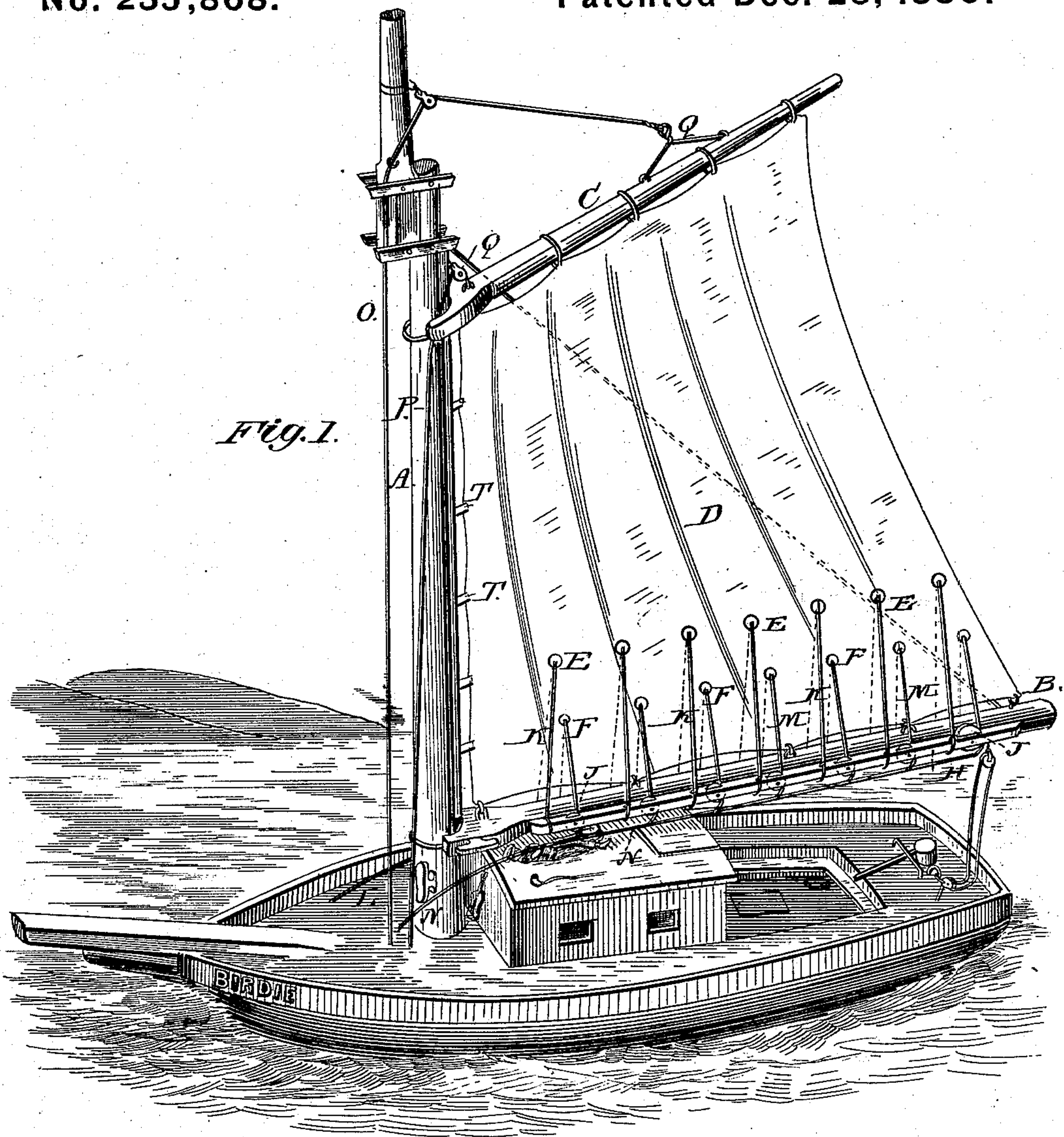


J. GONDIE.  
Reefing Sails.

No. 235,868.

Patented Dec. 28, 1880.



Witnesses:  
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*J. R. Little*

Inventor:  
*James Gondie,*  
by *C. A. Snow & Co.*  
*attys.*



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Fig. 2.

