

No. 640,242.

Patented Jan. 2, 1900.

R. A. TURNER & B. L. MILLER.

STEAM STEERING GEAR.

(Application filed Mar. 25, 1899.)

(No Model.)

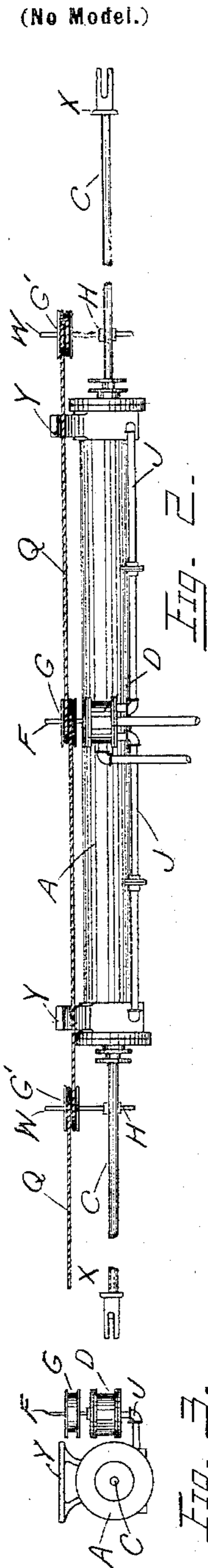


Fig. 1.

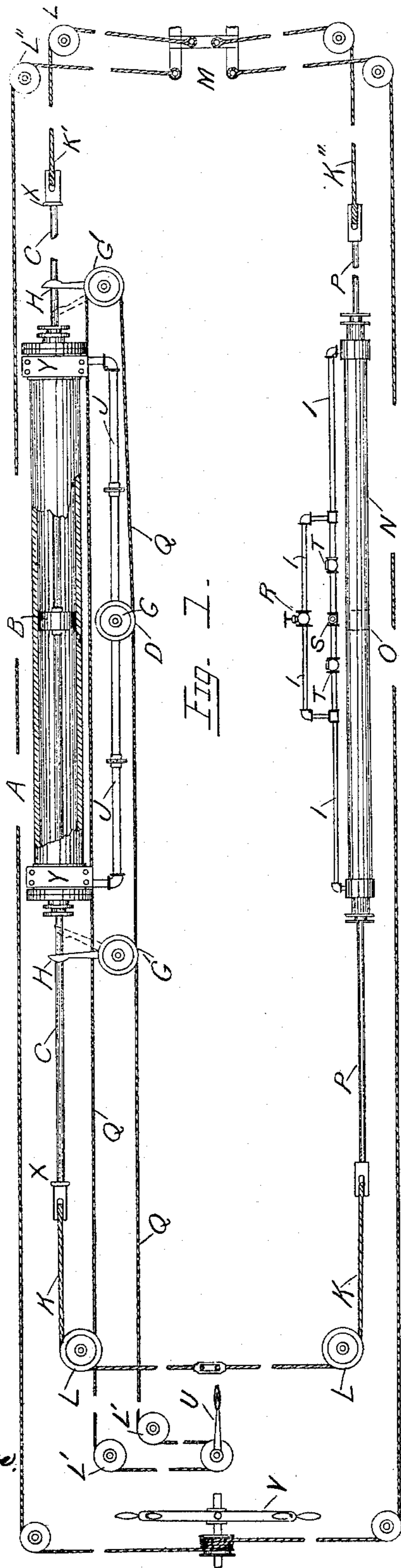


Fig. 2.

