

W. F. Davis.
Sails and Rigging

N^o 16,969.

Patented Apr. 7, 1857.

Fig. 3.

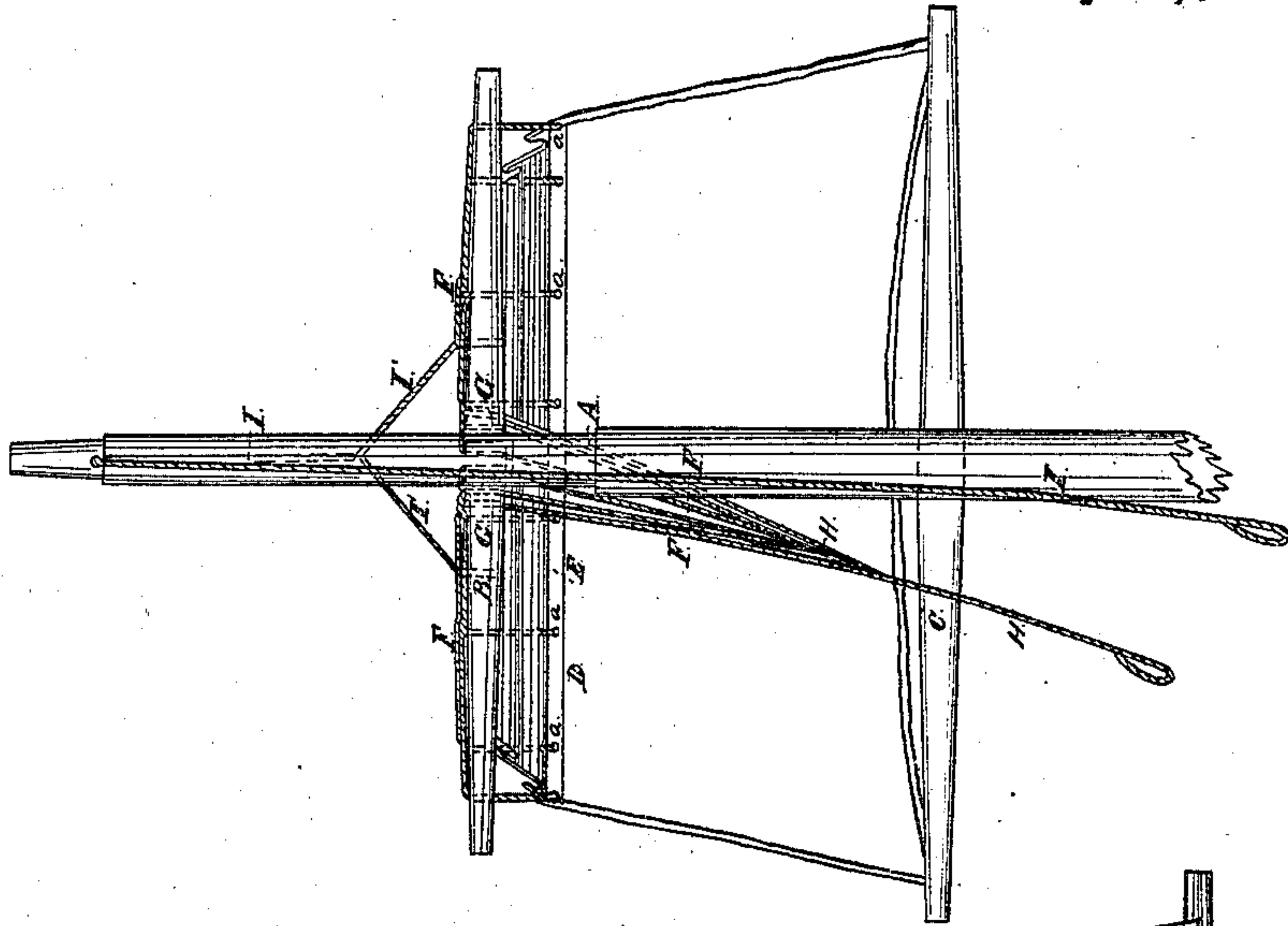


Fig. 2.

