

(No Model.)

A. COOPER.
PADDLE WHEEL FOR STEAMSHIPS.

No. 522,827.

Patented July 10, 1894.

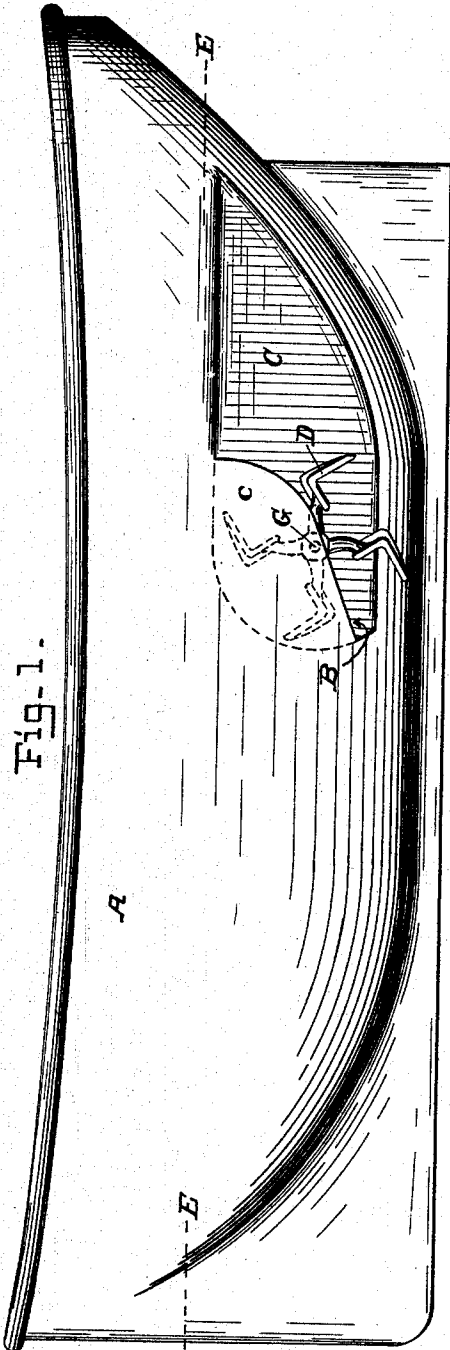


Fig. 1.

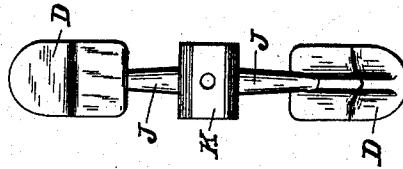


Fig. 4.

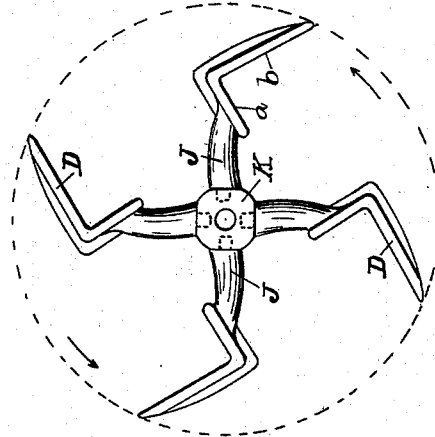


Fig. 3.

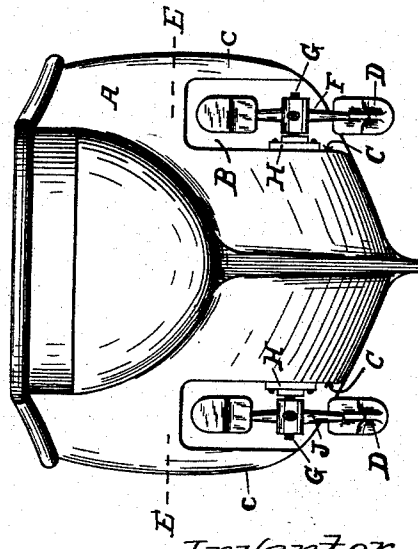


Fig. 2.

Witnesses:—
 Abram Macaulay.
 Robert W. Johnson.

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UNITED STATES PATENT OFFICE.

ALFRED COOPER, OF BALTIMORE, MARYLAND.

PADDLE-WHEEL FOR STEAMSHIPS.

SPECIFICATION forming part of Letters Patent No. 522,827, dated July 10, 1894.

Application filed February 28, 1894. Serial No. 501,881. (No model.)

To all whom it may concern:

Be it known that I, ALFRED COOPER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Paddle-Wheels for Steamships, of which the following is a specification.

This invention relates to a side wheel of novel construction and to an improved formation of chamber wherein the wheel is mounted.

The object is to provide a means of propulsion that will give greater speed for steamships than is now obtained.

In the drawings hereto annexed,—Figure 1 is a side view of a vessel with my improvements. Fig. 2 is an elevation of the stern of a vessel with my improvements. Fig. 3 is a side view of my improved paddle-wheel detached from the vessel. Fig. 4 is an elevation of the wheel showing one blade removed.

The wheel consists of a hub, K, and four or more arms, J, to which are attached double angle flukes or blades, *d*; the wheel is mounted on a shaft, G, which is in bearings, H. The paddles consist essentially of an arm, J, with a shoulder on the inner end and integral therewith a blade, D, substantially at right angles.

The blade consists of two unequal portions, the shorter and inner end, *a*, being placed at an angle to the supporting arm, J, while the outer and longer portion, *b*, united substantially at right angles to the inner portion, forms the main driving surface of the paddle. The blade, D, is reinforced by a rib, *e*, extending its entire length on the outer exterior surface, which constitutes the ordinary working face, or engaging surface when the ship is going ahead.

The hull has a chamber, B, on each side near the stern; this chamber has a vertical side, C, which commences within the chamber at the

most forward part thereof and continues back past the chamber and on the outside of the hull to the stern, and, as the chamber is open at the rear end, the said rear opening and vertical side, C, constitute a clearance which is continuous to the stern. The chamber has an outer wall or guard, *c*, the inner surface of which is vertical and parallel with the side, C; the exterior surface of this guard, *c*, has a curved plane coincident with the side of the hull.

The keel of the vessel serves measurably as a guard to the blades at the lower inner side of the chamber. The water line, when the vessel is loaded, will be at E.

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

1. A paddle-wheel for vessels, consisting essentially of a hub provided with four or more radial arms to which double-angled flukes or blades are attached; the blades consisting of two unequal portions, the shorter or inner end being placed at an angle to the said radial arms, while the outer or longer end is substantially at right angles to the inner end and forms the main driving surface to the wheel, substantially as set forth.

2. A paddle-wheel for vessels, consisting of a hub provided with radial arms to which double-angled flukes or blades are attached, the blades having two portions at an angle with each other, and reinforced by a rib extending their entire length on the outer exterior surface which constitutes the working face of said blades when the vessel is advancing through the water.

ALFRED COOPER.

In presence of—

OTTO H. EHLERS,
WALTER S. ADAMS.