

(No Model.)

2 Sheets—Sheet 1.

J. M. BOORMAN.
SAILING VESSEL.

No. 517,155.

Patented Mar. 27, 1894.

FIG. 1.

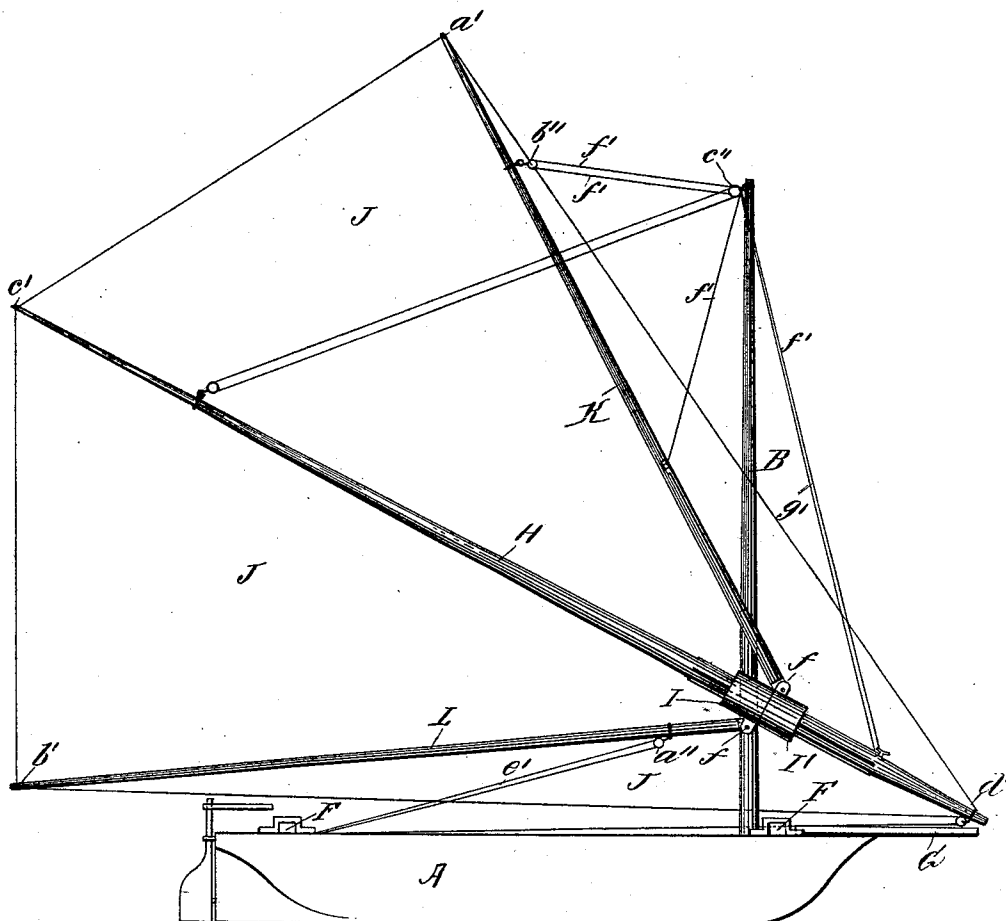
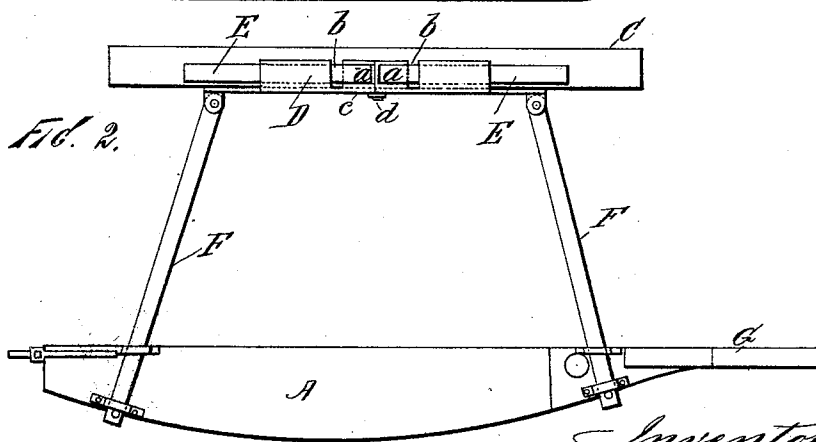


FIG. 2.



Witnesses
John Buckler,
Sydney Taylor

Inventor:
J. Marcus Boorman
per James A. Whitney
Attorney.

(No Model.)

2 Sheets—Sheet 2.

J. M. BOORMAN.
SAILING VESSEL.

No. 517,155.

