J. HARTMAN, Jr.
Screw-Propellers.

No. 137,365 Patented April 1, 1873.

FIG. 1

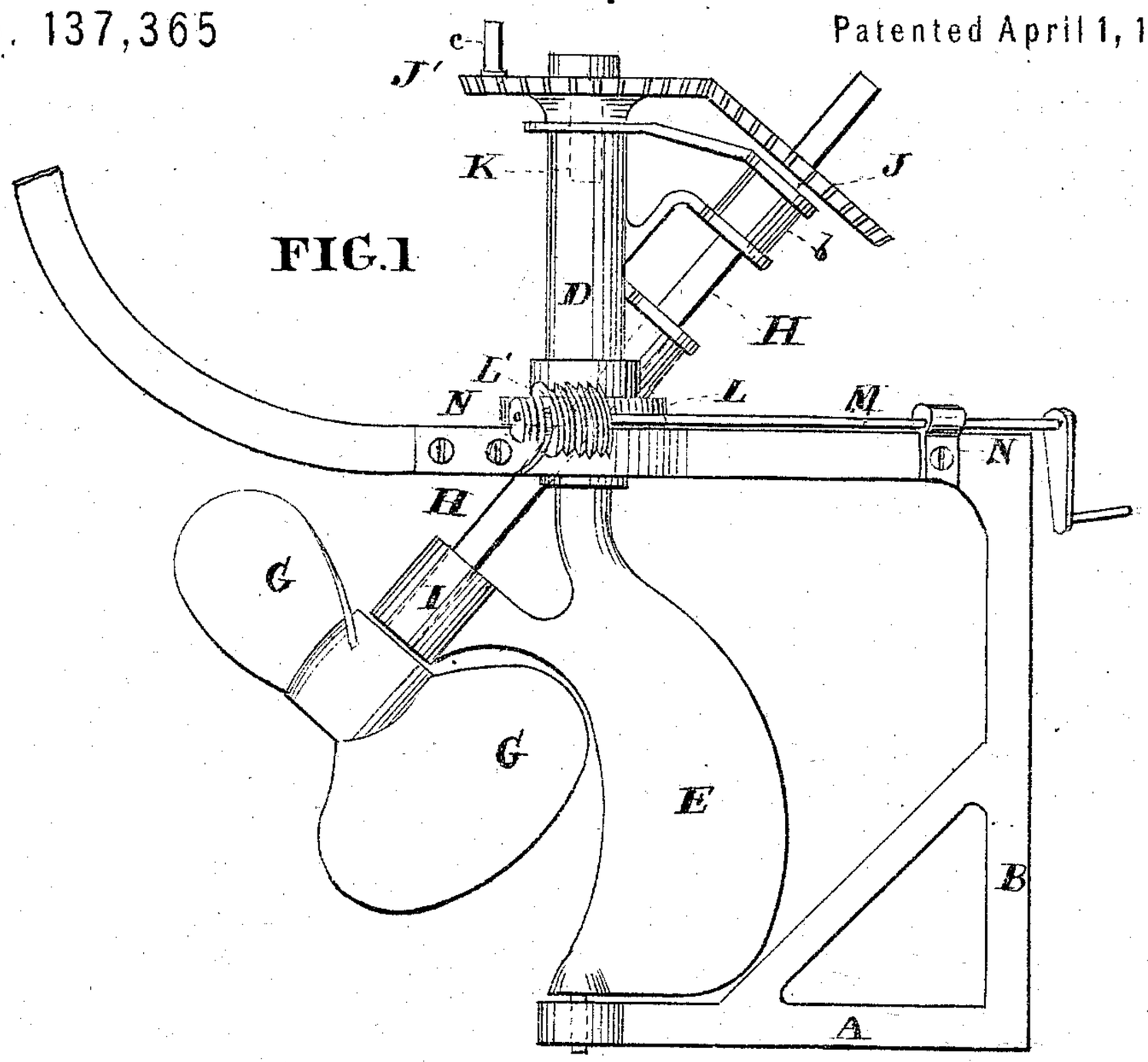


