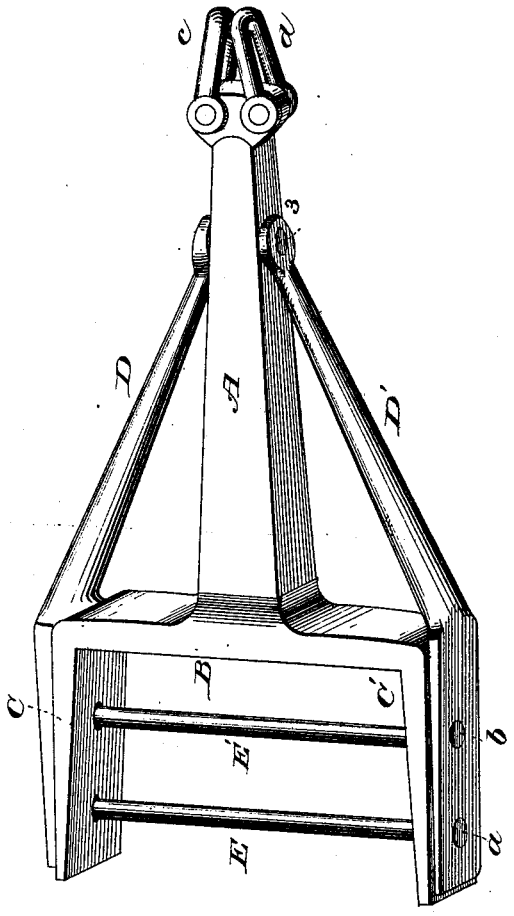
J. C. MORTON.
Rudder for Vessels.

No. 205,972. Patented July 16, 1878.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES C. MORTON, OF EAST DEERING, MAINE.

IMPROVEMENT IN RUDDERS FOR VESSELS.

Specification forming part of Letters Patent No. **205,972**, dated July 16, 1878; application filed January 25, 1878.

To all whom it may concern:

Be it known that I, JAMES C. MORTON, of East Deering, in the county of Cumberland and State of Maine, have invented a new and useful Improvement in the Machine called a "Safety-Tiller for Vessels' Rudders," of which the following is a specification:

The invention relates to safety-tillers for the rudders of vessels.

The method hitherto used to attach to a rudder the rudder-chains by which the rudder is worked when the ordinary steering apparatus has become unserviceable has been simply to insert into the crown or head of the rudder a simple bolt and ring, to which the rudder-chains were attached. There has also been in use a slight improvement on the ring and bolt—that of placing on the head or crown of the rudder a clasp or brace of iron, and through this clasp or brace was inserted a bolt of iron, to which the rudder-chains were attached.

The objection to both these methods of attaching the rudder-chains, or to this way of turning the rudder, is that, the crown or head of the rudder being its weakest part, it is, with the strain thus brought to bear upon it, likely to be split. In other words, by both the above methods the crown or head of the rudder is not strengthened, and the weakest part is placed under the greatest pressure and strain.

The object of my invention is to provide for the rudder of a vessel a tiller to which the rudder-chains may be attached, and which may be used to work the rudder when the ordinary steering apparatus is unserviceable.

The invention consists in making the tiller proper all of one piece of material.

The invention also consists in the manner or mode of attaching the safety-tiller to the head or crown of the rudder, as follows: The arms C and C′ are mortised into the head of the rudder, so that the outside surfaces of the said arms are in a plane level with the sides of the rudder. In other words, the said arms are made in any particular case so that the distance between their outside surfaces is just the thickness of the rudder. Thus the arms form always a band or clasp to the rudder. The bolts E and E′ pass through the head of the rudder, and are riveted on the outside of the braces, and simply hold the said arms and braces firmly in place, and are not subject to much or any strain or pressure. This is an object of great importance to be attained, as it is desirable not to allow the strain or pressure to be centered at one point, but to spread it out over as much space as possible, as by so doing the tendency of the rudder to be split decreases. By attaching the tiller in the above mode the pressure is made to come on the full length of the arms C and C′.

It finally consists in the particular construction and arrangement of the tiller proper, the braces, and the shackles, the whole combination acting and performing the double function of a tiller to the rudder and of giving increased strength to the rudder in its weakest part—the crown or head.

The accompanying drawing is a side elevation of the safety-tiller.

The tiller is made of wrought-iron. There are three principal pieces, viz: The tiller proper, marked A in the drawing, and the two braces, marked, respectively, D and D′. The tiller proper, A, consists of a square or round shaft, which increases slightly in size toward the arms. At B the tiller proper branches into two arms, which clasp and are mortised into the head of the rudder, and are marked C and C′, and are firmly secured by the bolts E and E′. These bolts serve the double purpose of attaching the safety-tiller to the rudder and of holding the braces D and D′. The heads of the bolts are marked *a* and *b*. The braces D and D′, which are attached to the head of the tiller by a bolt marked *e*, are round bars of wrought-iron flattened out at the ends, and attached by bolts E and E′ to the arms C and C′. *c* and *d* are shackles. The length of the shaft A should be to the bolt E as three to one, varying with the size of the rudder. The diameter should be three inches. The safety-tiller is operated by chains, which are attached to the shackles, marked *c* and *d*.

What I claim is—

A safety-tiller consisting of the projecting post A, provided with the arms C and C′, forged thereon or otherwise solidly united thereto, adapted to straddle the crown or head of the rudder and to be bolted thereto by bolts passing through the same, as set forth, with the side braces D and D′ and the shackles *d* and *d′*, substantially as described.

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Witnesses:

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