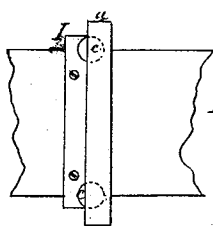
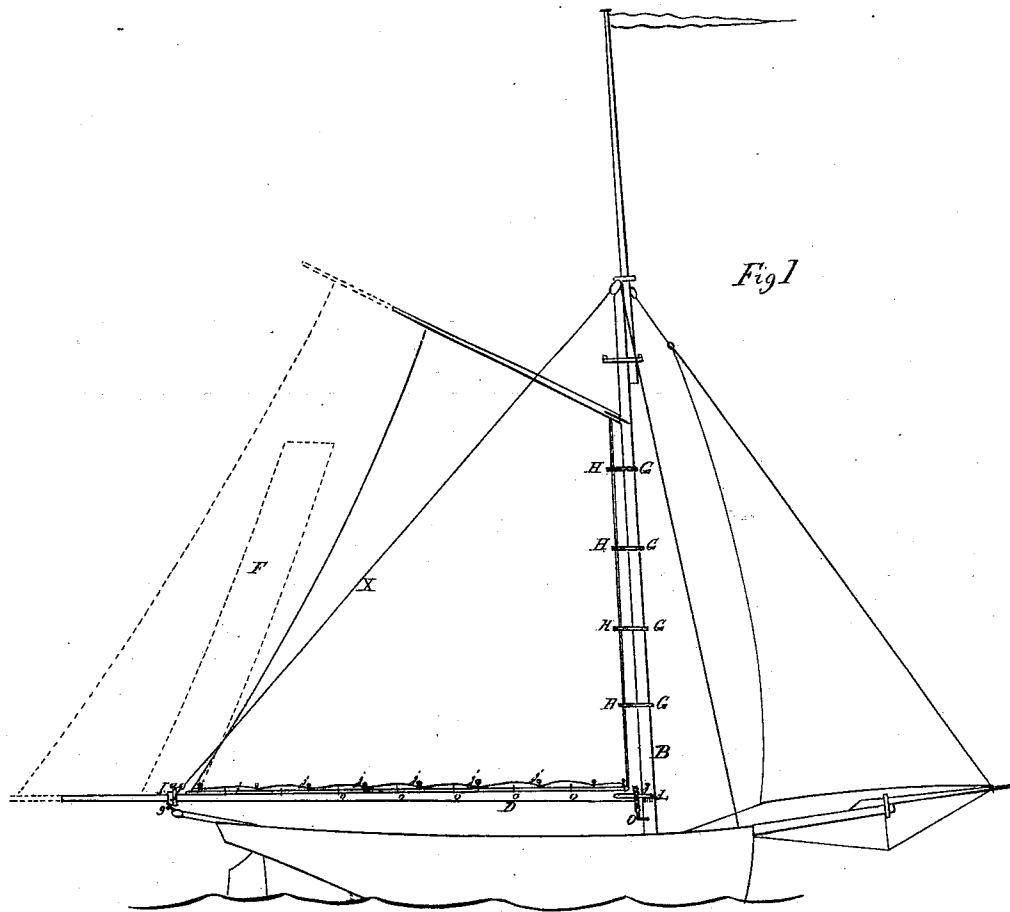


2 Sheets—Sheet 1.

P. C. MARSH.
FAIR RUNNERS FOR SAILS.

No. 179,459.

Patented July 4, 1876.



Witnesses.

