

A. F. Yardell.
Screw Propeller.

N^o 84,602.

Patented Dec. 1, 1868.

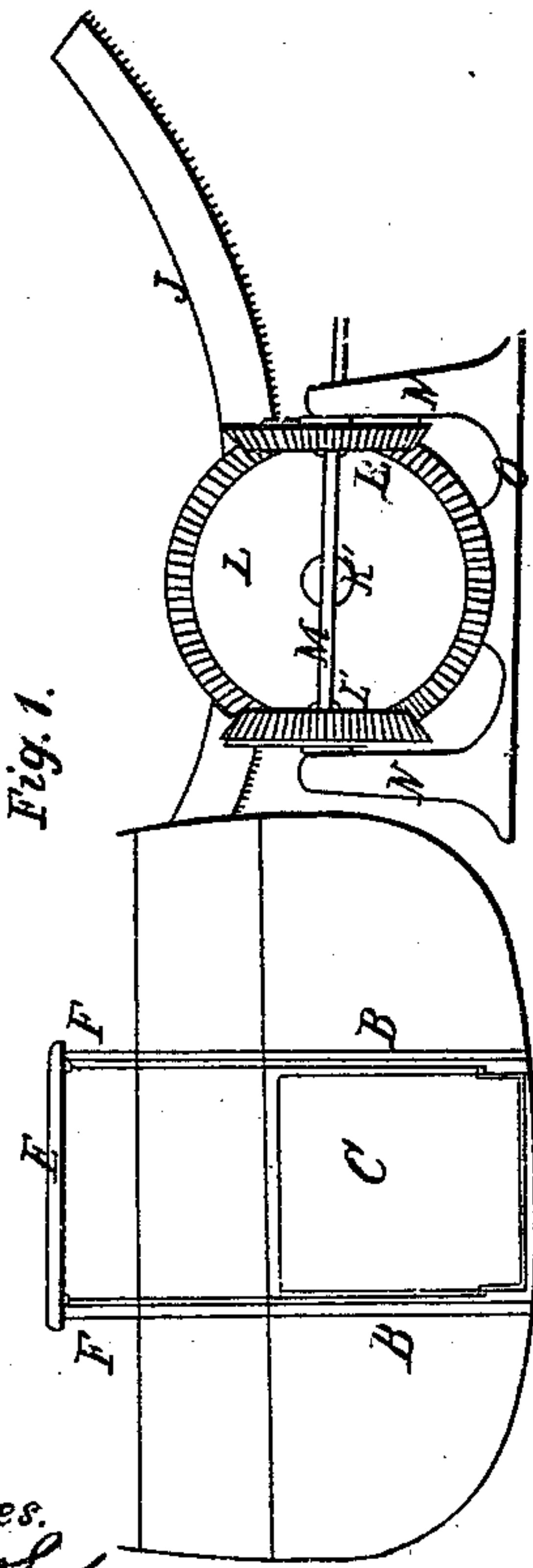
