

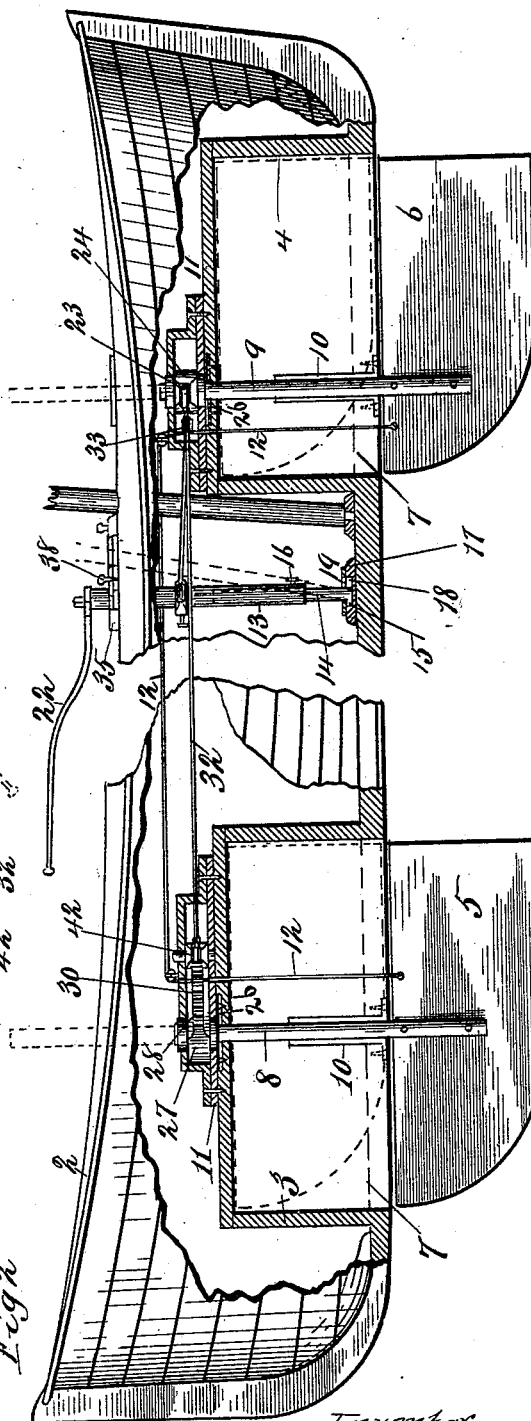
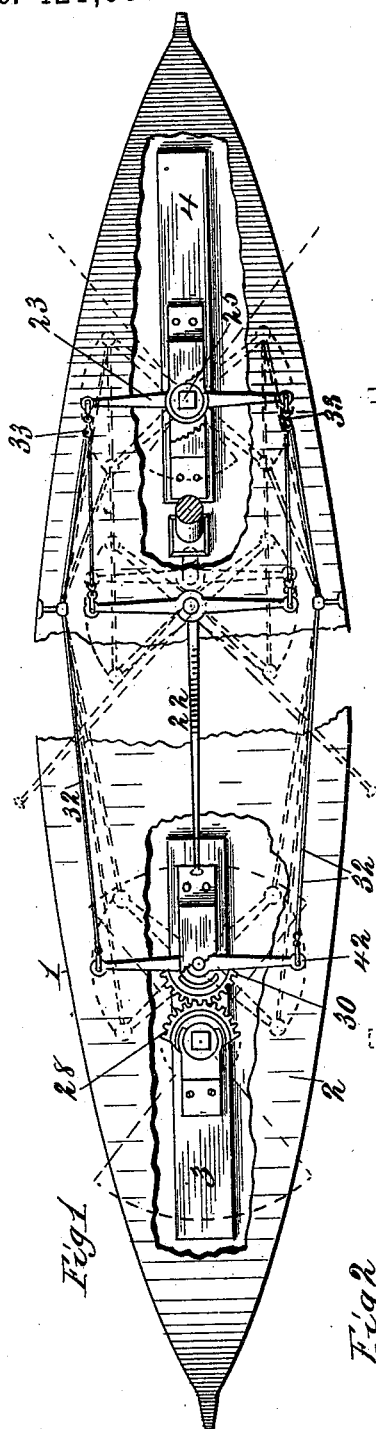
(No Model.)

2 Sheets—Sheet 1.

F. W. MARTIN.  
REVOLVING CENTER BOARD.

No. 421,008.

Patented Feb. 11, 1890.



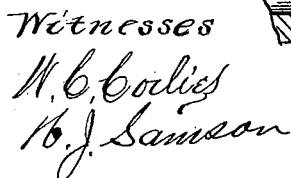
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2 Sheets—Sheet 2.

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Inventor  
Frederick W. Martin

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# UNITED STATES PATENT OFFICE.

FREDERICK W. MARTIN, OF CLAYTON, NEW YORK.

