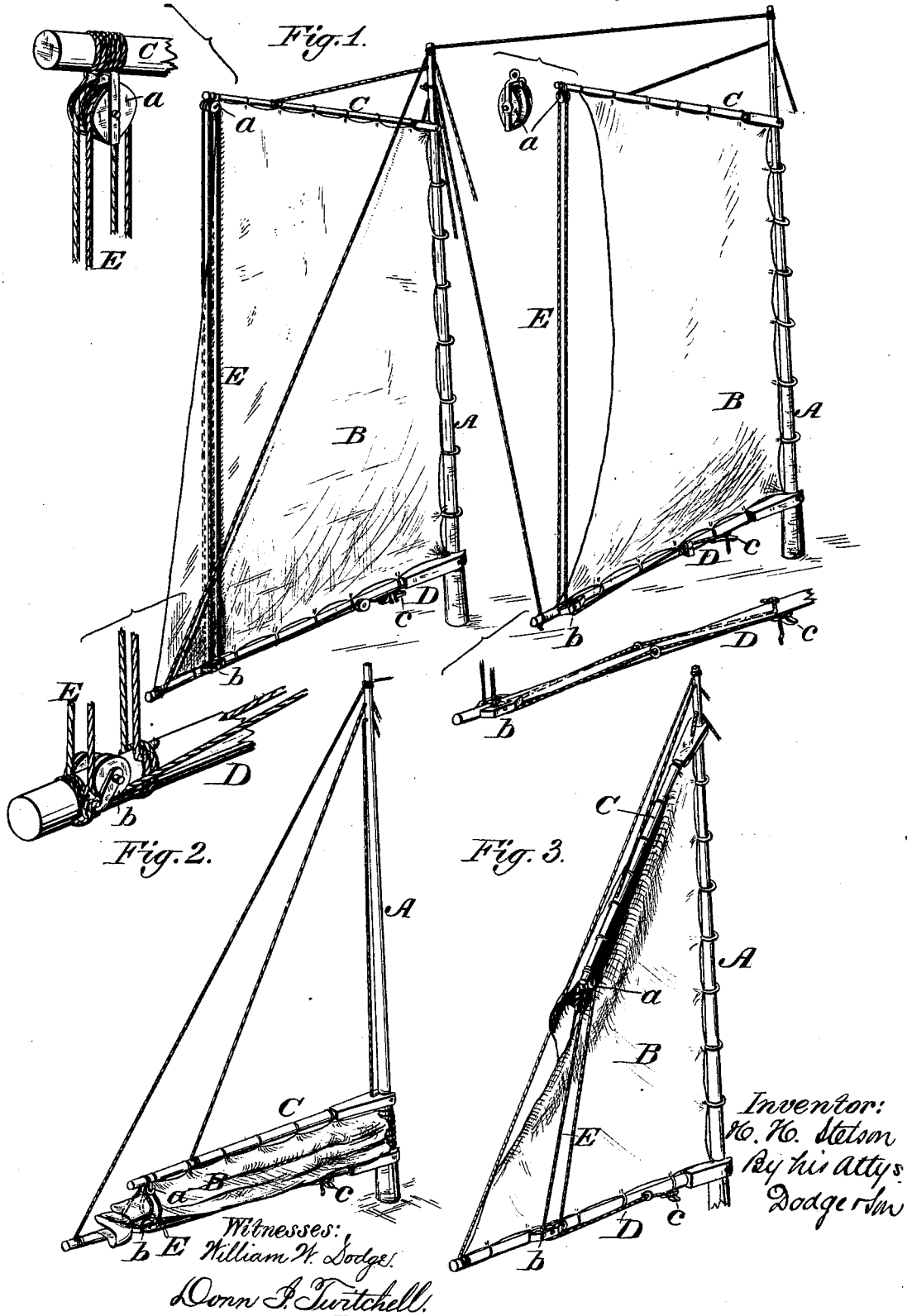


H. H. STETSON.
Rigging for Fore and Aft Sails.

No. 219,831.

Patented Sept. 23, 1879.



UNITED STATES PATENT OFFICE.

HIRAM H. STETSON, OF REVERE, MASSACHUSETTS.

IMPROVEMENT IN RIGGING FOR FORE-AND-AFT SAILS.

