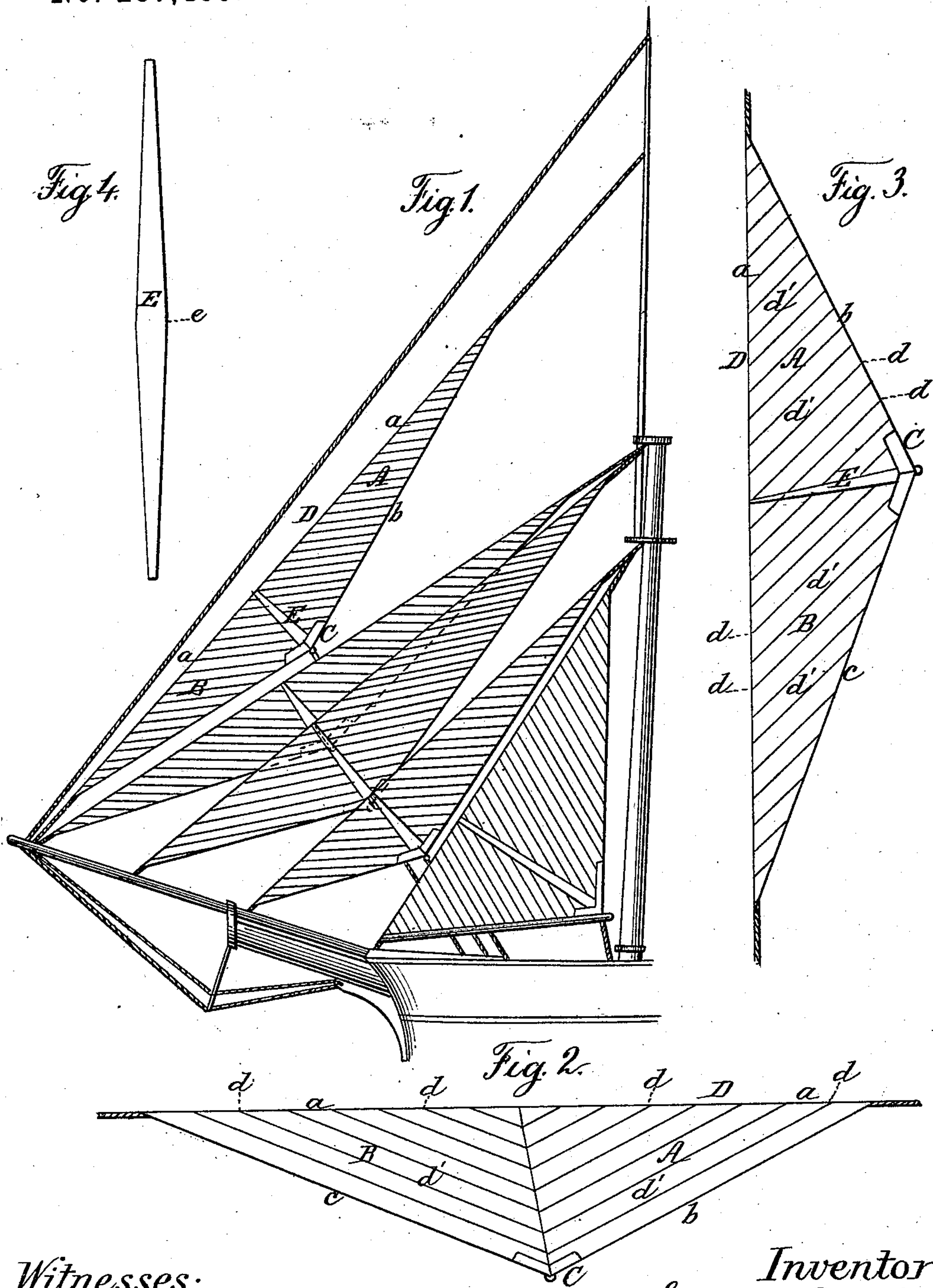


(No Model.)

E. PINKHAM.
SAIL.

No. 287,465.

Patented Oct. 30, 1883.



Witnesses:
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UNITED STATES PATENT OFFICE.

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SPECIFICATION forming part of Letters Patent No. 287,465, dated October 30, 1883.

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To all whom it may concern:

Be it known that I, EDWIN PINKHAM, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented new and useful Improvements in Sails, of which the following is a specification.

