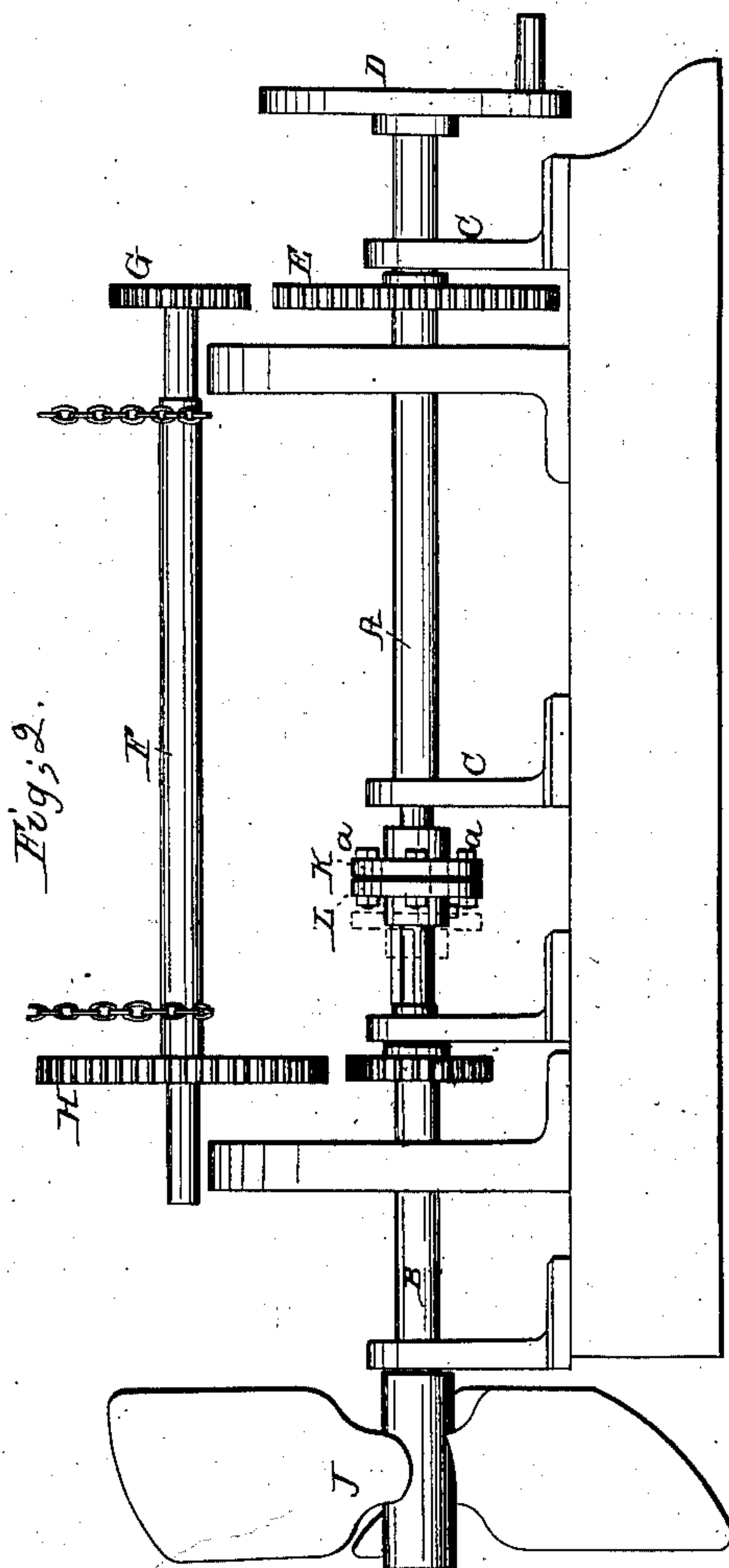
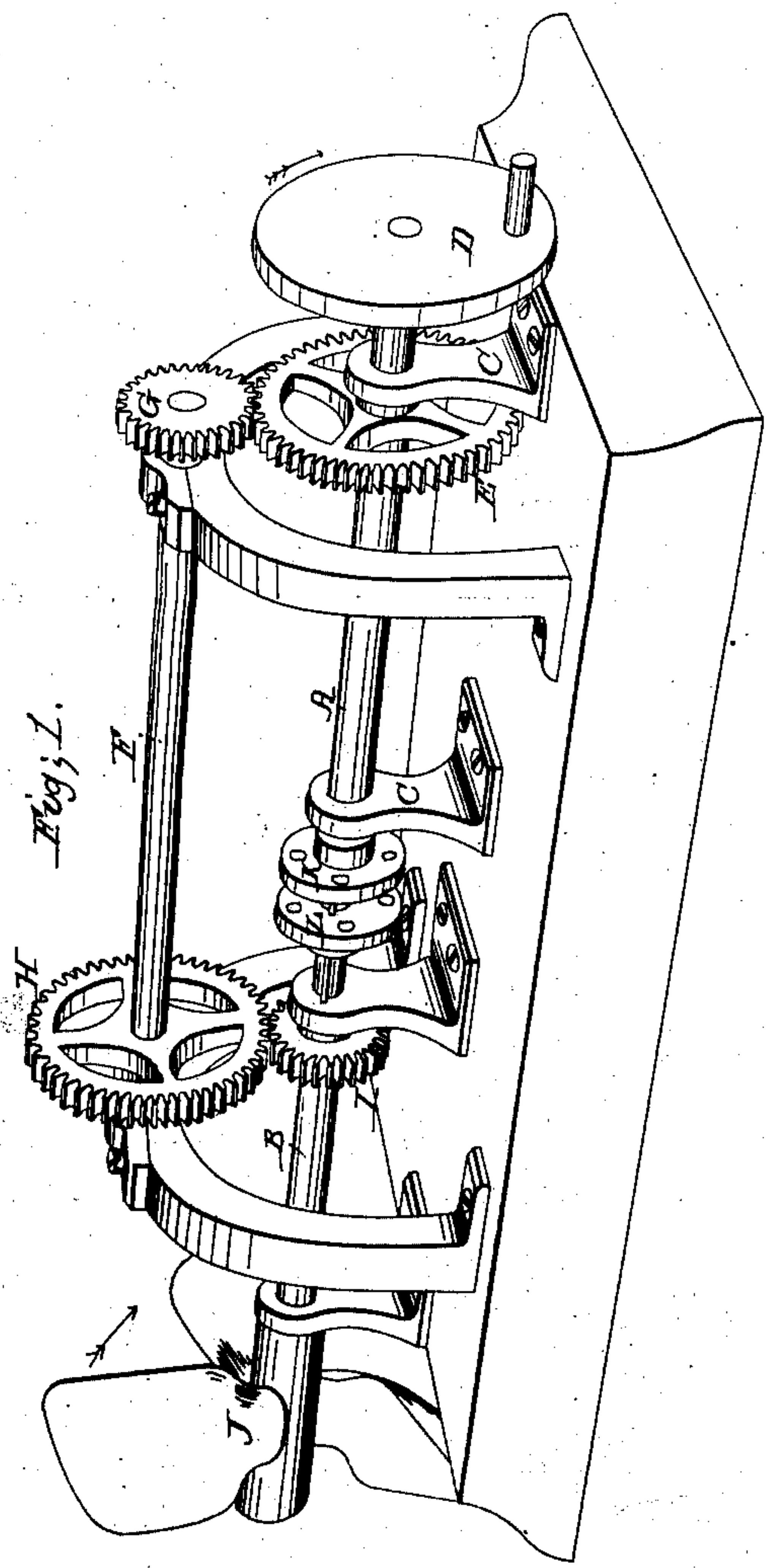


