(No Model.)

C. E. LAMBURTH.

PROPULSION AND STEERING OF STEAM VESSELS.

No. 386,991. Patented July 31, 1888.

Fig. 1.

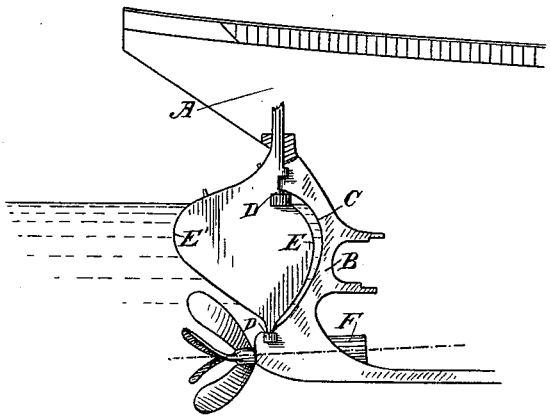
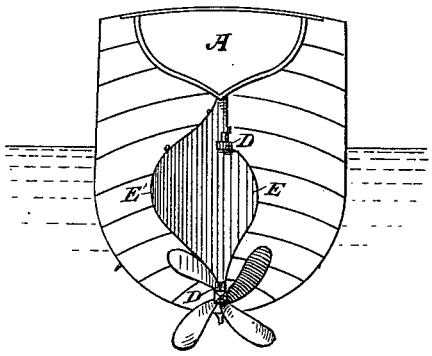


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PROPULSION AND STEERING OF STEAM-VESSELS.

SPECIFICATION forming part of Letters Patent No. 386,991, dated July 31, 1888.

Application filed December 8, 1887. Serial No. 257,268. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS E. LAMBURTH, of the city of San Francisco, San Francisco county, State of California, have invented an Improvement in the Propulsion and Steering of Steam-Vessels; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in the propulsion and steering of steam-vessels.

It consists of a propeller and its attachment to a vessel, and the relative construction and arrangement of the rudder or steering-gear, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the stern of the vessel, showing my invention. Fig. 2 is a rear view.

A is the vessel having the stern-post B suitably attached. This stern-post is made concave or arched inwardly at the rear edge, as shown at Fig. 1, so as to admit that portion of the rudder which projects in front of the pintles D, upon which it is hung, these pintles being formed, as shown, above and below the concave portion C. The rudder is peculiarly shaped, having the portion E made convex, projecting toward the front into the concave portion C of the stern-post. From the lower pintle, D, the outer line of the rudder extends upwardly and rearwardly, forming the convex outer portion, E', which extends, as seen, to the rear of the pintles to act promptly and efficiently when turned to steer the vessel, and the portion which projects forward assists in balancing the rudder so that it can be very easily handled.

The upwardly-inclined and outer and lower edge is so formed in order to carry it clear of the propeller, which is fixed upon an inclined propeller-shaft, F, so as to rotate beneath the rudder, and so low that the blades in the lower portion of their revolution pass below the line of the keel. This insures the propeller rotating in solid water, which is not effected by the rapid passage of the vessel through the water or by the eddies caused by that portion of the run of the vessel which is higher up and nearer the surface. The water is less churned and broken up by the rapid revolution of the propeller by reason of its low position with relation to the vessel itself nearly or quite out of any eddies or backwater caused by the rapid movement of the vessel through the water.

The form and relative position of the rudder are such that it is in no way interfered with by the movement of the propeller, and is not subject to the broken water usually caused by propellers, and by reason of the convex front edge it will not easily become fouled by floating weeds or other substances. The depth at which the propeller runs permits its being exposed in a heavy sea, thus avoiding racing, and it can always be run at a high rate of speed.

There is no resistance behind the propeller, because the stern-post is entirely in front of it, and neither it nor the rudder will prevent a free escape of the water after it leaves the propeller.

In backing the vessel the propeller is very efficient, because it runs below the keel and in solid water.

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

1. A conoidally-shaped propeller secured to a shaft which passes through the stern-post below the rudder-pintles, in combination with a triangular-shaped rudder with curved outline, having the broadest portion near the top and tapering toward the point at the lower pintle, and a stern-post made concave in front of the pintle attachments of the rudder to admit the forward curved edge of the latter turning within the concavity, while the rear portion of the rudder and the propeller project entirely behind the stern-post, substantially as herein described.

2. A vessel having the rear edge of the stern-post made concave, with pintle attachments above and below the concave portion, a rudder hung to said attachments and having its forward portion curved approximately to fit the concavity of the stern-post, and its rear portion increasing in horizontal diameter from the lower pintle upward toward the water-

line, in combination with a propeller having blades extending backwardly from the hub and approximately following the rear edge of the rudder, and a shaft to which the hub of the propeller is fixed, extending from the stern-post below the lower pintle of the rudder, substantially as herein described.

In witness whereof I have hereunto set my hand.

CASSIUS E. LAMBURTH.

Witnesses:
S. H. NOURSE,
H. C. LEE.