C. C. Holman
C. D. Moore

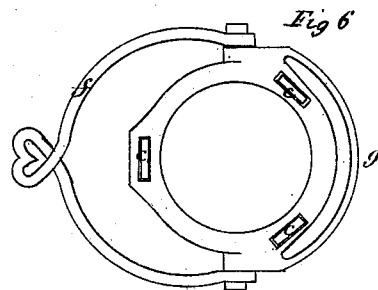
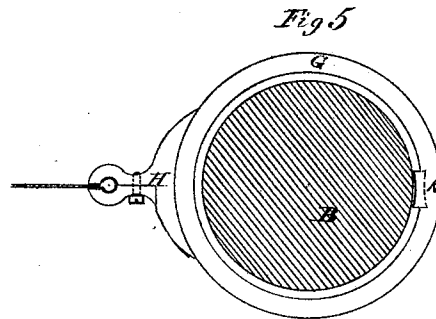
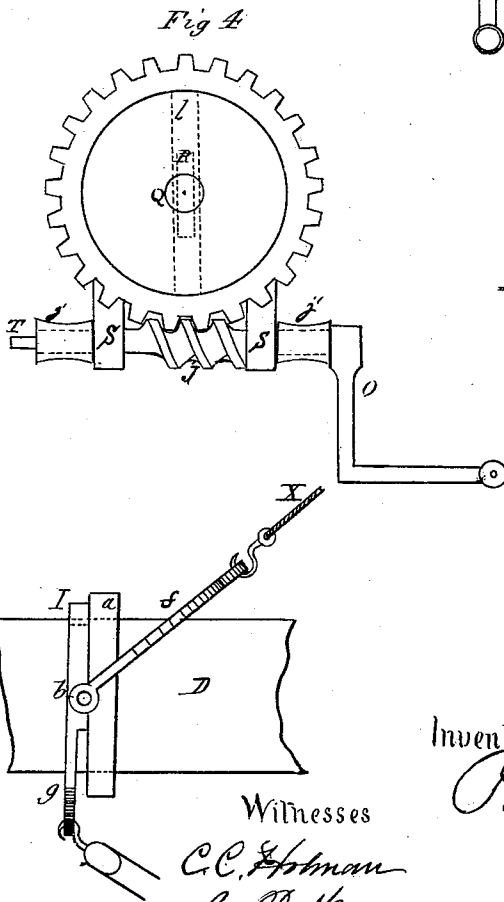
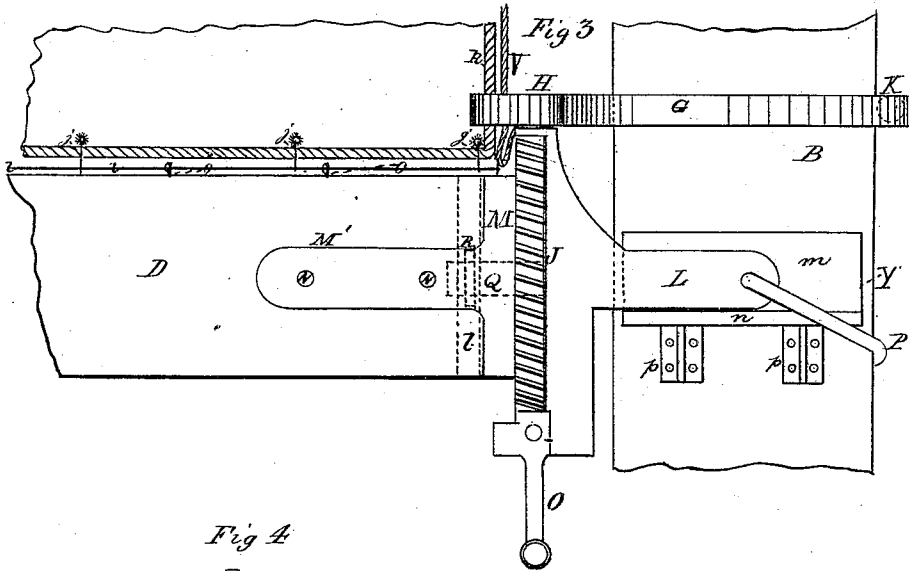
Inventor

Parter Cha^s Marsh
By Wm. Rues
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P. C. MARSH.
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Inventor

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Witnesses

C. C. Hoffman
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att'y

UNITED STATES PATENT OFFICE.

PARKER C. MARSH, OF NORTHAMPTON, MASSACHUSETTS.

IMPROVEMENT IN FAIR-RUNNERS FOR SAILS.

Specification forming part of Letters Patent No. **179,459**, dated July 4, 1876; application filed October 18, 1875.

To all whom it may concern:

Be it known that I, PARKER CHARLES MARSH, of the town of Northampton, in the county of Hampshire, in the State of Massachusetts, U. S. A., have invented a new and useful Improvement in Reefing Fore-and-Aft Sails; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

Figure 1 is a full side view of a small yacht. Fig. 2 is a section of a boom and collar. Fig. 3 is a detailed view of the apparatus for rolling the boom. Fig. 4 is a view of worm-gear. Fig. 5 is a top view of fair-leaders. Fig. 6 is an end view of boom-iron and collar. Fig. 7 is a side view of boom-iron, with boom broken away.

My invention consists in the combination, with the sail and hooks, of a fair-runner constructed in two parts, and secured together by set-screws, as will be hereinafter more fully described.