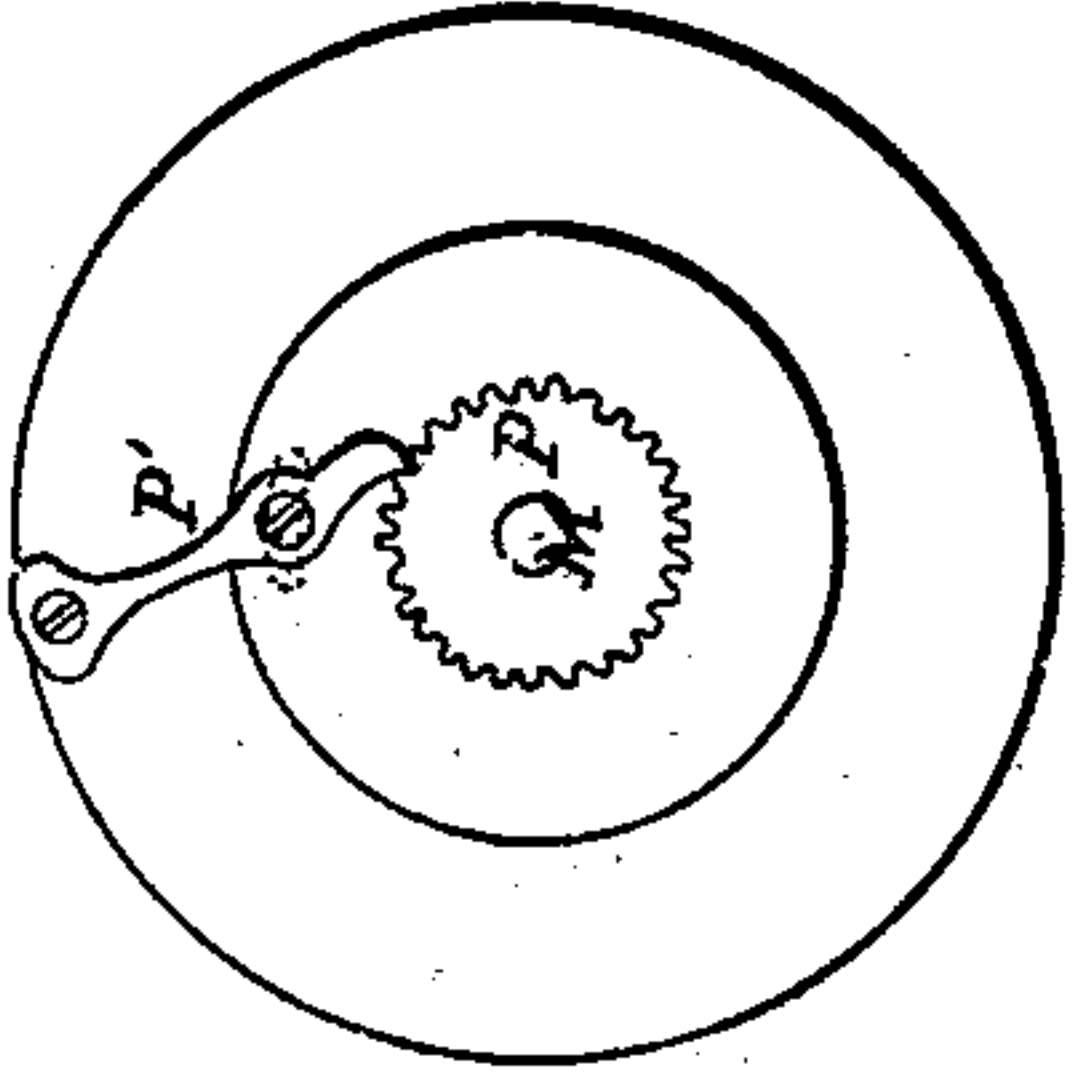
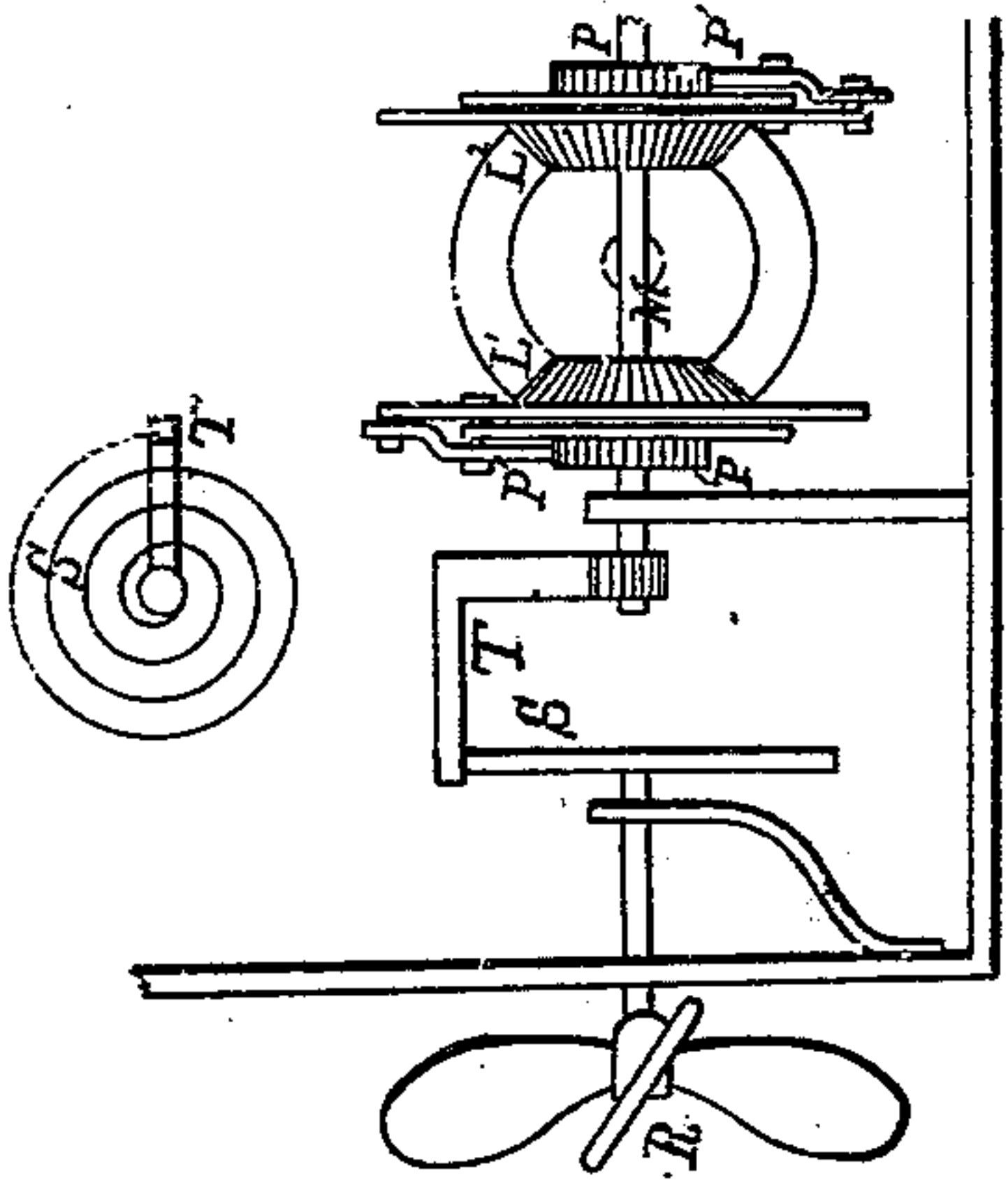


