

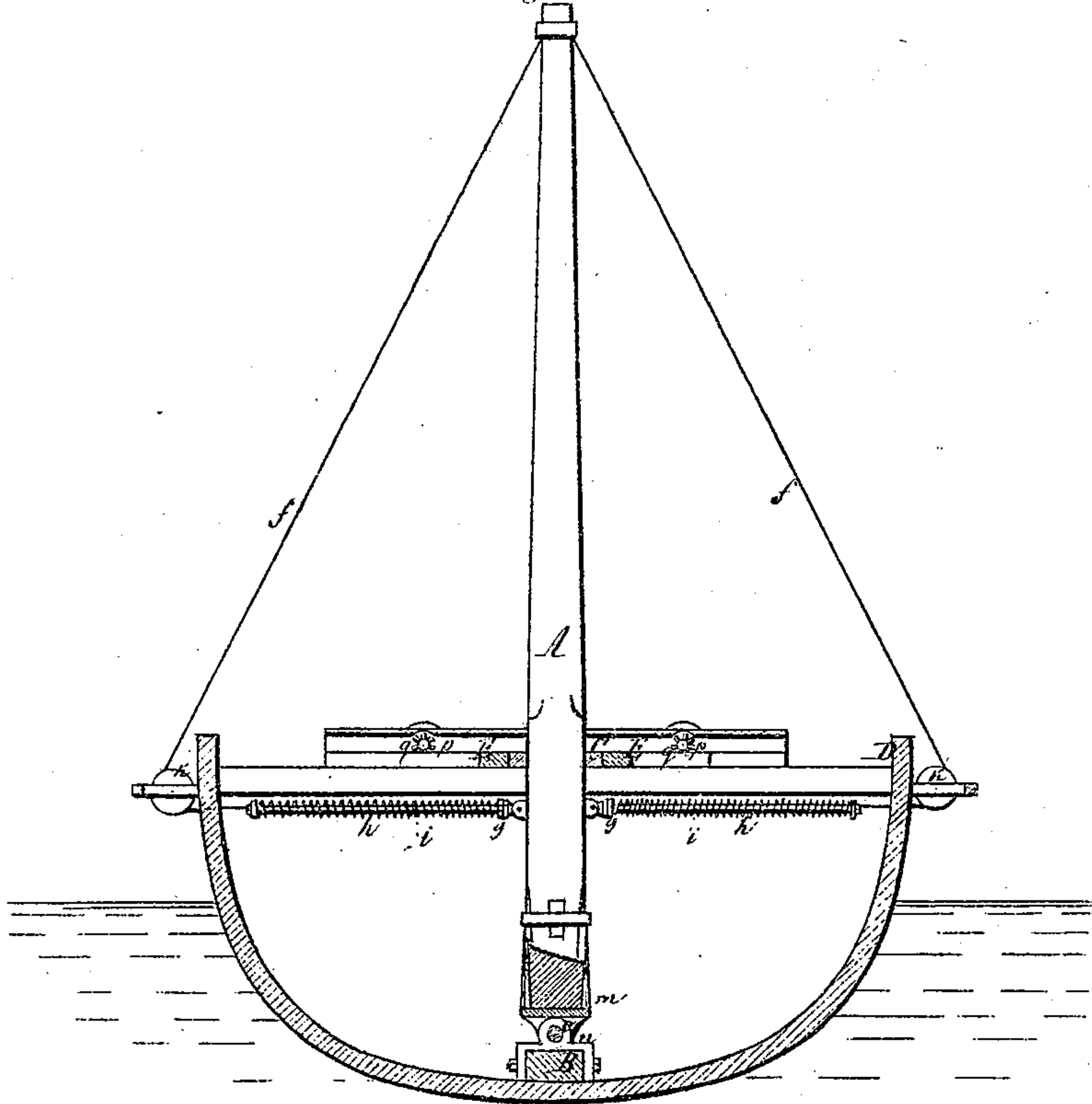
*E. E. Holley,*

*Mast.*

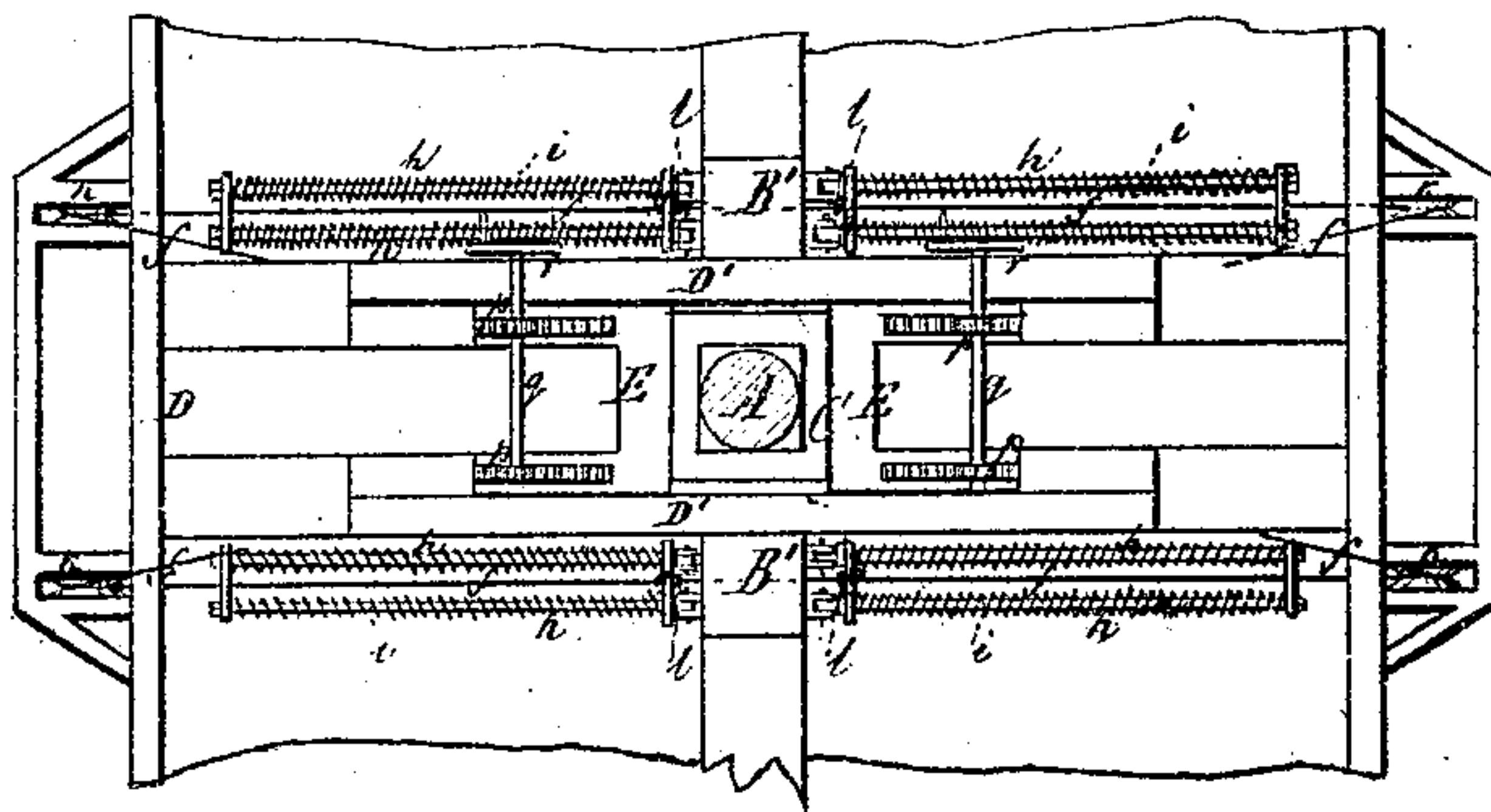
*No. 100,151.*

*Patented Feb. 22. 1870.*

*Fig. 1*



*Fig. 2.*



*Witnesses.*

*C. Wahlers*  
*E. F. Mastenhuber*

*Inventor.*

*E. E. Holley*  
*Per Van Santvoord, Clerk*



# United States Patent Office.

EDGAR E. HOLLEY, OF NEW YORK, N. Y.

Letters Patent No. 100,151, dated February 22, 1870.