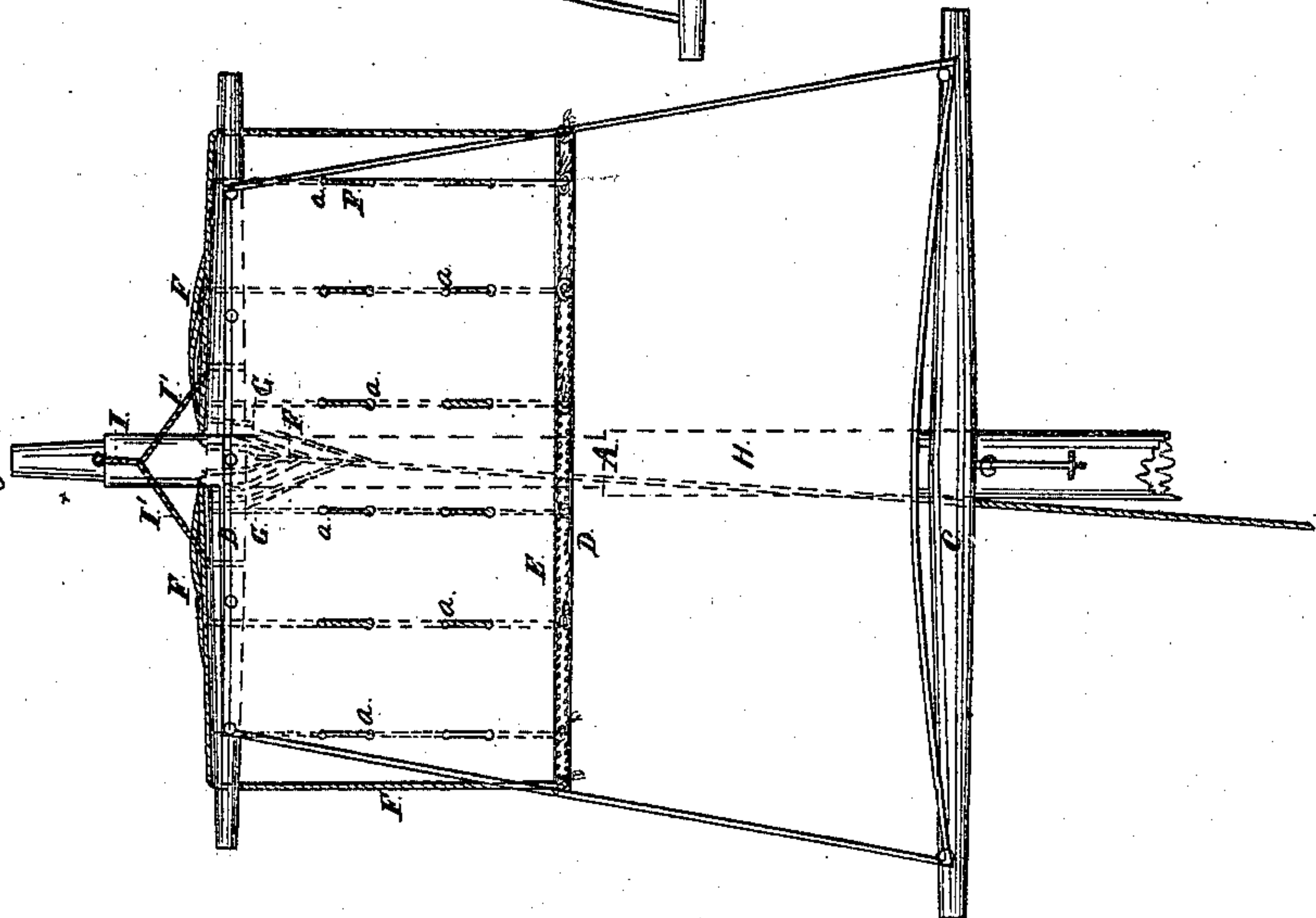