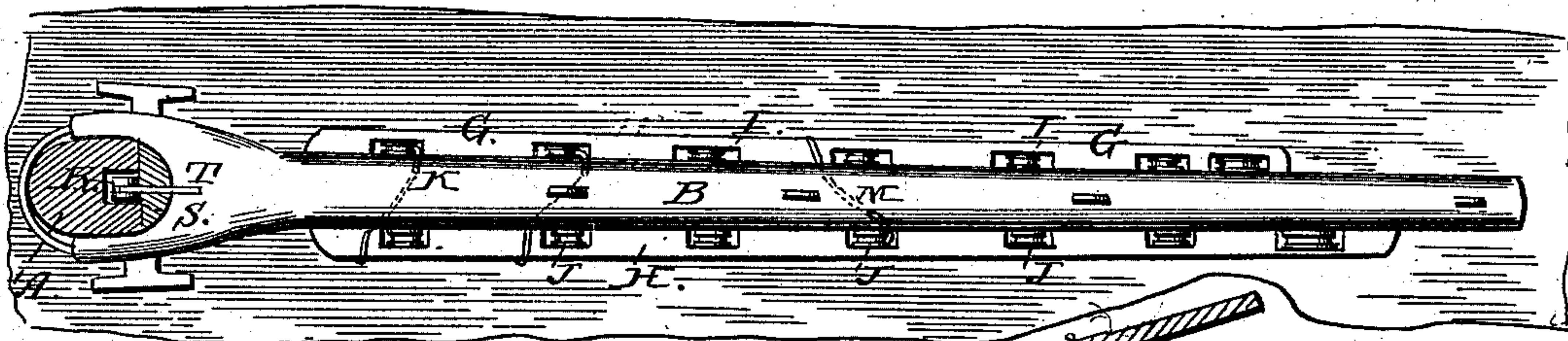


Fig. 3.