## IMPROVEMENT IN MASTS OF VESSELS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, EDGAR E. HOLLEY, of the city, county, and State of New York, have invented a new and useful improvement in the Rig and Masts of Vessels; and I do hereby declare the following to be a full, clear and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification, in which drawing—

Figure 1 represents a transverse section of a vessel, with a rig and mast constructed according to this invention.

Figure 2 is a horizontal section of the same.

Similar letters indicate corresponding parts.

This invention consists in the arrangement of elastic or yielding shrouds, in combination with a mast which is capable of being oscillated in its socket in such a manner that in sailing on the wind, said mast is allowed to assume an inclined position, and the vessel can be sailed as close to the wind as possible without subjecting the same to an undue strain, and without the least danger of upsetting the vessel.

The invention consists, further, in the arrangement of a saddle or clamp, operated by set-screws or other equivalent means, in combination with the movable or swinging mast in such a manner that, in sailing before the wind, said mast can be firmly retained in an upright position.

In the drawing—

The letter A designates a mast of my vessel, which, instead of being firmly secured in the keel and deck, is connected to the keel B by a hinge-joint, and is held in position by the shrouds *f*.

The inner ends of these shrouds are secured to plates *g*, which bear against springs *h*, and are guided by rods *i*, so that the shrouds are capable of yielding, and that in sailing on the wind the mast is allowed to assume an inclined position, and the vessel can be sailed as close to the wind as possible without subjecting the same to an undue strain, and without the least danger of upsetting the vessel, since the bag of the mainsail will touch the water before the water can rise on the deck.

The shrouds, being yielding, allow the mast to give, or to assume an inclined position under the pressure of the wind, and if a sudden gust of wind strikes the vessel, which would be liable to upset a vessel of the ordinary construction, my mast will yield sufficiently to allow the wind to blow over it without endangering the stability of the vessel.

The inner ends of the rods which form the guides for the spring-plates of my yielding shrouds, are attached to timbers B', rising from the keel B to the deck D of the vessel, but said rods may also be connected directly to the keel. In either case the hull of the vessel is relieved as much as possible from all strain produced by the action of the wind on the mast, or on the sails attached to said mast.

The shrouds *f* are made continuous, being attached

at their ends to the mast, thence passing, on opposite sides of the hull, over sheaves *k*, and in a transverse direction through the vessel, and through the guide-plates *g*.

Knots, *l*, made in the shrouds, bear on the inside of each of the guide-plates, and carry the same out against the action of the springs, according to the direction in which the mast is tilted.

The hinge-joint which unites the mast with the keel is constructed as follows:

To the bottom end of the mast is secured a metallic foot-piece, *m*, which rests upon the convex surface of the flanged block *n*, and is provided with ears overlapping the ends of said block.

The flanges of the block *n* straddle the keel of the vessel, and are secured to the same by screw-bolts, and a pivot, *o*, connects the foot-piece *m* with the block *n*.

By these means a firm connection between the mast and the keel is effected, and still the mast is allowed to oscillate in the direction transversely to the keel.

In sailing before the wind, the mast must be secured and steadied in an upright position.

This purpose I effect by means of a saddle, C, which straddles the mast close above the deck, and which slides in suitable guides, D', in a transverse direction.

These guides also contain two movable stops, E, one on either side of the saddle, and said stops are provided with toothed racks, which gear into pinions *p* mounted on shafts *q*, which can be rotated by hand-wheels *r*.

By turning these hand-wheels in the proper direction, the stops E are brought up against the saddle C, and the mast is retained in an upright position.

The shafts *q* may be prevented from turning backward by ratchet-wheels and stop-pawls, or by any other suitable means, and if desired, said shafts with their pinions and racks can be replaced by other suitable mechanism capable of imparting to the stops E the required motion, and of retaining them in position, such, for instance, as simple set-screws.

Said stops may also be so adjusted that they confine the oscillations of the mast within certain limits.

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

1. The elastic or yielding shrouds *f* in combination with the oscillating mast A, substantially as described.

2. The plates *g*, guide-rods *i*, and springs *h* in combination with the shrouds *f*, substantially as set forth.

3. The foot-piece *m* and convex block *n* in combination with the mast A and keel B, substantially as described.

4. The saddle C and movable stops E in combination with the oscillating mast A, substantially as set forth.

EDGAR E. HOLLEY.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.