S. Yerkes, Jr.,
Steering.

No. 22,002. Patented Nov. 2, 1858.

Fig. 1.

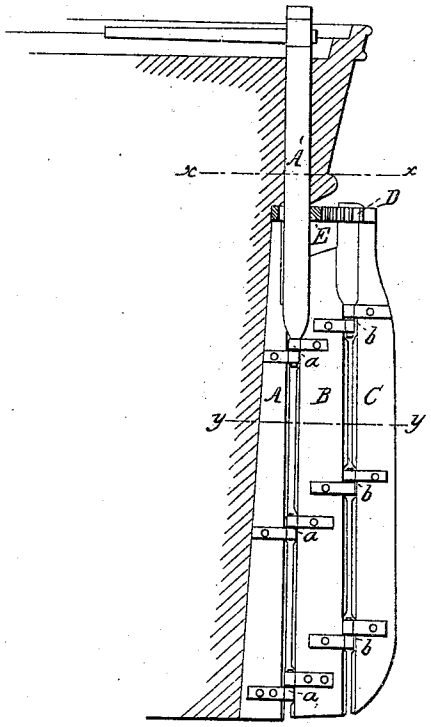


Fig. 2.

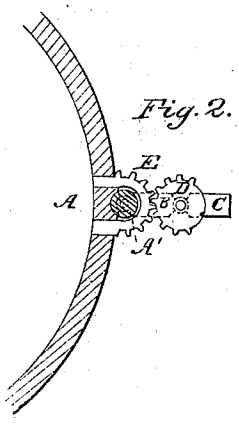
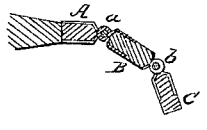


Fig. 3.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

S. YERKES, JR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND GEO. YERKES, OF SAME PLACE.

RUDDER FOR VESSELS.

Specification of Letters Patent No. 22,002, dated November 2, 1858.

To all whom it may concern:

Be it known that I, SILAS YERKES, Junr., of the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Rudders for Ships and other Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical section of the stern of a vessel and a side view of a rudder with my improvement. Fig. 2 is a horizontal section of the same, in the plane indicated by the line x, x, of Fig. 1. Fig. 3 is a horizontal section in the plane indicated by the line y, y, of Fig. 1.

Similar letters of reference indicate like parts in the several figures.

The invention consists in making a rudder in two parts which I denominate "main rudder" and "outside rudder," of which the former is hinged in the same manner as a common rudder to the stern-post of the vessel, and the other one is hinged in a similar manner to the back of the first one, and has secured to it a concentric toothed gear which gears with a stationary toothed arc concentric with the first one. The main rudder is operated like a common rudder, and by its action the outside one is caused to move in the same direction but faster, and the two combined are caused to produce a greater effect on the water by a given movement of the steering apparatus than a single rudder presenting the same area of surface.

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

A, is the stern-post of the vessel.

B is the main rudder hinged to the stern-post by hinges a, a, of the usual or any suitable construction, and having its head A′, extended up through and above the deck of the vessel, where any suitable steering apparatus is applied to it. This rudder has its back edge straight and parallel with the center of motion. Its width may be about half of that which a common rudder would have for a vessel of the same size; its depth being the same.

C, is the outside rudder hinged to the main rudder B, by hinges b, b, in the same manner as the latter is hinged to the stern post; the centers of the hinges b, b, being parallel with the centers of a, a. This outside rudder may be of about the same width as the main one; and to its head is firmly secured the spur toothed gear or arc D, the center of which is in line with the centers of the hinges b, b.

E, is a spur-toothed gear or arc secured to the stern-post of the vessel in a position to gear with the gear D, and having its center in line with the centers of the hinges a, a.

When the helm is amidships, the central planes of the main and outer rudders coincide with each other, but when the main rudder is operated by the tiller or other steering apparatus like a common rudder is operated, the outside rudder is caused to move with the main one and the gear D being thus caused to move around the arc E, is also caused by the action of the teeth to turn on its axis and make the outer rudder move independently of the main one in the same direction, so that it forms an angle therewith, as shown in Fig. 3, and presents a greater angle with the central plane of the vessel. It is obvious that the rudder is thus caused to act more nearly instantaneous on the vessel, as by a given movement of the steering apparatus it is made to act with greater effect on the water. In turning the main rudder back again, the outer rudder is caused to move along with it but also independently of it and faster, so that when the main rudder is amidships, the central plane of the outer one again coincides with its central plane.

I do not claim, broadly, making a rudder in two parts and connecting them so as to act simultaneously but independently of each other, but

What I claim as my invention and desire to secure by Letters Patent, is—

The gearing of the outer or aftermost of the two hinged portions of the rudder with a fixed gear or toothed arc, attached to the vessel substantially as and for the purpose herein specified.

SILAS YERKES, JR.

Witnesses:

SAML. LOWES,

DAVID ROLL.