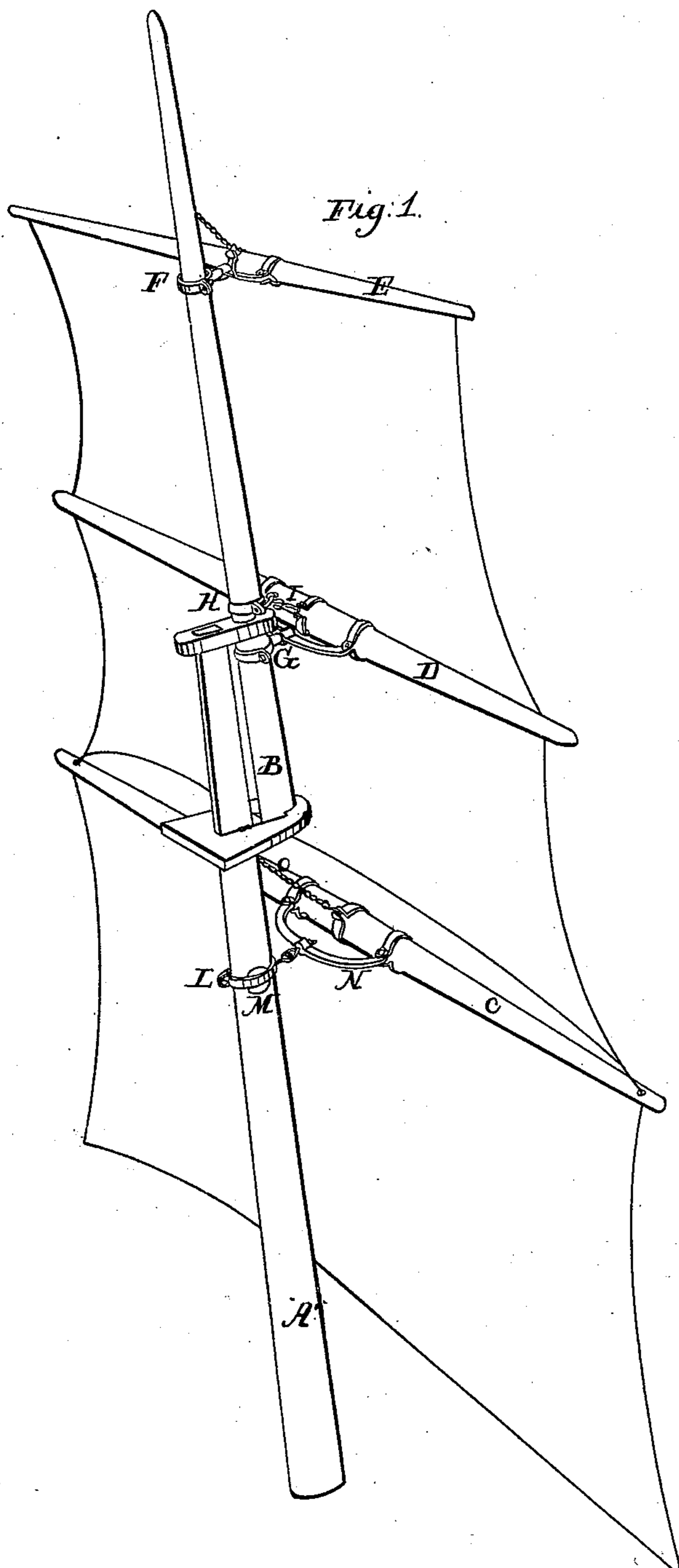


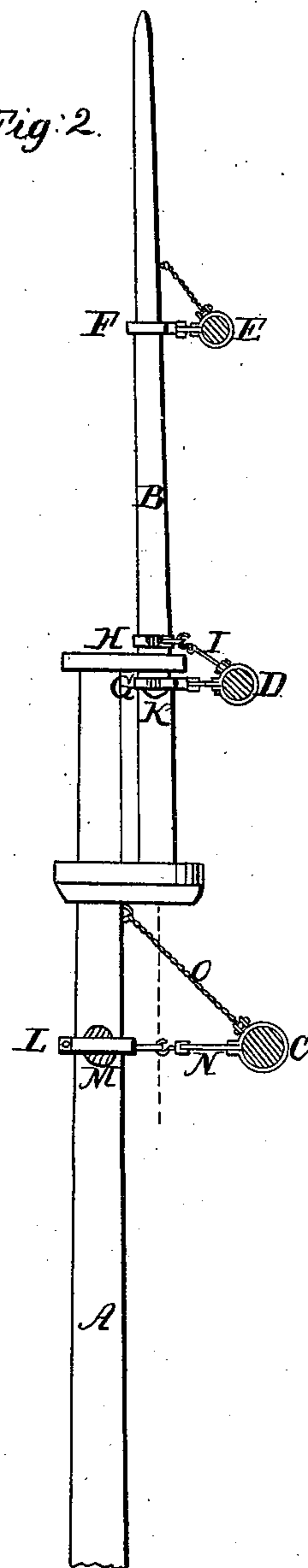
*J. E. Cole.*  
*Masts & Spars.*

*N<sup>o</sup> 17,780.*

*Patented July 14, 1857.*



*Fig. 2.*



# UNITED STATES PATENT OFFICE.

JAMES E. COLE, OF BROOKLYN, NEW YORK.

## RIGGING OF SHIPS.

Specification of Letters Patent No. 17,780, dated July 14, 1857.

*To all whom it may concern:*

Be it known that I, JAMES E. COLE, of Brooklyn, in the county of Kings and State of New York, have invented a new and  
5 useful Improvement in the Rigging of Square-Rigged Vessels; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the  
10 letters of reference marked thereon.

The object of my invention is to relieve the strain upon the mast and remedy the wrinkling and displacement of the sails incident to the ordinary method of rigging  
15 and placing the topsail yards of a square-rigged vessel, by placing the centers of motion of the several yards in line with each other, so that the yards have a uniform movement in relation to each other.

20 Figure 1, in the accompanying drawings is a perspective view of one of the masts with its attached topsail yards, and Fig. 2 is an elevation of the same with the yards shown in transverse section.

25 A is the main, and B the top-mast, both of ordinary construction.

30 C is the main yard, supported from the main mast, and D the lower top-sail yard, and E the upper top-sail yard, both supported from the topmast.

35 F and G are clamps, of ordinary construction, by which the upper yards are connected to, and supported by the topmast, and which permits the yards to have a vibrating movement around the topmast, to either side of the line of the keel, upon the line of the center of the topmast.