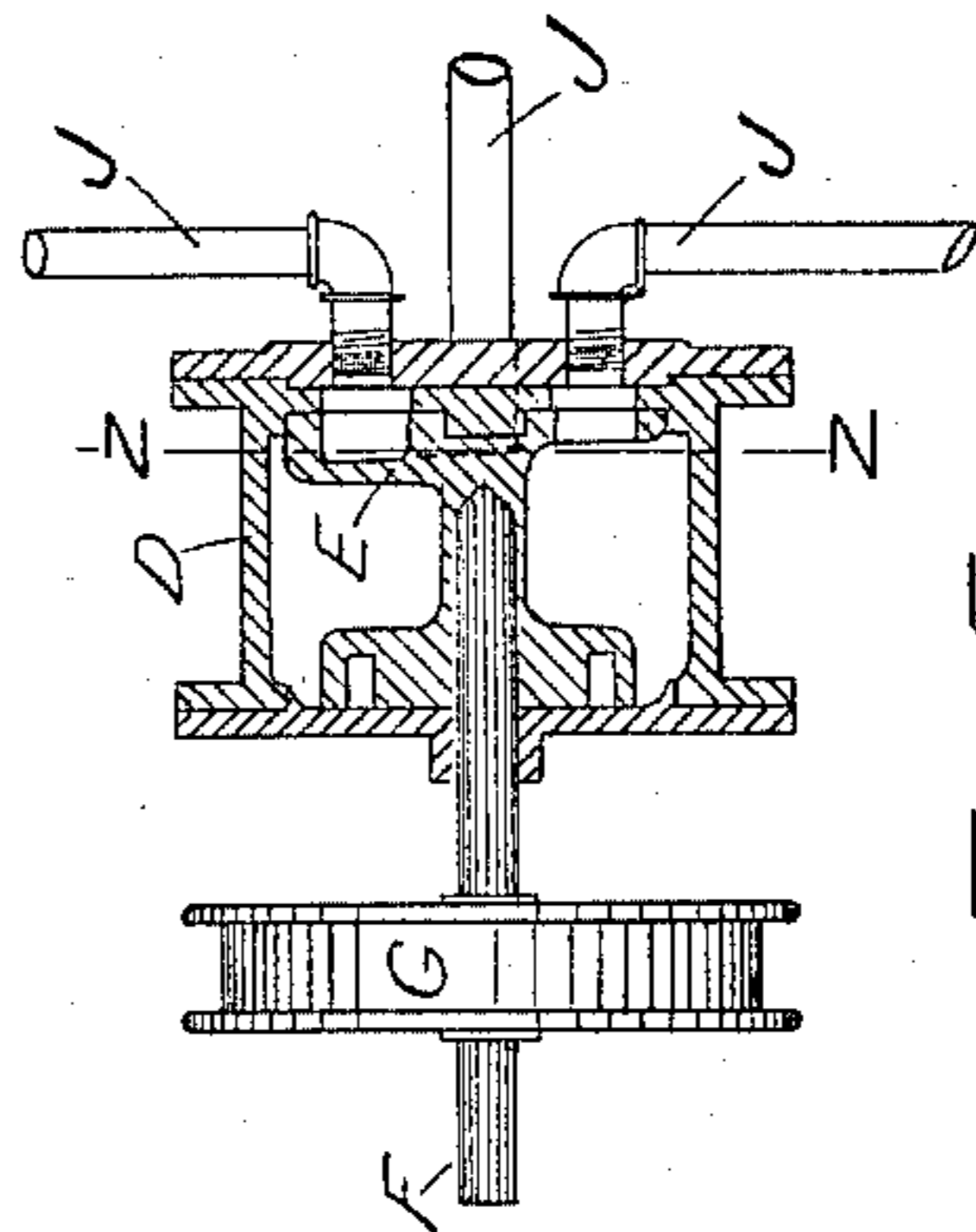


Fig. 3.

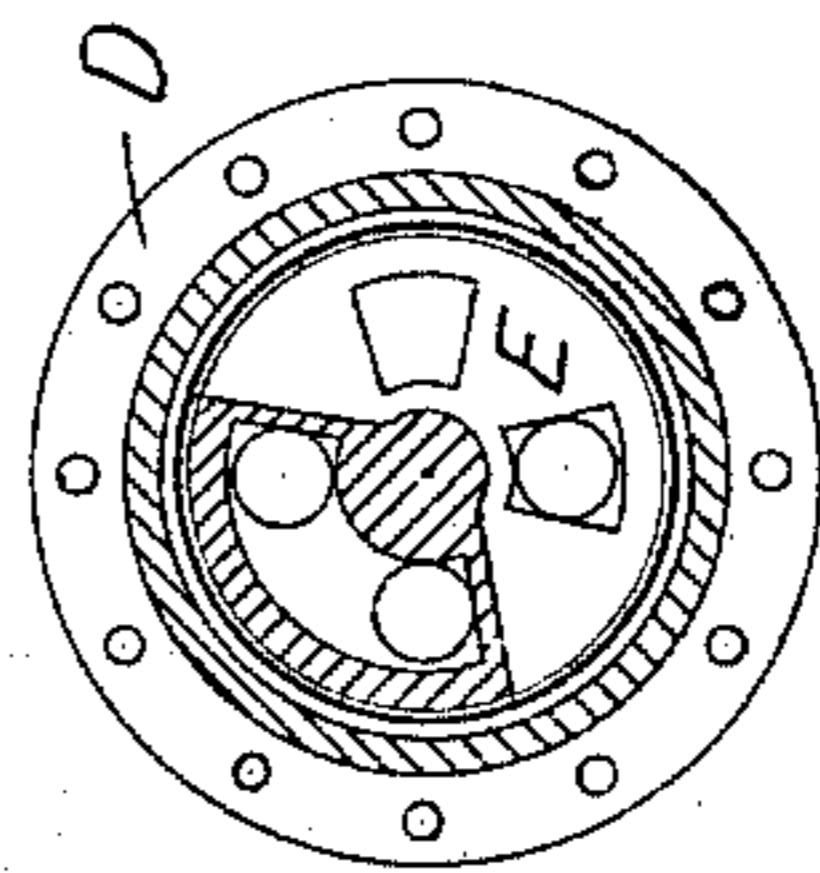


Fig. 4.

