(No Model.)

F. BÄTJER.

APPARATUS FOR PROPELLING BOATS.

No. 448,771. Patented Mar. 24, 1891.

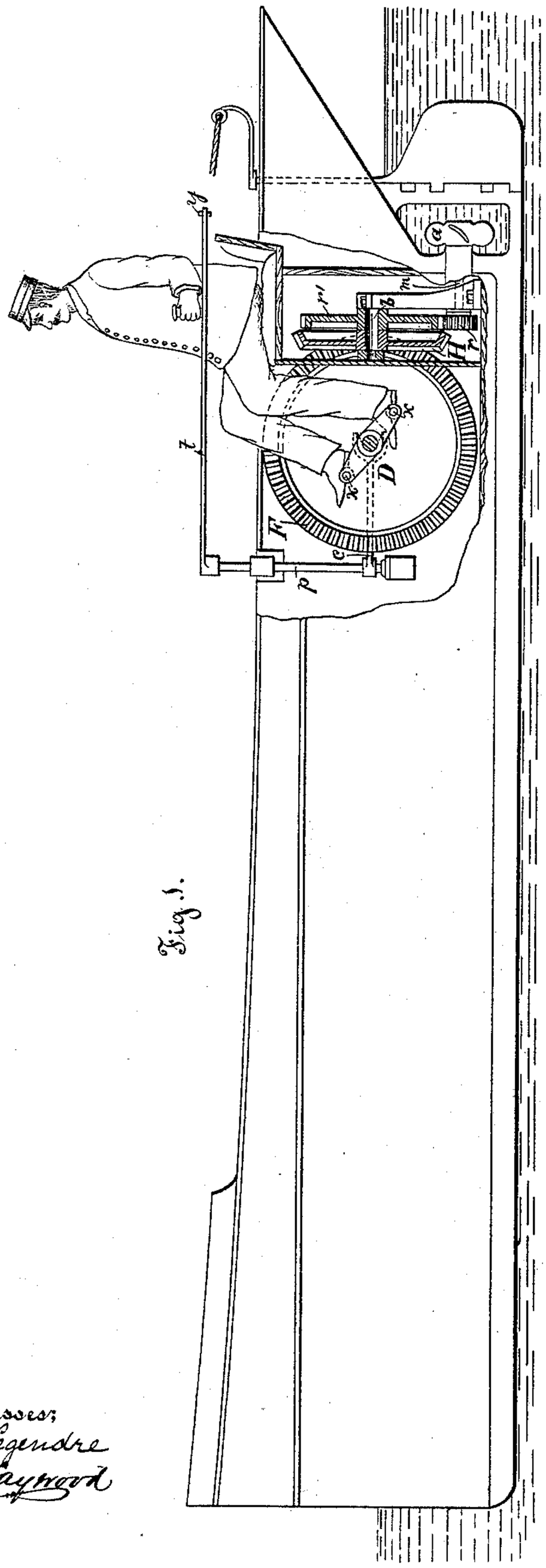

Fig. 1.