Patented Mar. 27, 1894.

Fig. 3

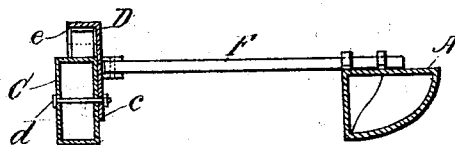


Fig. 4

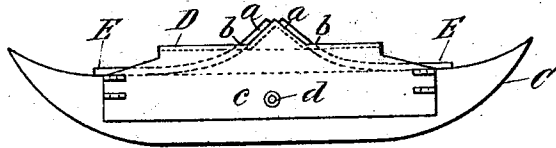


Fig. 5

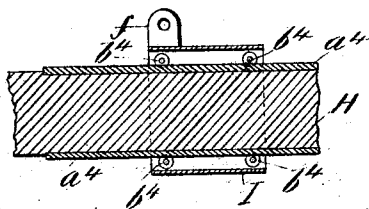
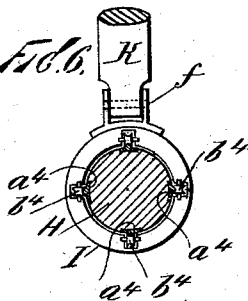


Fig. 6



Witnesses:
John Buckler,
Sydney Taylor

Inventor:
J. Marcus Boorman
per James A. Whitney
Attorney.

UNITED STATES PATENT OFFICE.

JOHN MARCUS BOORMAN, OF HEMPSTEAD, NEW YORK.

SAILING-VESSEL.

SPECIFICATION forming part of Letters Patent No. 517,155, dated March 27, 1894.

Application filed August 1, 1893. Serial No. 482,130. (No model.)

To all whom it may concern:

Be it known that I, JOHN MARCUS BOORMAN, of Hewlett's, in the town of Hempstead, in the county of Queens and State of New York, have
5 invented certain new and useful Improvements in Sailing-Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a
10 part of this specification, in which—

Figure 1 is a side view of a sailing vessel constructed according to my invention. Fig. 2 is a plan view of the same. Fig. 3 is a transverse sectional view of the hull, outrigger and
15 connected parts of said vessel. Figs. 4, 5, and 6, are detail views of parts of said vessel and further illustrative of my said invention.

This invention relates more especially to that class of vessels of which the South Sea
20 proa furnished with an outriggering device may be taken as the primitive type.

The object of my said invention is to increase the efficiency of the class or variety of sailing craft above indicated, and it comprises
25 certain new and useful combination of parts hereinafter fully described, by which said object is secured in a very high degree.

A is the hull of the vessel. This hull may be of any suitable construction with lines according to the judgment of the constructor. It is furnished with a mast, B, and with special rigging and sails which are hereinafter
30 fully described.

Placed parallel with the hull, A, is a device
35 which for convenience I designate as the outrigger, C. This may be of any desired length, but preferably about nine-tenths the length of the hull. The distance between the hull and the outrigger may be varied within wide
40 limits, but I prefer that it be about equal to one-half the length of the hull. This outrigger, which is hollow and hermetically sealed, may be made of sheet metal or other suitable material. Its ends at the under side should
45 have a parabolic curve, as shown in Fig. 4, to insure the least resistance to the movement of the outrigger through the water. Its width and depth may be varied within considerable limits, but its width is preferably about one-thirtieth of its length, or more or less, and its
50 depth from its upper side about one-twelfth, or more or less, of its length. Placed upon

the middle portion of this outrigger, C, is a saddle, D, which may be, say, two-fifths, or more or less, the length of the outrigger. This
55 saddle may be made of suitably strong sheet metal and has an angular transverse ridge or arch, *a*, at its center. In each side of this arch, *a*, that is to say, at its front and rear, transverse to the arch of the saddle is a slot,
60 *b*, the purpose of which is presently herein set forth. This saddle, D, is shown in cross-section in Fig. 3. It has flange or flanges, *c*, which extend downward from its side or sides. A transverse bolt, *d*, or other suitable device passed
65 through, or pivoted to, this flange, or flanges, affords a pivotal connection of the saddle to the outrigger, the under side, *e*, of the saddle being placed at a sufficient distance from the top of the outrigger to permit the ends of the
70 latter to swing up and down within certain limits. Strips, E, of suitable elastic wood, or other material are thrust through the slots, *b*, in the opposite sides of the arch, *a*, the said slots holding the inner ends of said strips at
75 a wide angle to the top of the outrigger, while their outer ends rest upon said top of the outrigger, the strips being thus forcibly bent and their outer ends resting upon the upper side of the outrigger and being thereby compressed
80 and held under tension, the strips, E, thus constitute springs which tend to hold the ends of the saddle equidistant from the outrigger, but permit, as just explained, the ends of the latter, on occasion, to move or tilt
85 around or upon the axis or pivotal bolt or connection, *d*, by which the outrigger is attached to the saddle, and consequently to the hull.