Fig. 2.

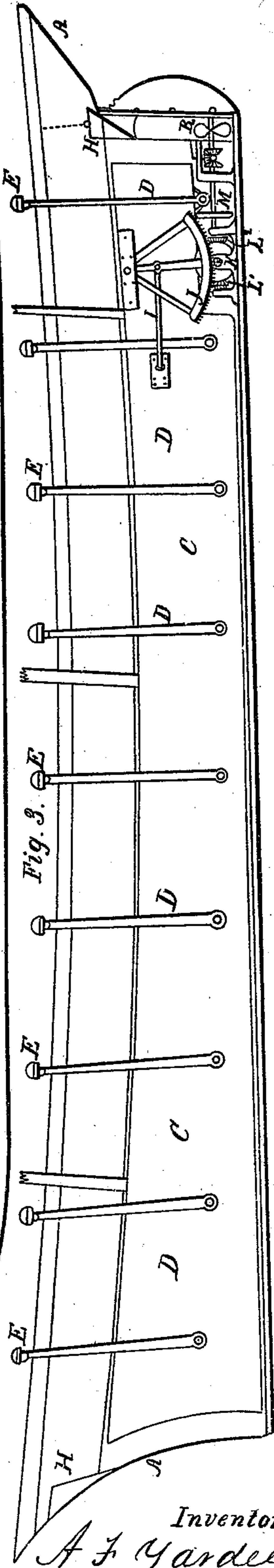
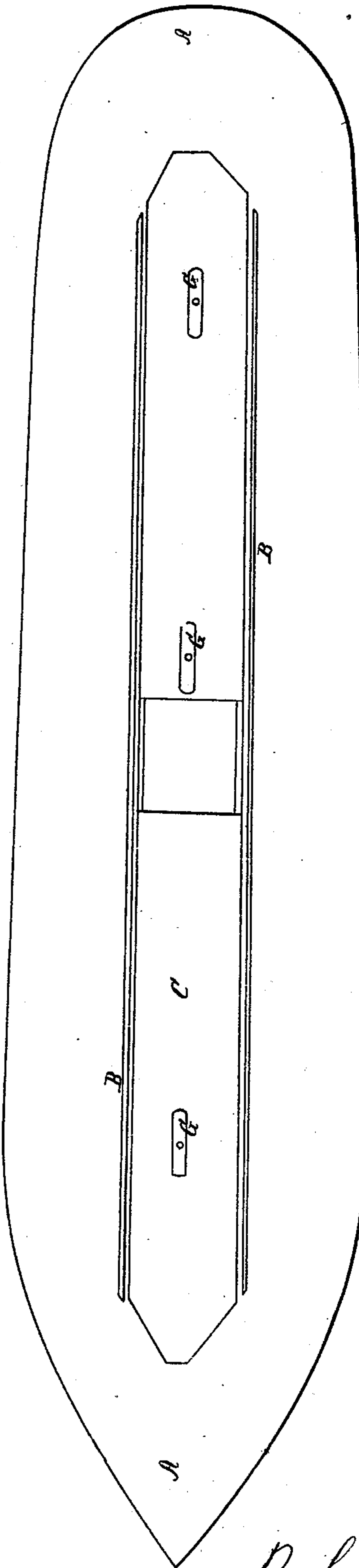


Fig. 3. $\ominus E$

Inventor.