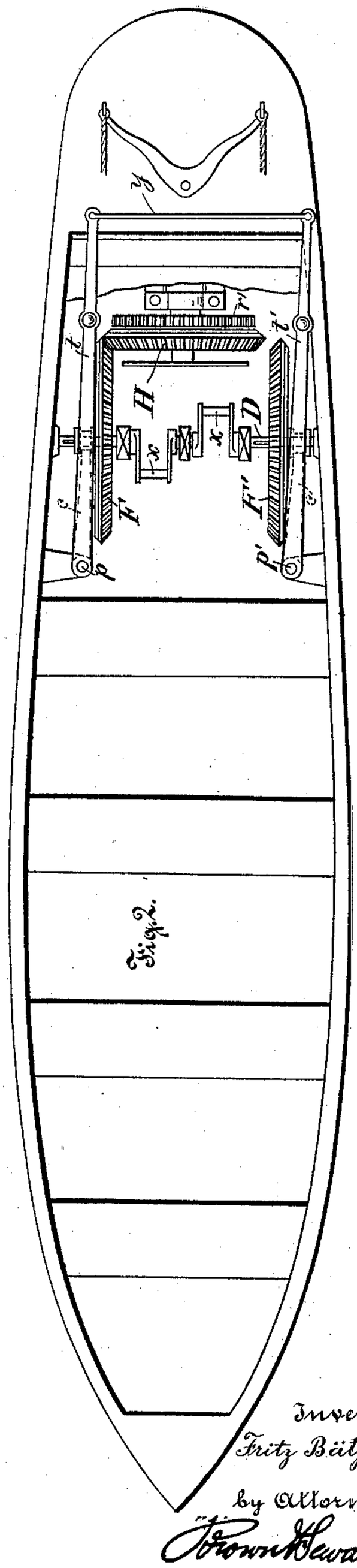

Fig. 2.

Witnesses;
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UNITED STATES PATENT OFFICE.

FRITZ BÄTJER, OF HAMBURG, GERMANY.

APPARATUS FOR PROPELLING BOATS.

SPECIFICATION forming part of Letters Patent No. 448,771, dated March 24, 1891.

Application filed December 5, 1890. Serial No. 373,666. (No model.)

To all whom it may concern:

Be it known that I, FRITZ BÄTJER, of No. 31 Fruchthallen, in the city of Hamburg, in the German Empire, have invented a new and useful Improvement in Apparatus for Propelling Boats, of which the following is a specification.

This invention relates to boat-propelling apparatus to be operated by man-power, and is intended to rotate a screw-propeller which causes the motion of the boat.

An apparatus embodying my invention is represented in the accompanying drawings, in which—

Figure 1 is a longitudinal elevation of a boat provided with the apparatus, which is shown in section; and Fig. 2 is a plan of the boat having part of the driver's seat broken away to show the mechanism below it.

a designates a screw-propeller, which is fastened to the shaft *m*, which carries at its inner end the small spur-wheel *r*. A shaft *b*, located vertically above and parallel to the shaft *m*, carries a larger spur-wheel *r'*, which gears into the small wheel *r*. The shaft *b* carries also the bevel-toothed wheel H. A shaft D, provided with pedal-cranks *x x*, is journaled in front of the bevel-wheel H in the boat in a position to be brought into rotary motion by the feet of the boatman sitting in the boat.

On the crank-shaft D are arranged movably on keyways two bevel-toothed wheels F F'. Said wheels are each provided with a disengaging device, which is operated by the boatman and which consists as follows: Two horizontal levers *t* and *t'*, fastened to two vertical spindles *p* and *p'*, are provided with handles by which the boatman can turn the said spindles *p* and *p'*. A cross-bar *y* between the two levers *t* and *t'* causes them both to be moved at the same time. Each spindle *p p'* has an arm *c c'*, which gears with a fork over the hub of the respective bevel-wheel F or F'. When the boatman moves the levers *t t'*, the wheels F F' are moved at the same time on the crank-shaft D. By this arrangement the boatman may by means of the levers *t t'* throw either the wheel F or the wheel F' into gear with the bevel-toothed wheels H. As the wheels F and F' gear with the wheel H at opposite sides, the gear-wheel *b* will be reversed by the reversing of the levers *t t'*, and the screw will operate to advance or back, according to the intention of the boatman. This reversing mechanism has the advantage that the boatman works the shaft D the same way for forward or backward motion of the boat. This is of importance, as the man can exercise more power on shaft D (having his seat behind shaft D) by turning said shaft away from him than by turning it in the reverse direction.

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

The combination, with the propeller-shaft *m*, of the shaft *b*, parallel to and geared with the propeller-shaft and furnished with a bevel-toothed wheel, the pedal-crank shaft D, arranged transversely to said shaft *b* and furnished with bevel-toothed wheels F F', movable lengthwise upon it, and the reversing apparatus consisting of the upright spindles *p p'*, the arms *c c'* on said spindles, engaging with the said wheels F F' on the crank-shaft, and the connected hand-levers *t t'* on said spindles, all substantially as herein set forth.

FRITZ BÄTJER.

Witnesses:
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