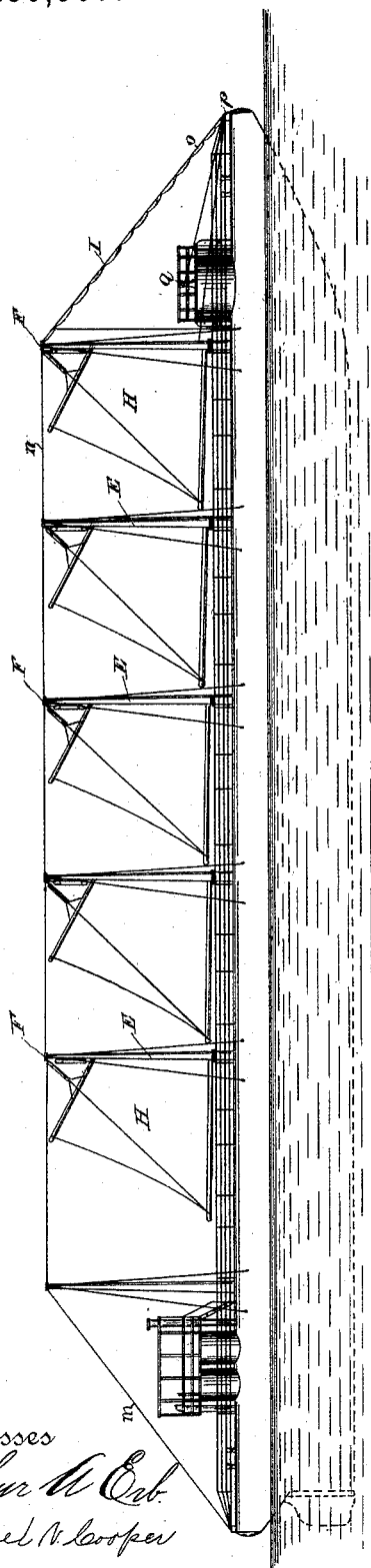


A. McDOUGALL.
JURY MAST.

No. 456,587.

Patented July 28, 1891.

Fig. 1.



Witnesses

Arthur H. Corb.
Margaret M. Cooper

Fig. 2.

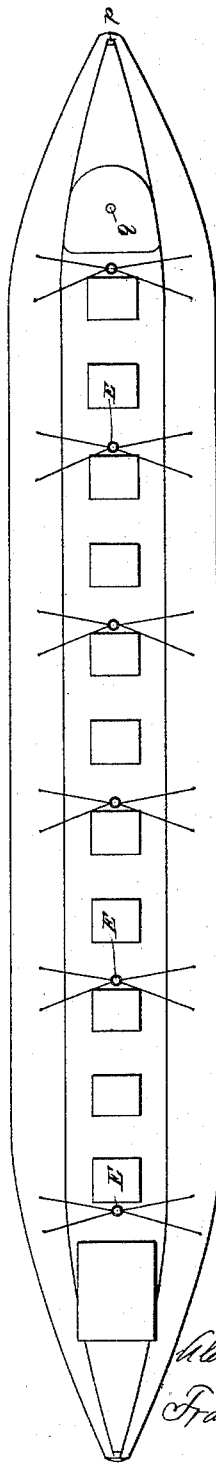


Fig. 8.

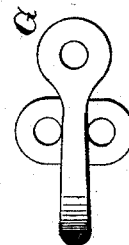


Fig. 9.

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(No Model.)

