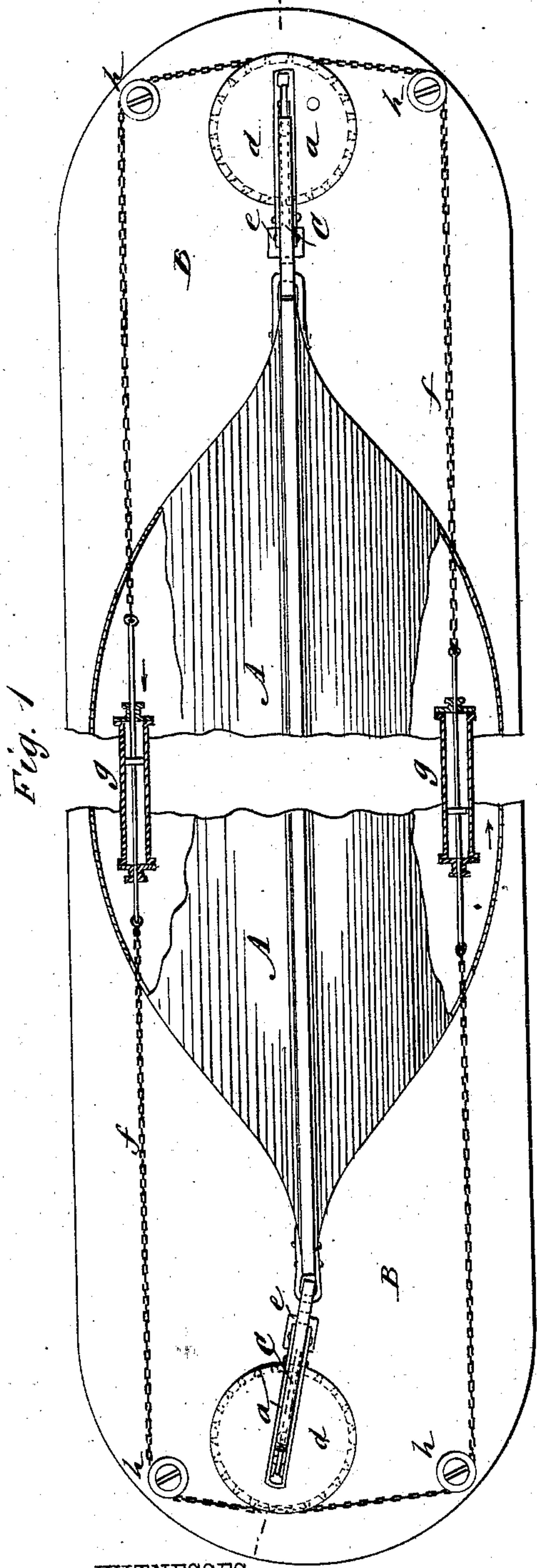


S. G. MARTIN.  
Steering Apparatus.

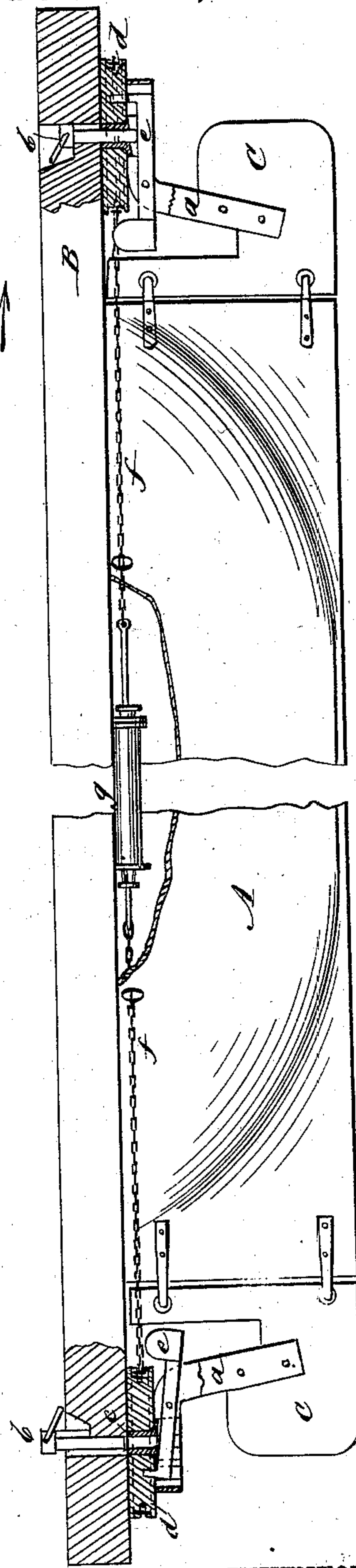
No. 216,873.

