

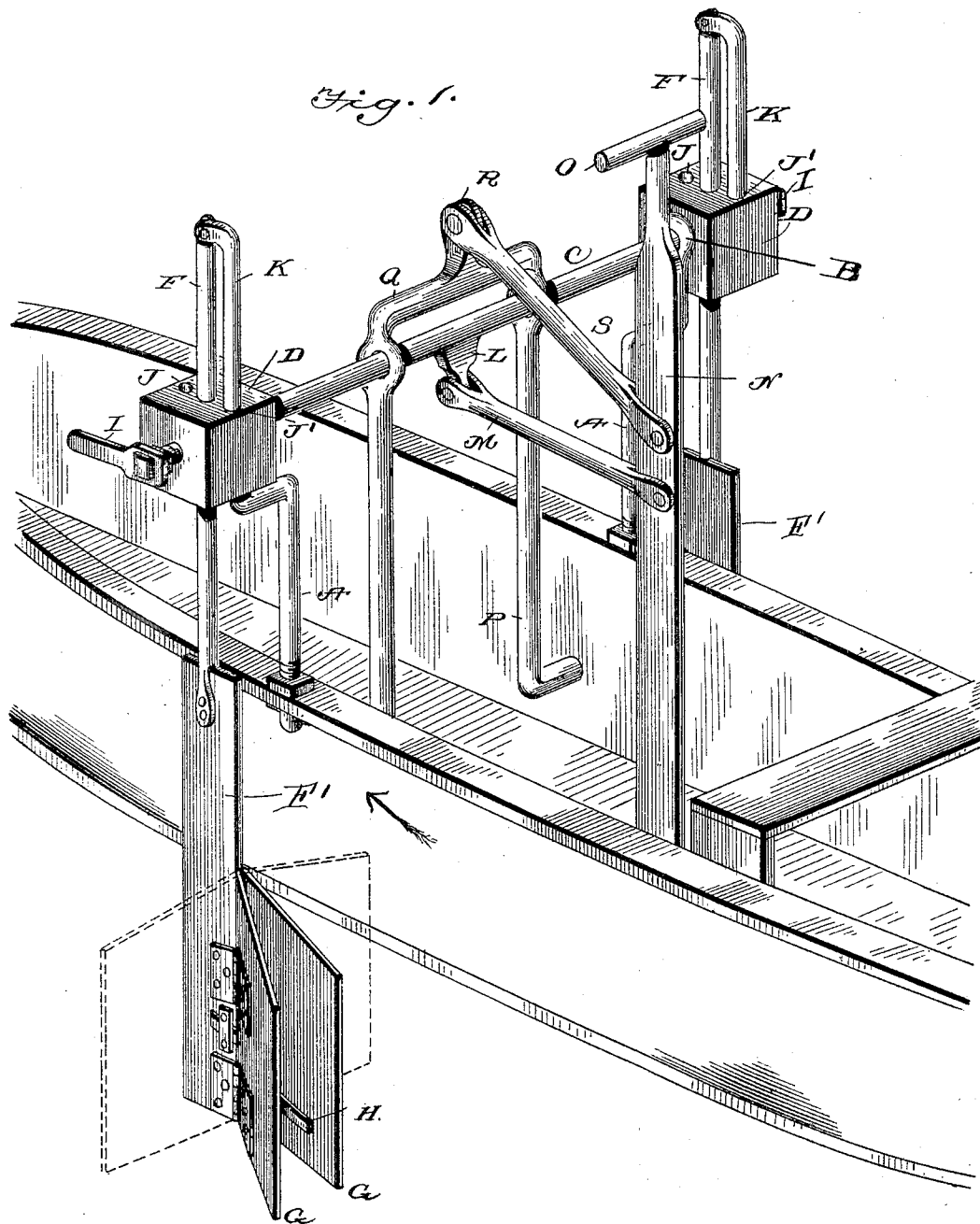
(No Model.)

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D. A. BRIGGS.
BOAT PROPELLING MECHANISM.

No. 581,650.

Patented Apr. 27, 1897.



