in accordance with the adjusted position of the operator. Rotation of the helm 75 will rotate the gears 71 and 72 to revolve the shafts 73 and 80 whereby the pulley 82 will cause the cable 86 to rock the tiller 87 and likewise the rudder 89.

What I claim:

1. In a boat construction, a pivotally mounted step, a mast rising rigidly from said step, radial arms projecting outwardly from the lower end of the step, means pivotally mounting the step on the bottom of the boat so that the mast may rock transversely of the boat, a horizontal bar extending from one side of the boat to and through an opening in the step and terminating in a downwardly curved portion at one side of the mast, a second bar extending from the other side of the boat to the step and in flat engagement therewith and terminating in a downwardly curved portion beyond the other side of the mast, a base plate in the boat secured to the bottom thereof, means pivotally connecting the free ends of the curved portions in spaced relation on the base plate, links having the ends thereof pivotally connected to the arms and to adjacent curved portions of the bars and a stay connecting the outer free end of each bar with an upper portion of the mast.

2. In a sail boat, a pivotally mounted step, a mast rising rigidly from the step so that the mast may rock laterally of the boat, means connected between the mast, step and bottom of the boat for stabilizing the rocking movement of the mast, a casting mounted for rotating movement on the mast in a horizontal plane, a pair of parallel rails extending radially from the casting, a seat slidably mounted on the rails, means for retaining the seat in a predetermined position along the rails, a hollow shaft on the casting, a rod slidably mounted in the shaft, the rod and passage in the hollow shaft being square in cross section, a manually operated wheel secured to the outer end of the rod and within reach of the occupant of the seat, said wheel being movable towards or away from the casting in accordance with the adjusted position of the seat, and operative connections between the hollow shaft said sail boat having a rudder and the rudder of the boat.

3. In a sail boat, a pivotally mounted step, a mast rising rigidly from the step so that the mast may rock laterally of the boat, means connected between the mast, step and bottom of the boat for stabilizing the rocking movement of the mast, a casting mounted for rotating movement on the mast in a horizontal plane and having an upwardly inclined cam edge, a pair of parallel rails extending radially from the casting, a seat slidably mounted on the rails, means for retaining the seat in a predetermined position along the rails, a helm mounted on said casting, said sail boat having a rudder, and operative connections between the helm and the rudder of the boat, concentric semi-circular tracks secured to the deck of the boat and embracing the mast, said tracks supporting the casting, rails and seat when the rails and seat are moved in an arc around the mast as a center, and one of said rails being in contacting engagement with the cam edge of the casting.

4. In a sail boat, a pivotally mounted step, a mast rising rigidly from the step so that the mast may rock laterally of the boat, means connected between the mast, step and bottom of the boat for stabilizing the rocking movement of the mast, said stabilizing means including a pair of horizontally disposed bars extending in opposite directions from the mast to the sides of the boat, each bar having a curved portion extending downwardly, the curved portions crossing each other and located at opposite sides of the mast, means pivotally connecting the free ends of the curved portions on the bottom of the boat, means connecting the curved portions with the step at opposite sides thereof and means connecting the free outer ends of the bars with an upper portion of the mast.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
100,151	Holley	Feb. 22, 1870
236,237	McLeod	Jan. 4, 1881
530,154	Allen	Dec. 4, 1894
606,104	Twining	June 21, 1898
633,904	Pool	Sept. 26, 1899
1,885,247	Fox	Nov. 1, 1932
2,312,567	Lyon	Mar. 2, 1943

FOREIGN PATENTS

Number	Country	Date
56,675	Germany	Oct. 22, 1890