## REVOLVING CENTER-BOARD.

SPECIFICATION forming part of Letters Patent No. 421,008, dated February 11, 1890.

Application filed March 2, 1889. Serial No. 301,795. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK W. MARTIN, a citizen of the United States, residing at Clayton, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Revolving Center-Boards for Boats, of which the following is a specification.

My invention relates to improvements in the center-boards and rudders of boats; and its object is to combine in two blades operated simultaneously the functions of both center-boards and rudders.

The essentials of this invention consist of certain improvements upon my former invention set forth in Letters Patent of the United States No. 398,900, dated March 5, 1889.

The object of my invention is accomplished by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved revolving center-boards for boats when secured in a boat ready for use, the outline of the boat being shown partly broken away. Fig. 2 is a side elevation of a boat, partly broken away and shown in section, exhibiting a lateral view of my improved machinery. Fig. 3 is a vertical longitudinal section of a center-board trunk, showing the upper part of the center-board shaft with upper bearing and part of a halyard for lifting the center-board. Fig. 4 is a vertical sectional view of the telescope-shaft on which the tiller and a yoke are secured. Fig. 5 is a vertical transverse section of the trunks and the hull of the boat, showing the upper and lower bearings of the center-board shafts in section. Fig. 6 is a side elevation of the tiller-shaft and its journal-bearings. Figs. 7 and 8 are respectively a plan view and vertical section of the socket designed to receive the lower end of the said shaft and its lug. Fig. 9 is a vertical central section of the tiller-shaft. Fig. 10 is an elevation of the tiller-shaft detached from its journal-bearings. Fig. 11 is a plan view of a casting formed with a slot curved at its beginning, extending to the end of the casting, and having grooves in its sides to receive the plate, also shown, which is formed with a curved end to correspond to the former curve, said casting being secured

to the deck. Figs. 12, 13, and 14 are respectively vertical, longitudinal, and cross sections of the same.

Like numerals refer to like parts throughout the several views.

In the drawings, 1 is the hull of the boat, and 2 its deck.

3 and 4 are trunks, made large enough to receive the center-boards 5 and 6. In the keel longitudinal slots 7 7 are made large enough to permit the center-boards to pass through. The trunks are built over these slots, making water-tight connection with the bottom of the boat, and being themselves water-tight.

The center-boards are secured, respectively, upon the shafts 8 and 9. The sleeve-bearings 10 10, secured to the bottom of the trunks over the slots, furnish bearings for the lower part of the shafts. Steel plates 11 are secured to the top of the trunks, one upon the other, the former extending upward far enough to permit the bosses 24 to be placed between the plates, and both being made with holes to permit the passage of the shafts of the center-boards. 12 12 are halyards, by which the center-boards may be lifted into the trunks.

13 is the female section of a telescope-shaft, extending from the bottom of the boat above the deck.

14 is the male section of the shaft.

15 is a small lug extending at right angles from the lower end of this section.

16 is a set-screw in the female part of the shaft, designed to secure it at any desired position on the male section of the same.

17 and 17½ are plates secured, the latter upon the former and both to the bottom of the boat forward of the aft trunk, and made to furnish a socket-bearing for the male part of the shaft. A recess 18 is made within the piece 17 around the socket large enough to receive the lug 15, and a slot 19 is made in the part 17½ next to the socket aft of the same large enough to receive the lug. The female part of the shaft passes through the middle of the yoke 20, and is made rigid with it by the set-screw 21. The tiller 22 is secured upon the shaft near its upper end.

The center-board shafts are rectangular at their upper ends. 23 is a yoke (shown in Figs. 1 and 4) having the boss 24 (shown in

Fig. 4) rigid with it at its middle point. A rectangular hole 25 passes through this boss, of such size that the upper part of the shaft 9 fits it, but not tightly.

26 is a steel plate secured to the top of the trunk just below the lower one of the plates 11. It has a round hole, furnishing a bearing for the rounded part of a center-board shaft, and made so small that the rectangular part of the shaft cannot pass through it. Thus it is made to sustain the center-board when it is let down into the water.

27 is a boss (shown in Fig. 3) made rigid with the segment of a gear-wheel 28 at its central point. (Said gear-wheel is shown in Figs. 1 and 3.)

The bosses 24 and 27 are designed to take the place of the washers and washer-boxes shown in my patent above mentioned.

The yoke 42 is made rigid with the segment of a gear-wheel 30, whose axle 31 is provided with suitable bearings in the plates 11. These two wheels mesh with each other. Yoke-lines 32 extend from the yoke 42 to and around pulleys secured to yoke 23 and thence to yoke 20. They are prepared in any suitable way to be quickly and easily attached to and detached from yoke 20. I provide them with hooks and the yoke with staples. The lines have the buttons 33 secured upon them at suitable points to prevent them when not taut from running through the pulleys.

