Holmes & Springer,

Steering Apps.

No. 4652. Patented July 20. 1846

Fig. 2.

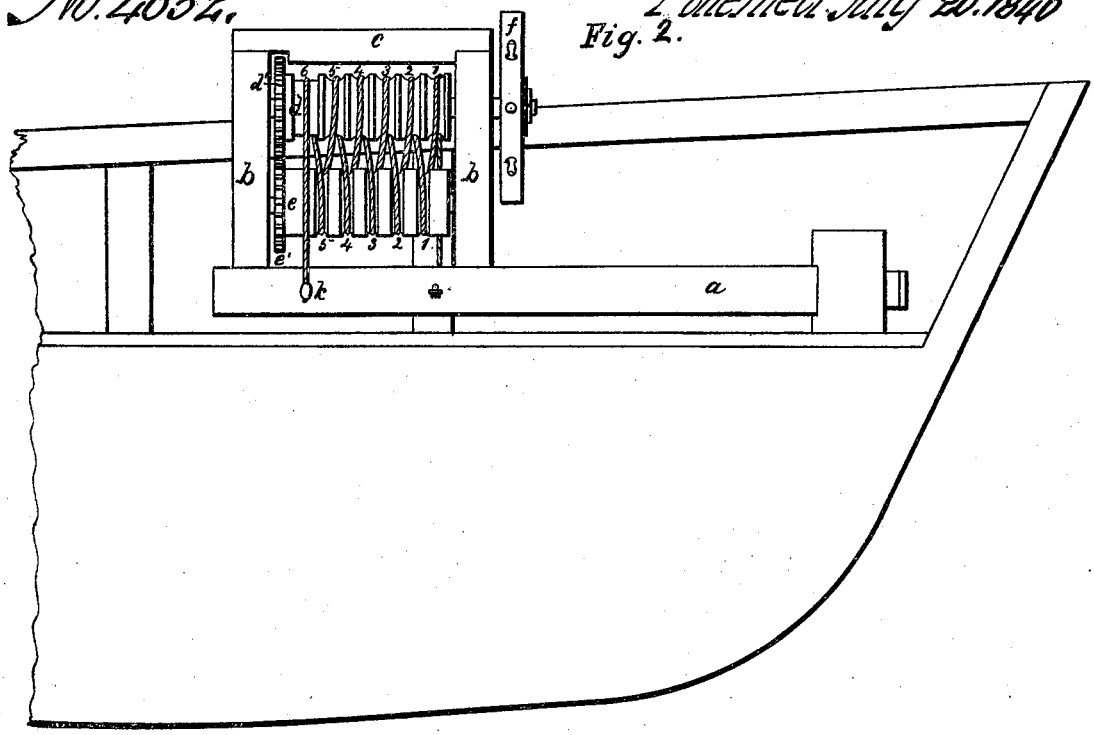
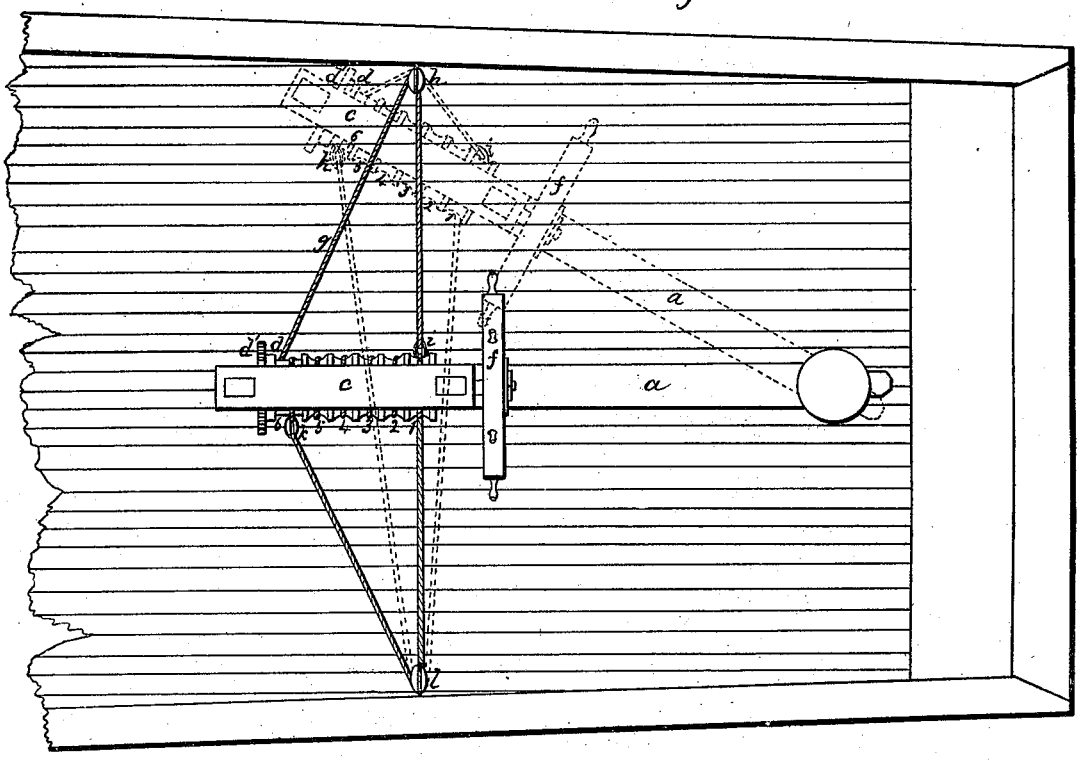


Fig. 1.



