(No Model.)

J. C. & S. LAKE.

STEERING GEAR FOR VESSELS.

No. 418,032. Patented Dec. 24, 1889.

Fig. 1.

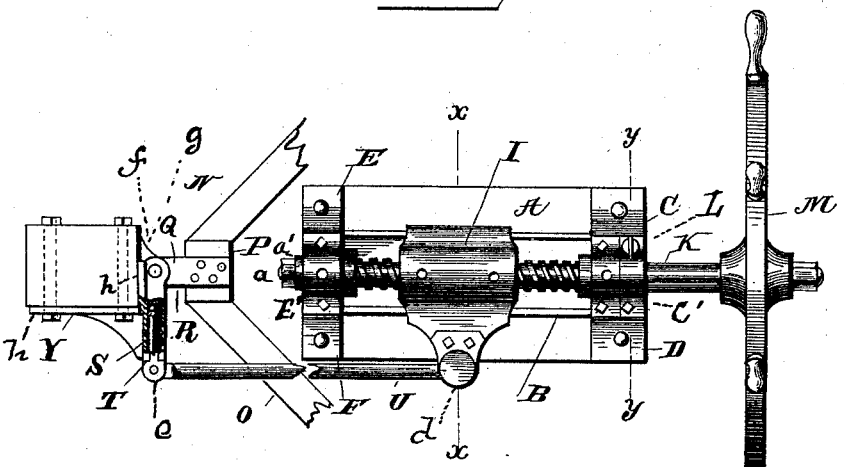


Fig. 5.

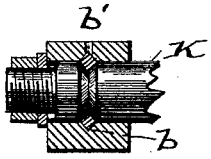


Fig. 6.

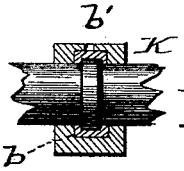


Fig. 2.

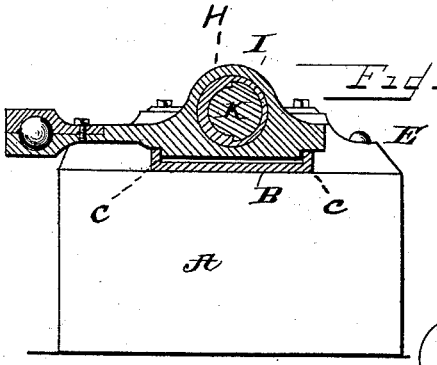


Fig. 3.

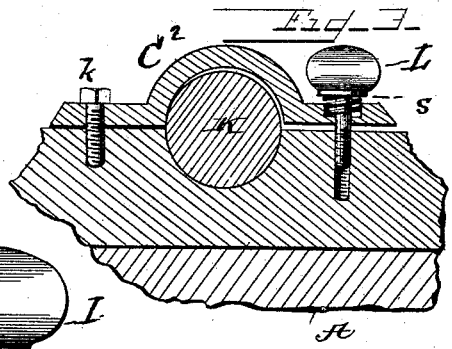
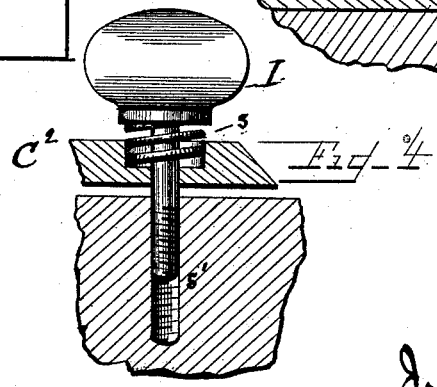


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN CHRISTOPHER LAKE AND SIMON LAKE, OF OCEAN CITY, NEW JERSEY.

STEERING-GEAR FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 418,032, dated December 24, 1889.

Application filed February 4, 1889. Serial No. 298,622. (No model.)

To all whom it may concern:

Be it known that we, JOHN CHRISTOPHER LAKE and SIMON LAKE, citizens of the United States, residing at Ocean City, in the county of Cape May and State of New Jersey, have invented certain new and useful Improvements in Steering-Gear; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to certain novel improvements in steering-gear, which will be fully understood from the following description and claims, taken in connection with the annexed drawings, in which—

Figure 1 is a plan view, in detail, of our improved steering apparatus. Fig. 2 is a transverse vertical section, enlarged, taken in the plane indicated by dotted line *x x* on Fig. 1. Fig. 3 is a vertical transverse section taken in the plane indicated by dotted line *y y* on Fig. 1. Fig. 4 is a sectional detail, enlarged, showing the tightening-screw for the unthreaded portion of a screw-shaft and the encircling spring for said screw. Fig. 5 is a sectional detail of the rear end of the screw-threaded shaft. Fig. 6 is a sectional view showing a modification of the boxing.