Extended from the ends of the hull to the
90 corresponding ends of the saddle are two spars, F, fast at their ends to the hull and to the saddle respectively, and which rigidly connect the saddle to the hull. The outrigger being attached to the saddle and the latter to the hull, as described, it follows that the outrigger becomes part of the vessel as a navigating craft. When the outrigger, C, is to windward its weight, with that of its adjuncts, (and any additional weight which may
95 in such case be placed upon it to meet the exigencies of any special occasion,) insures its action in maintaining the stability of the hull under sail in substantially the same man-
100

ner as the usual or common outrigger of craft of the general class heretofore indicated, but when the course or position of the hull is such that the said outrigger, C, is brought to leeward, its buoyancy (said outrigger being hollow and buoyant as hereinbefore explained) resists any considerable degree of submersion and to a like degree hinders and prevents the upsetting of the craft by the breeze from windward. As the stability of the hull is thus secured whether sailing as near as may be against the wind, or otherwise, the vessel may be tacked and sailed with the wind on either side of the outrigger with very great facility, and may be made to ride much closer to the wind than is possible with any ordinary vessel, and is enabled to carry a much greater spread of canvas under a stiff wind than is safe with ordinary sailing craft. The outrigger having, as just hereinbefore explained, a pivotal connection with the hull, said outrigger is enabled within wide limits, to adjust itself to the surface upon which it floats, so that instead of driving through head waves with loss of propulsive force on the part of the vessel, its forward end rises and falls to pass over the waves, the outrigger thus moving substantially upon the surface of the water under conditions which, if the outrigger had no such pivotal connection with the hull, would necessitate its forcible plowing through the water at a disadvantageous angle; this arrangement also enables the outrigger to ride the waves, when requisite, at a different and, on occasion, opposite angle to that of the hull. Further, by this means the universal or ball and socket joint heretofore found necessary with catamaran boats is dispensed with.

The hull with its outrigger as described is capable of much higher speed than the hull of an ordinary boat of corresponding size. To secure this speed a greatly increased area of sail is of course necessary. But if this increased area be sought by a simple increase of size in a sail such as is used with an ordinary boat, the result would be that in the very common occurrence of a squall or sudden gust of wind the hull would be driven under water. To provide the requisite area of sail without incurring such liability to accident, I provide a novel construction of rigging and sail by means of which, without liability to casualty, I am able to secure the maximum speed of which the hull and outrigger are capable.

G is the bowsprit which is made of a plank of a width sufficient to permit the walking thereon of the navigator of the craft. For example, said plank in a small craft may be of, say, one and one-half inches thickness and eight inches width, or more or less, with proportionate changes of dimension in large vessels. From the forward end of the bowsprit when close hauled extends the main boom, H, which swings upward and which, on occasion, is capable of swinging around the mast and backward past the mast, B, as shown in Fig.

1. Upon the main boom, H, are two sliding sleeves, I, and I', provided with brackets, f, or equivalent devices for pivoting to said sleeves, above and below the latter, the upper branch boom K and the lower branch boom, L, the former branch boom extended upward and raking backward from the mast, B, while the lower branch boom extends back horizontally, or somewhat dipping between the horizontal and, preferably, extending back beyond the stern of the hull, as shown in Fig. 1. The main-sail, J, is of the irregular quadrilateral form indicated in Fig. 1. At the upper corner, a', it is attached to the outer end of the branch boom, K, at its lower rearward corner, b', to the outer end of the branch boom, L, at its central rearward corner, c', to the outer end of the main boom, H, and at its forward corner, d', to the inner, that is to say, the forward end of the main boom. It will be observed, that by drawing forward the first sleeve, I, on the main boom, and at the same time releasing sleeve I' and the branch booms to permit their movement toward the said main boom, the main-sail may be brought to, and folded or reefed upon the main boom with the branch booms parallel, or substantially so, with the latter, and that by then lowering the main boom the whole may, when desired, be brought horizontal upon the hull. These movements of the two sleeves, and of the branch booms are provided for by means of sheets running over suitable pulleys. Thus, a sheet, e', extended over pulleys, a'', provides for the longitudinal movement of the sleeve, I, upon the main boom. Another sheet, f'', over pulleys, at b'', c'', provides for the tipping or descent, as the case may be, of the branch boom, K, and a similar sheet, g', over a like pulley at c'', for the corresponding operation of the main boom, H, and of the upper branch boom and its sleeve.

