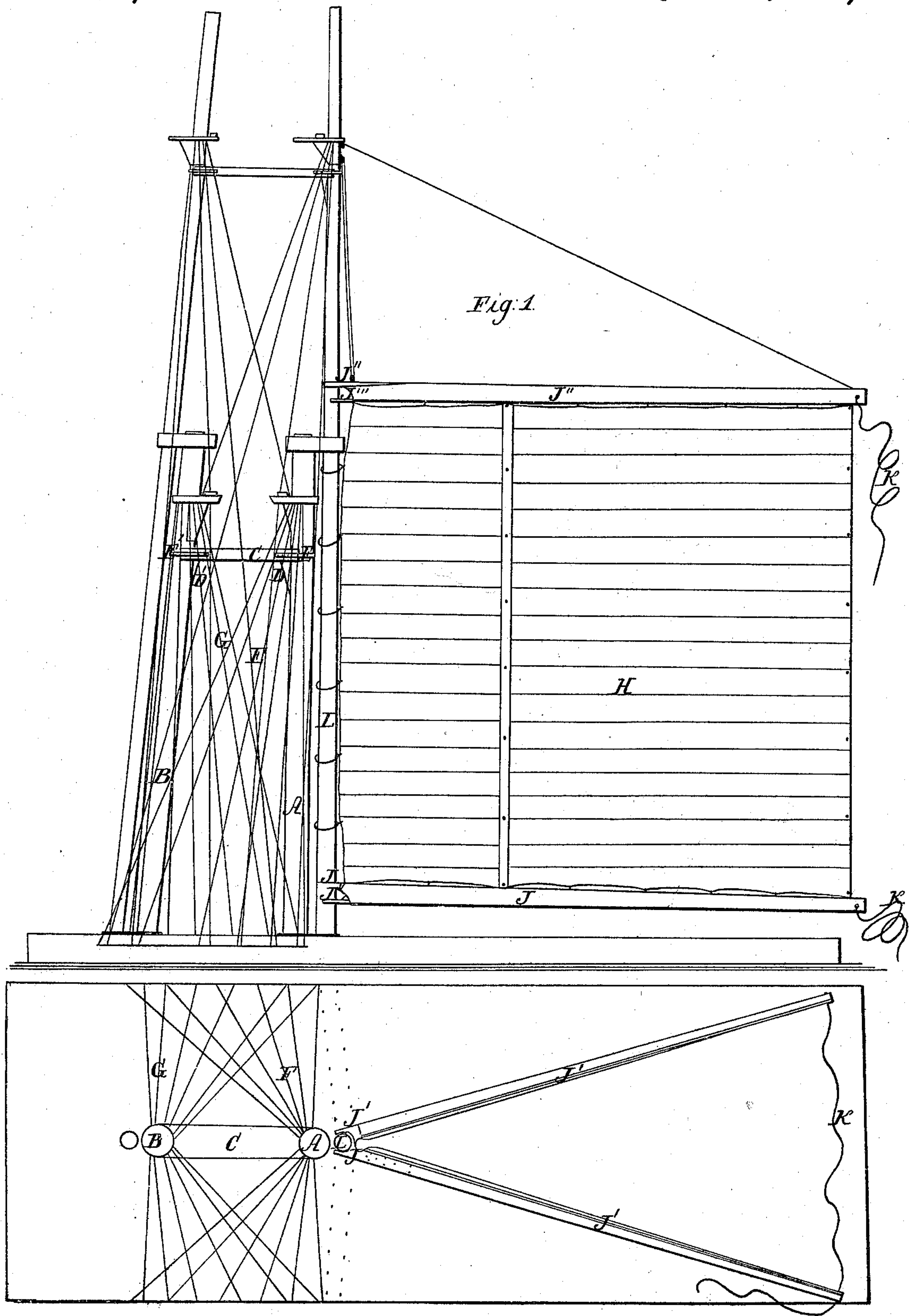


G. I. May
Sails and Rigging.

N^o 17,165.

Patented Apr. 28, 1857.



UNITED STATES PATENT OFFICE.

GEO. T. MAY, OF TOMPKINSVILLE, NEW YORK.

SAILS AND RIGGING OF VESSELS.

Specification of Letters Patent No. 17,165, dated April 28, 1857.

To all whom it may concern:

Be it known that I, GEORGE T. MAY, of Tompkinsville, in the county of Richmond and State of New York, have invented certain new and useful Improvements in the Masts, Sails, and Rigging of Vessels, which I denominate the "Union Rig;" and I do hereby declare that the following is a full and exact description of the same, reference being made to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention relates to a system of masts and sails, to be applied to any ship or vessel, which will combine the peculiar advantages of both the "square" and the "fore-and-aft" rigs at present in use, and present further advantages superior to either by allowing the sails to have a range of not less than 180° over the line of the keel of the vessel.

Figure 1 in the accompanying drawings is a side elevation of the lower and top-masts and the lower sail or "course" of a vessel rigged upon the plan of my improvement and Fig. 2 is a plan view of the same.