4 Sheets—Sheet 2.

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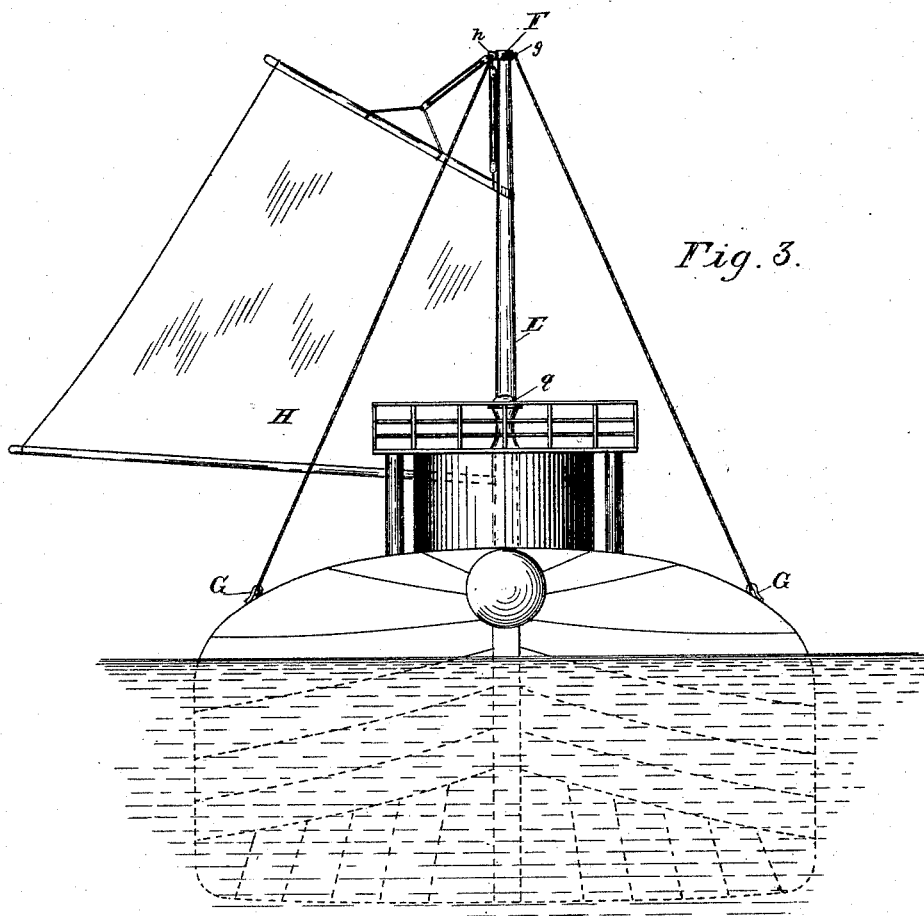


Fig. 3.

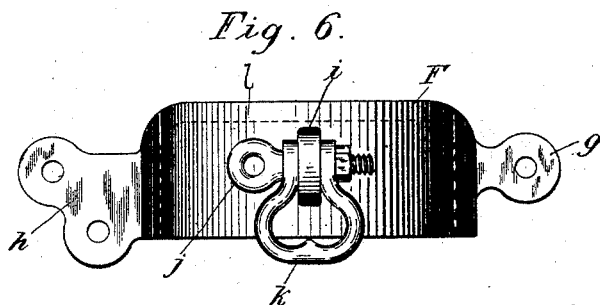


Fig. 6.

