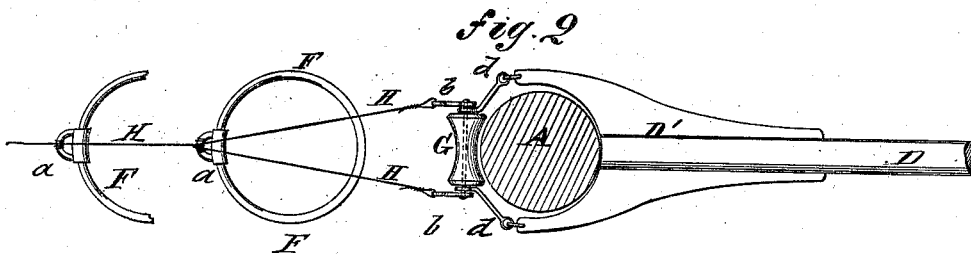
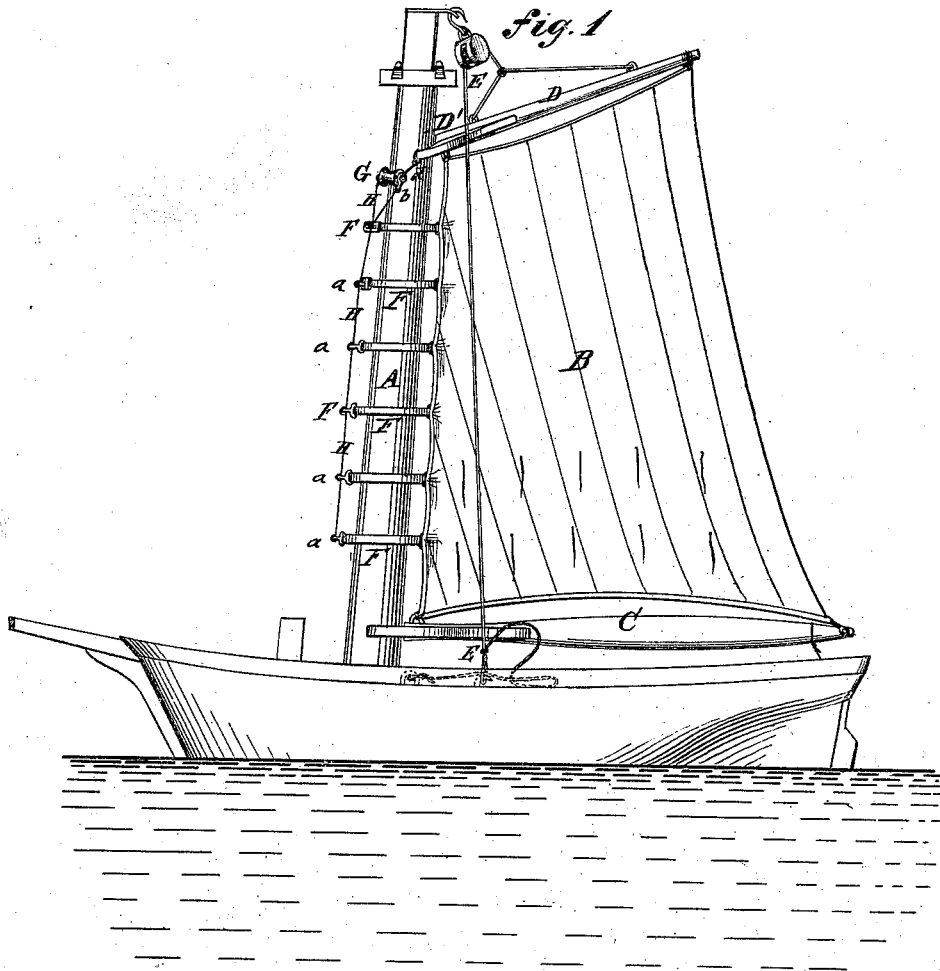


W. E. LEIGHTON.

BALANCE-LINES FOR MAST-HOOPS

No. 182,123.

Patented Sept. 12, 1876.



WITNESSES:

*A. W. Almqvist*  
*John Goethals*

INVENTOR:

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BY

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

WILLIAM E. LEIGHTON, OF WEST PEMBROKE, MAINE.

## IMPROVEMENT IN BALANCE-LINES FOR MAST-HOOPS.

Specification forming part of Letters Patent No. 182,123, dated September 12, 1876; application filed March 6, 1876.

*To all whom it may concern:*

Be it known that I, WILLIAM E. LEIGHTON, of West Pembroke, in the county of Washington and State of Maine, have invented a new and Improved Attachment for Raising Sail-Hoops, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of a vessel with my improved attachment for raising the hoops of large sails; and Fig. 2 a top view of the hoop attachment, showing roller-connection with jaw of gaff.

Similar letters of reference indicate corresponding parts.

My invention relates to such improvement in the mode of raising hoops on the masts of vessels having fore and aft sails that the hoops move evenly and without friction.

In the old way the hoops depend upon the grease on the mast to slip thereon, which gets soon very difficult, and almost impossible, by the drying of the grease and the covering of the mast with coal-dust or other dirt. The gripping action of the hoops on the mast, which requires a great deal of extra exertion, is also entirely done away with by my attachment.

The invention is intended to make the hoops run up easily with the sail; and consists in the lacing together or connecting of the hoops by one or more lines equidistant to the sail-ropes, and attaching the lines by one or more sheaves or rollers running along the mast to the jaw of the gaff.

In the drawing, A represents the mast of a schooner or other vessel with a large sail, B, that runs up along the shaft by hoops F, and is raised, in the customary manner, by a line,

E, and pulley-block connected to the gaff D. The hoops F are laced together by a line, H, at points equidistant to, and opposite to, the side at which they are attached to the sail-ropes, the line H being applied to the hoops by means of small malleable castings *a*, that clasp the hoop, and have an eye for fastening the line, as shown clearly in Fig. 2.

In place of one line two or more lines may be used, which support, especially in case of large hoops, the same in such a manner that an even suspension of the hoops is obtained, and their ready moving up along the mast without friction produced, whether the mast is greased or not.

The uppermost hoop F is hung by two lines to pivot-links *b* of a sheave or roller, G, that corresponds to the curvature of the mast, and is attached, by connecting-links *d*, to the jaw D' of the gaff. The roller G runs easily on the mast, and supports the loop-lifting line H, so that by the raising of the sail the hoops run up without dragging or gripping along the mast, and accomplish thereby the raising of the sail in an easier and more expeditious manner.

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

The combination, with the gaff and the hoop-lifting line, of an intermediate roller or sheave running along the mast to support the hoop-connecting line, substantially as and for the purpose described.

WILLIAM E. LEIGHTON.

Witnesses:

JOHN C. CAMPBELL,  
DENNIS COLLINS.