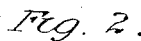


(No Model.)

(Application filed June 10, 1899.)

2 Sheets—Sheet 1.



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No. 647,703.

Patented Apr. 17, 1900.

J. P. POOL.

SAIL BOAT.

(Application filed June 10, 1899.)

(No Model.)

2 Sheets—Sheet 2.

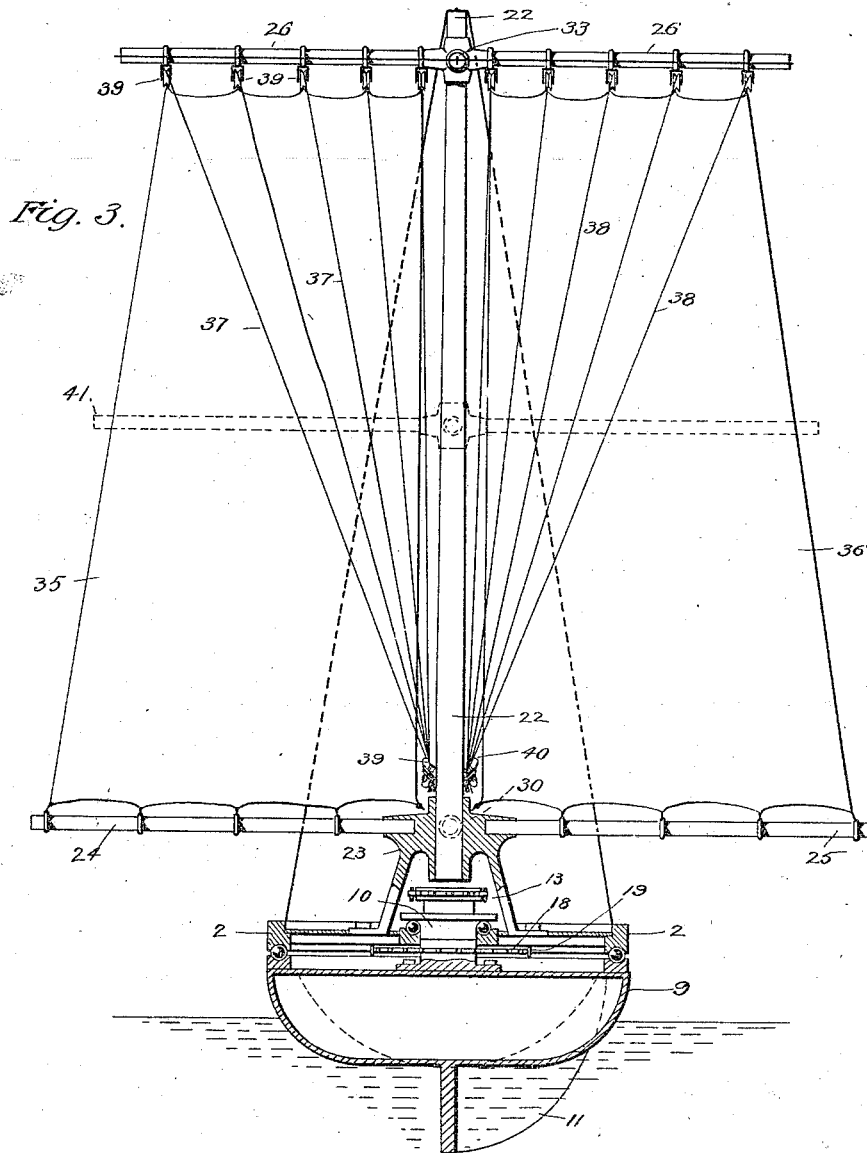
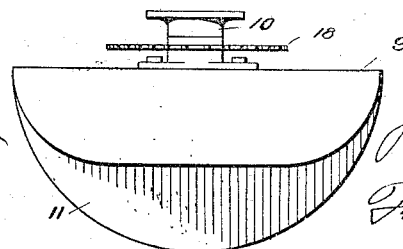


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES P. POOL, OF NEW YORK, N. Y.

SAIL-BOAT.

SPECIFICATION forming part of Letters Patent No. 647,703; dated April 17, 1900.

Application filed June 10, 1899. Serial No. 720,050. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. POOL, a citizen of the United States, residing in the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Sail-Boats, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to improvements in a sail-boat; and the principal object of invention is to cause the deck of the boat to always be maintained in a level position while the boat is under way; and a further object is to increase the speed of the boat.

