Harrington & Caffrey's

Screw Propeller.

No. 53,297. Patented Mar. 20, 1866.

Fig: 1.

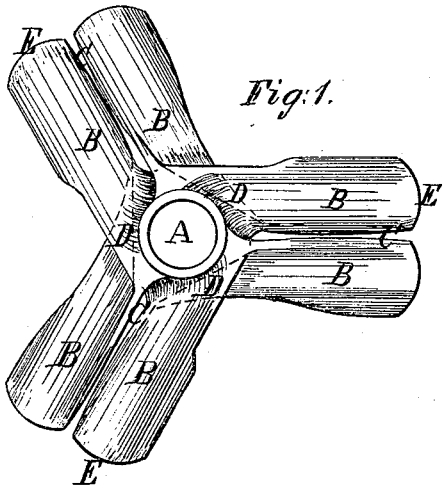


Fig: 2.

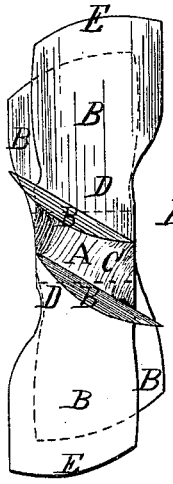


Fig: 3.

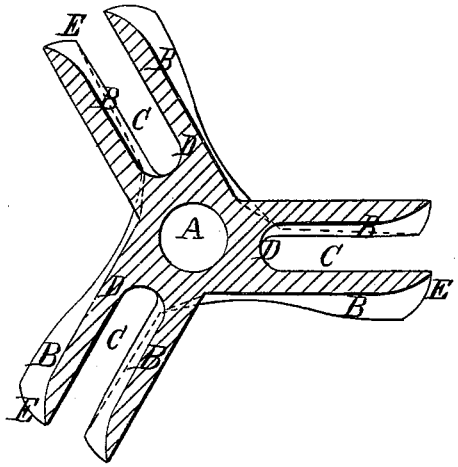
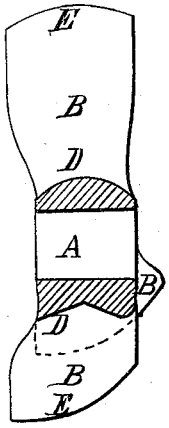


Fig: 4.



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UNITED STATES PATENT OFFICE.

JACKSON HARRINGTON AND FRANCIS CAFFREY, OF NEW HAVEN, CONN.

PROPELLER-WHEEL.

Specification forming part of Letters Patent No. **53,297**, dated March 20, 1866.

To all whom it may concern:

Be it known that we, JACKSON HARRINGTON and FRANCIS CAFFREY, of New Haven, county of New Haven, and State of Connecticut, have invented a new and useful Improvement in Propeller-Wheels for Navigable Vessels; and we do hereby declare the same to be fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1 is a side elevation of a propeller-wheel having our invention applied to it; Fig. 2, a peripherical view; Fig. 3, a vertical section, and Fig. 4 a transverse section, of same.

The nature of our invention consists in so forming or constructing a propeller-wheel that while we reduce the lug-surface we enlarge the driving-surface of the same, and this we accomplish by placing or casting on the hub three or more sets of parallel blades having an aperture of any desired distance between them, the advance blade being so placed that a line drawn through the center of the hub will trace the after edge of the first and the forward edge of the rear blade of the parallel set. By this arrangement of the blades, which are equal in dimensions and set at any desired angle to the axis of the driving-shaft, the lug-surfaces of the blades are similar; but the first blade of the parallel set is forward of the second, and the second blade aft of the first, by which means the lug-surface is reduced and a greater amount of driving-surface obtained.

In the drawings, A is the hub of the propeller-wheel; B B, &c., the parallel blades. C is the space between the said blades; D, the lug, and E the periphery.

It is well known to engineers and others that when the propeller exceeds a certain velocity the hydrostatic pressure of the water is not sufficient to supply solid water into the circuit of the propeller-wheel where the blades are numerous and converge from the same center at equidistant points. It is also well known that when the propeller is composed of two blades and the vessel running in a high sea at from sixty to sixty-five revolutions the waves will lift up the stern of the same and the propeller-wheel out of the water, and on resuming their former position will cause a violent shock to the engine and danger of losing the propeller-blades; nor will the three-bladed propeller remedy the difficulty, for in such cases the whole strain comes on the single blade, which is liable to break, and the others soon follow; but our propeller-wheel obviates these difficulties, inasmuch as the blades being more numerous it will occupy less space, (it is stronger for the same reason,) will always have three or more blades in the water, and consequently will not cause any violent shock to the engine. Besides this, from the peculiar form and arrangement of the blades, which are not only in sets parallel to each other, as already explained, but one parallel blade being placed in advance of the other in the direction of the axis of the wheel, tends to give an expanding pitch in both directions from the fore to the after edge, and expands in the same proportion from the center to the periphery.

What we claim, and desire to secure by Letters Patent, is—

A propeller-wheel constructed so as to reduce the lug-surface and enlarge the driving-surface by means of parallel blades with an aperture between them, substantially as and for the purposes set forth.

In testimony whereof we have hereunto set our signatures.

JACKSON HARRINGTON.
FRANCIS CAFFREY.

In presence of—
LEWIS MIX,
WM. HARTLEY.