FIG. 2

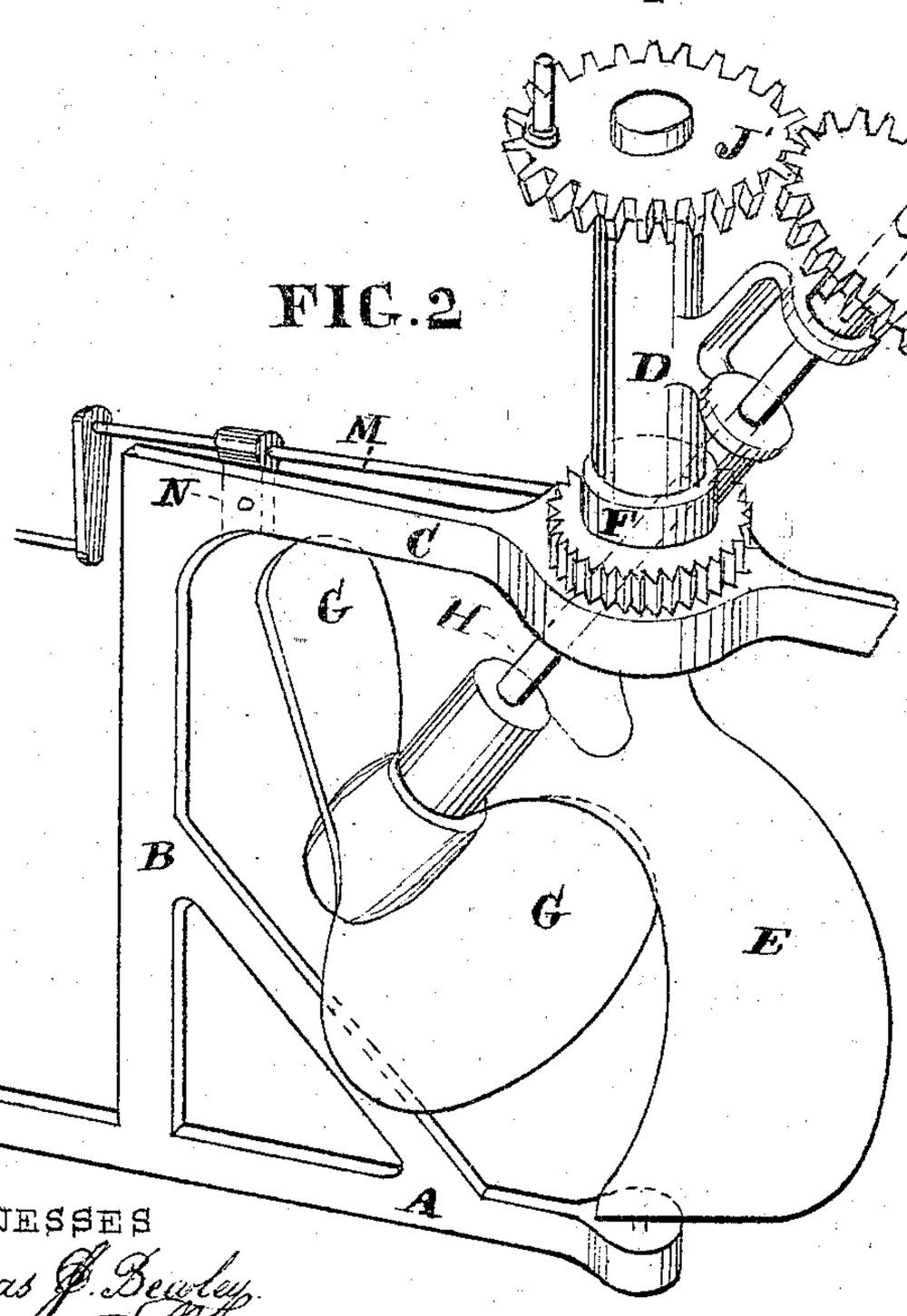
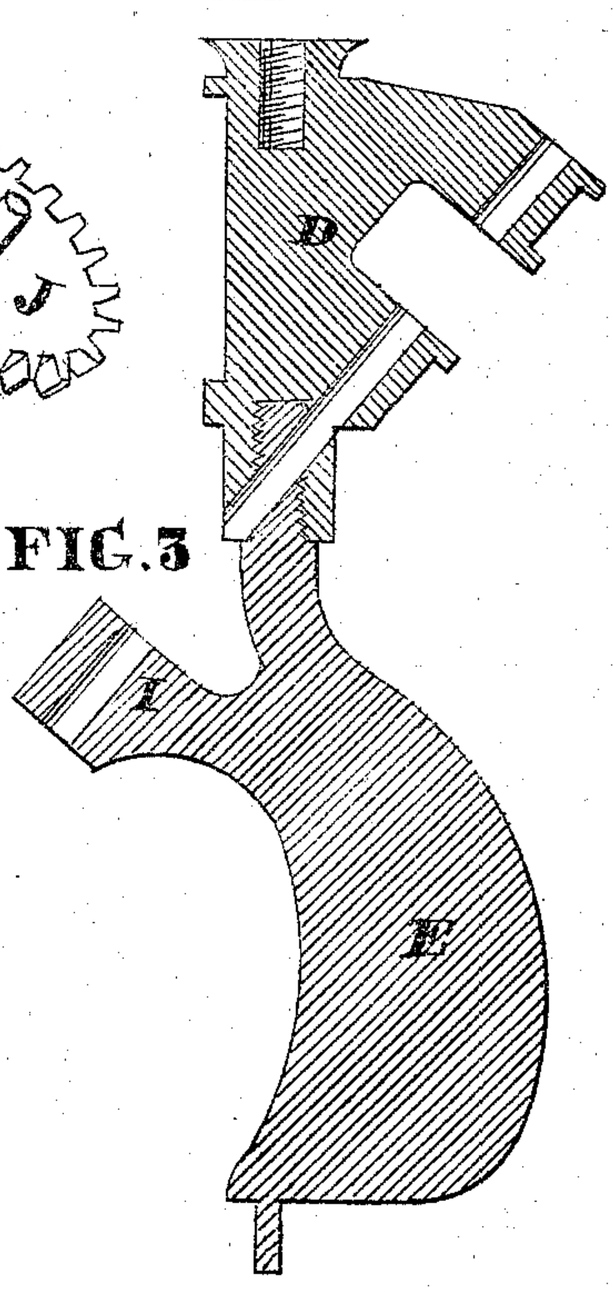