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Witnesses.

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United States Patent Office.

ALBERT F. YARDELL, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 84,602, dated December 1, 1868.

IMPROVEMENT IN PROPULSION OF VESSELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, ALBERT F. YARDELL, of the city and county of San Francisco, State of California, have invented an Improved Mode of Propelling Ships by the action of the sea; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains, to make and use my said invention or improvements without further invention or experiment.

The nature of my invention is to provide an improved means of propelling vessels, without interfering with their sailing-capacity, or occupying much space required for freight.

My device may be applied to all sea-going vessels, and consists in suspending a box or tank, which is loaded or filled with freight or ballast, above the keelson, so that by the action of the sea, as the ship pitches, this weight or box will swing to and fro, or forward and back, and drive a propeller attached to the stern of the ship in the usual way.

Referring to the drawings forming a part of this specification—

Figure 1 is an end section;

Figure 2 is a plan;

Figure 3 is a side sectional elevation;

Figure 4 is an enlarged view of a part of the segment J, the gears L L^1 L^2 , the shafts K' and M , posts N N , and platform O ;

Figure 5 is a view, also on an enlarged scale, of the same gears seen in fig. 4, with the ratchets P and pawls P' , crank or arm T , spring S , and propeller R attached;

Figure 6 is a view of one of the ratchets, P , and pawls, P' , seen in a direction parallel to the shaft M ; and

Figure 7, a view of the spring S , seen in the same direction.

Similar letters of reference, in each of the figures, indicate like parts.

A represents the hull of the vessel, in which, below the decks, is constructed a frame or compartment, B , which divides the vessel longitudinally from stem to stern, from the keelson up to the lower deck. This compartment is braced, and attached at all necessary points to the ship, and has longitudinal and transverse rods above, connected to her sides.

The tank C is placed in the frame, and is suspended by vertical hangers, D D , to transverse rods E E , which rest on upright posts, F F , of the frame, which allows it to swing back and forth beneath the lower deck, openings G G G being provided for the masts. At each side of the tank, and underneath it, may be placed rollers, to avoid friction.

Fore and aft are placed wedge-shaped blocks, H H ,

which may be raised or lowered, to give the tank or box more or less room for play, and, when fully lowered, may prevent the movement of the tank altogether, in case of disarrangement of the machinery, or other causes, when the propeller can be triced up, and the ship will be like the ordinary sailing-vessels.

A connecting-rod, I , is attached to the tank, and connects with a segment, J , at the side of the frame, which operates on the teeth of the spur-pinion K on the shaft K' , at the end of which is a bevel-wheel, L . This wheel works in bevel-gears L^1 L^2 , upon a horizontal shaft, M , upheld by posts N N , upon a frame or platform, O , attached to the keelson.

Back of the gear L^1 and L^2 are ratchet-wheels P P , in which are pawls or clutches, P' P' , which, when the gears are turned backwards, the pawls are lifted entirely free from the ratchets, and when the gears are reversed, the pawls are thrown instantly against the teeth of the ratchet-wheels, so as to turn the shaft always in the same direction.

The propeller or screw R is attached to a shaft at the stern of the boat, in the ordinary way, passing through a stuffing-box. To the inner end of the propeller-shaft is attached a spring, S , which is coiled, and connected to the end of the gear-shaft by an arm, T . This spring is made of considerable size and strength, and its connection with the propeller is such that, as the tank or weight moves back and forward towards the stern of the boat, and its force expended, the spring is coiled up, and the force thus held in reserve is gradually expended during the slow ascent or descent of the ship, until it turns so as to allow the weight to move in the opposite direction again, and give a new impulse.

Having thus described my invention,

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

1. The bar or tank C , capable of containing cargo, arranged and operating substantially as described, for the purpose of communicating motion to the propeller of a vessel.

2. In combination with the tank C , the rod I , segment J , pinion K , gears L L^1 L^2 , ratchets P , and pawls P' , arranged and operating substantially as described, to give a rotary motion to the shaft M .

3. Interposing a coiled spring, S , between the power-shaft and the propeller-shaft, for the purpose of equalizing or continuing the action of the power upon the propeller, substantially as described.

In witness whereof, I have hereunto set my hand and seal.

A. F. YARDELL. [L. S.]

Witnesses:

J. L. BOONE,

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