Witnesses

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Inventor

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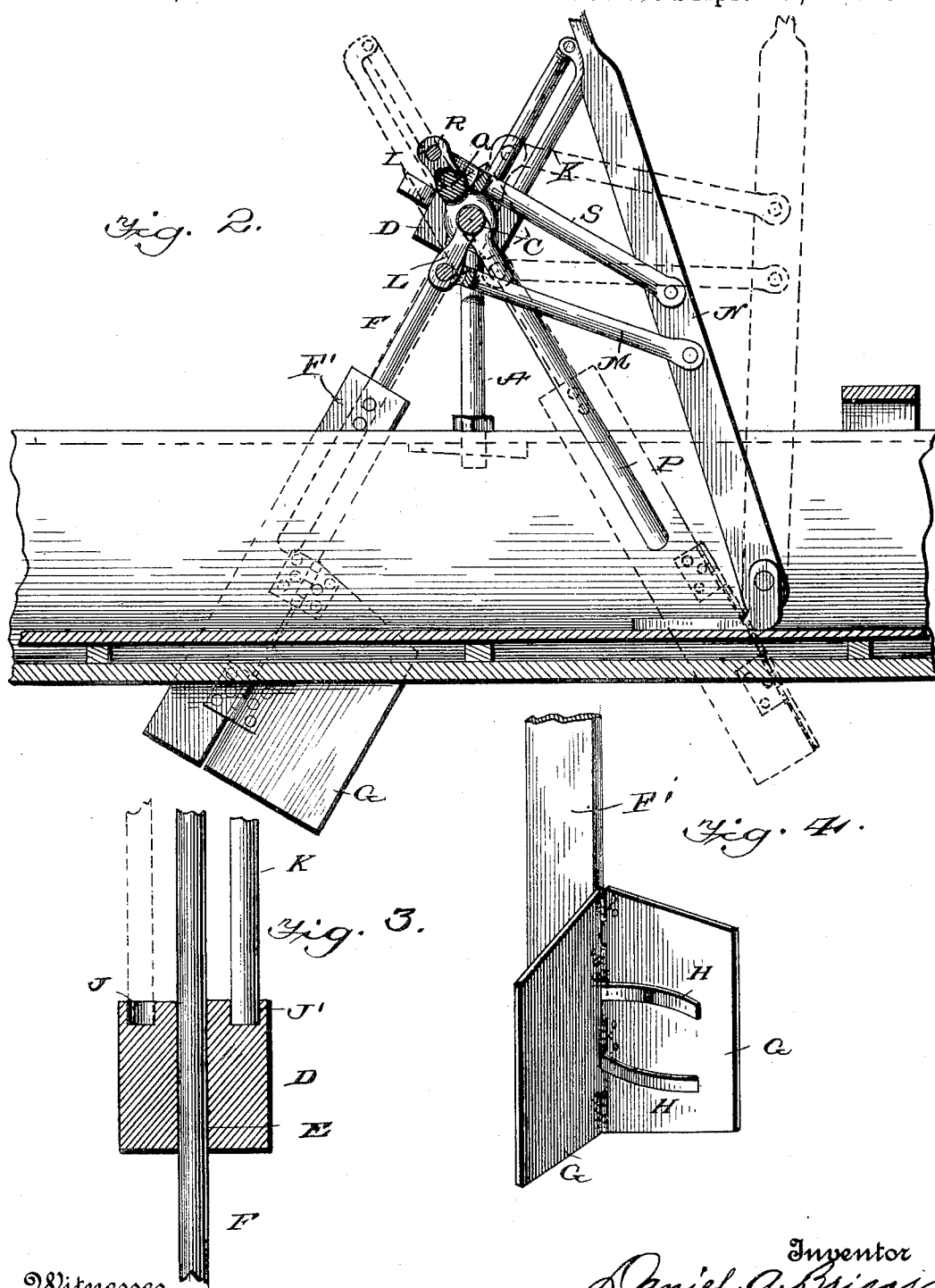
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UNITED STATES PATENT OFFICE.

DANIEL A. BRIGGS, OF MARQUETTE, MICHIGAN.

BOAT-PROPELLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 581,650, dated April 27, 1897.

Application filed July 24, 1896. Serial No. 600,389. (No model.)

To all whom it may concern:

Be it known that I, DANIEL A. BRIGGS, a citizen of the United States, residing at Marquette, in the county of Marquette and State of Michigan, have invented certain new and useful Improvements in Boat-Propelling Mechanism; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention is a hand and foot power mechanism for propelling boats; and it consists in certain novel features hereinafter to be fully described, and then particularly pointed out in the claims.

In the annexed drawings, which fully illustrate my invention, Figure 1 is a perspective view of the complete device in its operative position. Fig. 2 is a sectional view of the same, taken on the medial longitudinal line of the boat. Fig. 3 is a detail section of the bearing for the propeller-stems, and Fig. 4 is a detail perspective view of one of the paddles.