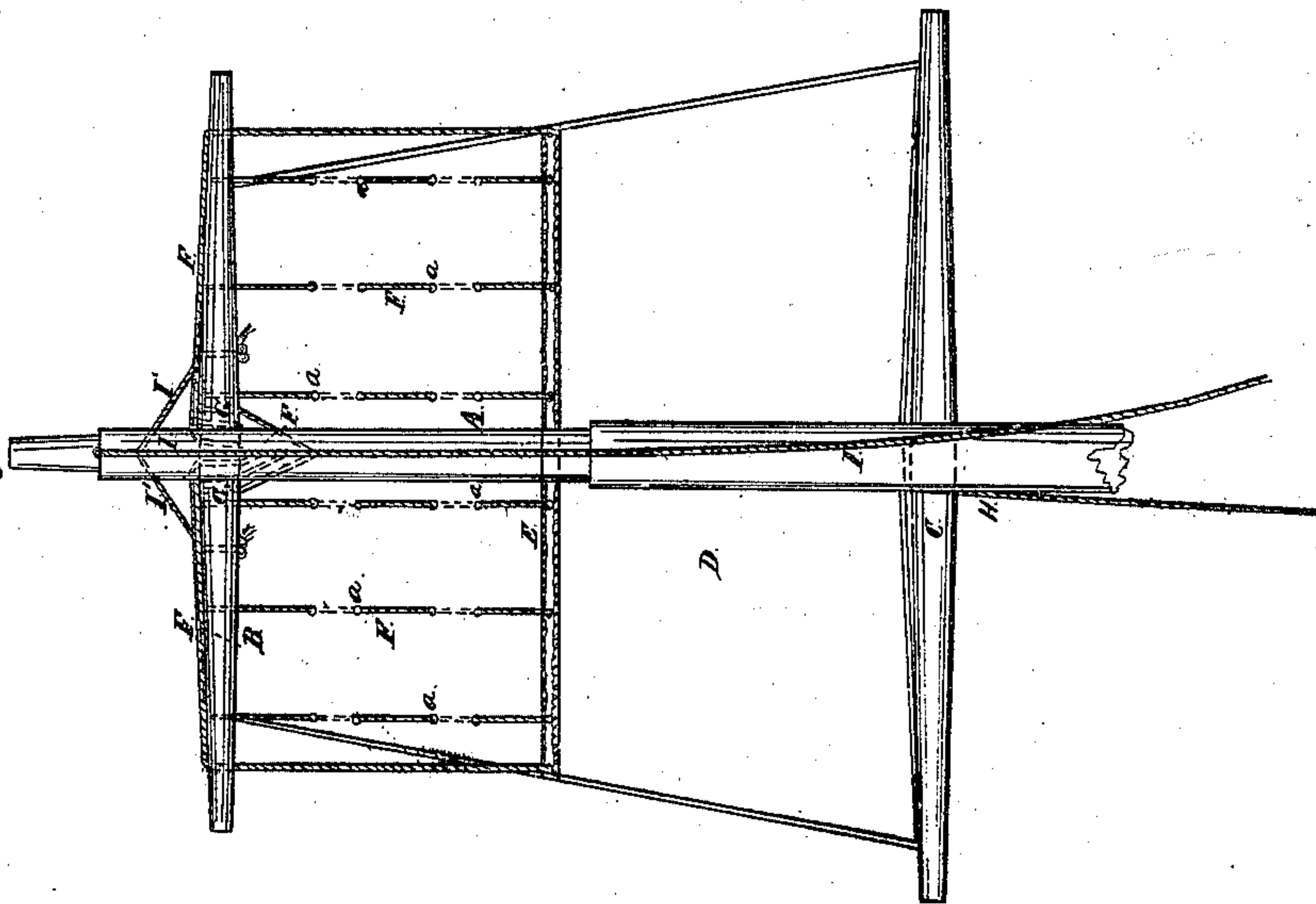


