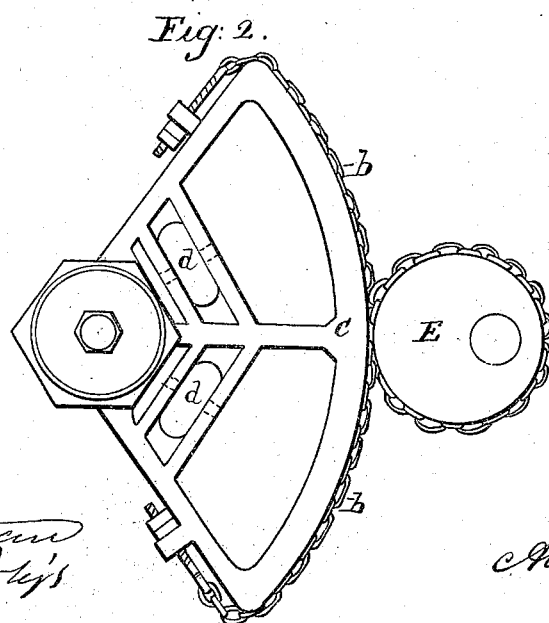
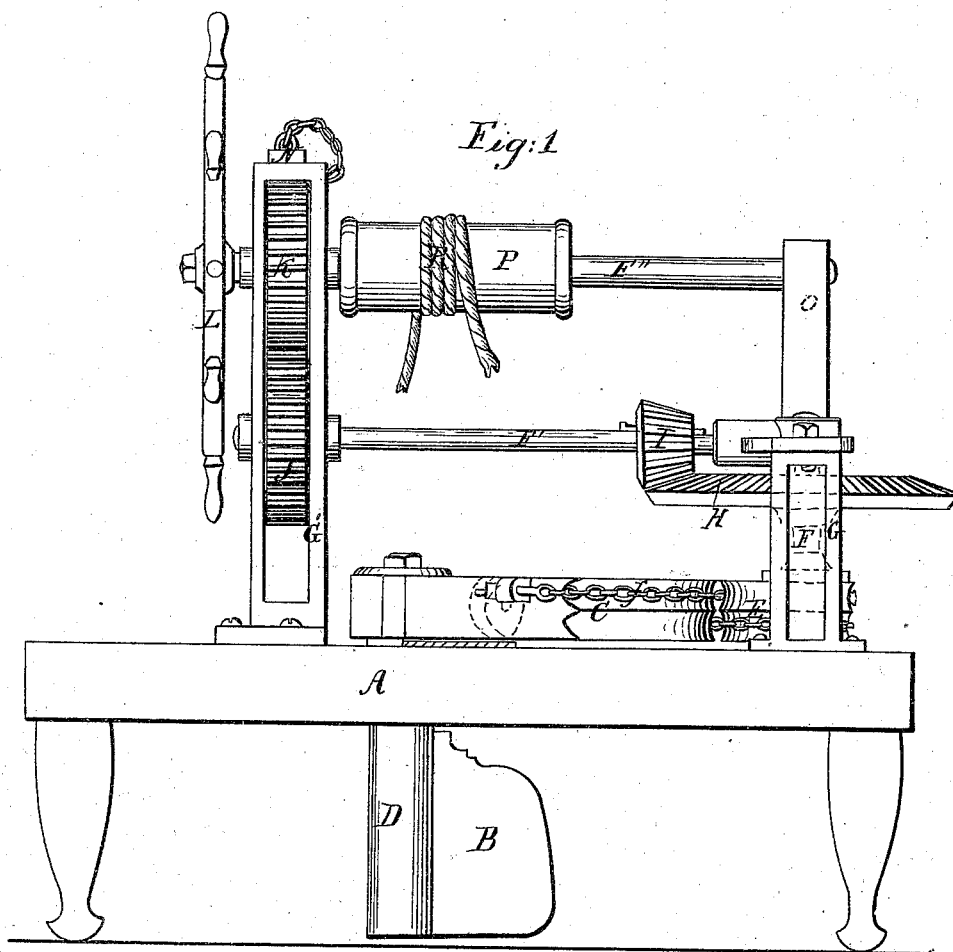


A.H. North,
Steering Apparatus,
No 48,087, Patented June 6, 1865.