Specification forming part of Letters Patent No. **219,831**, dated September 23, 1879; application filed July 17, 1879.

To all whom it may concern:

Be it known that I, HIRAM H. STETSON, of Revere, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Rigging for Fore-and-Aft Sails, of which the following is a specification.

My invention relates to vessels carrying fore-and-aft sails; and its object is to provide means whereby the gaff may be controlled and prevented from swinging laterally with reference to the boom when lowered; and to this end consists in a down-haul extended from the peak of the gaff downward through a guide of any suitable character located upon the boom directly beneath the gaff-peak, so that as the down-haul is drawn upon, it brings and holds the gaff directly over and in line with the boom.

Peak down-hauls are in general use in connection with fore-and-aft sails; but as ordinarily arranged they are extended from the peak of the gaff inward toward the mast through a guide upon the boom, the arrangement being such that when the gaff is lowered to the boom the down-haul extends from the peak in a nearly horizontal direction to the guide on the boom. As there is no other means of checking the lateral play of the gaff, it frequently happens in a rough sea or a strong breeze that the gaff, when run down, thrashes violently from side to side athwart the boom entirely beyond the control of the seaman, and greatly to the peril of the wheel and wheelsman in particular, and of the crew in general.

By arranging the down-haul in accordance with my plan these difficulties are overcome, and the gaff brought at all times within the control of the navigator, the down-haul serving to bring the gaff down squarely and directly upon the boom and hold it firmly thereto.

Another advantage incident to my construction is, that when it is desired to shorten sail, or to lessen the danger of jibing in a heavy wind, the peak of the gaff may be dropped and hauled down and held obliquely by the down-haul, so as to reduce the operative portion of the sail to a triangular form.

The down-haul may be single or double, and the guides may be constructed and arranged in any suitable manner, provided it extends from the gaff directly downward to a guide on the boom.

Figure 1 represents a perspective view of the fore and main sails of a schooner provided with my improvement, the sails being hoisted to their full extent. This view also shows in detached figures the arrangement of the guides. Fig. 2 is a perspective view, showing the gaff down; Fig. 3, a view showing the sail raised and the peak dropped.

A A represent the masts, B B the sails, C C the gaffs, and D D the booms, all of which will be constructed and arranged as usual, and provided with the usual halyards and other necessary parts.

E E represent my down-hauls. In the case of the foresail, the top and foot being of nearly equal width, the down-haul is carried upward from the boom through a single block, *a*, at the gaff-peak, and thence directly downward through a shell or guide, *b*, on the boom, and inward along the latter through suitable guides to cleats *c* thereon near the mast.

The guides *b* are located at the same distance from the mast as the pulley *a*, so that the down-haul will draw the gaff down squarely upon top of the boom and hold it from moving thereon, as shown in Fig. 2.

In the case of the mainsail, which is, as usual, much wider at the foot than at the top, a double down-haul is used, as shown in Fig. 1, there being on each side of the sail a rope passed from the boom upward through a block or other guide on the gaff, and thence downward in a perpendicular direction through a shell or guide, *b*, on the boom; and inward along the same toward the mast. The sail extends between the two lines, and is caught and held between them as the gaff descends. This double arrangement acts in the same manner and with the same effect as the single, so far as guiding and holding the gaff is concerned.

As before stated, the essential feature of the invention consists in carrying the down-haul from a point on the gaff directly downward to a corresponding point on the boom—that is to say, a point at the same, or substantially the same, distance from the mast.

Having thus described my invention, what I claim is—

1. In combination with a fore-and-aft sail, a boom, a gaff, and a peak down-haul extending from the gaff in a line parallel with the

mast through a guide upon the boom, and adapted to draw the gaff down directly and firmly on top of the boom, as described and shown.

2. The combination of the boom, the gaff, and the down-haul passed from the gaff downward to a guide on the boom directly beneath the gaff-peak, and thence inward along the boom to a cleat or fastening upon the boom near the mast, whereby an operator standing at the mast is enabled to draw the gaff down directly and firmly on top of the boom, and to

prevent it from playing laterally except with the boom.

3. The combination of the gaff, the boom, the mainsail, and the double peak down-haul extending from the gaff downward on both sides of the sail to points on the boom directly beneath the point at which they are connected to the gaff.

HIRAM H. STETSON.

Witnesses:

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