J. P. DORR.

Steering-Apparatus.

No. 198,004. Patented Dec. 11, 1877

Fig. 1.

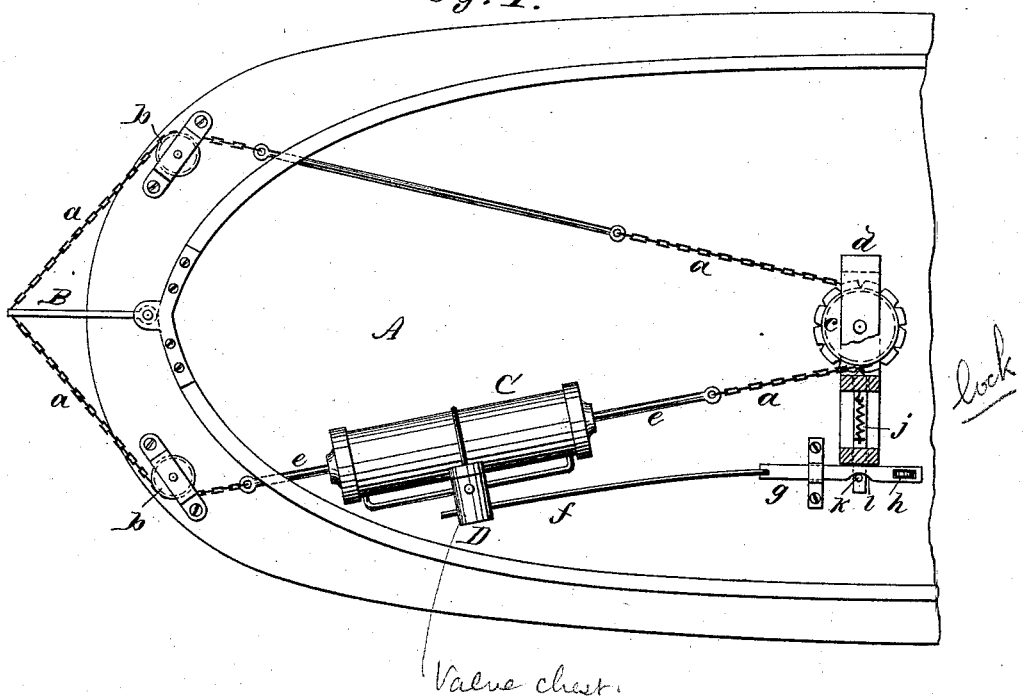
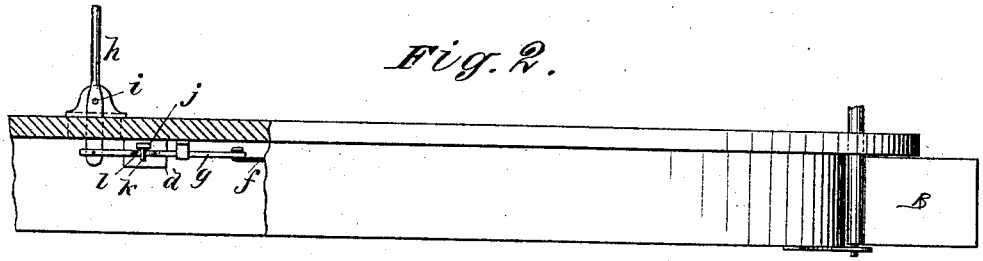


Fig. 2.



WITNESSES:

H. Rydquist

J. H. Scarborough.

INVENTOR:

J. P. Dorr.

BY Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN P. DORR, OF OCONTO, WISCONSIN.

IMPROVEMENT IN STEERING APPARATUS.

Specification forming part of Letters Patent No. **198,004**, dated December 11, 1877; application filed September 22, 1877.

To all whom it may concern:

Be it known that I, JOHN PHINEY DORR, of Oconto, in the county of Oconto and State of Wisconsin, have invented a new and Improved Boat-Steering Apparatus, of which the following is a specification:

Figure 1 is an inverted-plan view of my improved boat-steering apparatus. Fig. 2 is a side elevation of the same, partly in section.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide an apparatus for moving the rudders of boats by steam or hydraulic pressure.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

In the drawing, A is the deck of the boat, and B the rudder, which is hung in the usual way. The tiller rope or chain *a*, in the present case, is attached to the rudder B, and runs each way over pulleys *b*, and forward around a chain-sheave, *c*, that is journaled in a frame, *d*, secured to the under surface of the deck.

A cylinder, C, containing a piston, whose rod *e* extends through both of its heads, is secured to the under surface of the deck, above or in proximity to the boilers, and with its center-line coincident with the line of the tiller-chain. Eyes are formed in the ends of the piston-rod *e*, for receiving the tiller-chain *a*.

The cylinder C is provided with a valve-chest, D, which is provided with three ports, and with an ordinary slide-valve, for admitting steam to or exhausting it from either end of the cylinder, the arrangement of the valve-ports and passages being similar to that of an ordinary plain slide-valve steam-engine.

The valve-chest is connected with the boiler of the boat by a suitable pipe.

The slide-valve is connected, by the rod *f*, with a sliding bar, *g*, which slides in a guide formed in the end of the frame *d*. A lever, *h*, fulcrumed at *i* above the deck, is connected with the bar *g*, and by it the motion of the rudder is controlled by shifting the valve, so as to admit steam to the cylinder C, as circumstances may require.

The periphery of the sheave *c* is notched to receive the end of a spring-bolt, *j*, which moves in guides in the frame *d*, and extends above and beyond the bar *g*, and is provided with a stud, *k*, which is engaged by a cam, *l*, formed in the edge of the said bar.

When it is desired to move the rudder the lever *h* is moved, and the slide-valve, being connected therewith, is also moved; but before it has traveled far enough to admit steam to the cylinder, the spring-bolt *j* is withdrawn from the sheave *c* by the engagement of the cam *l* with the stud *k* that projects from the bolt.

The movement of the bar *g* in either direction results in withdrawing the bolt before admitting steam to the cylinder. The steam being admitted to the cylinder, the rudder is moved, the direction in which it moves being dependent on the manner in which the steam is admitted to the cylinder.

To determine the position of the rudder, an indicator may be attached to the sheave *c* or to the tiller-chain.

When steam is shut off from both ends of the cylinder and the piston is at rest, the bar *g* occupies a middle position, and the bolt *j* drops into one of the notches in the sheave *c* and locks the rudder.

The advantages claimed for my improved steering apparatus are, that little labor is required to operate the rudder, and the rudder may be locked securely in any desired position. The steam-cylinder, being placed in proximity to the boilers, is kept warm and undue condensation is avoided.

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

The combination of the lever *h*, bar *g*, having the cam-notch *l*, the spring-bolt *j*, and sheave *c*, substantially as shown and described.

JOHN PHINEY DORR.

Witnesses:
W. B. MITCHELL,
CHARLES LYONS.