(No Model.)

C. G. OTIS.

STEERING APPARATUS.

No. 285,835. Patented Oct. 2, 1883.

Fig. 1.

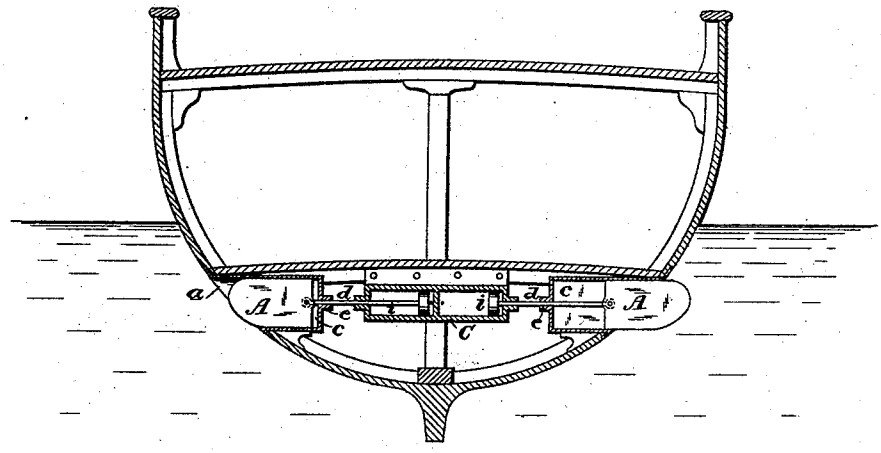
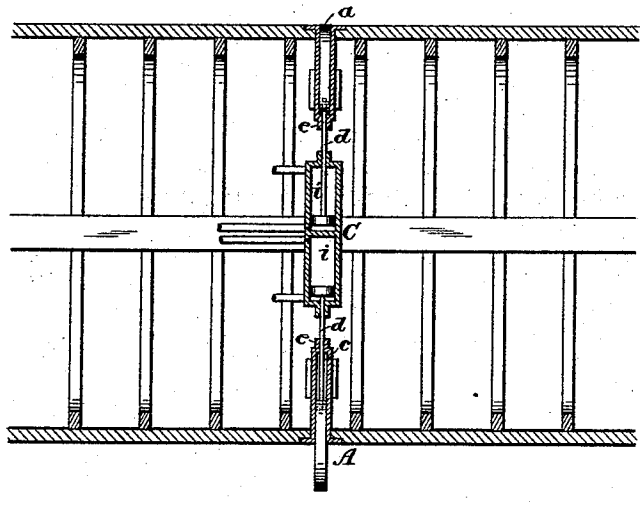


Fig. 2.



Attest:
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UNITED STATES PATENT OFFICE.

CHARLES G. OTIS, OF NEW YORK, N. Y.

STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 285,835, dated October 2, 1883.

Application filed January 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. OTIS, of the city, county, and State of New York, have invented certain Improvements in Steering Apparatus, of which the following is a specification.

My invention is a steering apparatus, constructed as fully described hereinafter, to secure a quicker and more effective action upon the water than is attained with an ordinary rudder, to reduce the danger of injury to the steering-blade, and to operate the latter with greater facility.

In the drawings, Figure 1 is a transverse elevation of a vessel with my improved steering appliance. Fig. 2 is a sectional plan.

In place of using a rudder at the stern and means for varying its angle to the keel, I use side blades and means whereby they may be projected from the sides of the vessel to prevent obstructions governing the movements of the vessel. Various ways of arranging and operating these blades may be adopted.

In the drawings I show the vessel with side slots or apertures, *a*, through which the blades A may be readily moved in and out, and with inside water-tight chambers, *c*, adapted to receive the blade when drawn in. The operating-rod *d* of each blade passes through a packing-box, *e*, and may carry a piston, *i*, adapted to a cylinder, C, to either end of which water, steam, or other motor fluid may be directed, so as to move the piston, and with it the blade, at the will of the operator. The valve devices controlling the movements of the fluid may be under the control of the helmsman. The steering-blades thus arranged may be wholly drawn within the limits of the hull, to avoid danger from floating matter, as ice. The extension of one from either side will result in a rapid turning of the vessel. The projection of both will materially aid in arresting the forward movement—an effect not possible with the ordinary rudder.

By bringing the motor fluid to bear directly upon a piston on the rudder-rod, all risk of indirect connections is avoided, and a ready and effective mode of operations is secured. Other means of propelling and retracting the blades may, however, be used.

I am aware that it has been proposed to use two independent blades in connection with valve devices so arranged that the movement of the steering-wheel will operate said valve devices and cause the same to effect the recession of one blade and the simultaneous projection of the other from the side of the vessel. This I do not claim, my invention being distinguished by the fact that either blade may be moved independently of the other out or in.

I claim—

1. The combination, in a vessel, of separately-operable blades arranged at opposite sides, at right angles thereto, and adapted to recesses in the sides thereof, and appliances, substantially as described, whereby the said blades may be independently moved in and out beyond the sides of the vessel at right angles thereto.

2. A vessel having water-tight chambers at the opposite sides, in combination with two blades arranged in said compartments, having operating-rods extending through the walls of the compartments, and independent operating appliances connected to said rods, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES G. OTIS.

Witnesses:
LEGRAND B. WOODRUFF,
R. H. BROWN.