Witnesses

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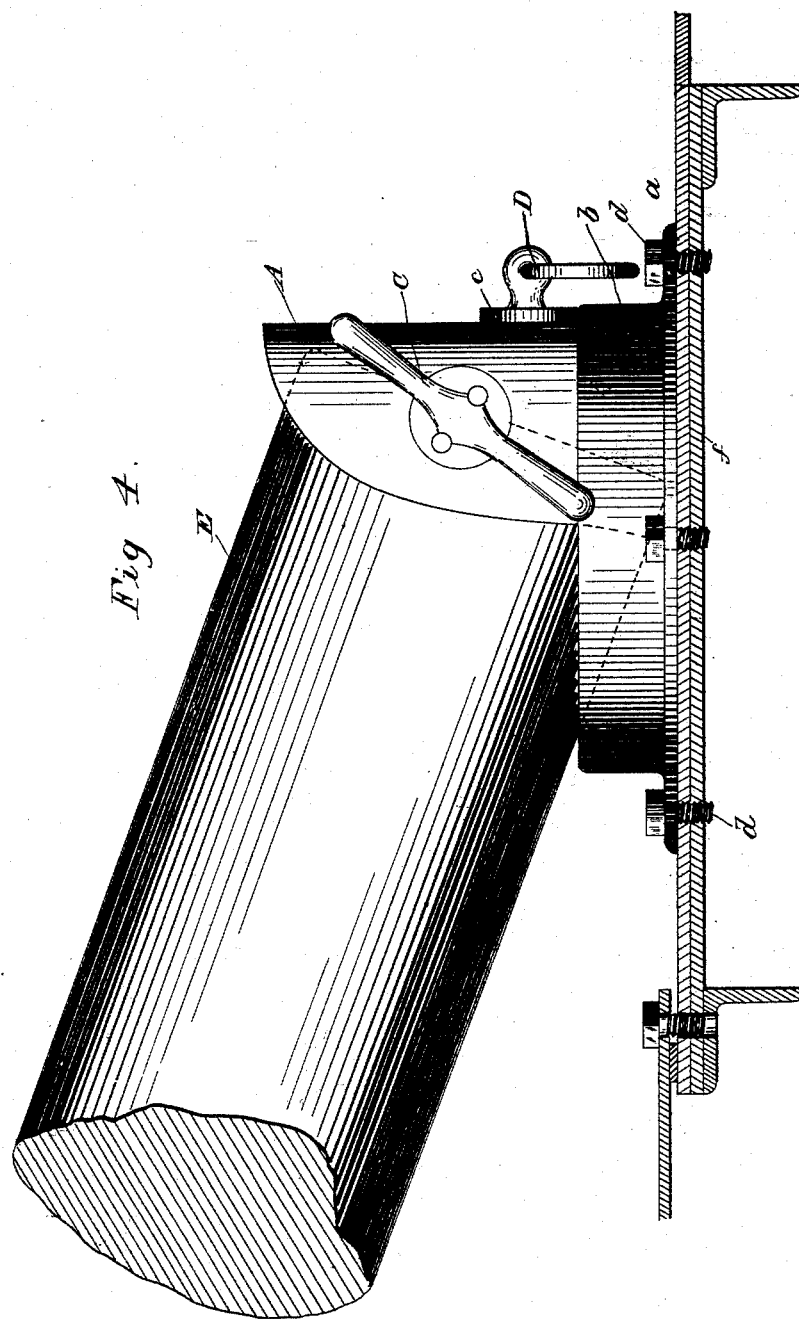
(No Model.)

4 Sheets—Sheet 3.

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Fig 5.