Reference being had to the annexed drawings by letter, A designates the bed or main supporting-frame, which is rigidly secured to the deck of a vessel or to any other substantial support thereof. On this frame we provide ribbed ways B, which are parallel to each other and located in the median line fore and aft of the vessel. At the end of the said bed or frame A are shoulder-pieces C D and E F, secured rigidly to the bed or frame A by bolts or otherwise.

K designates a master screw-threaded shaft, on the front end of which is fastened a tiller-wheel M. This shaft is journaled in boxes C′ and E′, and provided with a nut and washer *a a′* on its rear end to prevent endwise play; but to effectually prevent the end play of the tiller-shaft K, we employ the following device: We form an annular groove *b* in the journal portions of said shaft, and a similar groove in the bore of the journal-box, leaving a sprue-aperture *b′* through the cap of the box, as shown in Fig. 5 of the annexed drawings. We run Babbitt metal into the space thus afforded.

In lieu of the groove *b*, we may form an annular rib or band on the shaft K and use Babbitt metal about this band, as shown in Fig. 6.

Y designates the rudder-post, which is set so that it is allowed to be oscillated.

I designates a traverser, which is shouldered at *c c*, and thus adapted to slide on and be guided by the ways B, so that there shall not be any binding on the threaded portion of the shaft K. Inside of the bore of the traverser I is a bushing H, (shown clearly in Fig. 2,) the object of which is to compensate for undue wear.

U designates a connecting-rod, which is attached to a lateral extension of the traverse I by a ball-and-socket joint *d*. The rear end of this rod U is connected by a joint at *e* to a section T of an extension-lever R. The section S of this lever is practically a bracket, and is rigidly secured by its wings *h* to the rudder-post Y. To this rudder-post is also secured a bracket-ear *g*, which is pivoted to the eye portion of the lever R by a vertical bolt *f*, which in turn unites the rudder-post and the said extension-lever to a rearwardly-extended bearing Q, which is rigidly secured to the angular brace-frame P.

Referring again to the front boxing C′, it will be observed that we employ a frictional strap or an adjustable half-box C^2, which is adjustably secured to the lower fixed half of the box (see Figs. 3 and 4) by means of a screw *k*, tapped through one end of the cap C^2. The opposite end of this cap is recessed to receive a helical spring *s*, which bears against the shoulder of a screw-threaded button L, tapped into the base of the cap. It will thus be seen that we provide means for rigidly locking the tiller-shaft K and releasing the same when necessary. The pilot can thus lock the rudder for any course which he may desire to take, and readily release the same when he desires to change his course.

Having thus fully described our invention,

what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a steering-gear, the combination, with the bed or support and the flanged guideways, of the front and rear guideways, the threaded shaft secured therein and provided with the tiller-wheel, and the sliding box connected with the laterally-projecting adjustable arm secured in the socket connected to the tiller-head, substantially as specified.

2. The combination, with the screw-threaded operating-shaft provided with the steering-wheel and seated in locking bearings or boxes, of the movable slide mounted thereon and connected to the tiller-arm by the rod parallel with the shaft thereof, and the hinged adjustable arm connected to the rudder-stem and to the rear end of the parallel rod, substantially as described.

3. In an apparatus for steering vessels, the combination, with the threaded shaft provided with the tiller-wheel, of the sleeve I on the threaded portion of the shaft, the stationary guide-boxes and the rod U, hinged to the sleeve I, and the rod R, hinged to the rod U and connected with the tiller-head, substantially as specified.

4. In a steering-gear, the combination, with a rudder-post, of an extensible lever connected to said tiller-post, a screw-threaded tiller-shaft, a traverser traveling on said shaft, and a rod connecting this traverser with the said extensible lever, as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN CHRISTOPHER LAKE.
SIMON LAKE.

Witnesses:
J. McNAMEE,
H. J. ENNIS.