A is the right mast, and B is the spring mast, constituting, together with their rigging and fittings, one of the "sets" of masts of the vessel. Both are stepped and secured in the hull in the usual manner, and are braced together, to secure their upper ends in position, by the bridge C which rests upon the bridge-hounds D, D' and is fastened on the masts by the clamps E, E'. One, two or more of these sets of masts are located in the hull, as may be necessary to its size and capabilities. The rigging, F, of the right mast spreads abreast and forward of that mast, and that, G, of the spring mast abreast and aftward of that mast, the rigging in each case not being carried either forward or aft beyond the mast lines of the set, to be in the way of, or prevent the booms swinging around to a line at least at right angles with the keel.

H is one of a pair of sails—the other being of the same size and form, but not shown—bent by the luff to hoops upon the pivot mast L, (formed by the extension of the heel of the top mast to the deck) attached along the foot to the booms J, J', or to rings or carriers upon them, and at the head to the booms J'' J''', the jaws of the booms being so formed as to permit the booms to lie close together throughout their length, when

drawn together at their outer ends by the trusses K, K'.

The pivot line is carried upward on the right mast through successive spars to the desired height by means of junction-masts or short masts that embrace the two spars for a sufficient distance above and below a double cap, which, fitting upon the head of the mast below, receives also the heel of the mast immediately above it. The top-masts and higher masts are, in like manner with the lower ones, bridged and have their rigging spread from the spring upper masts abreast and aftward, and from the right upper masts abreast and forward. The sails successively upward are similarly attached to booms, and are operated in the same manner as those before described. The termination aloft is in a spire of the right mast and a flying sail set from off the deck over the uppermost boom.

I am thus enabled to form the combination of sails—called in the "Union rig" the "kite"—double, but which may be used single or with one set of booms and sails, and to effect the vibration of the whole, from the deck to the truck, upon one uniform pivot-line to at least the right angle with the keel line on both sides of the vessel. And I further facilitate the working of the vessel under this rig by using sprits or spreaders in the head-sails from clue to luff, which obviates the necessity of using double sheets, and I can also apply these spreaders with good effect in the uppermost sail of the "kite."

It will be perceived that each "set" of masts in my arrangement is entirely supported within itself, and is not connected for support to the other set or sets in the vessel nor to the hull of the vessel so as to be in the way of the swinging of the booms from one side of the vessel to its opposite side.

The "set" of masts may be made triplicated, or with two spring masts to support the right or principal mast, or quadruplicated, or with three spring masts standing in triangular position before the right mast, as may be best suited to the size and description of vessel to which they are to be attached; the latter description being especially suited to steamships, as the smoke stack of the boilers may be carried up in the space between the masts of the "set."

It will be seen from the drawings that

each pair of booms may be drawn together so that the sails attached to them will act as a single sail when the vessel is sailing "on" a wind, and that they may be separated so
 5 that each will stand at right angles to the keel and on opposite sides of it (as shown by the dotted lines in Fig. 2) when the vessel is sailing "before" the wind.

The whole "kite"—the uppermost flying-sail excepted—being set along booms as described, admits of the saids being reefed and furlled by drawing them longitudinally toward the mast by gear worked from the deck of the vessel, so that the labor and difficulty,
 10 as well as the hazard to life and limb, usually attending those operations is greatly lessened and the vessel can be managed with a less number of men; while the vibration of the booms being effected from a uniform
 15 pivot line not only allows them to be more readily shifted in position in regard to their angle with the keel of the vessel but also prevents that "bagging" and wrinkling up of the sails consequent upon their being
 20 operated from centers not in a line with each other.

My improvement may be applied in combination with either the square or the fore-and-aft rigs at present in use if it should be
 30 deemed desirable.

The advantages claimed for improvements are, that in weatherly sailing a wind-hold is obtained for the largest ship equivalent to that of a fore-and-aft rigged schooner, and
 35 that, with a fair wind, by separating and spreading the booms to opposite right angles the exposed surface of sail—whether with the double kite on one set of masts or with the single kite on two sets of masts—
 40 is about as great as could be obtained to be serviceable with a square rigged ship, including her studding-sails low and aloft.

In addition, the masts being more firmly supported, will sustain a heavier press of sail than could be borne by the ordinary
 45 single mast, and the whole kite having a fair sweep over an arc of 180° admits of the vessel being worked with greater ease and safety than she could possibly be with sails of less range. Moreover these sails can be
 50 advantageously loosed, set, reefed and furlled from the deck, these operations being very much simplified and facilitated by my arrangement.

In the application of my improvements to
 55 hulls of different size, form and capabilities certain modifications of construction may be necessary to suit the requirements of each, without affecting the general principle herein described, and I do not confine myself to
 60 any limit as regards the details of construction as they may be varied to suit every material difference of hull.

I am aware that boats and small vessels having one or more masts unsupported by
 65 rigging and depending for support upon the hull, have been fitted with sails that have or may have a full semi-circular sweep, and I do not therefore claim broadly the use of a sail having such sweep, but
 70

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

The use of the self-supporting "set" of masts—whether the same is composed of
 75 two or of more masts—they being stayed and sustained by rigging whose spread at the line of the deck shall not exceed the lines of the distance between the forward part of the pivot mast and the forward part of the spring mast of the set, as set forth.

GEO. THOS. MAY.

Witnesses:

SIDNEY LOW,
 FRANCIS S. LOW.