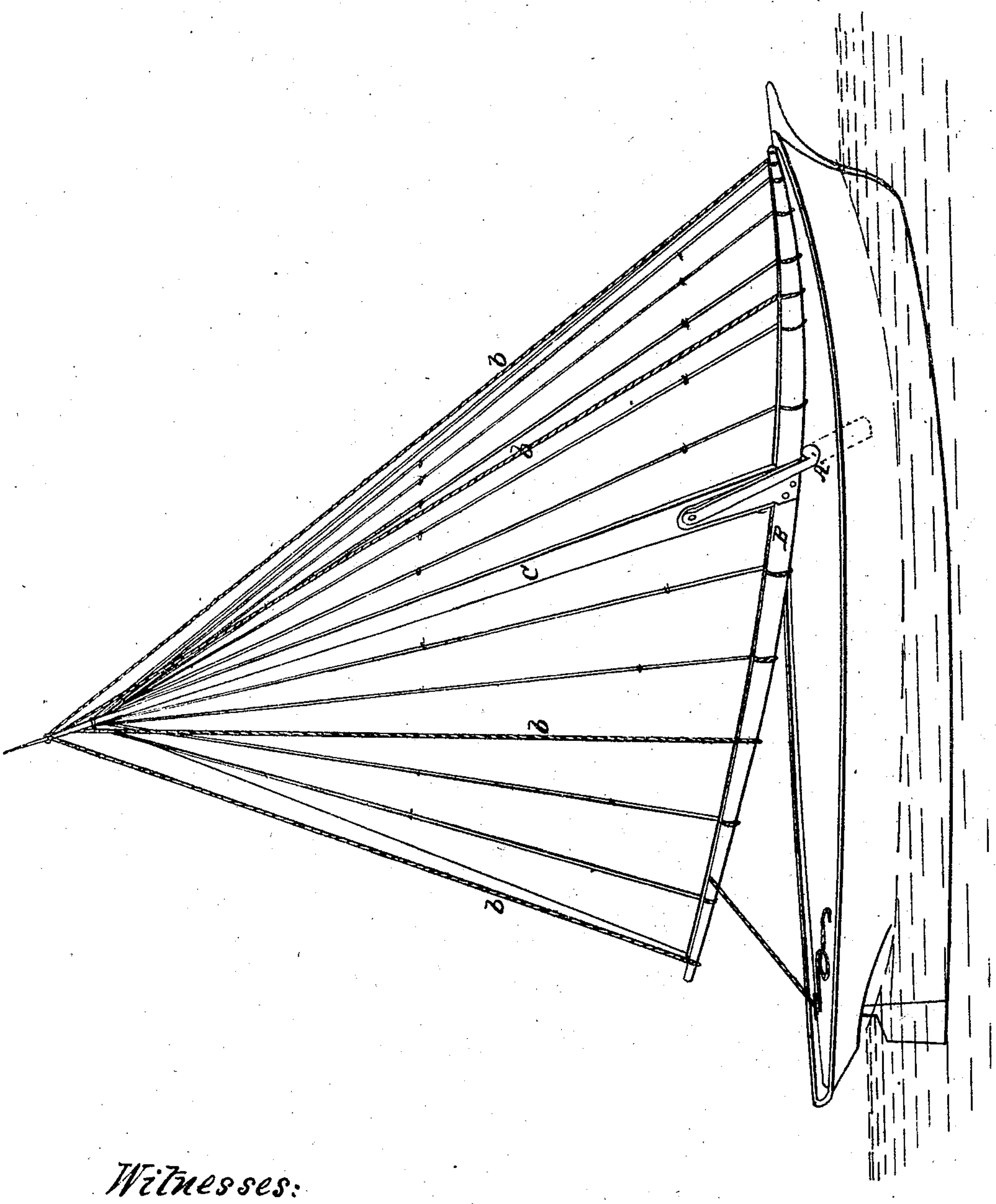
T. Bell,

Sails & Rigging.

No. 24,090. Patented May 24, 1859.



Witnesses:

Wm Tusch

Inventor

Thos Bell

UNITED STATES PATENT OFFICE.

THOMAS BELL, OF NEW YORK, N. Y.

RIG FOR VESSELS.