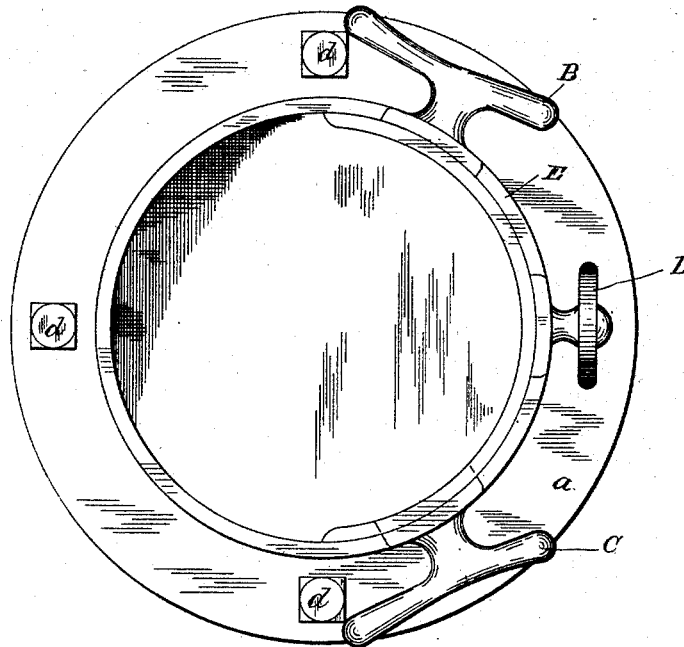
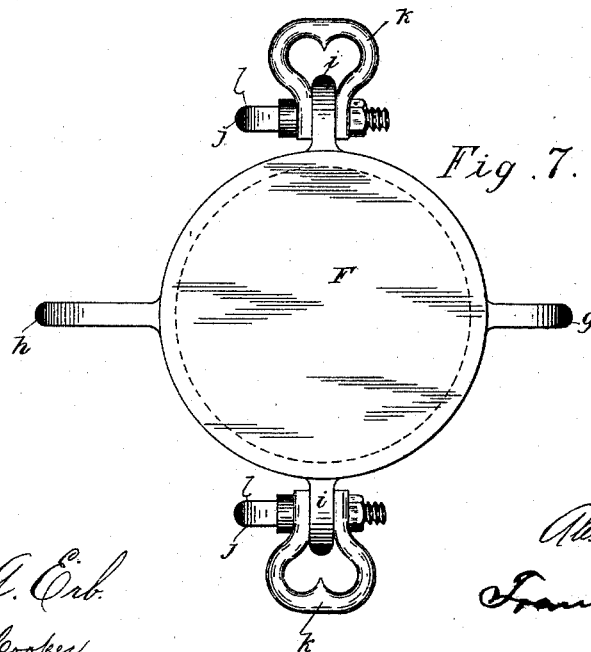


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

ALEXANDER McDOUGALL, OF DULUTH, MINNESOTA.

JURY-MAST.

SPECIFICATION forming part of Letters Patent No. 456,587, dated July 28, 1891.

Application filed September 12, 1890. Serial No. 364,722. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER McDOUGALL, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Jury-Masts; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to an attachment to that variety of vessels which I have heretofore invented; and it consists of a system of jury masts and sails which can be quickly set up when necessary and which are adapted to be carried beneath the deck of the vessel when not in use.

The particular instances in which my invention will be especially applicable is when a tow-boat gets adrift from the towing-steamer, or in case of a breakdown or exhaustion of fuel in a steamboat of my design. In either of these instances the system of jury masts and sails which I have invented may be erected in the course of two or three hours, and the vessel can then make its way slowly into some port.

For a better comprehension of my invention attention is invited to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of a tow-boat of my design with the jury masts and sails in position; Fig. 2, a top elevation of the same; Fig. 3, a front elevation; Fig. 4, a side elevation, partly in section, of one of the mast-steps with a portion of the mast in position; Fig. 5, a top elevation of the mast-step; Fig. 6, a side elevation of the cap for the mast-head; Fig. 7, a top elevation of the same; Fig. 8, a side elevation of the shroud-plate, and Fig. 9 a front elevation of the same.

In all of the above views corresponding parts are designated by the same letters of reference.

The boat illustrated in the first three views is a tow-boat adapted to be towed by a propelling-steamer. The general form of this boat has been described in several patents heretofore granted to me, and a detailed description of the same is therefore unnecessary here. It should be understood, however,

that the system of jury masts and sails which I have invented may be used in connection with a steamboat of my design or with other vessels.

A represents the mast-step, which is adapted to be secured to the deck in place when it is necessary to use the jury masts and sails. This mast-step is provided with a flange *a*, with a hollow angular ring *b*, and with a knee *c* at the front part thereof, which are all preferably fastened together. This mast-step is to be secured in place on the deck by means of screw-bolts *d*, which engage with the deck. In order to strengthen the deck at this point, it is advisable to make use of an auxiliary plate *f*, secured in place beneath the deck, as shown in Fig. 4. When the mast-step is not in position on the deck, the holes for the small screw-bolts *d* may be filled up either with putty or plugs, or with the bolts *d* themselves, so as to exclude water from the interior of the hull.