UNITED STATES PATENT OFFICE.

RICHD. C. HOLMES AND JONA. J. SPRINGER, OF CAPE MAY COURT-HOUSE, NEW JERSEY.

MACHINERY FOR STEERING VESSELS.

Specification of Letters Patent No. 4,652, dated July 20, 1846.

To all whom it may concern:

Be it known that we, RICHARD C. HOLMES and JONATHAN J. SPRINGER, both of Cape May Court-House, in the county of Cape May and State of New Jersey, have invented new and useful Improvements in Steering-Wheels of Vessels, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improvement as applied to a vessel, and Fig. 2, an elevation of the same with the side of the vessel removed to exhibit more clearly the application of my improvement.

The same letters indicate like parts in all the figures.

The nature of our invention consists in the employment of two grooved rollers mounted in appropriate bearings one above the other on the helm, the upper one being on the shaft of the tiller wheel, and mounting the tiller rope by first attaching one end of it to one side of and near the extremity of the helm, passing it through a block attached to the side of the vessel, then through a block attached to the same side of the helm, then over the upper drum and in the first groove, then under the lower drum, then around the upper drum, and in the second groove, then around the lower drum, in the second groove, and so on to the end, each time crossing the rope to insure the bight thereof, and then from the upper drum to a block attached to the side of the helm, and just opposite to the attachment of the rope on the other side, and thence carrying the rope through a block at the side of the vessel, and then tying the end to the helm at a point just opposite the block on the other side, so that by this arrangement of the grooved drums and the disposition of the tiller rope, it (the rope) is prevented from slipping and over-riding, and at the same time it is prevented from making slack as the helm vibrates for the slack is taken up on one side as fast as it is made on the other, and the rope is also prevented from chafing.

In the accompanying drawings (*a*) represents the helm, and (*b*, *b*) two standards mortised into it and (*c*) a cap piece connecting them at top. These two standards are adapted to the reception of the journals of two drums or rollers (*d*, *e*), each provided at the end with a spur wheel (*d'*, *e'*) the teeth of which mesh into each other so as to carry the rollers in opposite directions, the upper one of these rollers being on the same shaft as the tiller wheel (*f*). The surface of these rollers is grooved in the direction of their peripheries, the upper one having one groove more than the under one, and the number of these grooves may be varied to suit the capacity of the vessel, as large vessels will require a greater number than small ones. One end of the tiller rope (*g*) is attached as above stated to one side of the helm and near the end thereof, and thence it passes, when the helm is fore and aft, diagonally to and through a block (*h*), attached to the side of the vessel and thence it passes in a line, at right angles to the keel of the vessel, to a block or pulley (*i*) attached to the side of the helm; from this it runs up and around groove (1) in the uper roller (*d*) then crosses and passes around groove (1) in roller (*e*) then again crossing passes around groove (2) in roller (*d*), then again crosses and passes around groove (2) in roller (*e*), and so on to groove (5) in roller (*d*), and from this it passes down vertically or nearly so to a block or pulley (*k*) attached to the side of the helm and at the same distance from the end thereof as the attachment of the rope on the other side, from this block (*k*) it passes to *a* through a block (*l*) at the side of the vessel and opposite the one on the other side of the vessel, and then the rope passes in a line at right angles to the helm and is attached to it.

On examination of the drawings it will be perceived that the rope forms a connection with the helm at two points on each side, and that when the helm stands fore and aft the two points of connection nearest toward the stern are intersected by a right line connecting the two blocks at the sides of the vessel and therefore at right angles to its length, and that the other two points of connection are considerably forward of this line, and so much as to form a radius greater than the distance between the center of motion of the rudder and either of the blocks

(*h*) or (*l*) attached to the vessel, so that when the helm is moved either way, the rear points of connection of the tiller rope with the helm describe circles of less radius than the distance from the axis of the rudder to either of the blocks (*h*) or (*l*) and the other two points of connection describe a circle of greater radius than these distances, (as will be clearly seen by the position of the parts represented by dotted lines) this disposition of the connections of the tiller rope avoids the making of slack to any injurious extent. We do not wish to confine ourselves strictly to the position of these points of attachment,—but to vary them as long as we retain the essential character and object herein pointed out.

What we claim as our invention and desire to secure by Leters Patent, is—

The employment of the two grooved rollers geared together for the purpose of preventing the rope from slipping as described, in combination with the arrangement of the tiller rope by having it on either side connected with the helm at two points, and also passing through a block on each side to the vessel as herein described whereby the making of slack by the vibrations of the helm is avoided, as described.

RICHARD C. HOLMES.
JONA. J. SPRINGER.

Witnesses:
JOHN M. HAND,
ELI TOWNSEND.