To these ends my invention consists in the various novel and peculiar arrangements and combinations of the several parts of the apparatus, all as hereinafter fully described and then pointed out in the claims.

I have illustrated types of my invention in the accompanying drawings, wherein—

Figure 1 is a plan view of my improved boat, the end floats of which and the fin are set at about an angle of thirty degrees to the center line of the boat. Fig. 2 is a vertical section taken on a plane indicated by the line 2 2, Fig. 1, and shows the end float pivoted beneath the platform-deck. Fig. 3 is a vertical cross-section of the boat shown in Fig. 1. Fig. 4 is a side elevation of the central float detached.

Referring to the drawings, in which like numbers of reference designate like parts throughout the several views, 2 indicates a platform-deck, beneath the forward and stern ends of which is pivoted a suitable float or vessel 3 and 4, respectively. These floats are constructed and mounted alike, and a description of one will apply to both. The pivoted floats are preferably air-tight and are oblong in shape, so that they offer more resistance to the water laterally than endwise, and from the upper side of the float projects a pivot-shaft 5, which extends up through an opening 6 in the deck-platform 2. This pivot-shaft is provided with ball-bearings 7, and between the float and the platform-deck there are also located suitable ball-bearings 8 to reduce the

friction in turning the float, which may be turned entirely around on its shaft. Centrally of the platform-deck 2 is located another float 9, which in plan view is circular, and this central float is likewise provided with a central stem 10, which projects up through the platform-deck, and ball-bearings are also provided for this shaft 10 between the platform-deck and the float, the same as in the case of the end floats. This central float is provided with a fin 11, which extends across the under side thereof from one side to the other and presents considerable lateral surface for the purpose of steering the boat. This central float 9 may likewise be turned completely around on its axis, so as to adjust the fin 11 to any angular position. The shaft 10 of the central float 9 is provided with a sprocket-wheel 12, which is engaged by a chain 13, the ends of which are connected with a cable 14, passing around a horizontal winding-drum 15, having a hand steering-wheel 16 for turning the same. The cables 14 are passed around suitable guide-pulleys 17, and the arrangement is such that by turning the wheel in one direction one part of the cable is taken up while the other is let off, so that the chain is thereby pulled in one direction to turn the sprocket-wheel and thereby adjust the fin 11 in the angular position desired. While the fin 11 in the construction shown in Figs. 1, 3, and 4 is secured to the central float, so that its angular adjustment depends on the turning of the float, I propose to have the fin 11 adjustable independently of the float. The shaft 10 of the central float is also provided with a large chain-wheel 18, which is engaged upon two opposite sides by an endless chain 19, which at its ends passes around chain-wheels 20 and 21, respectively, which are carried upon the shafts of the end floats. By this arrangement the steering-wheel 16 is made to control simultaneously the movements of the fin and the end floats, which parts move in response to each other and each assumes the same angular position, as will be understood from Fig. 1.

Upon the platform-deck 2 is secured in fixed position the mast 22, which in Figs. 1 and 3 is shown as being located amidships. The foot of the mast is shown as set in a suitable stand 23, which is placed over the shaft 10 of the

central float 9. This mast is provided with fixed booms 24 and 25, lying in the same plane abeam of the boat, the upper part of the mast being provided with a fixed cross-arm 26, which lies in the plane of the booms. The booms are braced horizontally by suitable stays 27 and 28, which are secured to fixed pieces 29 and 30, while the cross-arm 26 is likewise braced by means of stays 31 and 32, extending from similar pieces 33 and 34. The sails 35 and 36 are each secured by their lower ends to the respective booms 24 and 25, while their upper ends are attached to ropes 37 and 38, which are passed over pulleys 39, fixed upon the cross-arm 26, so that each sail may be raised and lowered, and when raised the ropes are secured to belaying-cleats 39 and 40 for holding the sail taut. To prevent the sail from bellying, an intermediate cross-arm 41 may be used, as indicated in dotted lines. Thus it will be seen that the sail is always maintained in a plane crosswise of the boat, and as this relative position is never altered the line of travel of the boat is determined by and is coincident with the plane in which the fin 11 is adjusted.