The hoops G, surrounding the mast, are kept at equal distances apart by a small line, V, or rope, attached to each hoop, to keep them in their respective places. The fair-leaders H, Fig. 5, will be made of malleable cast-iron, galvanized to avoid rusting the sail. They are attached to each hoop G, and nearly encircle the bolt-rope *k* of the sail, leaving just sufficient space for the canvas itself to pass through, so that on rolling down the sail, when the first hoop lands, the sail draws through easily till the next hoop lands, and so on until the sail is all rolled up on the boom. When making more sail, by unrolling and hoisting it, each hoop will find its proper place at any time, night or day, without any assistance, and preserve their proper distance apart by the small line V referred to.

It will be observed that the boom-iron I revolves on an iron collar, *a*, having a shoulder on the inner edge, surrounding the boom and fastened thereto. Three friction-rollers, *c c c*, are affixed therein, to lessen the friction of the boom-iron upon it when the boom is revolving. The boom-iron I surrounds the boom and collar *a*, and plays loosely. It has two projections, *b b*, one on either side, to receive the bail *f*, to which the top-lift X is attached for supporting the boom. The lower part of the

boom-iron I contains a traveler, *g*, to which is hooked a sheet-block for securing the sail.

As the ring I is at a great distance from the mast-head, and suspended from it by the top-lift X, there would naturally be a great deal of friction on the collar *a*. This is easily obviated by the friction-rollers *c*, set at equal distances apart, as above referred to, which readily allows the boom-iron ring to revolve easily in its bearings.

The worm-gear and jaws are made of iron of sufficient strength for the purpose intended. The larger the boom the heavier will be the iron parts thereto.

J is the worm-gear, with collar M and side straps M', which run alongside of the boom, one on each side, a short distance, the length of which are proportionate to the size of the gear, and are bolted or screwed into the boom at N N. In the center of the jaws L, at the rear end, is a wrought-iron or steel arbor, axle, or wrist-pin, Q, and which runs through an opening in the center of the worm-gear J, and into the center of the boom, and is keyed by a pin, R, let into it through a hole, *l*, in the boom, as shown in Figs. 3 and 4. The boom D is thus firmly attached to the jaws, but the hole in the worm-gear is sufficiently large to enable the boom to revolve easily.

The gear is rather wider in diameter than the boom, so that the accumulation of the sail and bolt-rope will not rise above or come in contact with the teeth on its edge.

Each of the hoops G may be provided with a small friction-roller, K, if desired, as shown in dotted lines, Fig. 3, to facilitate the movement of the hoops up and down the mast while hoisting and lowering the sail—most frequently the latter. As there is only about two inches of bearing of any hoop on the mast, these rollers will be about that length, being smaller in the middle, which gives it a corresponding circle with the mast. The said rollers will be constructed of wood, with steel axle set in iron bearings, so that, instead of masts being scraped or greased for the hoops to glide freely, they may be painted, which will look much better.

By reference to Fig. 4, it will be seen how the boom is revolved. The worm-gear, which is attached to the boom, is acted upon by the

endless screw *J'*, turned by the handle *O*, the said endless screw being supported in its place by a shaft, *T*, in the journal-bearings *S*. The leverage-power of the screw and gear thus obtained easily revolves the boom. The opposite end of the said shaft *T* can also have a handle attached similar to the one shown, so that the labor of reefing a very large sail will be reduced.

The sail will be fastened to the boom as follows: An iron or wood jack-stay, *i*, Fig. 3, will be passed through eyes *o*, screwed into the upper side of the boom, and the sail fastened to the said jack-stay by small pieces of rope *j*, or foot-stops. Wood jack-stays may also be used.

A small drum, *j'*, may be attached at each end of the screw-shaft *T*, for a turn of the peak or throat balyards, for the purpose of assisting to hoist the sail aloft, and at the same time unrolling it from the boom. It serves to steady the sail in either case.

An adjustable saddle, *Y*, composed of a chafing-band, *m*, a shelf, *n*, and brackets *p*, is bolted to the mast in the most convenient position

for the jaws of the boom to rest upon. It is made in two sections, one on each side, so that no matter at what angle the boom rests against the mast it will always be supported.

It will be observed that the dotted lines in Fig. 1 show a yacht with a longer boom, and the sail running some distance over the stern. In this case, instead of placing the boom-irons at the end of the sail, as in Fig. 1, I place it a convenient distance from the end of the sail, and use a sliding apron, *F*, in the sail, similar to that of what is known as "Cunningham's Patent Square Top-Sail," upon which I claim nothing.

What I claim as my invention is—

The combination, with the sail and the hoops embracing the mast, of the fair-runners constructed in two parts, secured together by one or more set-screws, substantially as described.

Dated at Hamilton, Ontario, Canada, this 26th day of July, A. D. 1875.

PARKER CHARLES MARSH.

Signed in the presence of—

WM. BRUCE,

GEO. E. LUMSDEN.