40 H is a clamp, permanently secured to the topmast, which has a semi-ring attached to its front side upon which the sling I slides easily back and forth as the yards are shifted from one side to the other. The clamp G is retained in place, vertically, by

the mast cap J above it, and the stop K, another on the opposite side not shown, 45 below it.

L is a clamp, fastened to the mainmast and secured in position by the stays M, similar stays being placed on the opposite side, which has an eye formed on its front side 50 sufficiently far from the face of the mast to be in line with the line of the center of the topmast, so that the lower yard, which is connected to the clamp by the truss N, and supported by the sling O, shall vibrate from 55 a center coincident with the center upon which the other yards move. The sails to be attached to the yards are of the ordinary form and construction, and are operated in the ordinary manner. 60

With the yards of a square rigged vessel as commonly attached, and worked on centers out of line with each other, a twisting, wringing strain is brought upon the mast when they are moved from side to side 65 of the line of the keel under a pressure from the wind, that is injurious to the mast and which ultimately destroys it, at the same time that the sails are wrinkled and displaced so that the wind does not exert its 70 full force and effect upon them, while they require the expenditure of more power to work them back and forth than when they are arranged and placed upon the mast in the manner herein described. 75

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

Placing the centers of motion of the yards of a square rigged vessel in line with each other in the manner and for the purposes 80 herein set forth.

JAS. E. COLE.

Witnesses:

P. H. COPLAND,  
FRANCIS S. LOW.