Specification of Letters Patent No. 24,090, dated May 24, 1859.

To all whom it may concern:

Be it known that I, THOMAS BELL, of the city, county, and State of New York, have invented a new and Improved Rig for Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, said drawing representing a perspective view of a vessel with my improved rig.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, is what I term the mast bench consisting of a single round stick of timber or built of several pieces in the ordinary manner of built masts, said bench being stepped into the keelson of the vessel in about the position ordinarily occupied by the mast and supported above by partners like the mast partners commonly employed and being when necessary further supported by shrouding. This mast bench extends above the deck but little more than one sixth of the height of the mast and is set with a greater rake than is usually given to any mast, say at an angle of from 60° to 45°, degrees, to a horizontal plane, and is fitted to the keelson of the vessel so as to be capable of turning freely therein.

C, is the mast and B, is a spar which is substituted for both boom and bowsprit, the mast being straight and the spar being curved so that its ends are higher than the middle, where, or some distance in front of which, it is secured to the mast in the strongest and most permanent manner. The curve of the spar may be that of an arc described with a radius equal to or greater than the length of the mast and should be concentric to a point in line with the mast. The mast is connected at a point equal to about one sixth of its length from the bottom with the mast bench, by a pin *a*, upon which it is capable of working freely, the bench being made to extend up each side of the exterior of the mast, as represented in the drawing or to extend up through its interior. The axis of the mast bench coincides with a plane passing through the centers of the mast and boom, and the axis of the pin *a*, is perpendicular to the axis of the mast bench and plane of the mast and boom. The movement permitted to the mast and boom on the pin *a*, should be about half an inch for every foot of their length. The boom should diminish in size gradually from the mast to its extremities. The boom and mast are stayed together by stays *b*, *b*, made of rope or iron rods extending from the mast head to the extremities and such other parts of the yard as may be considered desirable. The mast may be fitted with additional spars above the bottom spar B, said spars being diminished in length according to their distance from the bottom of the mast.

The mast and yard may be fitted with a single sail which may be reduced by lowering and reefing to the yard, or separate sails may be applied between the spars when more than one are used, and may be reduced in a similar manner. Or there may be a separate sail between every two stays, the sails being fitted to the stays with rings or hanks and sail being shortened by lowering any of these separate sails, without reefing, and furling them to the boom or booms. The mast and yard applied in this manner allow the sail to be set at various angles to the length of the vessel according as the course of the vessel is more or less before the wind or on the wind, by turning them by means of braces and tackles applied to one or both ends of the boom or booms, and the greater the angles that the boom or booms form with the length of the vessel, and the more the vessel, consequently, sails before the wind, the more rake have the mast and sail and the greater is the tendency of the wind to lift the vessel.

The advantages of this rig are many, viz: it is cheaper, safer, gives increased speed, and is more convenient. It is cheaper because it requires much less material and labor to fit it, and the wear and tear is much less. It is safer because there is very little weight aloft and that is thrown to windward by the wind, and at the same time as much of the weight below as is desired is thrown to windward by the same cause, and all the canvas is controlled more securely and quickly, therefore less ballast (which tends to sink the vessel) is required. It gives increased speed because all the canvas tends at all times to propel to the greatest advantage, lifting instead of bearing down the vessel, thereby adding to the propelling force and diminishing the retarding power. It is more convenient because not one fourth of the time or labor is necessary to make or take

in sail, and all things are so easily controlled that one man can manage a vessel that with the ordinary rig would require four.

Instead of being applied with the mast bench, as hereinabove described, the mast itself may be stepped into the keelson in such a manner as to turn therein, and have its lower part so bent that though the axis of its motion in the said step it is inclined like the axis of the bench as described, the part of the mast above the deck would be vertical while the boom were placed fore and aft. In this case the mast would require to be fitted to the deck in a frame like a gimbal, to permit it to assume the greater or less rake that would take place as the boom were set more or less athwart ship.

One or more masts with this rig may be applied in the same vessel.

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

The arrangement and combination of the mast C, spar B, and revolving forked mast bench A substantially as and for the purpose herein shown and described.

THOS. BELL.

Witnesses:
WM. TUSCH,
A. R. MAIGHT.