

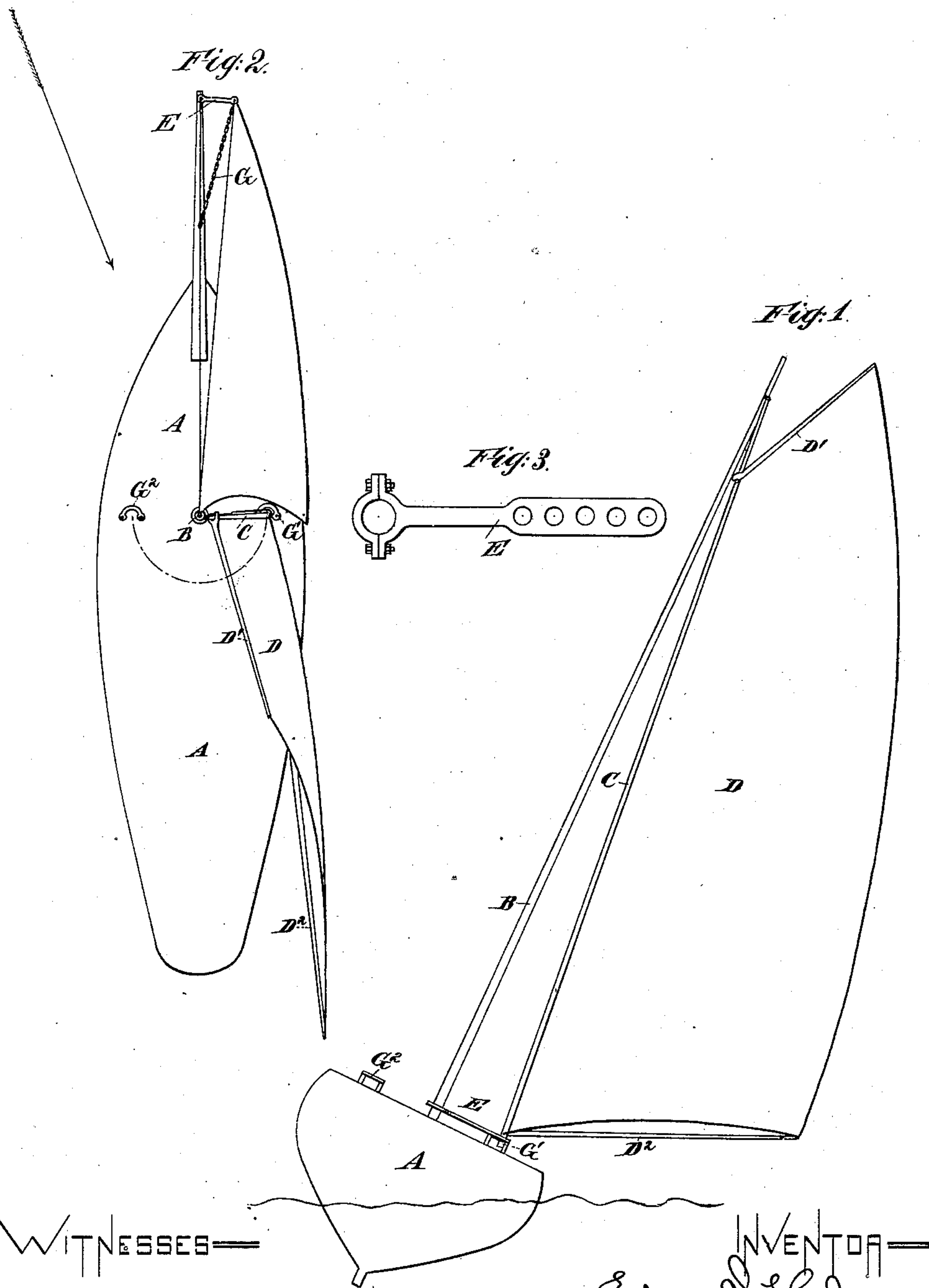
(No Model.)

E. S. HICKS.

MAST AND SPAR.

No. 273,529.

Patented Mar. 6, 1883.



WITNESSES—

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INVENTOR—

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Thomas J. Watson.

UNITED STATES PATENT OFFICE.

EDGAR S. HICKS, OF BROOKLYN, NEW YORK.

MAST AND SPAR.

SPECIFICATION forming part of Letters Patent No. 273,529, dated March 6, 1883.

Application filed November 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDGAR S. HICKS, of Brooklyn, Kings county, in the State of New York, have invented certain new and useful Improvements relating to the Rigs of Vessels, of which the following is a specification.

My invention may apply to all sizes and styles of "fore-and-aft" rigged vessels. I will describe it as applied to a small yacht.

With my rig the sail sets off from the mast at the foot to the leeward, thus enabling the boat to point up in the wind better. It is also in effect a side rake, which, when the boat is in an even keel, gives the sail a lifting-power, and when it heels to leeward it then, being more upright than the mast, gets more benefit from the wind. I have discovered, and made practically available the discovery, that under all ordinary conditions, and especially in sailing with the wind abeam or close-hauled, the sail engages the wind to better advantage when it is caused to stand off from the mast at the base, so that the sail is more perpendicular than the mast. I have wrought out the invention by attaching the front edge or "luff" of the sail to a light spar or rod which lies close to the mast at the upper end, and is secured thereto by any suitable joint, which allows motion in all directions, and is held off from the mast over to or near the lee side of the vessel at the lower end. For the mainsail or foresail I provide a hinged piece of proper length, pivoted to the boom and to the mast, which is free to swing to one side or the other with the boom. I provide stops for engaging this hinged piece and preventing it from moving around too far. The jib is similarly equipped, except that, instead of two fixed stops for the latter, I prefer a single piece of rope or chain attached to a proper central point farther aft.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is an end view of a cat-boat rigged according to my invention. Fig. 2 is a view from above, showing by an outline diagram a nearly similar vessel, with the addition of a jib correspondingly rigged. The view from above will be understood to be at a point a little in rear of the vertical. It is exactly in line

with the mast. Fig. 3 represents one of the details on a larger scale.

