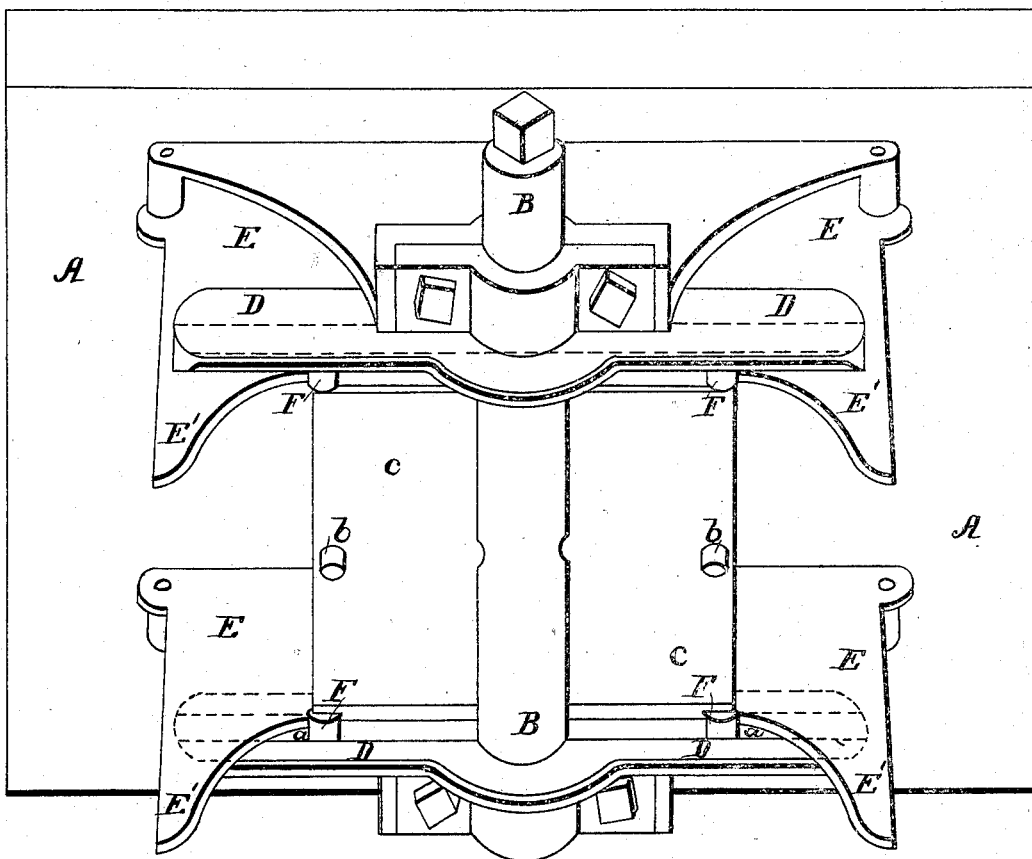


J. H. Street,
Vibrating Propeller.
N^o 3,393. Patented Dec. 27, 1843.



UNITED STATES PATENT OFFICE.

JAMES H. STREET, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN THE METHOD OF PROPELLING BOATS.

Specification forming part of Letters Patent No. 3,393, dated December 27, 1843.

To all whom it may concern:

Be it known that I, JAMES H. STREET, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Manner of Constructing the Apparatus for Propelling Steamboats or other Vessels, which I denominate the "Fish-Fin Propeller;" and I do hereby declare that the following is a full and exact description thereof.

My propeller may be placed on the side or at the stern of the vessel to be propelled and may be used singly or in pairs; but it is intended in general to place one on each side of a vessel in the manner of the ordinary paddle-wheels. The propeller consists of a single rectangular flat leaf or propelling-plate, which is so arranged and combined with the other parts of the machinery as to slide back and forth, in the manner of a sliding shutter, within grooves which receive its upper and lower edges, which may be furnished with friction-wheels to enable it to move easily. The grooved pieces which receive the paddle are attached to and extend out at right angles from a vertical axle which is made to revolve by steam or other motive power. This axle has a mortise or slot through its middle portion of sufficient width and height to allow the propeller to slide back and forth within without touching it. The grooved arms which receive the edges of the propeller are so affixed to the axle as to coincide with the slot or mortise above named. From the sides or other part of the vessel, a guide-piece or guide-pieces project out horizontally, and these are to be hollowed or curved in such manner as to cause the propeller to slide back and forth in the grooved pieces above named and through the slot in the axle, the larger part of the plane of said propeller operating on the water at right angles to the keel twice in every revolution of said axle.

The accompanying drawing represents in perspective one of my paddles or propelling-plates with the axle from which it receives its motion, the grooved arms, and the curved guide-pieces by which the action of the paddle is governed.

A A may represent a part of the side of a vessel; B, the vertical axle to which the motive power is to be applied; C, the propelling-plate, and D D the arms, four in number, which are attached to the axle B. The propelling-plate

is received within grooves in the inner edges of the arms D D. A part of one of these grooves is seen at *a a*, and the manner in which they extend along the arms is shown by dotted lines. One half only of the middle portion of the axle B is seen, the other being hidden by the propelling-plate passing through the slot or mortise above described.

E E are two guide-plates of metal attached by their inner edges to the side of the vessel and having their outer edges formed into hollow curves in such manner as to cause them to operate on the vertical edges of the propelling-plate and force it to slide back and forth in the grooves in the arms D D. As represented in the drawing, the plane of the propelling-plate is in a line with the length of the vessel; but when the axle is made to turn a quadrant of a circle from this position the plane of the propelling-plate will be at right angles to the line of the vessel's length.

F F are friction-rollers on the edges of the propelling-plate, which rollers are to act against the outer edges of the plates E E. The curvature of these plates is such as that the friction-wheels F F shall all be in contact, or nearly so, with them in the position in which they are represented; but they approach so nearly to the axle B at their middle portions as to bring the friction-wheels F F nearly in contact with the axle, so that the larger part of the propelling-plate will project out on its opposite side, and consequently exert its greatest propelling-power. The extreme edges or ends E' E' of the plates E E are curved out, so as to receive the friction-rollers as they advance toward them, and the curve is so formed as to produce the required sliding motion in the plate. *b b* are pins or stops to arrest the motion of the propelling-plate.

There may be variations made in the respective parts described without altering the principle upon which they operate—as, for example, there may be but one guide-plate E instead of two, as represented, and this may be placed so as to stand midway between the upper and lower edges of the propelling-plate.

I have spoken of the axle B as placed vertically; but the paddle will act equally well with said axle placed horizontally or inclined to the horizon in any desired degree, the other parts of the apparatus being, of course, so ar-

ranged as to correspond with the position given to the propelling-plate. This propeller is intended in general to be entirely submerged, which it may be to any convenient depth, according to the circumstances of its use.

Having thus fully described the nature of my propelling apparatus and shown the manner in which the same operates, what I claim therein as new, and desire to secure by Letters Patent, is—

The employment of a propelling-plate made

to slide back and forth in grooved arms and through a slot or mortise in the axle from which it receives its motion, the respective parts of the apparatus being combined, arranged, and operating substantially as herein fully made known.

JAMES H. STREET.

Witnesses:

THOMAS T. TASKER,

W. H. TASKER.