

S. G. MARTIN.
Steam Steering Apparatus.

No. 209,822.

Patented Nov. 12, 1878.

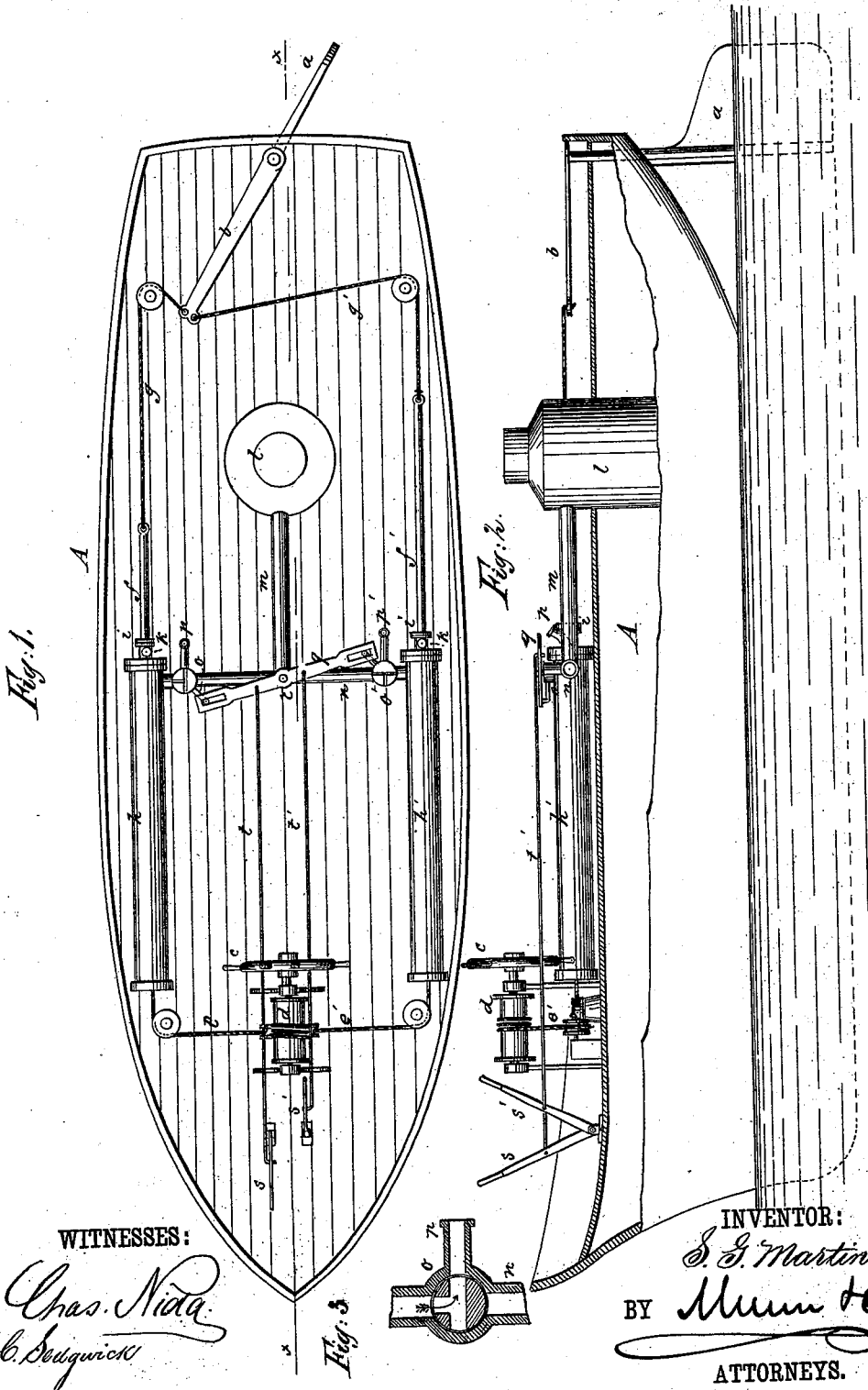


Fig. 1.

Fig. 2.

Fig. 3.

WITNESSES:

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

IMPROVEMENT IN STEAM STEERING APPARATUS.

Specification forming part of Letters Patent No. 209,822, dated November 12, 1878; application filed October 2, 1878.