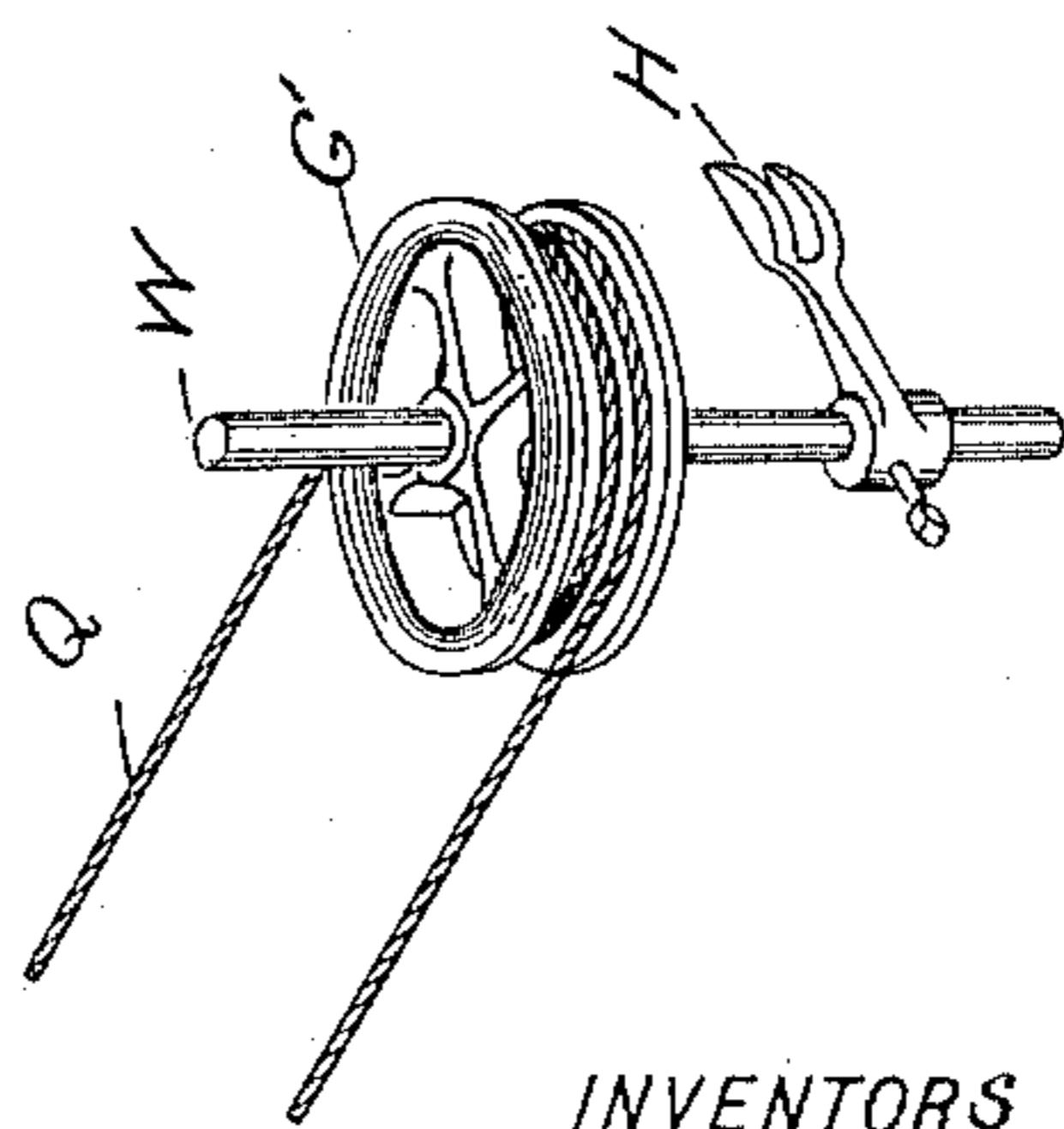


Fig. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT A. TURNER AND BENJAMIN L. MILLER, OF SEATTLE, WASHINGTON.

STEAM STEERING-GEAR.