FIG. 3



WITNESSES
Thomas J. Bewley
Isaac Pindge.

INVENTOR
John Hartman jr.
By His Attorney
Stephen Rustick

UNITED STATES PATENT OFFICE.

JOHN HARTMAN, JR., OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **137,365**, dated April 1, 1873; application filed July 12, 1872.

To all whom it may concern:

Be it known that I, JOHN HARTMAN, Jr., of the city of Philadelphia and State of Pennsylvania, have invented certain Improvements in Propellers, of which the following is a specification:

My invention consists in the combination of the propeller-shaft with the outboard-bearing, the rudder, the main-stock, worm, and worm-wheel in such a manner that, by the revolutions of the worm-shaft, the rudder and propeller may be turned around toward any point of the compass, as hereinafter fully described.

Figure 1 represents a side elevation of the stern-frame, stern-post, and parts in connection therewith, showing the wheel in position to drive the vessel ahead. Fig. 2 is a perspective view of the same, showing the wheel in a reversed position. Fig. 3 is a vertical section of the main-stock D and rudder E.

Like letters in all the figures indicate the same parts.

A is the keel; B, the stern-post; and C, a prolongation of the same aft, forming the stern-frame. D is the main-stock, which is connected at its base with the upper end of the rudder E, as represented in Fig. 3, or in any other convenient manner. Its hub F turns in the boss *a* of the stern-frame C. G is the propeller, whose shaft H turns in the outboard-bearing I, the hub F of the main-stock, and the bearing *b* at one side of the same. J is a gear-wheel on the upper end of the propeller-shaft H; and J′ a like wheel which turns on the pin K, which projects from the upper end of the main-stock D.

Motion is imparted to the wheel J′, and thence to the wheel J, to revolve the propeller G, by means of a connecting-rod, connected at one end with the engine and at the other end with the wrist-pin *c* of the said wheel J′.

There is a worm-wheel, L, fast on the hub F of the main-stock D, into which the worm L′ on the shaft M gears. The shaft has its bearings in the supports N N connected with the stern-frame C. The shaft is projected to the pilot-house, and connected with the pilot's wheel, so that by his turning said wheel he turns the propeller and rudder around to any desired point for the steering of the vessel, the propeller and rudder being susceptible of being turned around together to any point of the compass by virtue of their connection with each other, as shown in the drawing. Consequently the vessel may be turned around without reversing the engine, being under the complete control of the pilot.

The rudder is not essential in steering the vessel when under steam, but is an auxiliary to be used when under sail.

The propeller-shaft may be used in a fixed inclined position without being connected with the rudder, the latter being hung in an ordinary manner.

I claim as my invention—

The combination of the propeller-shaft H with the main-stock D, worm L, worm-wheel L′, rudder E, and outboard-bearing I, substantially in the manner and for the purpose set forth.

JNO. HARTMAN, JR.

Witnesses:

GEO. E. JOHNSON,

G. W. BROWN.