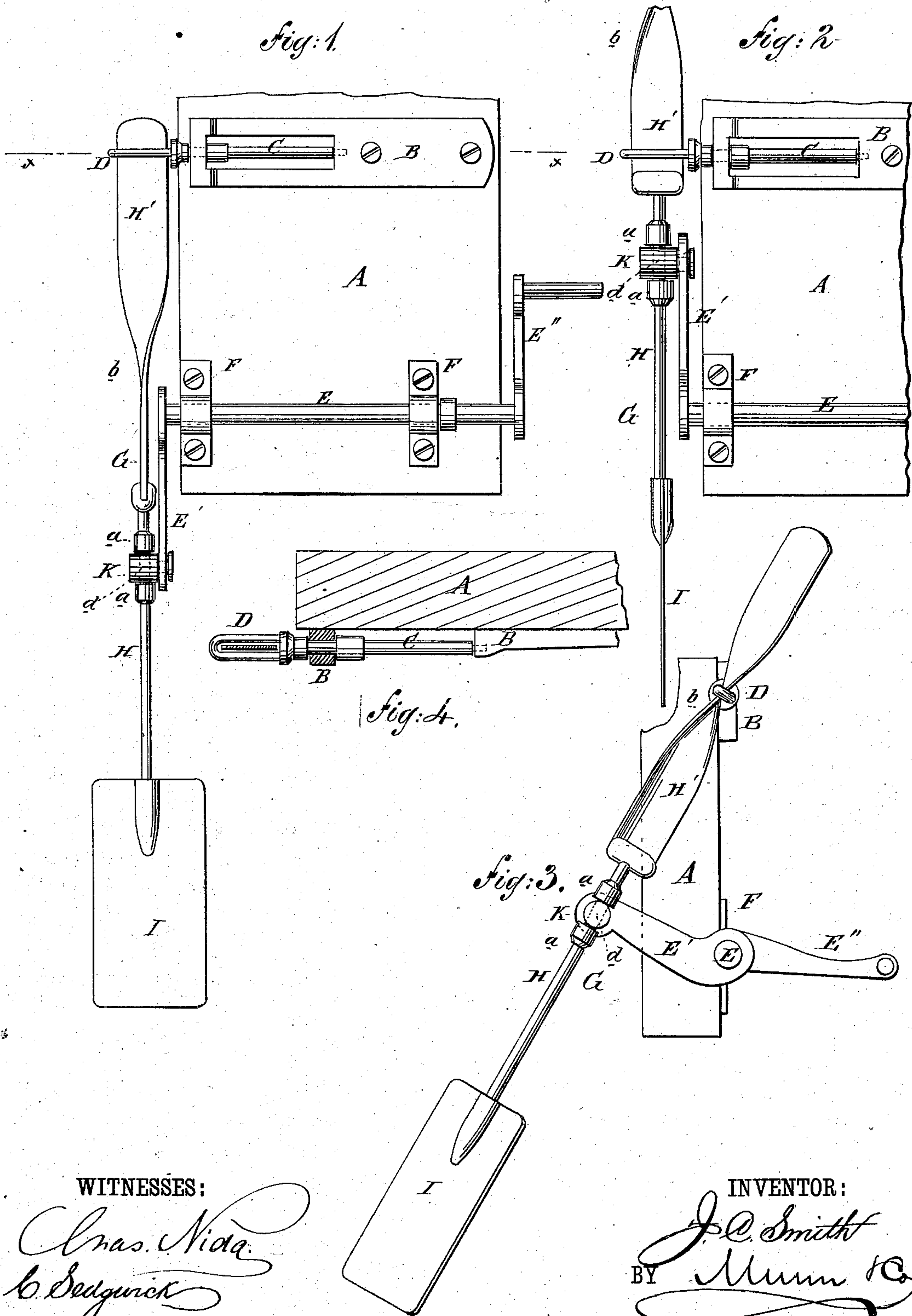


(No Model.)

J. C. SMITH.  
Propeller.

No. 239,565.

Patented March 29, 1881.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN C. SMITH, OF TROY, NEW YORK.

## PROPELLER.

SPECIFICATION forming part of Letters Patent No. 239,565, dated March 29, 1881.

Application filed September 23, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. SMITH, of Troy, in the county of Rensselaer and State of New York, have invented a new and Improved Propeller, of which the following is a specification.

The object of this invention is to provide a more simple, inexpensive, and efficient device for propelling vessels, and for other purposes.

Figure 1 is a front elevation of the device in position. Fig. 2 is a front elevation, showing the device elevated with the blade feathered. Fig. 3 is a side elevation, showing the blade-feathering at the beginning of its downward movement. Fig. 4 is a plan of the same on the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

In the accompanying drawings, A represents a vertical frame, to which the device is attached.

B represents a horizontal bearing secured on the face of the frame A and supporting the rocking shaft C, in whose end, and in the same plane therewith, is a straight loop, D. Below this bearing B the crank-shaft E is secured horizontally on the face of the frame A in suitable journal-boxes F F, the crank E' of said shaft E being set at right angles thereto and parallel with the vertical side of the frame A.

G represents the propeller, consisting of a shaft, H, having a blade, I, secured on its lower end, and having its upper end prolonged into a plate, H', having a quarter-turn or spiral in it, as shown, which plate H' is inserted through the loop D.

K is the wrist-pin of the crank E', through an aperture, *d*, in which the shaft H is passed; and *a a* are collars rigidly secured on the shaft H, on either side of the wrist-pin K, to receive the thrust of the said crank E'.

On revolving the crank-shaft E by means of power applied to the handle E'', or through any other suitable mechanism, (the propeller G being in the position shown in Fig. 1,) the blade I is moved forward flatwise until the crank E' is raised to a horizontal position; then the spiral *b* on the plate H', moving up through the loop D, causes said propeller G to turn, so that the blade I is fully feathered when the lower end of the twist or spiral *b* on the plate

H' has moved up through the loop D, which occurs before the crank E' has reached the vertical position shown in Fig. 2. The revolution of the shaft E continuing, and the crank E' turning rearward in its downward motion, the blade I remains feathered so long as the flat portion of the plate H', which is below the twist or spiral *b* thereon, is passing through the loop D. Then the blade I begins to turn, and so continues, as shown in Fig. 3, until the said spiral or twist *b* has moved down through the loop D, and the blade I then moves flatwise, as shown in Fig. 1, through the remainder of the revolution of the shaft E, being controlled by the movement of the flat extremity of the plate H' through the loop D.

As a propeller, this device may be applied to vessels with great advantage, one or more on each side of the vessel; for as the blade I "feathers" on leaving the water it will not lift water, as do ordinary paddle-wheels, and hence will economize power and be subject to a less continued strain; and it will be seen that a reversal of the motion of the shaft E will impart reverse motion to the propeller G, so that a vessel can be moved astern when desired.

The device may be also applied with advantage to ditching purposes, the blade I operating as a shovel, in which case the said blade I will be constructed with an outer raised edge, or have its shape modified in any suitable manner, without departing from my invention.

When used for digging ditches the supporting-frame A may be placed at any desired angle for the easier operation of the blade I.

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

The combination, with a swiveled loop, D, and a propeller having a twisted plate, H', at the opposite end of its shaft, of the crank E' on shaft E, and the wrist-pin K on the end of said crank, whereby the twisted plate will be worked in the swiveled loop so as to feather the paddle, as described.

JOHN C. SMITH.

Witnesses:

J. HYMAN,

VICTOR W. SMITH.