The knee *c* is provided with two cleats *B* *C*, which are used for belaying the throat and peak halyards, respectively. Secured to knee *c* is a ring *D*, which is used for handling the mast-step in placing the same in position.

E represents the mast, which is adapted to fit in the ring *b* and abut against the knee *c*. This mast may be made either of wood or of hollow metal. The mast is comparatively short and should be about thirty feet long when used on vessels having a length of two hundred and fifty feet. At the top of each mast is placed a cap *F*, which is to be made of metal. This cap is provided at its forward portion with an integral ring or eye *g* for the forestay and with a double eye *h* at its after portion. The upper opening in this double eye *h* is used for the back-stay, and the lower opening is used for the halyard-blocks.

At the side of the cap *F* is an ear *i*, which is cast integral with the cap. Pivoted to each ear by a bolt *j* is a swivel *k*, to which the shroud is attached. The bolt *j* is provided with a hollow head *l*, from which the topping-lifts extend. The shrouds are secured at their lower ends by a plate or link *G*. This link is of the general form shown, and is adapted to be secured to the side of the vessel by means of the screw-bolts or other means. Since these links *G* are out of the

way of the hatches, they may be made a permanent fixture on the vessel.

The vessel is to be provided with as many masts as can be conveniently arranged on its length, and all the masts are to be of the same size. It is preferable to make use of an after-mast, as shown in Fig. 1, to which no sail is mounted, for the purpose of elevating the back-stay *m* above the cabin or wheel-house. All of the masts are connected together by triatic stays, which extend from the double eye *h* of *l* to the forward eye *g* of the cap on the mast directly in the rear.

When the masts are to be erected on the vessel, they are laid flat on the deck with the lower end loosely in engagement with the knee *c*, as shown in Fig. 4, and with the stays loosely connected to the links *G*. The forestay *o* from the eye *g* of the cap on the foremast is now passed through the block *p* at the forward end of the vessel, or, instead, it may be passed through the eye which is now used for guiding the tow-line. The stay then passes to the capstan *q*, which is mounted on the forward working-deck. As the forestay *o* is wound up on the capstan *q*, the foremast will be elevated and will be kept from falling entirely to one side by means of the shrouds. The foremast will elevate the next succeeding mast by means of the triatic stay *n*, and in this way all the masts will be elevated until the back-stay *m*, the triatic stay *n*, and the forestay *o* are all perfectly taut, as shown in Fig. 1. The shrouds are now tightened by turn-buckles or other means, and in this way the mast will be held very rigidly

in position. The kind of sails I prefer to use on these masts are ordinary fore-and-aft sails *H*, which are to be handled in the usual way; but it will be evident that any other kind of sails may be used. It might be a good plan to mount a large square sail on the aft-mast, which is too close to the rear turret to allow the use of a fore-and-aft sail.

If desired, a large stay-sail I may be mounted on the forestay *o*, and numerous other changes might be made without departing from the spirit of my invention.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. A system of jury masts and sails, consisting of a number of masts bearing in steps at their lower end and all adapted to be simultaneously elevated by means of a forestay *o* and triatic stay *n*, and when so elevated to be rigidly held in position by shrouds, and carrying sails, substantially as set forth.

2. A system of jury masts and sails, consisting of a number of masts bearing at their lower ends in steps *A*, each of which is provided with a knee *c*, and all the masts adapted to be simultaneously elevated by means of a forestay *o* and triatic stay *n*, and when so elevated to be securely held in position by means of shrouds, and carrying sails, substantially as set forth.

ALEXANDER McDougall.

In presence of—

M. J. MULLIN,

CHAS. W. LELAND.