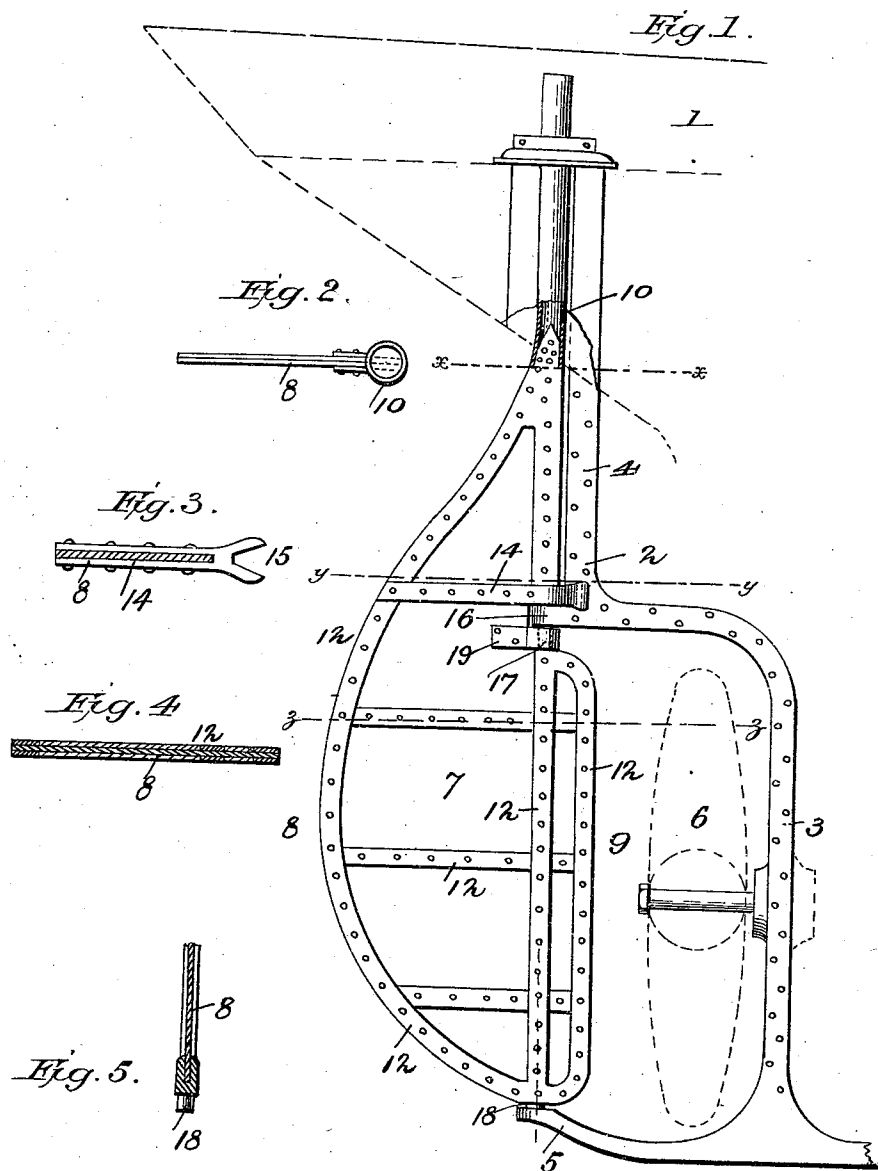


(No Model.)

J. R. OLDHAM.
STERN FRAME AND RUDDER FOR VESSELS.

No. 551,599.

Patented Dec. 17, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH R. OLDHAM, OF CLEVELAND, OHIO.

STERN-FRAME AND RUDDER FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 551,599, dated December 17, 1895.

Application filed March 23, 1895. Serial No. 542,959. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. OLDHAM, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sterns, Stern-Frames, and Rudders for Vessels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in the sterns, stern-frames and rudders of ships of all kinds; and its object is, first, in filling or nearly filling in the space usually left between the upper part of the screw-propeller and the under side of center buttock-line or bottom of counter, but leaving sufficient space for the propeller to revolve freely; second, in providing an improved construction of stern-frame by which the rudder may be suspended by two pintles, and thus rendered more efficient in use; third, in providing a ship with a balanced rudder.

The above-named objects are accomplished as follows: The filling in of the vacant space above the propeller is formed by turning the inner or screw post aft at a much lower water-line than is now common, the apex of the stern-frame in the propeller-aperture not being higher than one-twelfth of the diameter of the screw above the highest point reached by the propeller-blades. The top of this stern-frame may be continued aft horizontally, elliptically or semicircularly to the after portion, at the lower end of which a solid gudgeon is forged or riveted on of the proper form and dimensions to receive the upper rudder-pintle. To alter the sterns of existing vessels, the top of the stern-frame may be made by a filling-piece between the forward and after portions and between the top of the aperture (as commonly formed) down to the bottom of the after portion where I locate it, such filling-pieces being securely held in their proper positions by scarfing or by strong shell-plates. The gudgeon is then riveted on. The rudder-stock is continued down in a straight or inclined line to about the load water-line, when the rudder-blade

is projected forward sufficiently to secure the required surface for balancing, the forward end of the rudder thus being continued down to the shoe or heel pintle in a vertical or curved line, but with rounded corners, the foremost part of the rudder not being farther from the propeller than one-twelfth of its diameter, and being close to the stern-post in side-wheelers, twin-screw, sailing or towing vessels.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side view of a portion of a screw-propeller vessel constructed according to my invention. Fig. 2 is a horizontal section on the line $x x$, Fig. 1. Fig. 3 is a similar section on the line $y y$. Fig. 4 is a similar section on the line $z z$. Fig. 5 is a vertical horizontal section of the lower part of the rudder.

In the said drawings, the reference-numeral 1 designates the hull of the vessel and 2 the stern-frame, comprising the inner or lower forward portion 3, the horizontal connection, the rear upper portion 4, and the shoe 5, all of which are made of a single piece or forging.

The dotted lines show the line of the stern of ordinary vessels, which would leave a very large space above the propeller, but which is filled in by my invention.

The numeral 6 designates the propeller.

The numeral 7 designates the rudder, preferably made of a single plate, having curved aft portion 8 and a curved extension 9.

The numeral 10 designates the hollow rudder-stock, the lower end of which is flattened and bolted or riveted to the upper portion of the blade 8.

The numeral 12 designates strengthening or stiffening bars riveted or bolted to the rudder at any points found desirable.

The numeral 14 designates a forging or casting secured to the rudder and formed with inclined lugs 15, which engage with the lower part of the rear upper portion of the stern-frame. These lugs serve as stops to limit the movement of the rudder. The lower end of the rear upper portion of the stern-frame is provided with a gudgeon 16, in which is journaled a pintle 17 welded or riveted to the upper end of the blade or extension 9 of

the rudder. Beneath this gudgeon is a band 19 embracing the pintle and bolted to the rudder.

The numeral 18 designates a lower pintle 5 journaled in the shoe 5.

A stern, stern-frame, and rudder, constructed as above described, will possess superior advantages, which will be apparent to those skilled in the art to which the invention 10 pertains.

Having thus fully described my invention, what I claim is—

The combination with a vessel, of the stern frame comprising the lower forward portion 15 and the upper rear portion, the horizontal

connection formed with a gudgeon, of the rudder having a forward extension, the pintles, the rudder-stock, the stop casting or forging having inclined lugs, the band embracing the upper pintle, and secured to the 20 rudder, and the rudder-stock; substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOSEPH R. OLDHAM.

Witnesses:

GEORGE B. MARTY,
S. H. HOLDING.