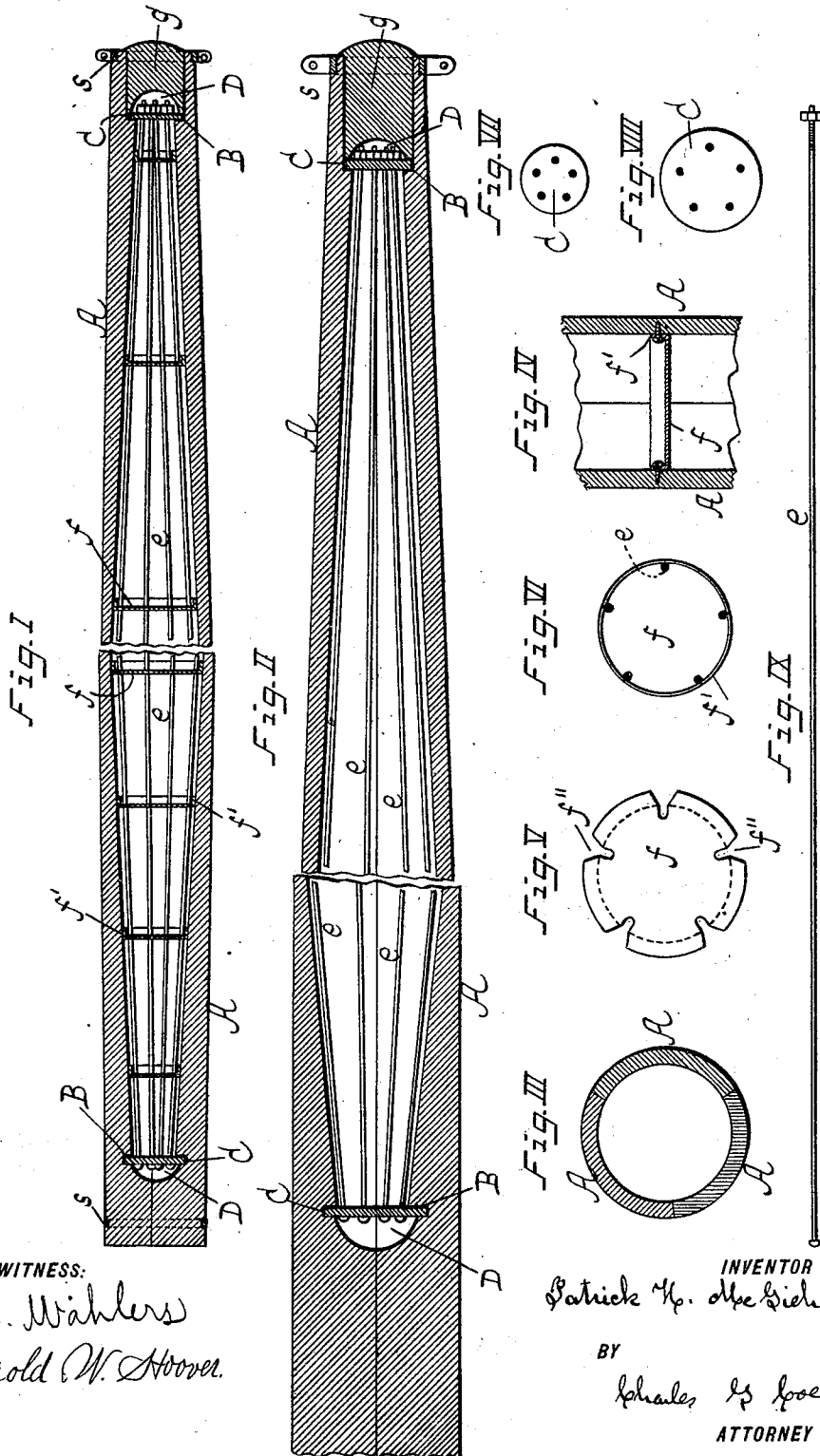


(No Model.)

P. H. MCGIEHAN.  
HOLLOW MAST.

No. 581,514.

Patented Apr. 27, 1897.



WITNESS:  
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# UNITED STATES PATENT OFFICE.

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## HOLLOW MAST.

SPECIFICATION forming part of Letters Patent No. 581,514, dated April 27, 1897.