Witnesses;
Wm Lynn and
James M. Bliss

Inventor;
Albert H North

UNITED STATES PATENT OFFICE.

ALBERT H. NORTH, OF NAUBUC, CONNECTICUT.

IMPROVED STEERING APPARATUS.

Specification forming part of Letters Patent No. 48,987, dated June 6, 1865.

To all whom it may concern:

Be it known that I, ALBERT H. NORTH, of Naubuc, county of Hartford, and State of Connecticut, have invented a new and useful Improvement in Steering Apparatus; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of the invention consists in so constructing the mechanism that in turning the rudder either to the right or left from a straight line, with the keel to an angle of forty-five degrees, (more or less,) the power is gradually increased or obtained, so that the labor, requiring (at times) the strength and close application of four men, can (with this device) be performed easily by one man.

It will be obvious that this device may be changed in form, proportion, and arrangement without changing its mode or principle of operation, and that it may be placed either below or above deck, and be operated by a hand-wheel, located either at the bow or stern, by providing a post, O, shaft F'', and drum P, with the ordinary chain or cord, R, connection.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is a side elevation, showing the entire working mechanism. Fig. 2 is a top view of the graduating-wheels.

A represents the deck, B the rudder, which should be secured below deck in the usual or proper manner.

C is an eccentric-lever segment or graduating-wheel, ring arms or openings to receive the friction-rolls *d*, to support the weight of the rudder, secured firmly to said segment (the segment C) by means of the shaft D.

E is an eccentric cam or graduating-wheel, secured onto the upright shaft F (shown by dotted lines) in the frame-work G. The longest extremity of the wheel E and the shortest extremity of the wheel C are placed so as to be in line with their shafts, while the rudder is in line with the keel or is midships, so that whether the wheel E be turned either to the right or left it will gradually gain power over the wheel or segment C by means of the cog teeth or chains *f*.

H is a bevel-gear secured upon the upper end of the shaft F.

F' F'' are horizontal shafts, which take their bearings in the frame-work G. The lower one, F', has a bevel-gear, I, on one end, which works into the gear H; and a gear, J, on the other end, F'', has a gear, K, and hand-wheel L secured thereto, and works in bearings in the frame-work, and the gear K works into the gear J.

The shaft F'' is represented as being lengthened out and having a drum, P, and chain or cord R wound around it for the purpose of receiving action from a hand-wheel located at the opposite end of the ship or boat, much in the usual way.

N is a latch fitted to an aperture in the upper end of the frame-work G, which drops into or between the teeth of the wheel K, when desirable, for the purpose of locking the same when the person in charge of the wheel L is desirous of leaving his post.

Now, it will be seen that the hand-wheel gear K, being smaller and of less number of teeth than the gear J, (into which it meshes,) exerts quite an increase of power over the wheel or gear J, and the bevel-wheel I also exerts a gaining power over or upon the wheel H. Thus the controlling power is exerted through the hand-wheel and gears K J and I H to the graduating-wheels C E much in the usual way and at all points alike; but from thence through the wheels C E the power is gradually increased in proportion to the increase of the resistance, and the hand upon the hand-wheel will be perfectly sensitive to the action of the rudder or water upon the rudder. One person at the wheel (with this improvement) can easily perform the duties of four men with the ordinary devices or apparatus.

I believe I have thus shown the nature, construction, and operation of my improvement, so as to enable others skilled in the art to make and use the same.

I claim—

The employment of the cam or eccentric wheels C E, operated by proper mechanism, substantially as and for the purpose described.

ALBERT H. NORTH.

Witnesses:

W. W. LYMAN,
JEREMY W. BLISS.