*R. C. Jackson,*

*Mechanical Movement*

*N<sup>o</sup> 38,228.*

*Patented Apr. 21, 1863.*



*Witnesses;*  
*J. Brainerd*

*Inventor;*  
*R. C. Jackson*



# UNITED STATES PATENT OFFICE.

R. C. JACKSON, OF CLEVELAND, OHIO.

## IMPROVED MODE OF DRIVING PROPELLER-SCREWS.

Specification forming part of Letters Patent No. 38,228, dated April 21, 1863.

*To all whom it may concern:*

Be it known that I, R. C. JACKSON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Driving Propeller-Screws; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view, and Fig. 2 is a side view.

Like letters refer to like parts.

The nature of my invention relates, first, in having the crank-shaft that connects with the engine in line with the outboard-shaft or center of the wheel—in other words, the shaft is in two parts, and placed end to end; second, in having the outboard and inboard shafts so arranged in regard to each other that they can be coupled together and run by the direct action of the engine; and, third, in the compound gears and counter-shaft, by means of which I quadruple the motion of the screw, with wheels of small diameter, while the outboard and inboard shafts are caused to rotate in the same direction, whether propelled by means of gears or by the direct action of the engine.

In the accompanying drawings, A represents the inboard-shaft. This is secured in suitable bearings, C, and to the inner end is attached the crank-wheel D. Immediately within the bearings of the shaft A is placed the driving-wheel E, the diameter of which is suited to the size of the vessel—say, five and a half feet. Directly above the shaft A is placed the counter-shaft F, suitably hung in boxes. The inner end of this shaft is provided with a pinion, G, having half the diameter of the driving-wheel E, into which it gears. The opposite end of this shaft is provided with a driving-gear, H, of twice the diameter of the pinion G, being equal to the wheel E. The shaft B, or outboard-shaft, has upon its inner end a pinion, I, having the diameter of the pinion G.

The shafts A and B, being placed in line with each other, it follows that the combined action of the gears E G and H I will give the outboard-shaft B the same direction of rotation as that of the inboard-shaft A.

The propeller-screw J is secured to the outer

end of the shaft B in the usual manner. Upon the outer end of the shaft A is secured a coupling, K. This coupling is placed close to the end of the shaft outside of the bearings, and firmly secured by a feather-key and set-screw, or both. A like coupling, L, is placed upon the inner end of the shaft B and secured by a feather-key and set-screw, so that this coupling can be moved upon the shaft at pleasure.

In ordinary running by means of the counter-shaft and gears, the coupling L is shoved back upon the shaft, as seen in Fig. 1, in which case the propeller-screw J has four revolutions to the crank-shaft one, but these different velocities may be varied by changing the relative diameters of the gear-wheels and pinions.

In case of any derangement of the gears, I can in a few minutes' time uncouple the counter-shaft F, as shown in Fig. 2, and then by uniting the couplings K and L by means of bolts *a a*, Fig. 2, run the screw by the direct action of the engine, without the intervention of the intermediate gear and counter-shaft F, though in this case the motion of the screw corresponds with the strokes of the engine. In this manner a boat can be carried into port with ease and safety, though with less speed. This is an important consideration in case of an accident to the gears while at sea.

Another important consideration is presented by the fact that by having the two shafts A and B in line with each other the thrust of the outboard-shaft is wholly upon the boxes of the said shaft, thus entirely obviating the danger of getting the connecting-rod and cylinder out of line with each other.

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

1. Placing the crank-shaft that connects with the engine in line with the outboard-shaft, as specified.

2. The herein-described arrangement for coupling the outboard and inboard-shafts together, for the purpose set forth.

3. The arrangement of the compound gear-wheels E G and H I and counter-shaft F, for the objects herein specified.

R. C. JACKSON.

Witnesses:

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C. T. MEHAFFEY.