(No Model.)

D. S. DARK.

PADDLE WHEEL.

No. 542,992. Patented July 23, 1895.

Fig. 1

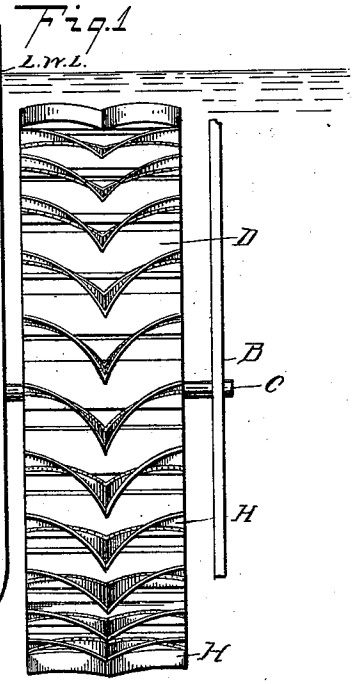


Fig. 3

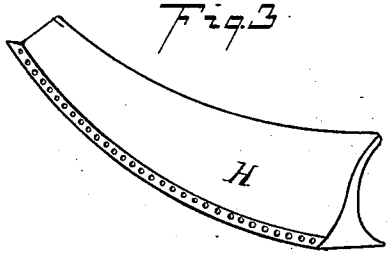


Fig. 4

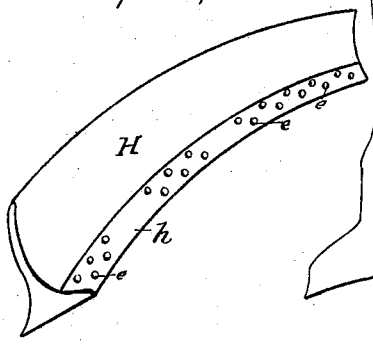
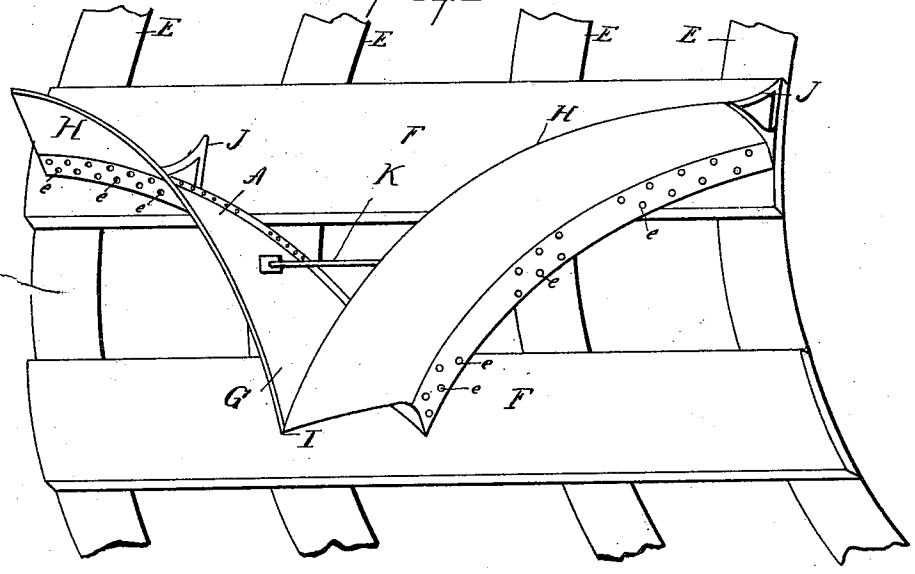


Fig. 2



WITNESSES:

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UNITED STATES PATENT OFFICE.

DANIEL S. DARK, OF NEW YORK, N. Y.

PADDLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 542,992, dated July 23, 1895.

Application filed April 10, 1895. Serial No. 545,161. (No model.)

To all whom it may concern:

Be it known that I, DANIEL S. DARK, a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Paddle-Wheel Ships, of which the following is a specification.

My invention relates to paddle-wheels for ships, and has for its object to produce a highly-efficient propelling agent for vessels.

Heretofore propellers and the ordinary side and stern paddle-wheels have been used almost exclusively for the propulsion of vessels. These modes of propulsion were defective for a variety of reasons, and their various defects are well known and recognized.

My invention seeks to obviate the defects of existing structures; and it consists in the submerged paddle-wheel, of a construction which will be hereinafter pointed out and claimed, and which is preferably located amidships.

In the drawings, Figure 1 is a fragmentary midship-section of a vessel provided with a paddle-wheel constructed according to my invention. Fig. 2 is an enlarged detail view of one of the paddle-blades, and Figs. 3 and 4 are detail views of the buckets or paddle-blades detached.

In the drawings, A is the hull of a vessel, and B the outer section thereof.

C is a wheel-shaft journaled in the vessel and the outer skin, and upon which shaft the paddle-wheel D is carried. This shaft is preferably located amidships and at such a distance below the water-line L W L as to maintain the wheel D constantly submerged under normal conditions.

Secured to the shaft C by means of suitable connections (omitted for the purpose of clearer illustration) are the annular members E of the paddle-wheel, which annular members are held rigidly together by means of transverse rails F. Mounted upon the rails F are the buckets G, consisting of curved blades H, which are brought together into a point at I and are braced in the rear by brackets J and braces K. These blades, it will be observed, are of greater depth where they meet at the point I, and may be variously secured to the paddle-wheel—as, for instance, by means of the holes *e* in the flanges *h* thereof. The blades H are likewise radial to the axis of the wheel at their points of greatest divergence from their junction-point I, and thence gradually incline away from the radial line in the direction of the said point I, so that each blade presents a progressively warped surface whose inclination to the axis constantly varies. This has the effect of securing great efficiency.

It will be quite obvious that a rotation of the paddle-wheel will cause the vessel to be propelled, the direction of rotation being preferably in the direction in which the points I are turned. It will likewise be found that my paddle-wheel possesses numerous advantages, some of which I will proceed to enumerate. The wheel being below the water-line and within the hull, insures a greater safety for ships of war, in that there is little liability of their being carried away by projectiles, waves, collisions, or docking. Again, the wheel being always in the water, the racing of engines is reduced to a minimum, and owing to the construction of the blades, a reversal of the engines will be more promptly responded to by the ship than heretofore. Again, the wheels being amidships, the reversing of one wheel on one side will turn the ship in a narrower compass than heretofore.

It will be quite obvious that the construction may be varied without departing from the spirit of my invention. Hence I would have it understood that I do not mean to limit myself to the construction and arrangement shown.

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

In a submerged paddle wheel, the combination of annular members E and buckets carried thereby, the said buckets consisting of the curved blades H angularly disposed to one another and joined at the point I, the said blades being disposed radially to the axis of the annulæ at their points of greatest divergence from their junction point I, and thence gradually inclined away from the radial line in the direction of the said point I, so that the blades present progressively warped surfaces whose inclination to the axis of the annulæ continually departs from the radial line of the annulæ, substantially as described.

DANIEL S. DARK.

Witnesses:
HARRY M. TURK,
GEO. E. MORSE.