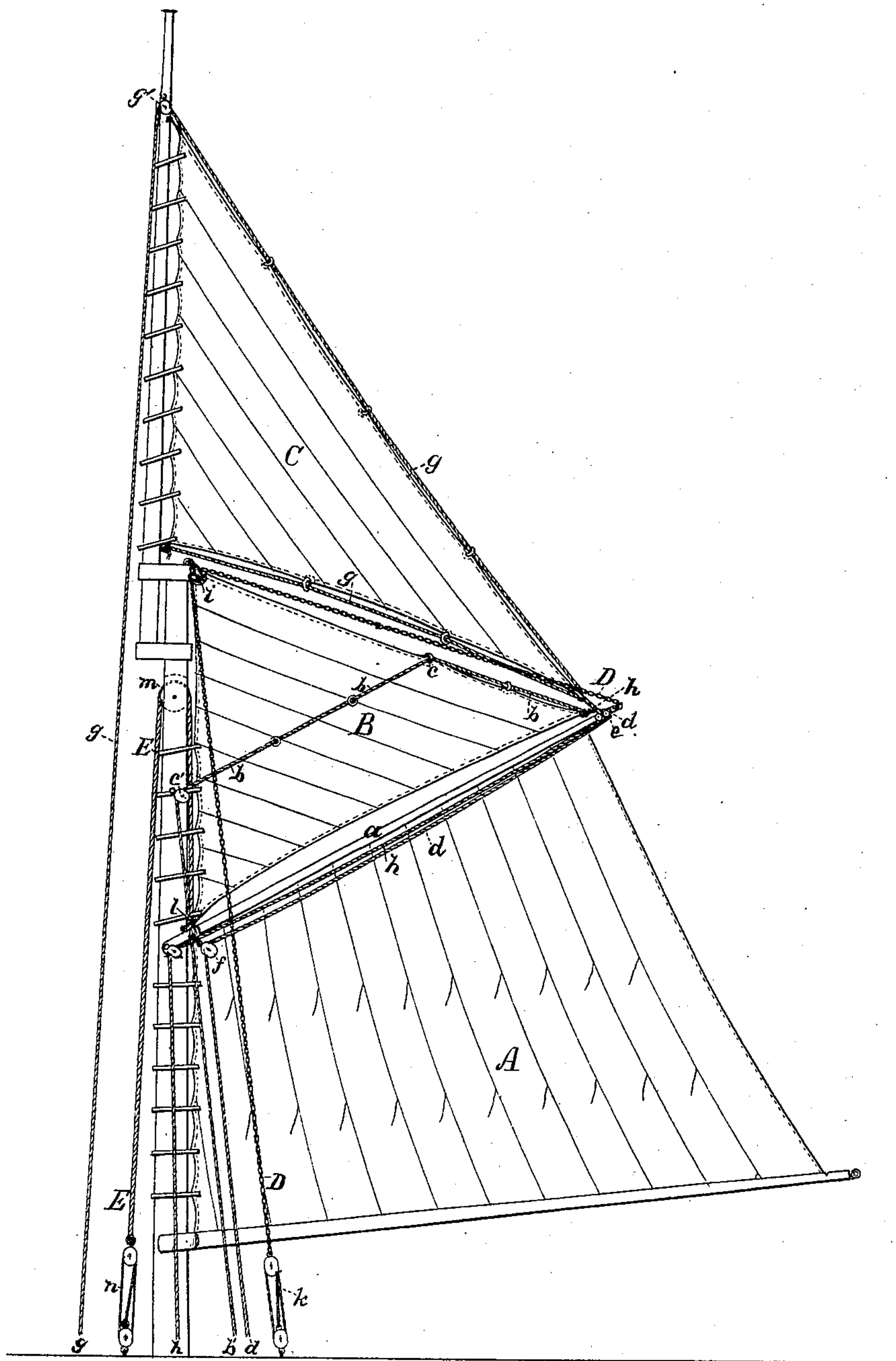


B. P. LECRAW.

Reefing and Furling Gaff-Topsails.

No. 167,911.

Patented Sept. 21, 1875.



Witnesses:

Arthur C. Fraser.
Thomas J. Keighan

Inventor:

Benj. P. Lecraw.
By his Attorneys,
Burke & Fraser

UNITED STATES PATENT OFFICE.

BENJAMIN P. LECRAW, OF SALEM, MASSACHUSETTS.

IMPROVEMENT IN REEFING AND FURLING GAFF TOP-SAILS.

Specification forming part of Letters Patent No. **167,911**, dated September 21, 1875; application filed August 19, 1875.

To all whom it may concern:

Be it known that I, BENJAMIN P. LECRAW, of Salem, Massachusetts, have invented certain Improvements in Double-Gaff Top-Sails, of which the following is a specification:

The object of my invention is to provide a sail which is convenient of operation, and which will allow of furling small portions of the canvas at a time; and it consists in the form and structure of the double-gaff top-sails and mainsails of a vessel, and in the means employed to operate the same, as hereinafter described.

The accompanying drawing, which is a side elevation, represents a schooner-rigged mast, fitted with sails of my invention. Let A represent the mainsail, the top of which is cut away, so as to bring the gaff *a* lower down than usual, and obviate the necessity of more than two reefs, as shown. B is an intermediate gaff top-sail of triangular form, attached to the mainmast by hoops, and provided with a brail, *b*, by which it can be furled and brailed to the mast. This brail *b* is fastened at the extreme end of the sail, runs along the edge to the point *c*, and thence diagonally across the sail to the mast at pulley *c'*, from which it descends to the deck. The sail B is spread, and held to the wind by the sheet *d*, passing through a sheave, *e*, in the gaff end, and a pulley, *f*, on the gaff near the mast, as shown. C is the upper gaff top-sail, and is manipulated by a sheet, *h*, passing along the gaff in the same way as the above-described sheet *d*, and by a brail, *g*, running from the mast along the under side of the sail through rings to the corner, from which it passes up along the outer edge of the sail to a block, *g*, in the topmast, from which it descends to the deck, as shown.

The peak-halyard chain D, supporting the end of the gaff, passes over the pulley *i* at the top of the mainmast, and thence down to

the deck, where it is operated by tackle *k*. The throat-halyard E is attached to the gaff at *l*, passes over a sheave, *m*, housed in the mainmast, and extends downward to the deck-tackle *n*. The mainsail A is of the usual construction, being stretched between the gaff *a* and main-boom, as represented.

By my construction of the gaff top-sails, I am enabled to furl small portions of the canvas at a time, and very quickly, which in squally weather is a great advantage. These sails being also operated entirely from the deck, and having comparatively few ropes, which are not liable to get out of order, their advantage is obvious.

I do not claim an intermediate sail B between the mainsail and upper gaff top-sail, as this is not original with me; but

What I do claim is—

1. The device consisting of the lower gaff top-sail B, provided with a brail, *b*, attached to the outer corner of the same, and extending thence along the upper edge to a suitable point, *c*, and thence diagonally across the sail, as shown, for brailing or furling the sail to the mast, and also having a sheet, *d*, attached to its outer corner, and passing over pulleys *e* *f*, for the purpose of setting the sail, all constructed and arranged substantially as shown.

2. The upper gaff top-sail C, provided with sheet *h* for spreading and brail *g* for furling, said brail running through eyes along the edges of the sail, as shown, and passing from pulley *g'* to the deck, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

BENJ. P. LECRAW.

Witnesses:

MONROE F. CONNOR,
ARTHUR C. FRASER.