

H. KEEN.
Steering Apparatus.

No. 143,017.

Patented September 23, 1873.

Fig. 1.

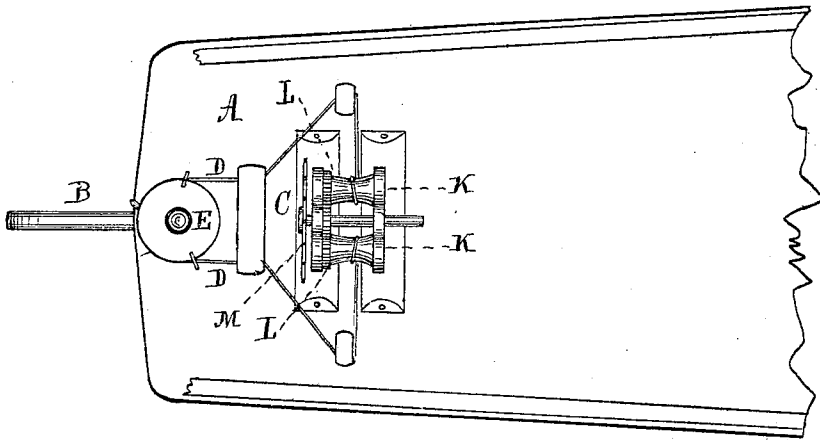


Fig. 2.

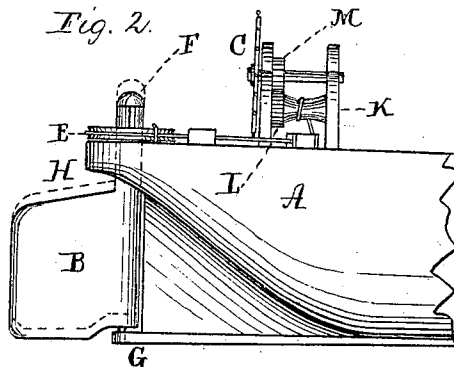


Fig. 3.

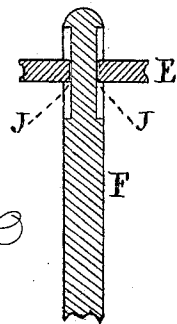
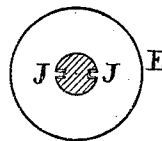


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

HORACE KEEN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN STEERING APPARATUS.

Specification forming part of Letters Patent No. **143,017**, dated September 23, 1873; application filed February 12, 1873.

To all whom it may concern:

Be it known that I, HORACE KEEN, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Steering Apparatus; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a top view of the device illustrating my invention. Fig. 2 is a side view thereof. Fig. 3 is a detached sectional view. Fig. 4 is a top view, partly sectional, of a detached portion.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a rudder, which is caused to rise when it strikes an obstruction in the water, for preventing fracture or destruction of said rudder, and the parts of the boat immediately connected therewith. The invention consists in connecting the rudder-post and drum or cylinder, on which are wound the cords or chains leading from the steering-wheel or steering mechanism, by means of tongues and grooves formed, respectively, on the upper portion of the rudder-post and the drum, whereby the said drum will engage with the post for properly turning the rudder, and the drum and cords or chains always occupy the same position during the rising and falling of the rudder, in order to prevent strain on the drum, cords or chains, and the steering mechanism.

Referring to the drawings, A represents the stern portion of a boat; B, the rudder; C, the steering-wheel; and D D the cords or chains which pass from said wheel to the rudder for operating the latter. These cords pass around a drum or cylinder, E, which is fitted on the post F of the rudder, and the lower portion of the post or rudder may be mounted on a step or support, G, which is secured to the bottom of the boat at the rear thereof. The upper portion of the post is mounted in bearings H secured to or located on proper portions of the stern, so that the

upper portion of the post is extended or projects above the bearings H; but both the upper and lower bearings are such that the post is permitted to rise and thus elevate the rudder without liability of displacing or unshipping of the same. The object of this elevation is to permit the rudder to rise as it passes over obstructions in the water, (as hereinbefore stated,) after which the rudder drops to its normal position.

It is evident that the elevation of the drum or cylinder would tighten the cords D D and cause great strain thereon, also to the eye or sheaves through which they pass, and to the wheel or other steering mechanism, besides preventing the operation of the latter.

To remedy this serious defect I form the upper portions of the post and the openings of the drum, respectively, with tongues and grooves, or with feathers and keys or other similar joints J, which permit the rudder to rise without elevating said drum, yet in no manner prevent the engagement of the drum with the post for rotating or operating the rudder, whereby said drum always assumes the same position, and operates uniformly with the cords regardless of the vertical movements of the rudder.

The connection of the drum E to the rudder-post, and the cords or chains directly operating the drum, cause the rudder to be moved speedily and with ease.

K represents two drums, which are mounted in a suitable frame or bearings on the deck of the boat, and carry at one end gear-wheels L, with which meshes a tooth-wheel, M, on whose shaft is secured the operating-wheel C.

The cords or chains D D may be the ends of a continuous cord or chain, which passes around the drums E, or distinct lengths secured to said drum, and they extend from the drums K so that each cord or chain is connected to one of the drums K, and winds and unwinds on separate drums, or when one cord or chain is being wound or unwound on one drum, the other cord or chain is being operated in reverse order, whereby there is no contact, interference, catching, or binding of one cord or chain with the other, and the gearing causes an easy operation of the drums;

but these two drums have been known, and are hereby disclaimed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with the extended upper portion of the rudder-post F, and the drum or cylinder E, of the tongues and grooves J J,

constructed, arranged, and operating substantially as and for the purpose set forth.

The above signed by me this 20th day of January, 1873.

HORACE KEEN.

Witnesses:

A. P. RUTHERFORD,
HENRY POLZ.