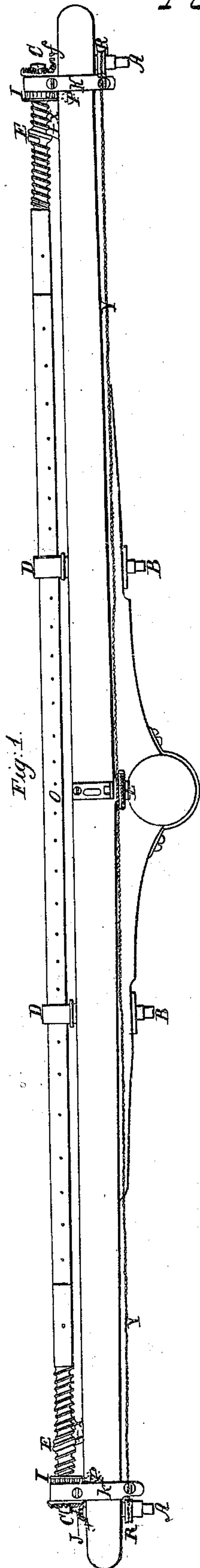
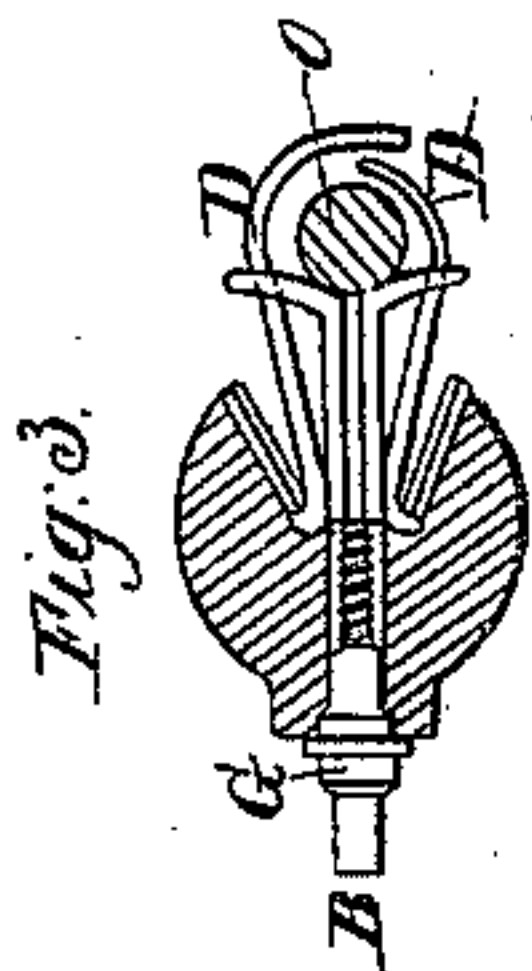
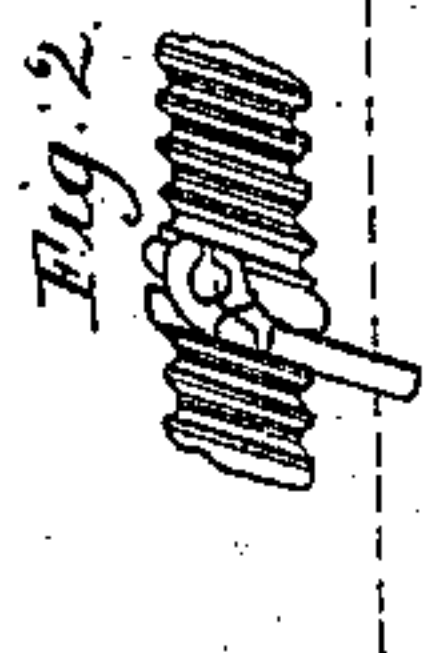


J. Emerson Reefing Sails.

N^o 17,031.

Patented Apr. 14, 1857.



UNITED STATES PATENT OFFICE.

JAMES EMERSON, OF WORCESTER, MASSACHUSETTS.

REEFING SHIPS' SAILS.

Specification of Letters Patent No. 17,031, dated April 14, 1857.

To all whom it may concern:

Be it known that I, JAMES EMERSON, of Worcester, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Reefing Ships' Sails; and I do hereby declare that the following is a full and exact description of the same.

My improvement relates to that class of reefing sails where an extra yard is used, the reefing being effected by chains or ropes leading down to the deck of the vessel, so that the sails can be reefed while the men are on deck.

To enable others skilled in the art to make and use my invention, I will proceed to describe it, and by referring to the annexed drawings, making a part of this specification it will be readily understood.

Figure 1 represents the ordinary top-sail yard, with the roller O, attached by the bands K and clamps D. This roller is turned by the gears C at each end, which gears are operated by the pinions J. On each end of this roller there is a screw E, these screws are right and left handed as shown, and the pitch of the thread is equal to the increase of the sail in width, so that the leach of the sail will follow the screw, and is kept in place by the claws X, which are under the screws as shown by Fig. 2. The leach or rope on the edge of the sail runs through these claws. The claws are secured to a nut on the screws and are kept steady by the end of the nut sliding in a slot in the end of the yard. Pinions J are

attached to the arbors A which are operated by the endless chain Y passing around the pulleys R, this chain also passes around the pulley L in the middle of the yard. To this pulley is also attached another endless chain running down by the mast to the deck. Pawls P act in the ratchet I and hold the roller as the sail is rolled up. If necessary the arbors A can be turned by the same cranks or wrenches with which the screws B are turned. Clamps D are made as shown in Fig. 3, so that they will close on to the bare roller or can be increased in size so that the sail can be rolled inside of them.

To reef the sail, one man goes aloft and unscrews the clamps D, then by hauling the endless chain that leads down by the mast on deck the roller O will roll the sail up as fast as the yard is lowered by the halyards. When the sail is rolled up screw the clamps D tightly to the sail on the roller. When wishing to unroll the sail one man goes aloft, unscrew the clamps D, lift the pawls P out of the ratchets, then hoist away, but the roller should not be allowed to unroll any faster than the yard is hoisted.

What I claim is—

The adjustable clamps D, when arranged so as to be enlarged or decreased as required, secondly I claim the screws E and claws X on the roller O for spreading the sail.

JAMES EMERSON.

Witnesses:

JESSE W. GOODRICH,
JOHN J. O'NEIL.