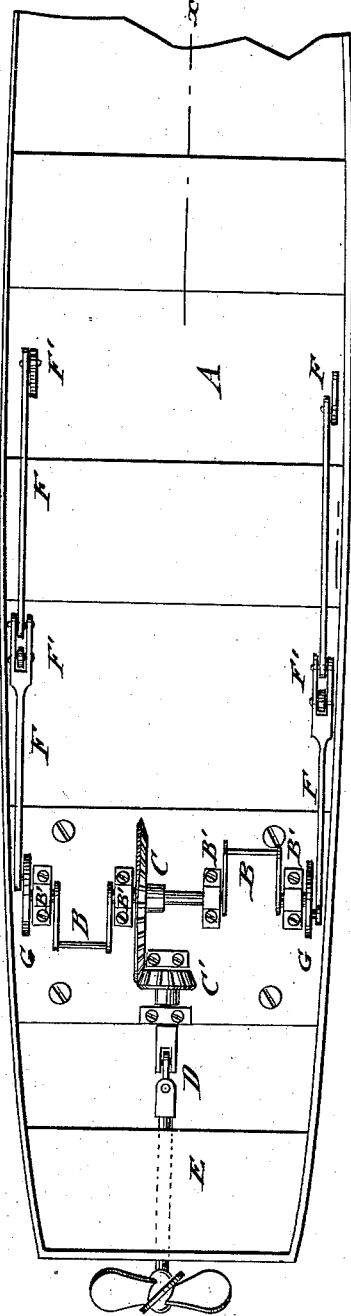


T. FETHERSTON.  
Means for Propelling Boats.

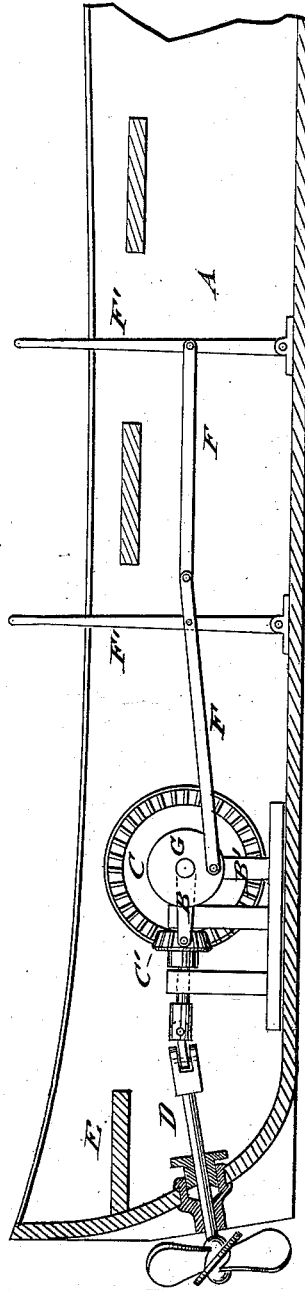
No. 198,933.

Patented Jan. 8, 1878.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*Chas. Nida.*  
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INVENTOR:

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# UNITED STATES PATENT OFFICE.

THOMAS FETHERSTON, OF ORANGE, NEW JERSEY.

## IMPROVEMENT IN MEANS FOR PROPELLING BOATS.

Specification forming part of Letters Patent No. **198,933**, dated January 8, 1878; application filed June 11, 1877.

*To all whom it may concern:*

Be it known that I, THOMAS FETHERSTON, of Orange, in the county of Essex and State of New Jersey, have invented a new and Improved Propelling Device, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view, and Fig. 2 a vertical longitudinal section of my improved propelling device for boats on line *xx*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish for pleasure, life, and other boats an improved propelling device of simple construction, that may be worked by a double crank-shaft operated by the feet, and assisted by those in the boat, if desired, so as to produce increased speed and power; and the invention consists of a double crank-shaft supported in suitable bearings, and operating, by a large bevel-wheel, an intermeshing bevel-pinion at the end of the jointed propeller-shaft. Crank-disks at the ends of the double crank-shafts are connected by lever-rods with pivoted hand-levers, that assist the motion of the crank-shaft.

In the drawing, A represents a boat, and B a double crank-shaft, that is supported in bearings of upright posts B', attached to a base board or frame, which is firmly screwed to the boat.

The crank-shaft is revolved by the action of the feet, so as to transmit, by a large bevel-wheel, C, motion to an intermeshing pinion, C', at the end of the propeller-shaft D.

The propeller-shaft D is made of two sections, which are connected by a flexible joint, so as to provide for the giving of the shaft to the unequal strain of the wheels, and also for the placing of the rear shaft-section at a suitable angle of inclination to bring the pro-

PELLING-screw at suitable depth below the surface of the water.

The front shaft-section, that carries the pinion C', turns in bearings of a standard of the base-board, while the rear section of the shaft turns in a stuffing-box of the boat.

A seat, E, for the person working the crank-shaft is arranged at the stern of the boat, above the propeller-shaft D, at such height that the crank-shaft may be conveniently worked.

If it is desired to facilitate the work of the person operating the crank-shaft, lever-rods F may be attached to crank-disks G at the outer ends of the crank-shaft, said lever ends being pivoted to hand-levers F', that are reciprocated by the passengers sitting on cross-benches of the boat, and connected by pivot-rods.

The lower ends of the levers are pivoted into recesses of the boats, and the same may, when not required, be folded down, to be out of the way.

Thus a simple but effective construction of a propelling device for boats is furnished, that dispenses with oars, and admits the ready propelling and steering by one person.

The propelling mechanism is always in position and ready for operation, and therefore specially adapted for life-boats.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

The combination of a revolving double crank-shaft, having large bevel-wheel, with the intermeshing bevel-pinion of the propeller-shaft and the flexibly-jointed propelling-shaft, substantially in the manner described, and for the purpose specified.

THOS. FETHERSTON.

Witnesses:

PAUL GOEPEL,  
C. SEDGWICK.