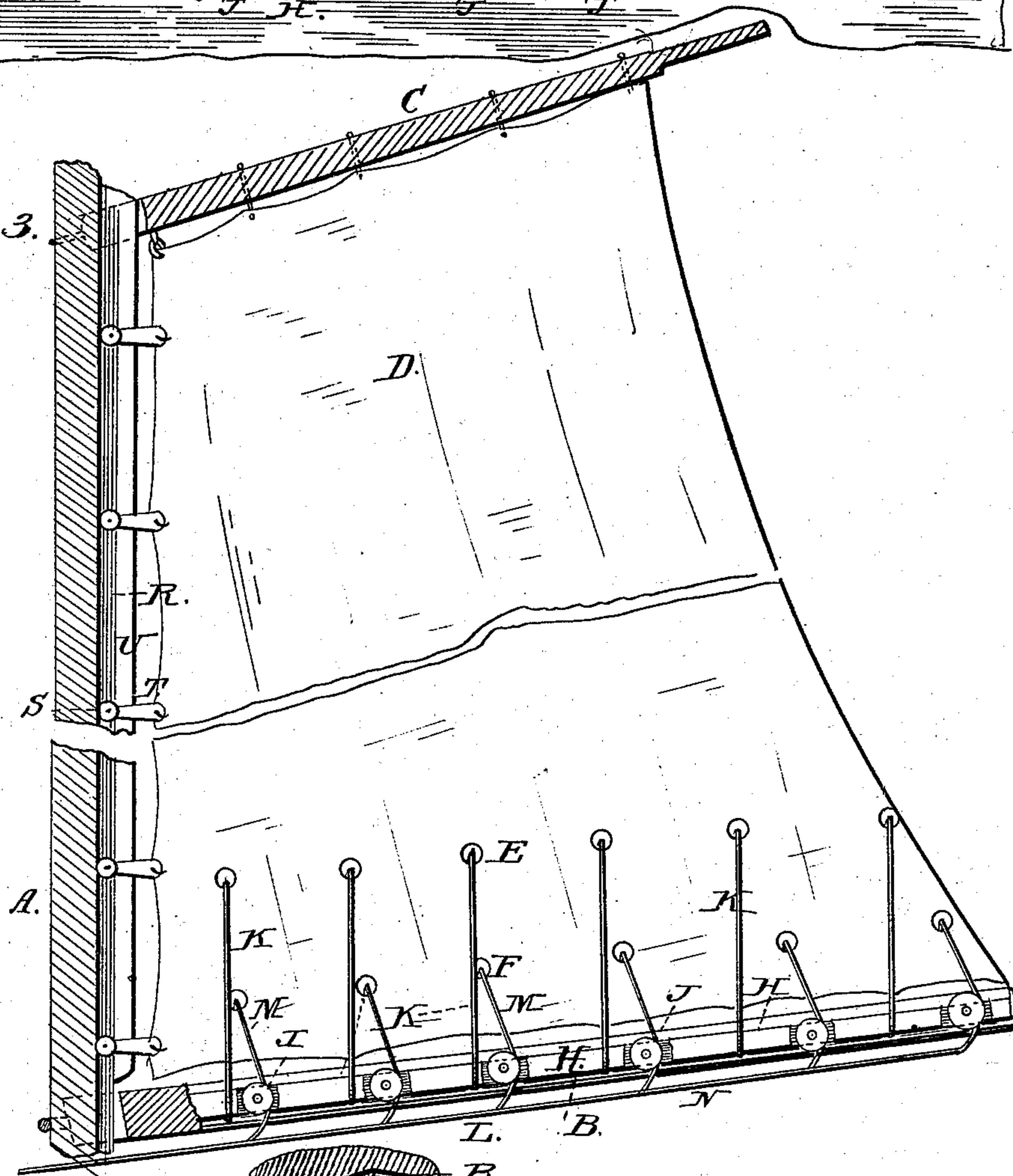
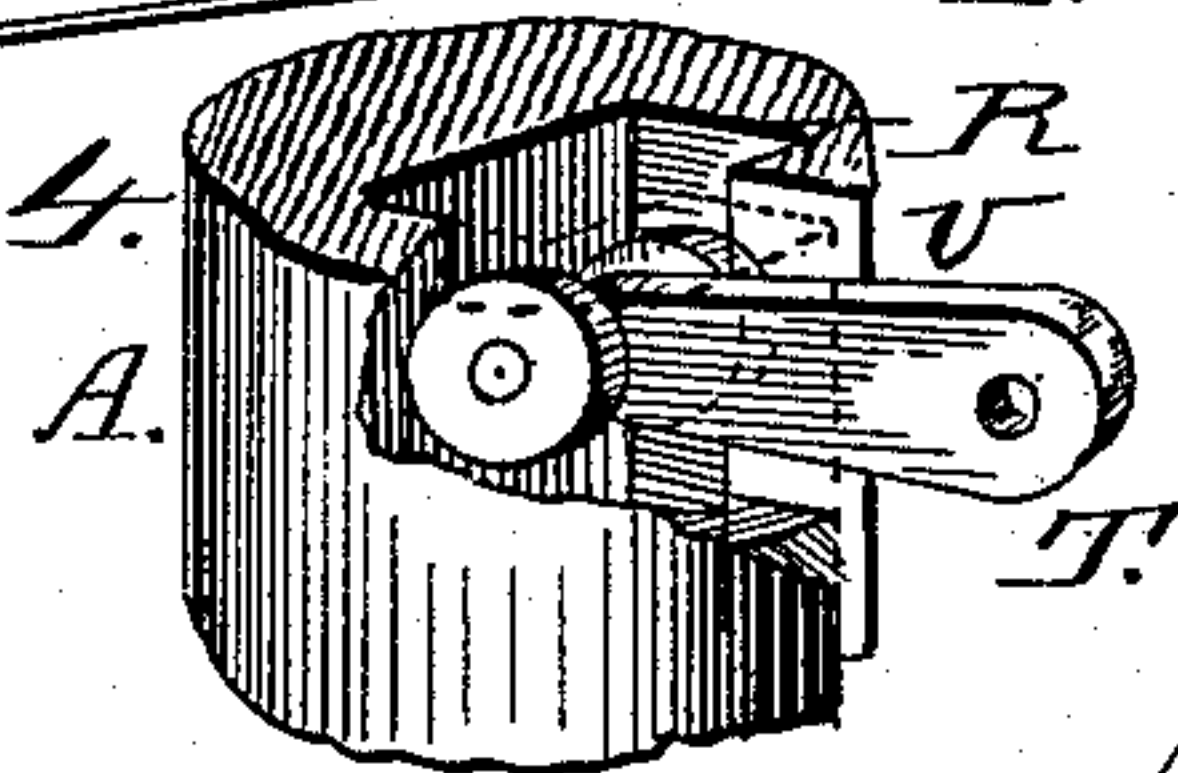


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JAMES GONDIE, OF CHICAGO, ILLINOIS, ASSIGNOR OF THREE-FOURTHS TO  
H. E. VALE, OF SAME PLACE.