Similar letters of reference indicate corresponding parts in all the figures.

The drawings represent the novel parts, with so much of the ordinary parts as is necessary to indicate their relation thereto. Parts not represented may be of any ordinary or suitable character.

Referring to Fig. 1, A is the hull, B the mast, and C a light spar, having a length nearly equal to that portion of the mast above the deck. The front edge of the sail D is secured to the spar C. The gaff D' and the boom D² are also fitted to the spar C and turn thereon. The upper end of the spar C is secured to the mast B either by a short rope or chain, just sufficient to allow the required motion, or by a universal joint more or less elaborately made of iron or other suitable material. The most marked peculiarity is at the lower end of the mast. A sufficiently stout offset-piece of wood or metal, E, is pivoted to the mast near the deck. I have shown it as formed with a jaw analogous to that by which an ordinary boom is pivoted to or, rather, turns on the mast as a center; but I propose with this rig always to provide strong and reliable means of engaging the jaw with the mast, so that it cannot be pulled away from it. The other end of the offset-piece E is engaged with the lower end of the spar C, with liberty for one to turn upon the other.

G' G² are stops which receive the offset-piece E as it swings over to one side and the other of the vessel.

The sheets, halyards, down-hauls, lazy-jacks, reef-points, and ear-rings, &c., may be all as usual. The fact that each sail is secured to a movable spar, C, instead of to the fixed mast does not substantially change the conditions in regard to any of these points; but it makes a large difference in other important points. By virtue of its being attached to the spar C, which is held off from the mast at the bottom on the lee side, the sail is held more nearly upright than usual when the vessel is careened over or "heeled" over. This causes the sail to receive the wind with more force than when, as usual, it is fastened to the mast and has at the luff the same inclination as the mast. My

rig makes a given amount of sail more effective for this reason.

My invention enables a vessel to lie closer hauled than the ordinary rig. The difference may come in part from the fact that with a given amount of sheet the sail will lie flatter or more nearly fore and aft. It may come in part from the fact that the spar C, which is slender, does not so much disturb the action of the wind on the sail as does the large mast when the latter is, as usual, in front of the forward edge. It may come in part from the fact that the lower portion of the entire sail is farther to leeward than usual. From whatever cause, I have determined by experiment that the vessel with my rig holds a course appreciably nearer to the wind than the same vessel with the ordinary rig.

Another marked advantage of my rig lies in the clear outlook which is presented forward on both sides of the mast. Ordinarily the sail or sails obstruct the view on the lee side of the mast, and as a vessel always makes more or less leeway the man at the helm often finds it difficult to see directly ahead, and still more difficult to see a little to leeward of the course. With the center-board down, or with any construction which holds onto the wind well, my rig allows a clear view of the course and a considerable angle to the rearward of it. The parts incline forward so as to hold the lower end of the spar C in contact with one of the stops G' G². In tacking, the offset-piece swings freely and easily around, moving the lower end of the spar C away from the stop G' or G² until it extends fore and aft. Ultimately, as the vessel fills away on the other tack, the offset-piece E swings over to the side of the vessel opposite to that which it before occupied and brings the spar C in contact with the stop G² on that side. Now the vessel is on the other tack, and all is working as before.

Applying my rig to the jib, the offset-piece E is fitted on the base of the jib-stay and swings over to one side or the other, carrying the lower end of a slender spar, and having its upper end fastened to the jib-stay or to the mast-head with proper liberty to swing. The jib acts the same as the mainsail and foresail in sailing, tacking, and jibing; but at the jib I substitute for the stops G' G² a single rope or chain, G, which

is secured to a point at or near the root of the bowsprit, and allows all the motions required, while serving as an efficient stop when the parts have swung forward to the proper allowable extent.

Modifications may be made in the forms and proportions of the details. Some of the advantages of the invention may be realized by the employment of the shifting spar C without the offset-piece E. In such case the spar C may be held within a proper distance from the mast by a rope or chain; or the latter even may be dispensed with, and the spar may, in small vessels, be shifted by hand from its seat in one of the stops, G', into the proper seat in the other stop, G², and back again as the boat tacks or jibes. I propose in some instances to rig a pair of tackles to the lower end of the spar C, and to use one and the other alternately to haul the lower end of the spar C strongly into proper contact with the stop. This arrangement will not require anything equivalent to the offset-piece E.

Fig. 3 shows the offset-piece E equipped to take hold of the mast with a solid ring. This may be varied. It may take hold of a pivot immediately aft of the mast; or it may be formed with a jaw, like the throat of a boom, and the mast simply embraced by a sufficiently stout thimble-rod and thimbles.

I claim as my invention—

1. The fore-and-aft rig described, having the sail D held away from the mast, by the offset-piece E, sleeved upon the mast and carrying the spar C and boom at its outer extremity, at the base, enabling the vessel to point up in the wind to better advantage, so that when the vessel is heeled over the sail will be more upright than the mast, as herein specified.

2. In a fore-and-aft rig for vessels, the stops G' G², in combination with the spar C, mast B, and offset-piece E and boom D², as herein specified.

In testimony whereof I have hereunto set my hand at New York city, this 1st day of November, 1882, in the presence of two subscribing witnesses.

EDGAR S. HICKS.

Witnesses:

W. C. DEY,
H. A. JOHNSTONE.