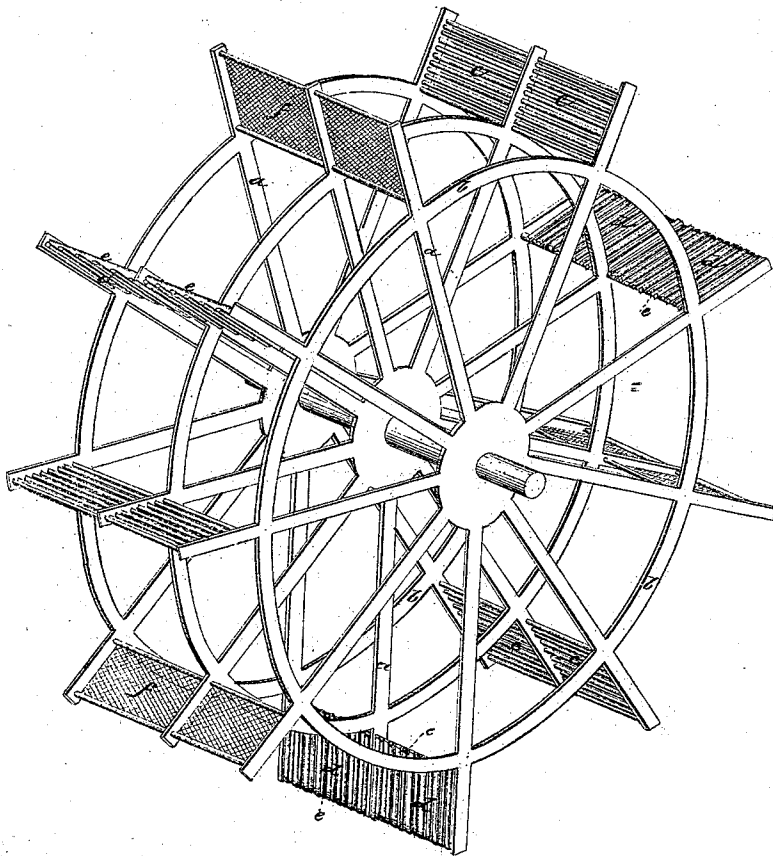


A.C. Loud,

Paddle Wheel.

No. 106,704.

Patented Aug. 23. 1870.



Witnesses.

H. J. Smith
Thos. D. D. O'Connell

Alfred C. Loud, Inventor.

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His Attorneys.

United States Patent Office.

ALFRED C. LOUD, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO HIMSELF AND W. J. MILLER, OF SAME PLACE.

Letters Patent No. 106,704, dated August 23, 1870.

IMPROVEMENT IN BUCKETS FOR PADDLE-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, ALFRED C. LOUD, of San Francisco, in the county of San Francisco and State of California, have invented a new and improved Bucket for the Propelling-Wheels of Vessels; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which the figure is a view in perspective.

There are certain well-known obstacles which prevent the perfect working of the paddle-wheels and screws, as commonly constructed, of steam-vessels.

One of these is the lifting of water by the buckets or blades as they emerge, the fluid thus lifted not only retarding the wheel, but also hanging as a dead weight on the vessel, and making friction as it is dragged over the surface of the body of water in which the vessel is sailing. Moreover, the striking of the ordinary paddles against the water produces jars which extend over and injure the ship, besides annoying the passengers.

These obstacles it is the object of my invention to overcome. To this end,

The invention consists in buckets or blades constructed of parallel bars, with spaces between them, or of perforated plates, or of bars formed into lattice-work, or in any other manner in which a bucket or blade may be produced, which shall present a series of openings through which water may pass, alternating with a series of surfaces against which water may react, when such openings, whether they be in the shape of perforations in plates or of intervals between bars, lie at right angles with the plane of the buckets, or paddles, in order that, while the buckets are passing through the water, the water may flow through the openings, as hereinafter described.

In the drawing—

a are the radial arms, and

b, the annular rims of an ordinary paddle-wheel.

c are round rods placed at intervals parallel with each other and with the shaft *A* of the wheel, and connecting the three arms *a*, which lie in the same plane, so as to form a bucket, of the kind above described, at the outer ends of the arms.

d are similar rods, placed at intervals parallel with each other, and with another set of the arms *a*, at the outer extremities of which they form a bucket differing from the preceding only in the position of its bars, the same being at right angles with the shaft *A* instead of parallel with it, and attached at their ends to cross-bars *e*, which connect the arms *a* of this set.

f is a bucket at the outer extremity of a third set of the arms *a*, the said bucket being constructed of rods woven into lattice-work.

A fourth form of bucket might be a perforated plate.

All these varieties fall within the same species, and

may be augmented by still others answering to the same general description. I will say, however, that I consider the kind shown at *c* and *d* preferable to all others.

It is also obvious that, when this bucket emerges from the water, it can lift but little of the liquid with it, and what it does lift will speedily flow back through the spaces, leaving the bucket free to rise without impediment.

This construction, moreover, obviates the jar produced by the common bucket, and causes the vessel to move steadily.

The surfaces of the rods against which the water acts are not only those front ones which directly strike the water, but also the sides of the rods against which the water makes friction as it runs between them. This renders it unnecessary to enlarge the area of my improved bucket much beyond that of the ordinary solid bucket, in order to obtain an equal reacting surface.

Instead of a wheel such as is here described, I might employ a drum provided at its periphery with any one or with all of the different kinds of buckets specified. I may also greatly increase the number of buckets beyond what are usually attached to one wheel, inasmuch as one of the main objections to the use of many buckets, viz., their inutility, by reason of the scooping out of cavities in the water, is obviated by my improved method of construction.

The rods of which the buckets are composed may be square, lozenge, or otherwise shaped, as well as cylindrical, though I am inclined to think the cylindrical form the best, owing to the fact that it does not break up the water so much as those rods which have sharp edges, and that it therefore derives greater force therefrom.

The rods may be placed at any desired angle with the radial arms, and be of wood, iron, or any other suitable material.

The width of the buckets may be varied at pleasure, as well as their form, whether the same be square, oblong, lozenge, or whatever it be.

The blades of screw-propellers may be constructed on this same principle, viz., the principle of alternate bars and spaces.

Having thus described my invention,

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

A paddle-wheel bucket, constructed of bars placed at intervals, or of perforated plates, when the intervals between the bars or the openings in the plates or buckets lie at right angles with the plane of the bucket, substantially as described.

To the above specification of my invention I have signed my hand this 9th day of July, A. D. 1870.

A. C. LOUD.

Witnesses:

SOLOMON C. KEMON,
THOS. D. D. OURAND.