Application filed April 25, 1896. Serial No. 589,029. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK H. MCGIEHAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Masts and Similar Structures, of which the following is a specification.

My invention relates especially to that class of masts which are hollowed throughout the length thereof with a view to diminish the weight as also the size and resistance of the structure to air-currents; and the general object of my invention is to obtain a simple and effective means for uniting a series of longitudinally-divided parts or sections constituting the body of the mast. This object I have accomplished by the novel features of construction hereinafter described, and illustrated in the accompanying drawings, in which—

Figure I represents a longitudinal central section of a mast or spar embodying the invention. Fig. II represents a like section of the mast on a larger scale than in the preceding figure and omitting the supporting-plates. Fig. III represents a cross-section of the body or shell of the mast. Fig. IV represents a longitudinal central section thereof with a fastening for the supporting-plates. Fig. V represents a plan view of one of the supporting-plates in blank form. Fig. VI represents a horizontal section of one of the supporting-rings. Fig. VII represents a plan view of one of the anchor-plates. Fig. VIII represents a plan view of the other of the anchor-plates. Fig. IX represents a side view of one of the truss-bars.

Similar letters of reference indicate similar parts.

The body of the mast is divided longitudinally into a series of parts or sections A—in this example three in number—which are of suitable shape and united to produce a hollowed article, as shown. At or near each end of the mast the united sections A are formed with a shoulder B, to afford a support for an anchor-plate C, and exterior of said shoulder with a recess D for permitting access to the

heads and nuts of truss rods or bolts *e*, to be next described.

The truss-bolts *e* extend through proper holes in the anchor-plates C, with their heads and nuts impinging against the outer surface of said plates, respectively, said bolts thus extending approximately the length of the mast, and at suitable points throughout the interior of the mast are disposed supporting-plates *f*, which also are perforated for the passage of the truss-bolts therethrough. These supporting-plates *f* are secured in the desired positions by means of screws or bolts which are inserted through a flange *f'* on either of the said plates from an inward direction into the mast, these supporting-plates with their flanges conforming to the interior diameter of the structure. The effect of the supporting-plates *f* is to brace and support not only the body of the mast, but also the truss-bolts—namely, by retaining said bolts in symmetrical relation to each other, thus insuring uniformity of strain.

In the construction of the mast I introduce the supporting-plates *f*, as also the anchor-plates C and truss-bolts *e* therein, before the mast-sections A are united to each other, and after the sections have been united I fit into that end of the mast adjacent to which are situated the screw-nuts of the truss-bolts a plug *g*, which is removable, and thus affords access to the nuts for tightening up the bolts. I also provide the mast, at or near each end thereof, with an external clamping-ring *s*, to assist in holding the mast-sections together, these clamping-rings being usually in sections and bolted or riveted together.

In the formation of the supporting-plates *f* I usually employ a blank of the general form shown in Fig. V, the same having peripheral notches *f''*, and being in practice bent or turned up approximately along the dotted line indicated in said figure to form the flange *f'*, whereby either of said plates is secured to and within the mast, as before stated.

It may be remarked that my invention is applicable to any spar for a yacht or sailing-vessel, meaning a mast, boom, gaff, topmast, &c., and also to a boom for a dredging-ma-

chine, also known as a "mud-digger," and to flag-poles, telegraph-poles, and other similar structures. It may also be remarked that the structure may be either round or of any other  
5 desirable cross-section.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hollow mast or similar structure divided longitudinally into sections, the combination with anchor-plates, C, of truss-bolts,  
10 e, engaging with said plates at their opposite ends and extending approximately the length of the mast, within the same, substantially as and for the purpose herein described.

15 2. In a hollow mast or similar structure divided longitudinally into sections, the combination of anchor-plates, C, at or near the

opposite ends of the mast, supporting-plates, f, intermediate of the ends of the mast, and truss-bolts, e, extending through the support-  
20 ing-plates and engaging with the anchor-plates by means of their heads and nuts, substantially as and for the purpose herein described.

3. In a hollow mast or similar structure 25 divided longitudinally into sections, the combination of the anchor-plates C, supporting-plates f, truss-bolts e, plugs g, and clamping-rings s, all substantially as and for the purpose herein described.

PATRICK H. MCGIEHAN.

Witnesses:

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