

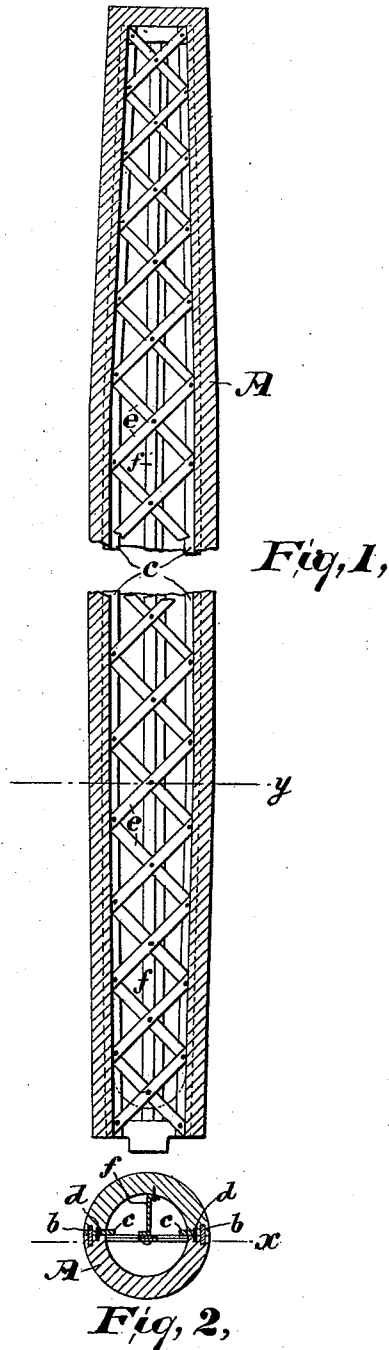
(No Model.)

W. E. LEWIS.

MAST, SPAR, &c., FOR SAILING VESSELS.

No. 534,398.

Patented Feb. 19, 1895.



Witnesses

Robert Solberg
Louis L. Brown.

Inventor

William E. Lewis,

By Drake & Co. Atty's.

UNITED STATES PATENT OFFICE.

WILLIAM E. LEWIS, OF NEWARK, NEW JERSEY.

MAST, SPAR, &c., FOR SAILING-VESSELS.

SPECIFICATION forming part of Letters Patent No. 534,398, dated February 19, 1895.

Application filed September 22, 1894. Serial No. 523,811. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. LEWIS, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Masts, Spars, &c., for Sailing-Vessels; 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.

This invention relates to hollow or tubular masts and spars, and has for its object to impart increased strength and rigidity to, and also to decrease the weight of said masts and spars.

The invention consists in the improvements and in the combination and arrangements of the parts as herein set forth and finally pointed out in the claims.

Referring to the accompanying drawings in which similar letters of reference indicate corresponding parts in each of the figures, where they occur, Figure 1 represents a longitudinal sectional view of a mast or spar embodying my improvement, taken through line *x* of Fig. 2, and Fig. 2 is a transverse section taken through line *y*, of Fig. 1.

In said drawings, *A*, designates the hollow wooden shell of a mast or spar, which is made in two longitudinal sections, secured together by means of dowels, *b*, and suitable cement or glue, as will be understood upon reference to the drawings. In the inside of the shell at each side, I arrange a steel plate, *c*. Said plates lie in recesses formed in one section of the mast to receive them, and extend, practically, from one end of the shell to the other and project inward, say from one inch to two inches toward the center, according to the size of the mast or spar, and abut against a plate, *d*, arranged transversely with respect to said plates, *c*. Firmly fastened by suitable rivets to said plates, *c*, and to one another, are braces, *e*, arranged diagonally with respect to the shell and in opposite directions throughout the interior thereof, as plainly shown in the drawings.

It will be seen from the foregoing that the

arrangement of the plates and braces, as described, must impart immense strength and rigidity to the mast or spar, and at the same time materially lessen the weight thereof as compared with a mast or spar having a solid plate extending entirely across the shell.

In some cases, especially in vessels where a jib is not used, I introduce in the mast an additional means of strength, to wit:—a plate, *f*, arranged longitudinally and at right angles to the braces and secured thereto and to one section of the shell, as indicated in the drawings.

The invention is intended also to apply to booms, gaffs, yard arms, bowsprits, &c.

By this construction it will be practically impossible for a mast to break, as will be manifest.

Having thus described the invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. The improved mast or spar herein described in which is combined a hollow or tubular wooden shell composed of two sections joined together longitudinally, and having an inwardly projecting tongue or plate at each side thereof, and a series of braces arranged diagonally with respect to the mast or spar and firmly secured to said tongues or plates and to one another, as described and for the purposes set forth.

2. The improved mast or spar herein described in which is combined a hollow or tubular wooden shell composed of two sections joined together longitudinally, and having an inwardly projecting tongue or plate at each side thereof; a series of braces arranged diagonally with respect to the mast or spar and firmly secured to said tongues or plates and to one another; and a plate extending longitudinally through said mast or spar at right angles with said braces and connecting therewith and with one section of the shell, as described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of September, 1894.

WILLIAM E. LEWIS.

Witnesses:

OLIVER DRAKE,
ROBERT SOLLBERGER.