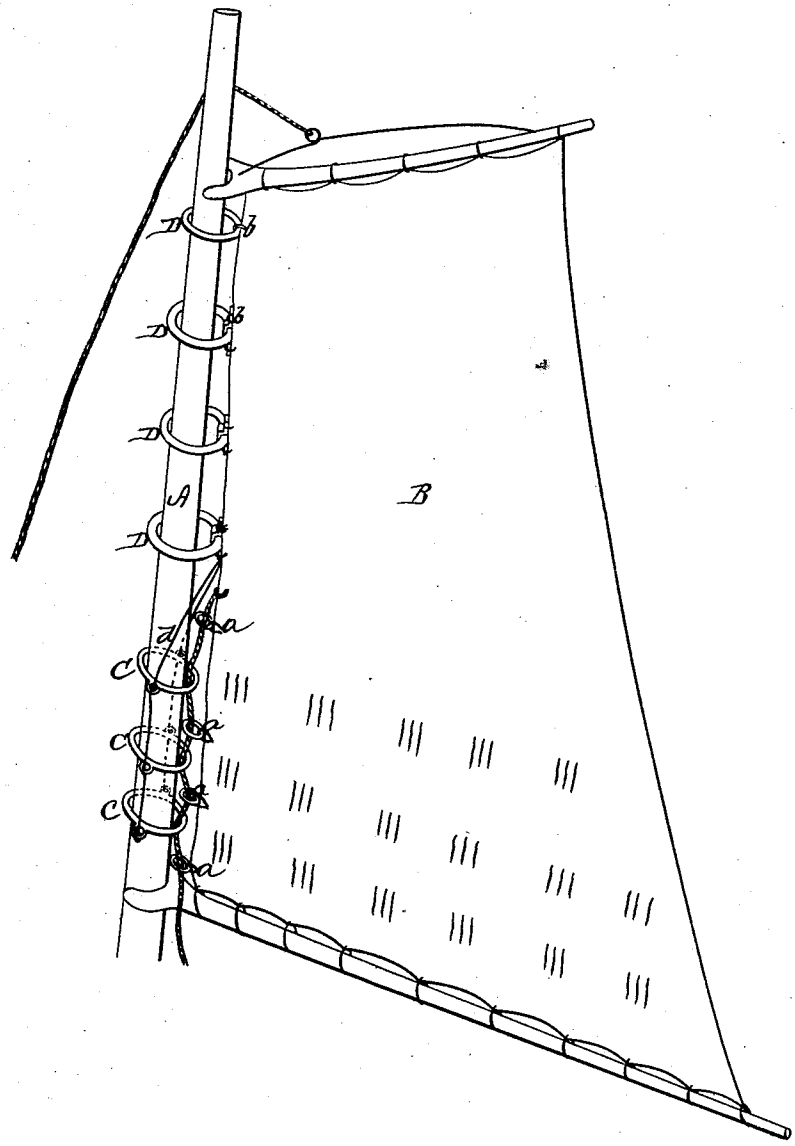
I. SOLOMON.

Means for Reefing Sails.

No. 163,819. Patented May 25, 1875.



WITNESSES

Henry N. Miller

C. L. Everett.

By

INVENTOR

Isaac Solomon

Chandler Mason

Attorney

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

ISAAC SOLOMON, OF SOLOMON'S ISLAND, MARYLAND.

IMPROVEMENT IN MEANS FOR REEFING SAILS.

Specification forming part of Letters Patent No. **163,819**, dated May 25, 1875; application filed December 28, 1874.

To all whom it may concern:

Be it known that I, ISAAC SOLOMON, of Solomon's Island, in the county of Calvert and in the State of Maryland, have invented certain new and useful Improvements in Mast-Hoops; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

My invention relates to hoops used for connecting sails to masts.

In Letters Patent No. 151,169, granted to me May 19, 1874, I claimed a mast-hoop provided with a clamp having arms or their equivalents, for lashing the hoop to the sail and bolt-rope at two or more points. In practice I have found that these clamps could not be used on the reef-hoops, as these would bind on the mast. To obviate this difficulty is the object of my invention; and to this end the nature of my invention consists in connecting the reef-hoops to the sail by lacings, and connecting them together and to the first hoop above by one or more ropes, and this latter hoop by two inclined side ropes to the sail, all as hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which represents a side view of a mast and sail embodying my invention.

A represents the mast, and B the sail. C C represent the reef-hoops attached to the sail by the lacings *a a*, while the hoops D D above the reef-hoops are connected to the sail by my patented clamps *b b*. The reef-hoops C C are connected together and to the sail by means of one or more cords or ropes, *d*, which may be tied to eyes formed on the hoops, or otherwise attached thereto.

It will be seen that about half of the hoops D, connecting the sail to the mast, are secured by my patented device, heretofore referred to, while the remaining portion C of the hoops below are loose hoops, and connected together by the guide-ropes *d*. The number of the hoops D and C is regulated according to the intended amount of reef.

I am aware that it is not new to connect the sails to the mast by means of loose hoops, which are connected by balance-lines, which extend from top to bottom of the mast. In such case the balance-lines extend from top to bottom; but by using my patented device upon the upper hooks, and applying the guide-ropes to the lower loose reef-hoops, the substantial advantages of my aforesaid patent may be retained, while provision is made for reefing the sail.

In raising and lowering the sail the reef-hoops C C will be held on planes at right angles with the mast, and therefore not bind thereon, but move up and down easily.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with a mast and sail, A B, of the upper hoops D, connected directly to the sail by the clamps *b*, and the lower loose hoops C, connected to the lacings *a*, and connected together and to the sail by the guide-ropes *d*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of December, 1874.

ISAAC SOLOMON.

Witnesses:

WILLIAM L. BRAMHALL,

C. L. EVERT.