## REEFING SAILS.

SPECIFICATION forming part of Letters Patent No. 235,868, dated December 28, 1880.

Application filed August 23, 1879.

*To all whom it may concern:*

Be it known that I, JAMES GONDIE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reefing Sails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view. Fig. 2 is a horizontal sectional view, looking down upon the boom. Fig. 3 is a vertical sectional view; and Fig. 4 is a detail view, showing, in perspective, the construction of the mast and my improved friction-rollers.

Corresponding parts in the several figures are denoted by like letters of reference.

This invention relates to devices for reefing sails; and it consists in certain improvements therein, which will be hereinafter fully described with reference to the drawings, in which—

A represents the mast of a vessel; B is the main boom; C, the gaff, and D the sail.

The upper and lower edges of the sail are secured, in the usual manner, to the gaff and the boom. The inner edge of the sail is secured to the mast in the manner which will be hereinafter described. The sail is provided with two parallel horizontal rows of eyelets or openings, E F, and cleats G H, having bearings, each, for a set of pulleys, I J, are attached to the sides of the boom, as shown. Lines K K are attached to the cleat H, passed through the eyelets in the upper row, (second reef,) down the pulleys I I, and attached to the main reefing-line L. Similarly lines M M are attached to the cleat G, passed through the openings in the lower row, (first reef,) over the pulleys J J, and attached to the main reefing-line M. Hoisting-lines O P are attached to the gaff and passed through blocks Q, in the usual manner, down to the deck of the vessel.

It has been customary to secure the inner edge of the sail to the mast by hoops secured

to the sail and encircling the mast; but this method is clumsy, and often fails to operate satisfactorily. It being especially important, in connection with my invention, that the sail should be easily raised or lowered, I have devised the improved method of securing it to the mast which is fully illustrated in Figs. 2 and 4 of the drawings. By reference to said figures it will be seen that the mast is provided with a vertical groove or recess, R, accommodating several sets of rollers, S S, each set consisting of two rollers secured to the sides of a plate or shank, T, projecting through a vertical slot in a plate, U, secured upon the mast over the groove R, for the purpose of forming a bearing for the rollers and retaining them in said groove. The outer ends of the shanks T are provided with openings, in order that the edge of the sail may be readily attached thereto. A number of sets of rollers, about equal to the number of hoops now employed, may be used.

Instead of the vertical groove or recess R, wooden or metallic guides, suitably secured upon the mast, may be used without changing the spirit of my invention.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation of my invention will be readily understood. It is simple and efficient, and may be constructed at a small expense.

I am aware of patents to J. W. Norcross, dated September 27, 1864, No. 44,445, and J. E. Worthman, dated November, 7, 1871, No. 120,806, and I therefore do not wish to be understood as claiming, broadly, anything shown and described in said patents.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

The sail D, having two parallel horizontal rows of eyelet-openings, E F, arranged near the lower end thereof, boom B, having cleats G H arranged upon opposite sides thereof and provided with pulleys I J, lines K M, attached to the cleats H G, passed, respectively, through the eyelet-openings E F, over the pulleys I J, and connected to the main reefing-lines L N, in combination with the mast, hav-

ing vertical groove R, slotted plate U, sliding shanks or plates T, having rollers S S, main reefing-lines L N, the gaff, and hoisting-lines, the several parts constructed and relatively arranged to operate in the manner herein shown and described.

In testimony that I claim the foregoing I

have hereunto set my hand and seal this 20th day of August, 1879.

JAMES GONDIE. [L. S.]

Witnesses:

THOS. C. GONDIE,  
HARRY E. VALE.