In carrying out my invention I secure in the gunwale of the boat the posts or standards A, which are provided with bearings B at their upper ends, in which is journaled a rock-shaft C. On the ends of this rock-shaft I form or secure the bearing blocks or heads D, having central vertical openings E, through which pass the stems F of the paddles or propellers. The lower portions F' of the propeller-stems are flat, with their faces arranged substantially parallel with the boat, thus presenting their edges to cut through the water. To one edge of the lower portion of the stem I hinge the blades G, and between the blades are springs H, which have their fixed ends secured to the opposite sides of the stem and their free ends bearing against the inner faces of the blades. The upper portions of the propeller-stems pass freely through the openings E of the bearing-blocks D and are adjustably secured therein by the binding-screws I, which are mounted in the outer sides of the blocks and bear against the stems to bind them within the openings. In the upper side of the bearing-block, at the center

of the front and rear edges thereof, are provided the sockets or recesses J, and to the upper ends of the stems are pivoted the locking-arms K, the ends of which are adapted to engage the sockets J, and thus lock the paddles to the rock-shaft C.

The arms K are pivoted to the upper ends of the stems F and are designed to be dropped into either of the holes J J' in the blocks D, according to the direction in which the boatman desires the vessel to go. For instance, when the rod K engages the hole J', as shown in the drawings, the stems F, carrying the paddles, are locked in position to row the boat forward in the direction of the arrow. Should it be desired to reverse the course of the boat, rods K and stems F would be withdrawn from the holes J' and thrown around and inserted in the holes J, thus reversing the paddles and locking them in place, so as to reverse the course of the boat. It may sometimes be desired to send the vessel in an oblique direction, in which case the stems are locked in the blocks at an angle by the set-screws, and as the rods K always are in the same position as the paddles the boatman can tell by glancing at the said arms whether the paddles are in the position he desires.

At its center the driving rock-shaft C is provided with a depending arm or crank L, to which is pivoted one end of a link M, which has its opposite end pivoted to a lever N, fulcrumed on the bottom of the boat and rising therefrom to a point within convenient reach of the operator, the upper end of the said lever being provided with a cross-bar or handle O, as shown. Loosely mounted on the rock-shaft C, on opposite sides of the crank L, are the pedals P, which have their upper ends extended slightly above the rock-shaft and joined by a rod Q, from the center of which rises a crank R, said crank being connected by a link S with the lever N.

The construction and arrangement of the several parts of the device being thus made known, it is thought the operation of the same will be readily understood. The oarsman or passenger assumes a position on the seat with his feet resting on the pedals P and his hands grasping the handle O. By then pushing on the pedals and drawing on the handle he oscillates the rock-shaft so as to throw the pro-

5 pellers toward the stern of the boat, as indicated by dotted lines in Fig. 2. As the propellers move toward the stern of the boat the springs H slightly separate or open the blades,
 10 and the force of the water completes the operation, so that their continued movement will present their broad sides to the water and cause them to act as a fulcrum on which
 15 the boat is moved forward. On the reverse movement of the lever and pedals the propellers will be swung toward the bow of the boat and the blades will then fold together so as to present their edges to the water and cut
 20 through the same, as will be readily understood. It will thus be seen that I have provided a mechanism by which both hand and foot power is utilized, and consequently the boat is propelled through the water very rapidly. The operator faces the bow of the boat
 25 and is at all times able to see whether the course is clear. The propeller-stems are of such a length that the blades may be always entirely submerged and thus the full length of the stroke utilized, but by loosening the
 30 screws I the said stems may be raised or lowered so as to shorten or lengthen the stroke. The paddles may be adjusted to any desired angle, so as to facilitate turning of the boat, or they may be entirely reversed, so
 35 that the boat can be moved backward. The position of the indicator-arms always corresponds with the position of the blades, and there is therefore never any doubt as to the direction in which the boat will be moved.
 When the propellers are raised to their highest operative position, the indicator-arms are engaged in the sockets in the bearing-blocks

and thereby prevented from swinging against the operator.

The device is simply constructed and compactly arranged. 40

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

1. The combination of a rock-shaft, paddles 45 carried by the ends of said shaft, pedals loosely hung on said shaft, an oscillating lever, a link connecting the pedals and the lever, and a link connecting the lever and the rock-shaft.

2. A device for locking the propellers of a 50 boat to a rock-shaft consisting of a block secured to the end of the shaft, and provided with a central opening for the passage of the stem carrying the paddles and with sockets in its upper side, a locking-bar connected to 55 the upper end of the paddle-stem and adapted to engage the sockets, and a set-screw mounted in the block and bearing against the stem.

3. The combination of a rock-shaft, means for operating the same, bearing-blocks on the 60 ends of the shaft, provided with sockets in their upper sides, a central perforation between said sockets in which are adjustably held stems carrying propellers, locking-arms pivoted to the upper ends of said stems and 65 adapted to engage the sockets, and set-screws in the bearing-blocks designed to engage the propeller-stems.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL A. BRIGGS.

Witnesses:

LEONARD P. CRARY,
W. J. ROSS.