Fig. 1.



UNITED STATES PATENT OFFICE.

WASHINGTON F. DAVIS, OF WINTHROP, MASSACHUSETTS.

REEFING SAILS.

Specification of Letters Patent No. 16,969, dated April 7, 1857.

To all whom it may concern:

Be it known that I, WASHINGTON F. DAVIS, of Winthrop, in the county of Suffolk and State of Massachusetts, have invented an
5 Improvement in Reefing and Furling Top-sails, which improvement may sometimes be employed to advantage on fore-and-aft sails; and I do hereby declare that the same is fully described and represented in the
10 following specification and the accompanying drawings, of which—

Figure 1, denotes a rear elevation of a top sail with my invention applied to it and its upper yard the top-mast, upper and lower
15 yard being also exhibited in the figure. Fig. 2, is a front view of the same. Fig. 3, is a rear view of the same with the topsail reefed.

In these drawings, A, represents the top-mast; B, the upper yards; C, the lower yard; and D, the top-sail. Where the said top-sail is to be reefed, I strengthen it with a reef band E, extending horizontally across it and above said band and in the top-sail I apply several horizontal ranges of gromets, eyes or
25 eyelets *a, a, a*, &c., as shown in the drawings the same extending up to or nearly up to the upper yard. Reefing and furling ropes, F, F, fastened to the sail at the reef band, are carried upward through the several eyes
30 ranging directly over one another. From thence, the said ropes pass respectively upward through the upper yard, and from thence are carried along the same toward the middle of the yard or top mast, where
35 with two reef tackles G, G, they are made to descend through the yard as shown in Fig. 1, and are united to one line or rope H, which may extend downward to the deck. The upper yard is applied to the topmast
40 in the usual way and is supported and raised upward by a chain or rope I, which passes or works through the head of the topmast and is secured to the yard by branches as shown at I', I'. Instead of ap-
45 plying gromets or eyes directly into the sail, they may be hung on one side of the sail, and instead of arranging the horizontal rows of gromets or eyes at equal distances apart, I dispose them so that there shall be a less
50 distance between those of each two rows than there is between the two sets of rows, the same being as shown in the drawings. In this way when the sail is reefed, the greater part of each plait if it extends in
55 front of the yard—the remainder of the plait being covered by and entirely under-

neath the yard so as to be protected by it from injury from ropes, etc., during the movements of the yard.

In order to reef the sail from the deck, 60 the rope, I, should be set free, so as to allow the upper yard to be drawn downward. The rope, H, is then to be pulled on, and while it draws the upper yard down toward the reef band, the reef band will be
65 held up by the reefing ropes and the sail folded in plaits against the yard. Thus the sail will not only be reefed but at the same time it will be folded up by one set of lines. It will not, however be furled so as to re-
70 quire subsequent furling by manual labor applied to reef points in the usual way—but it will be folded in plaits and close up against the yard.

In do not claim reefing at either the head 75 or foot of a sail or topsail; nor do I claim reefing at the foot of a topsail by means of a series of bunt lines fastened to the reef band and extended downward through gromets or guides, thence underneath the foot
80 of the sail and thence upward on the front of the sail and to and through blocks or sheaves applied to the topmast, the said buntlines extending from thence to the vessel's deck, for such is an old contrivance and
85 a well known mode of reefing a sail. Nor do I claim the plans or methods of reefing as recently patented by William H. Foster and Isaac Boss, the topsail in them being reefed at its head, while all that part of the
90 sail, which is below the reef band is held up by lines of suspension passing upward through blocks or sheaves directly supported by the topmast, the said suspension lines descending from thence to the deck. In
95 these plans, the upper yard is lowered down so as to reef the sail. The draft however, on the reefing lines operates, to a considerable extent to prevent the descent of the
100 yard.

In my arrangement, the reefing lines attached to the reef bands pass upward through the gromets or eye guides and the upper yard and thence toward the mast and are carried downward through the yard, 105 without running through heading blocks or equivalents arranged at or in the head of the topmast. Thus it will be seen that the reef lines, under my arrangement are not suspended to the topmast, but fall directly
110 from the upper yard so that when they are pulled downward they serve not only to draw

up that part of the sail which is below the reef bands, but they also in connection with gromets brail or plait all that part of the sail which is above the reef band. They
5 also serve to depress the yard and to support the sail across its entire width. Furthermore my particular arrangement of the reefing lines is advantageous not only, over that wherein they are supported by
10 a sheave or block at the topmast head, but that wherein the reefing of the sail is effected by buntlines extending under its foot as described, inasmuch as my arrangement does not require the lines to be so long as is necessary in either of the other methods (above
15 mentioned) of arranging reefing lines. Thus I effect a great saving in the amount of ropes or lines required.

I would remark that in my arrangement,
20 whenever a reefing line is carried through the upper yard it should run around a sheave or pulley suitably applied therein, or instead of running through the yard and over a sheave it may be run through a batten
25 affixed through the yard or it may be carried through a block suspended from the yard.

I am also aware that reef tackles have been run along the yard toward the mast and thence down through the yard toward
30 the deck. Consequently I do not claim such, the reef tackles in such cases being used

separately from the reefing lines, and for the purpose of drawing close up to the yard, the outer edges of the sail after it has been reefed. My arrangement I consider an im-
35 provement on those patented by the said Foster and Foss and in disclaiming their arrangements, I confine my invention simply to the improvement or improvements made by me. 40

What therefore I claim is as follows:

1. I claim arranging the ranges of folding eyes or gromets and the reefing lines above the reef band or with respect to the upper yard as described in order that the
45 sail when reefed shall at the same time be folded of plaited against the upper yard as specified.

2. I also claim the above described arrangement of the lines of gromets or eyes
50 at unequal distances apart in manner as set forth in order that the minor part of each fold of the sail may come underneath the yard, or the yard project beyond it as described, when the sail is reefed. 55

In testimony whereof I have hereunto set my signature this 2nd day of January A. D. 1857.

WASHINGTON F. DAVIS.

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.