35 is a casting having a slot 36 wide enough to permit the passage of the section 13 of the telescope-shaft, and curved to fit into the groove 39 in the same. In the sides of the slot grooves are made, and in these the plate 37 slides. A set-screw 38 passes through this plate, and the plate at one end is collar-shaped, so as to fit into the groove 39 around the female part of the shaft. The casting 35 is secured to the deck with the slot aft, and so that the radial focus of its curve will be directly above the center of the socket in the pieces 17 and 17½. Below the slot in this casting there is a corresponding slot in the deck, in which grooves are made, and at the edges of this slot two plates are secured to the bottom of the deck, and on these the plate 40 slides, having the nut 41 secured upon it. This nut is of the proper size to receive the set-screw 38. Thus, as is apparent, an admirable clamping contrivance is secured to firmly hold the telescope-shaft in vertical position. I employ the telescope-shaft and its associated parts, instead of placing the yoke 42 upon a fixed pivot, to accomplish three purposes—first, that the yoke may be used either below or above deck; second, that the contrivance may be used in boats of different depths, and, third, that a means may be provided for quickly and easily tightening the yoke-lines.

The operation of the machinery is obvious. Loose the halyards and let the center-boards down into the water. Draw out the plate 37, and then pass the telescope-shaft down

through the slot 36 to the socket 34, revolve the shaft till the lug 15 drops through the slot 19, then revolve the shaft till its yoke is transverse to the length of the boat, hitch the lines 32 to it, draw it forward till the lines are taut, and then secure it by sliding the plate 37 into the slot 36 and fastening it with its set-screw 38. Now use the tiller and the center-boards will revolve—one toward the port and the other toward the starboard side—and thus the boat is easily and quickly turned as may be desired. If the shaft 8 is raised till its rectangular part is above the boss 24, and the upper edge of the board 5 is within the slot 7, this board will act as a center-board only, while the stern-board can be used alone as a rudder. When sailing before the wind, the forward board may be housed in the trunk.

The telescope-shaft may be used in combination with the rudders now in common use.

Other advantages of my invention are obvious. The inconvenience of having a trunk in the middle of a boat is avoided, and likewise that of having a rudder in the way when launching or beaching a boat.

I am aware that other inventions have been patented in which two boards are employed in one boat, both as center-boards and rudders; hence I do not claim such an invention, broadly; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In machinery for steering boats, substantially as described, the combination of a telescope-shaft, a tiller, and a yoke rigidly secured upon the same, a socket-bearing for the lower end of said shaft loosely fitting the same, a casting made with a slot, and a plate to slide in such slot, designed to furnish a bearing for the upper part of the shaft, a set-screw to secure said plate in any desired position, and yoke-lines connected with the machinery by which the center-boards are revolved, as and for the purposes specified.

2. In machinery for steering boats, substantially as described, the combination of a telescope-shaft formed with the lug 15 extending at right angles from the outer end of its male part, and with the groove 39 around the female part near its opposite end, the tiller 22, rigidly secured upon said end, the yoke 42, rigidly secured by a set-screw upon the female part of the shaft, the plates 17 and 17½, secured to the bottom of the boat and furnishing the socket-bearing 34 for the lower end of the shaft, the slot 19 for the passage of the lug 15, and the recess 18 for its reception, the casting 35, having the curved slot 36, secured to the top of the deck, the plate 37, made with its inner end curved and adapted to fit snugly around said telescope-shaft in connection with the curved end of the slot 36, sliding in grooves in the sides of the slot and having the set-screw 38, the plate 40, carrying rigidly secured upon it the nut 41 and sliding in tracks made

for it beneath the deck under the slot 36, yoke-lines 32, connected with the yokes, by means of which the center-boards are caused to revolve, and the buttons 33 upon said lines, as 5 and for the purposes specified.

3. In machinery for steering boats, substantially as described, the combination of a yoke upon the upper part of the aft center-board shaft, a yoke pivoted near the forward 10 center-board shaft, a segment of a gear-wheel rigid with said yoke, a boss rigid with another segment of a gear-wheel meshing with the former, an upright revoluble telescope-shaft between the two other shafts, having a yoke 15 and a tiller rigidly secured upon it, and yoke-lines connecting said yokes, as and for the purpose stated.

4. In machinery for steering boats, the combination of center-board shafts, rectangular 20 a short distance at their upper ends and round below, bosses having rectangular holes to receive said shafts, two pairs of plates

formed to receive and furnish bearings for the bosses secured upon the deck, plates secured below said pairs of plates, each having 25 a round hole of diameter greater than the round part of the shafts and less than their rectangular part, a yoke rigid with the boss of the aft shaft, a segment of a gear-wheel rigid with the forward boss, a boss and yoke 30 pivoted between the forward pair of plates and rigid with the segment of a second gear-wheel meshing with the former, a telescope-shaft secured upright and revolving between the shafts aforesaid and having a yoke and 35 tiller rigidly secured to it, and two lines, each connecting corresponding ends of all of said yokes, substantially as and for the purposes specified.

FREDERICK W. MARTIN.

Witnesses:

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