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 for Vessels, of which the following is a specification:

My invention is an improvement in the class of steering apparatus for vessels in which steam is employed to act on pistons whose rods are suitably connected with the tiller for operating it.

The improvement consists in the construction and arrangement of parts, as hereinafter described, whereby a steam steering mechanism and the ordinary hand steering mechanism are combined in such a manner as to enable either to be used alone whenever desired without interfering with the action of the other.

In the accompanying drawing, Figure 1 is a plan view of the deck of a vessel, showing the application of my steering apparatus. Fig. 2 is a side view of the same, partially in section; and Fig. 3 is a section of one of the valves in larger size.

Similar letters of reference indicate corresponding parts.

A represents a steam-vessel. *a* is the rudder; *b*, the tiller; *c*, the wheel; *d*, the drum. *e e'* are ropes, that pass around the drum *d*, and are connected respectively with the rods *f f'*, that extend along the deck at opposite sides, and are connected by the ropes or chains *g g'* to the tiller *b*.

The parts named are of usual character. The wheel *d* will be in the wheel-house, (not shown,) and the ropes and chains described may be upon the deck or beneath the same.

h h' are cylinders, secured firmly upon or below the deck, as desired, and at opposite sides of the vessel. The rod *f* passes into the cylinder *h*, and the rod *f'* passes into the cylinder *h'*, and the ends of the rods *f f'* within the cylinder are provided with piston-heads. The cylinders *h h'* are slightly longer than the distance traveled by either rod *f f'* in moving the tiller *b* from one side to the other. The forward ends of the cylinders are open. The other end of each where the rod passes through has a stuffing-box, *i*, and a valve, *k*, for oiling the cylinders or admitting air when steam is not used.

l represents the boiler of the vessel. *m* is a steam-pipe therefrom, connecting with a cross-pipe, *n*, that extends across the vessel from one cylinder to the other, and provided with two-way cocks *o o'*, adjacent to the end of the cylinders *h h'*.

p p' are exhaust-pipes from the cocks *o o'*, which pipes may discharge into the open air. *q* is a lever, hung at the point *r*, midway between the two cylinders *h h'*, and connected at its outer ends with the handles of the cocks *o o'*.

s s' are hand-levers, hung in a vertical position in the wheel-house in front of the wheel *c*, and connected respectively by rods *t t'* to the lever *q* at opposite sides of its fulcrum *r*. By moving the levers *s* or *s'* the lever *q* is moved to open the cock *o* or *o'* and admit steam to the cylinder *h* or *h'*. The passages of the cocks *o o'* are arranged so that when either one is moved to admit steam to the cylinders the exhaust-passage is closed, and vice versa, as represented in Fig. 3.

This construction permits the rudder to be operated by steam whenever there is steam in the boiler, and dispenses with a separate engine.

The vessel may also be steered by the use of the wheel *c*, when desired, without any change of the parts. When the wheel *c* is used the pistons *f f'* are moved in the cylinders in the same manner by the ropes *e e'* as they would be if steam were admitted. When the steam is used the wheel *c* will be turned by the action of the ropes *e e'*, and thereby be an indicator to the pilot that the rudder is moving.

The above-described steering apparatus is simple, effective, and easily operated and controlled. There is but slight liability of error, as the connections to one cylinder are independent of the other, and the motions are in harmony with the usual mechanism for steering a vessel.

In case of accident to the boiler whereby the steam is cut off, the wheel *c* can be instantly used to steer the vessel.

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

1. In a steering apparatus, the combination

of the steam-cylinders, provided with pistons and piston-rods, connected with tiller-ropes, the drum *d* and ropes *e e'*, the valves *o o'*, and the centrally-located lever *g*, connected therewith, and provided with the rods *t t'* and hand-levers *s s'*, operating side by side, all as shown and described, for the purpose specified.

2. In a steering apparatus, the combination, with the tiller of the drum *d* and its attached steering-wheel *c*, the ropes *e e'* and *g g'*, the cylinders *h h'*, and valve mechanism for shut-

ting off or letting on steam, and the rods *f f'*, having piston-heads working in said cylinders, and connected with ropes *g g'*, all as shown and described, whereby the tiller may be operated by steam or hand power, as set forth.

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Witnesses:

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