**Patented June 24, 1879.**



WITNESSES:

C. Nevenx  
C. Sedgwick



INVENTOR:

IN WITNESS WHEREOF, I have hereunto set my hand and the seal of the said Court, at the City of New York, this 14th day of January, 1884.

*S. G. Martin*  
BY *Mum & Co*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

SAMUEL G. MARTIN, OF SOUTH AMBOY, NEW JERSEY.

## IMPROVEMENT IN STEERING APPARATUS.

Specification forming part of Letters Patent No. **216,873**, dated June 24, 1879; application filed April 14, 1879.

*To all whom it may concern:*

Be it known that I, SAMUEL G. MARTIN, of South Amboy, in the county of Middlesex and State of New Jersey, have invented a new and Improved Steering Apparatus, of which the following is a specification.

My present invention is an improvement upon the apparatus shown in Letters Patent granted to me November 12, 1878, No. 209,822, whereby the apparatus is adapted for use on double-ended vessels—such as ferry-boats—which are fitted with a rudder at each end.

I make use of two steam-cylinders, as in the said patent, and chains passing to both rudders from the pistons, so that by movement of the pistons the rudders will be turned. The connection of the chain to the rudders is made by chain-wheels that are fitted so that either rudder may be disconnected, according to the direction in which the boat is moving.

In the accompanying drawings, Figure 1 is an inverted plan view, representing the two ends of a ferry-boat fitted with my improved steering apparatus. Fig. 2 is a side view of the same partially in section.

Similar letters of reference indicate corresponding parts.

A is the hull, and B the overhanging guards, of a ferry-boat, or other double-ended vessel, that is fitted at each end with a rudder, C.

To each rudder is connected a bent arm, *a*, to which the rudder-chains are usually connected, and which arm has heretofore been fitted with a socket for a stop-pin, *b*, that is used to retain the rudder amidship when not in use.

Instead of connecting the rudder-chains to the arms *a* the said arms are each formed with an annular socket, *c*, that receives pin *b*, and upon this socket a chain-wheel, *d*, is placed, so as to revolve freely between the arm and the under side of the guard.

Upon each arm *a* is hung a lever, *e*, one end of which is formed with a projecting lug that enters a recess in the side of the wheel *d* to lock the arm and wheel together, and the outer end of lever *e* is weighted to lock the wheel *d* automatically.

The lever *e* is in a position where its inner end is pressed down to relieve the wheel by the end of pin *b* when the latter is inserted to hold the rudder.

The rudder-chains *f* pass from the cylinders *g*, which are placed at each side midway in

the length of the vessel, around friction-rollers *h*, and in contact with the chain-wheels *d*, forming thus an endless chain.

The chains are connected to the piston-rods, and are moved by steam admitted to both cylinders at the same time, but at opposite ends.

The operation is as follows: With the boat moving in the direction of the arrow, the rudder-pin *b* at the forward end is inserted, as shown, to hold the rudder and at same time unlock the chain-wheel. The pin *b* at the rear is raised to free the rudder at that end, and permit the locking of its chain-wheel by lever *e*. The movement of the rudder-chains will then act to move the free rudder, but at the forward end the chains will revolve the unattached chain-wheel upon the socket *c*.

By this construction I am enabled to use the same steering mechanism at either end, as required, and only two steam-cylinders are necessary.

The chain-wheels *d* should have two or more recesses for the lug of lever *e*, so that in case of misplacement the wheel would be locked by one or the other.

I do not limit myself to the described means for locking the chain-wheels, as other devices can be used.

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

1. The chain-wheel *d*, arranged to revolve between an arm and under side of guard, in combination with a lever, *e*, hung upon each arm *a*, and provided at one end with a projecting lug that enters a recess in side of wheel, as shown and described.

2. The combination, with a rudder and arm, *a*, of the chain-wheel *d*, locking-lever *e*, and pin *b*, substantially as described and shown, and for the purposes set forth.

3. In steering apparatus for double-ended vessels, the combination of an endless rudder-chain, steam-cylinders and pistons for moving the chains, and chain-wheels *d*, attached upon the rudders, and fitted for being locked, substantially as and for the purposes specified.

SAMUEL G. MARTIN.

Witnesses:

GEO. D. WALKER,  
C. SEDGWICK,