My invention relates to sails, particularly to jib-sails. Heretofore the head and foot bias parts of jib-sails have been united at their widest ends by a lap-seam, at the outer end of which seam the clew is secured. The bias sections of canvas forming the head and foot portions of jib-sails were so cut that the breadths or strips forming them extended in a parallel direction with the leech and foot ropes. These jib-sails, therefore, consisted of two bias sections of canvas united at their widest ends, composed of strips or widths of canvas running in a lengthwise direction with the sail, all terminating at the head or stay rope. A split or rent commencing in a jib-sail constructed as above described, whether it be in the head or foot portion, would continue until it reached the central seam at one side and the head or stay rope at the other end, whereby the usefulness of the sail would be destroyed. Parting of the sail at its central portion, or along the seam extending transversely across the sail to the clew, often occurs, in which case the sail is rendered useless. Injury to the jib-sails of a sailing-vessel usually occurs at a very critical moment when under full headway, and probably in a gale, when repairs of this nature, necessitating the taking in of the sail, cannot be judiciously attempted. Frequently by an injury to the jib-sails their effectiveness to keep the headway of the vessel is seriously impaired, and also the vessel's head will not properly respond to the helm, endangering serious results.

The object of my invention is to so form the sails that the above-mentioned defects will be overcome, this being accomplished, as will hereinafter more fully appear, by making the sail in a single section or piece on a bias, so that the ribs or lengths of canvas composing the sail will be short and extend diagonally across the sail along its entire length from head or stay rope to leech, and from the head or stay rope to the foot-rope. In addition to thus making the sail on a bias, a re-enforcing

bias-cut piece or gusset is secured transversely across the widest or central portion of the sail, extending on each side thereof, from the clew to the head or stay rope. The splitting of the sail lengthwise is therefore prevented, and should a split occur it cannot, by reason of the intervention of the bias-cut piece or gusset, cross the central portion or belly of the sail—the most important point—and render ineffective the clew-lines and bolt-rope, but can extend only diagonally across the sail along the length of the canvas strip from the head or stay rope to the leech or foot rope, as the case may be. The entire utility of the jib is not, therefore, destroyed, and the injury can be quickly repaired when a convenient opportunity should occur.

Referring to the drawings forming a part of this specification, Figure 1 represents the jib-sails of a vessel. Fig. 2 represents a view of the two-part jib-sail as now made; Fig. 3, a view of the bias-cut or single jib-sail made according to my invention; and Fig. 4 a view of the gusset.

A is the head portion of the sail; B, the foot; C, the clew, secured in the usual manner to the edge of the sail at its widest part. Around the margin of the sail is the usual bolt-rope, D. Along the top edge, *a*, the bolt-rope is termed the "head" or "stay" rope. Along the side *b* it is the "leech," and along the bottom *c* it is the "foot" rope.

E is the gusset or strengthening-piece, cut bias, and tapering from the center *e* toward both ends, as shown in Fig. 4, and of a length equal, when folded at its central portion, to extend transversely across the sail from side to side thereof at its widest part, immediately adjacent to the clew. By this provision the central portion of the sail is re-enforced and strengthened, and a strong bearing for the clew is secured.

As will be seen, the seams *d* of the canvas breadths *d'* in the old form of jib-sail, Fig. 2, extend in parallel lines with the leech and foot ropes, ending at the central portion or belly-seam of the sail on a line running transversely across the sail from the clew, while the seams of my improved sail (represented in Figs. 1 and 3) extend diagonally across the sail from the head or stay rope *a* to the leech *b* and foot-rope

c, while those seams crossing the belly of the sail strike on the re-enforcing gusset.

Although I have shown and described my invention as only applied to jib-sails, yet it
5 may be applied to the gaff or main and fore-and-aft sails and gaff-topsails.

I claim—

10 1. A jib-sail in which the breadths or rib-united strips cross the belly part from the clew to the head or stay rope diagonally and parallel from the head-point to the foot-point of the sail, and re-enforced on both sides across the widest part from the clew-connection, as shown and described.

2. A sail formed of breadths or strips of 15 canvas which extend diagonally across the same from head or stay ropes to the leech and foot ropes, and having a bias re-enforcing piece or gusset transversely across its widest portion, as hereinbefore described, for the pur- 20 poses specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWIN PINKHAM.

Witnesses:

WM. H. MASSON,
MOSES NORRIS.