To facilitate the movement of the sleeves, I, I', along the main boom, the latter has upon four equidistant sides thereof, or otherwise, suitably disposed longitudinal metal plates, a', which, so to speak, constitute tracks for the said sleeves and which by diminishing friction and resisting wear provide for the smooth and easy movement, on occasion, of said sleeve, and for its durable retention in place without undue wear of the boom or of the sleeve itself, and which also assist materially in preventing a tendency on the part of the sleeves to rotate around the boom and thereby wrench the connection thereof with the branch booms. To further attain these objects, the sleeves are provided with internal sockets, which receive antifriction rollers, b', which run smoothly upon the plates, a'. This arrangement of parts is illustrated in detail in Fig. 6, which is a cross-sectional view of the main boom and the sleeve.

What I claim as my invention is—

1. The combination with the hull, A, of the hollow water-tight outrigger, C, placed parallel, or substantially so, with said hull and at

a suitable distance therefrom, whereby its weight is effective in insuring the stability of the hull when said outrigger is to windward and its buoyancy effective to the same result when the outrigger is to the leeward, substantially as herein set forth.

2. The combination with the hull, A, and the hollow water-tight outrigger, C, of the saddle, D, placed above and at a suitable distance from the top of the outrigger, a pin or pivot connecting the saddle with the outrigger, and spars, F, attaching said saddle to the hull, substantially as and for the purpose herein set forth.

3. The combination with the hull, A, and the hollow water-tight outrigger, C, of the saddle, D, placed at a suitable distance above the outrigger and constructed with a flange, c, a transverse pivot, d, pivotally connecting the saddle to the outrigger, and spars, F, which attach said saddle to the hull, substantially as and for the purpose herein set forth.

4. The combination with the hull, A, and the outrigger, C, of the saddle, D, constructed with the transverse slots, b, and placed above and at a suitable distance from the outrigger, and a pivot connecting the saddle to the outrigger, of the strips or springs, E, bearing against the outrigger and spars F, connecting the said saddle with the hull, substantially as and for the purpose herein set forth.

5. The combination with the hull, A, and the outrigger, C, of the saddle, D, constructed with the transverse slots, b, and a flange, c, and placed above and at a suitable distance from the outrigger, of the bolt or pivot, d, pivotally connecting the saddle by its flange or flanges to the outrigger, the strips or springs, E, bearing from the saddle against the outrigger, and spars, F, connecting the saddle with the hull, substantially as and for the purpose herein set forth.

6. The combination with the hull, A, and the hollow water-tight outrigger, C, placed parallel or substantially so with said hull at a suitable distance therefrom, of the mast, B, bowsprit, G, and main-sail, J, the main boom, H, the sleeves, I, I', movable on said main boom, the branch booms K and L each pivoted to its respective sleeve, the main sail, J, having the quadrangular shape herein described, and sheets for operating the sleeve

or sleeves and raising and lowering the booms, substantially as and for the purpose herein set forth.

7. The combination with the hull, A, and the hollow water-tight outrigger, C, placed parallel or substantially so with said hull at a suitable distance therefrom, of the mast, B, bowsprit, G, and main-sail, J, of the main boom, H, provided with longitudinal tracks, a⁴, the branch booms, K and L, the sleeves, I, I', arranged to move upon said tracks and provided with means for the pivotal attachment thereto of the adjacent ends of the branch booms, and sheets for actuating said sleeves and for raising and lowering the booms substantially as and for the purpose herein set forth.

8. The combination with the hull, A, and the hollow water-tight outrigger, C, placed parallel or substantially so with said hull at a suitable distance therefrom, of the mast, B, bowsprit, G, and main sail, J, the main boom, H, provided with the longitudinal tracks, a⁴, the branch booms, K and L, the sleeves, I, I', antifriction rollers placed within said sleeves and arranged to traverse said tracks, means for the pivotal attachment to said sleeves of the adjacent ends of the branch booms and sheets for actuating said sleeves and for raising and lowering the booms, substantially as and for the purpose herein set forth.

9. The combination with the hull, A, and the hollow water-tight outrigger, C, placed parallel or substantially so with said hull at a suitable distance therefrom, of the mast, B, and a sail carried by a boom crossing said mast, a plank bowsprit forming a pathway toward the end of said boom, substantially as and for the purpose herein set forth.

10. The combination with the hull, A, and the hollow water-tight outrigger, C, placed parallel or substantially so with said hull at a suitable distance therefrom, of the mast, B, main boom, H, branch booms, K and L, and sheets for working the said booms, a plank bowsprit forming a pathway from the hull to the forward end of the main boom, substantially as set forth.

J. MARCUS BOORMAN.

Witnesses:

GRAHAM MCADAM,
SYDNEY TAYLOR.