SPECIFICATION forming part of Letters Patent No. 640,242, dated January 2, 1900.

Application filed March 25, 1899. Serial No. 711,190. (No model.)

To all whom it may concern:

Be it known that we, ROBERT A. TURNER and BENJAMIN L. MILLER, citizens of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Steam Steering-Gear, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to certain new and useful improvements in steam steering-gear; and it consists of the novel construction and combination of parts hereinafter described, and pointed out in the claims.

The object of our improvements is to provide a device of this class that shall possess advantages in point of simplicity, durability, and general efficiency. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view embodying the invention with the steam-cylinder broken to clearly show the working parts therein. Fig. 2 is a longitudinal elevation of the steam-cylinder, and Fig. 3 an end view of the same; Fig. 4, an enlarged perspective view of one of the regulator-arms and attachments. Fig. 5 is an enlarged horizontal sectional view through the line Z Z of Fig. 6, and Fig. 6 is a sectional elevation through the axis of rotation to show the valve and attachments and also the steam connections of the valve-chamber.

Similar letters refer to similar parts throughout the several views.

In the drawings, A represents the steam-cylinder, with brackets Y Y to furnish suitable supports and means to secure the same to the vessel.

J J are steam-pipes leading from the valve-chamber D to the ends of cylinder.

J' is an exhaust-pipe, and E steam-valve integral with spindle F and sheave G.

G' G' are sheaves around which the valve-operating line Q is coiled one or more times.

H H are automatic regulator-arms, and W W spindles for the same.

B indicates the piston on piston-rods C C, which rods extend through the heads of the cylinder, and connected to the ends of piston-rods are the tiller-ropes K K'. One of said tiller-ropes K', passing around the fair-leader

L, as shown, is connected directly to the tiller M, while the other tiller-rope K passes around fair-leaders L L to opposite side of vessel and thence along that side and also connected to tiller. We break the latter tiller-rope K and secure the ends thereof to the ends of plunger-rod P of the cushion-chamber N. O is the plunger in said cushion-chamber.

S is a fitting-in pipe to make a connection with a charging-reservoir (not shown in the drawings) containing oil or other liquid, which oil is fed to the said cushion-chamber by gravity.

T T are check or non-return valves used to prevent the oil when under pressure from being forced back into the reservoir, and R a globe-valve that regulates the communication in the pass-over pipe I I between ends of said cushion-cylinder.

V shows a hand steering-wheel as usually applied to vessels.

The operation of the mechanism is as follows: The valve E is controlled from the hand-lever U by the line Q, secured by staples or other means to the sheaves mounted on the spindles of each, and it will be apparent that when by the hand-lever U steam is admitted through the valve E the steam forces the piston B to either end of the operating-cylinder A, as desired, and coincident therewith the tiller M, which is connected to the ends of the reciprocating piston-rod C. When upon moving a certain distance and to prevent the rudder being jammed hard over, one of the stops X strikes a regulator-arm H, which, being integral with spindle W' and sheave G', closes the steam-port by means of the above-mentioned line Q making one or more turns around each of said sheaves G' G' and secured to the same.

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

1. In a steam steering apparatus, the combination with a cylinder and a piston having a piston-rod extending through both heads of the cylinder, stops X X on the projecting ends of said piston-rod, of the pipes J J entering near the ends of the cylinder, a valve-chamber D communicating therewith, a rotatable valve E in said chamber, a valve-spindle F and sheave G integral with said valve, sheaves

G' G', operative connection between the said sheaves G and G' G', spindles W W and regulator-arms H H integral with sheaves G' G', said regulator-arms adapted to be engaged by the said stops X X, substantially as described.

2. In a steam steering apparatus, the combination with a cylinder and a piston having a piston-rod extending through both heads of the cylinder, stops X X on the projecting ends of said piston-rod, of the pipes J J entering near the ends of the cylinder, a valve-chamber D communicating therewith, a rotatable valve E in said chamber, a valve-spindle F and sheave G integral with said valve, sheaves G' G', operative connection between the said sheaves G and G' G', spindles W W and regulator-arms H H integral with sheaves G' G', said regulator-arms adapted to be engaged by

the said stops X X; and, a cushion-cylinder N with a piston having a piston-rod extending through both heads of cylinder and ends of said piston-rod being connected to tiller-rope K, a pass-over pipe I making communication between the ends of the cushion-cylinder, a valve R arranged in pass-over pipe for controlling the communication between ends of said cushion-cylinder, two check-valves T T and the opening S for connection with reservoir, substantially as described.

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

ROBERT A. TURNER.
BENJAMIN L. MILLER.

Witnesses:

PIERRE BARNES,
C. D. PAGE.