Referring to Fig. 1, I have indicated by the arrow W at the lower right hand of the figure the direction of the wind, while at the upper right-hand end of the figure the arrow D indicates the direction in which the boat is to move. Under this condition the fin 11 and likewise the end floats 3 and 4 are turned by the steering-gear and are set in the angular position in which the boat is to move. The wind striking upon the fixed sail tends to force the boat in the direction of its longitudinal axis; but the fin 11 being set at an angle to such axis it thereby offers sufficient resistance to the water to prevent the boat moving endwise and to compel it to move in a line coincident with the plane of the fin. The boat itself when thus going across the wind moves somewhat diagonally compared with its length. The end floats being oblong also tend to direct the boat the same as the fin, and, if desired, these floats may be made still more effective in this capacity by providing each with a longitudinal fin.

In turning the boat around the sail is hauled in upon one side of the mast, and the wind striking the sail upon the opposite side of the mast will force the boat around, the rudder at the same time being thrown around in the direction in which the boat is turned.

When the sail is taken in by loosening the ropes 37 and 38, they may be furled around their respective booms 24 and 25, though, if preferred, the rigging may be so constructed as to furl the sails laterally against the mast.

The part which I have termed the "fin" 11 has the functions of an ordinary rudder as well as those of an ordinary centerboard. It differs, however, from a mere rudder in that the direction of travel of the boat must necessarily be on a line coincident with the plane at which the fin 11 is set.

From the foregoing description it will be readily seen that by my improved construction of sail-boat the vessel is enabled to withstand a very stiff wind without liability of capsizing. Moreover, as a large sail area can be presented, at the same time the deck of the boat being maintained practically level, a great speed can be attained. Of course the floats may be made in any desired shape and in any well-known manner, and instead of being air-tight vessels, as shown, they may be open and may be used for storage or cabin accommodation.

I wish to be understood as not limiting my invention to the specific forms herewith set forth, as various modifications may be made in the same without departing from the spirit of my invention.

Instead of having the fin located amidships, as I have shown, it may be placed at any part of the boat, and when located at the stern it will act to direct the movement of the boat in the same plane as the fin itself. In carrying out my invention I contemplate using an ordinary rudder, which when placed forward of the stern will act in the same manner as the double-winged fin 11 herewith shown.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a boat provided with a sail adapted to be set in a fixed position in a plane crosswise of the boat, and a fin depending from the boat and adjustable angularly about a vertical axis and giving lateral resistance to the water, substantially as and for the purpose set forth.

2. The combination of a sail-boat having one or more floats pivoted on vertical axes and adapted to offer more resistance to the water in one direction than in the direction at right angles thereto, means for adjusting the said floats angularly on their pivotal axes in the same angular positions, whereby the direction of the line of travel of the boat may be determined by the angular positions of the said floats, substantially as and for the purpose set forth.

3. The combination of a sail-boat having one or more floats pivoted on vertical axes and adapted to offer more resistance to the water in one direction than in the direction at right angles thereto, a movable fin angularly adjustable about a vertical axis, and means for adjusting the said floats and the movable fin in the same angular positions, respectively, substantially as and for the purpose set forth.

4. The combination of a sail-boat having one or more floats pivoted on vertical axes and adapted to offer more resistance to the water in one direction than in the direction at right angles thereto, a pivoted fin angularly adjustable about a vertical axis and giving lateral resistance to the water, a steering-gear connected with said floats and said pivoted fin adapted to simultaneously move

each of the same into the same angular adjustment, substantially as and for the purpose set forth.

5 5. The combination of a sail-boat having a float pivoted on a vertical axis at each end thereof and angularly adjustable about such vertical axis and adapted to offer more resistance to the water in one direction than in a direction at right angles thereto, a float located between said end floats, a fin giving lateral resistance to the water and angularly adjustable about a vertical axis, said fin being located beneath said intermediate float, and means for adjusting said fin angularly, 15 substantially as and for the purpose set forth.

6. The combination of a sail-boat having a pivoted float adjustable angularly about a vertical axis, a fin depending from said float 20 and giving lateral resistance to the water, and means for adjusting said float angularly on

its axis whereby the direction in which the boat travels is always parallel with the vertical plane in which said fin is adjusted, substantially as and for the purpose set forth. 25

7. The combination of a sail-boat having one or more pivoted floats each angularly adjustable about a vertical axis, said floats adapted to offer more resistance to the water in one direction than in a direction at right angles thereto and provided with ball-bearings, and means for adjusting the floats angularly on their axes, substantially as and for the purpose set forth. 30

In testimony whereof I have hereunto set 35 my hand, this 7th day of June, 1899, in presence of the two subscribing witnesses.

JAMES P. POOL.

Witnesses:

EDWARD W. STARR,
WILLIS FOWLER.