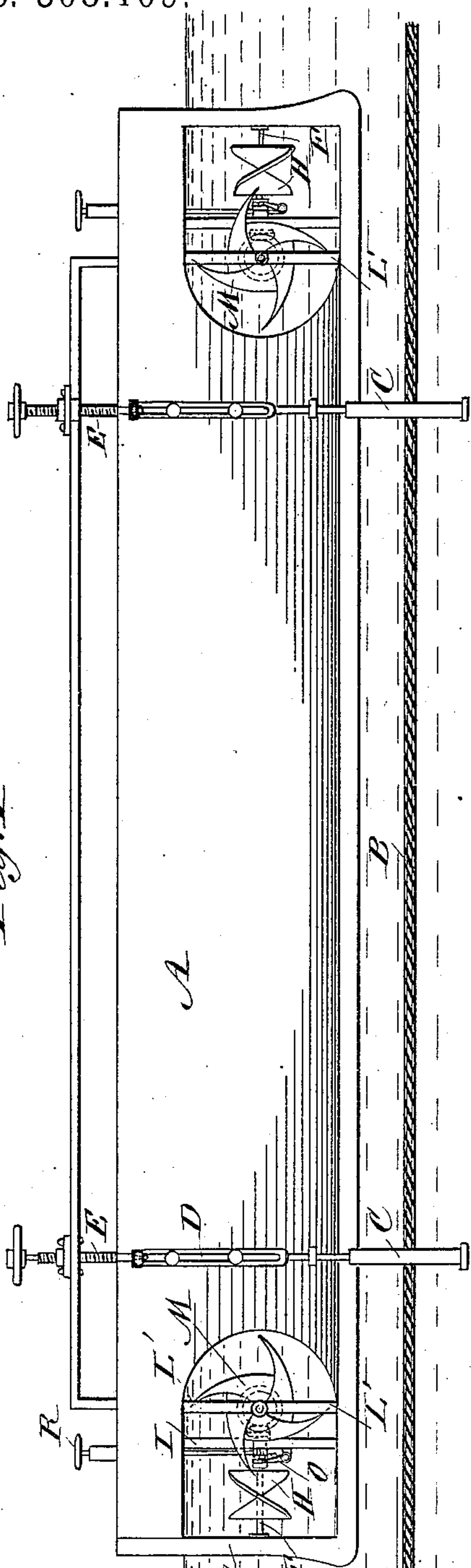


(No Model.)

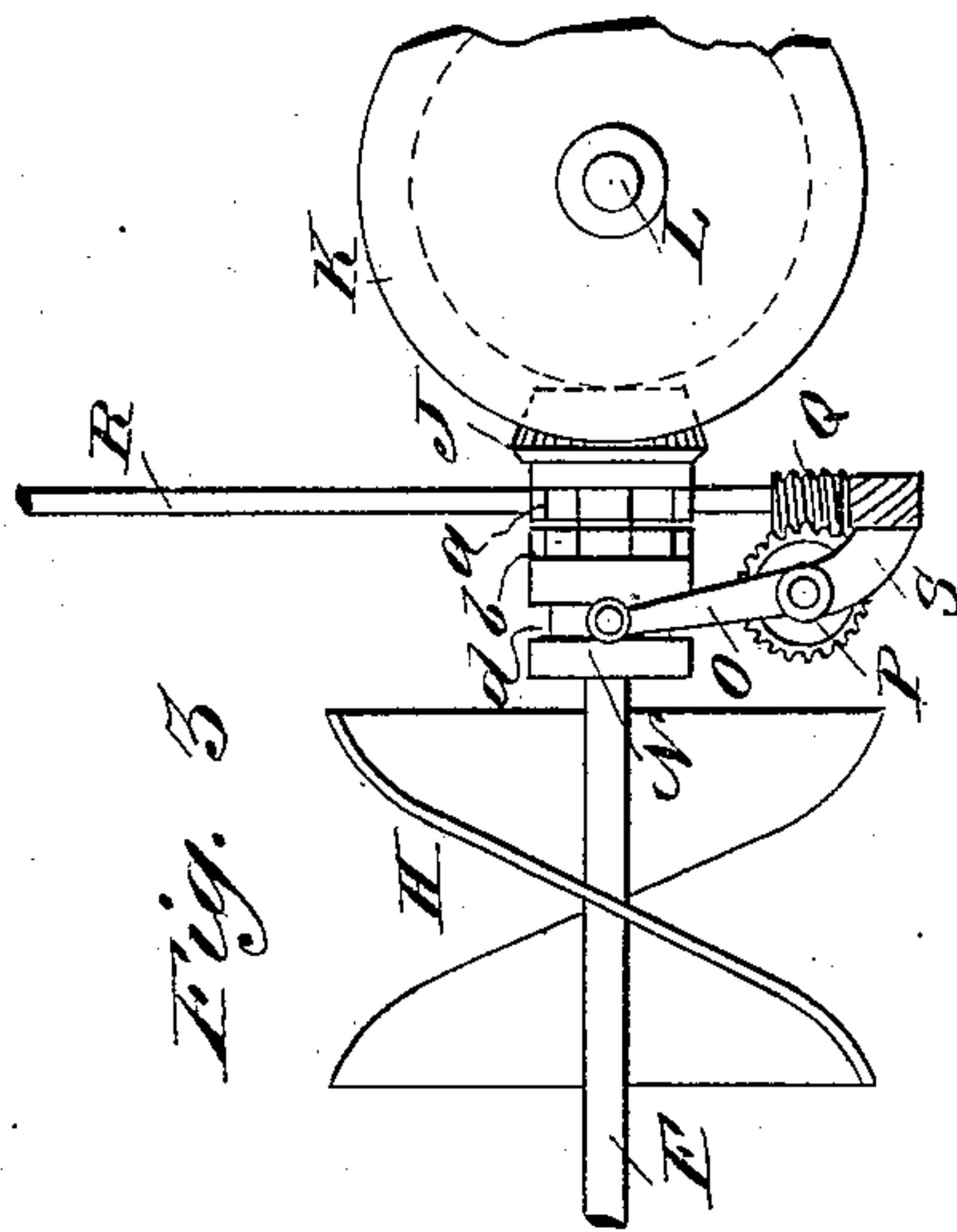
L. C. THORP.
PROPELLING VESSELS.

No. 308.109.

Patented Nov. 18, 1884.



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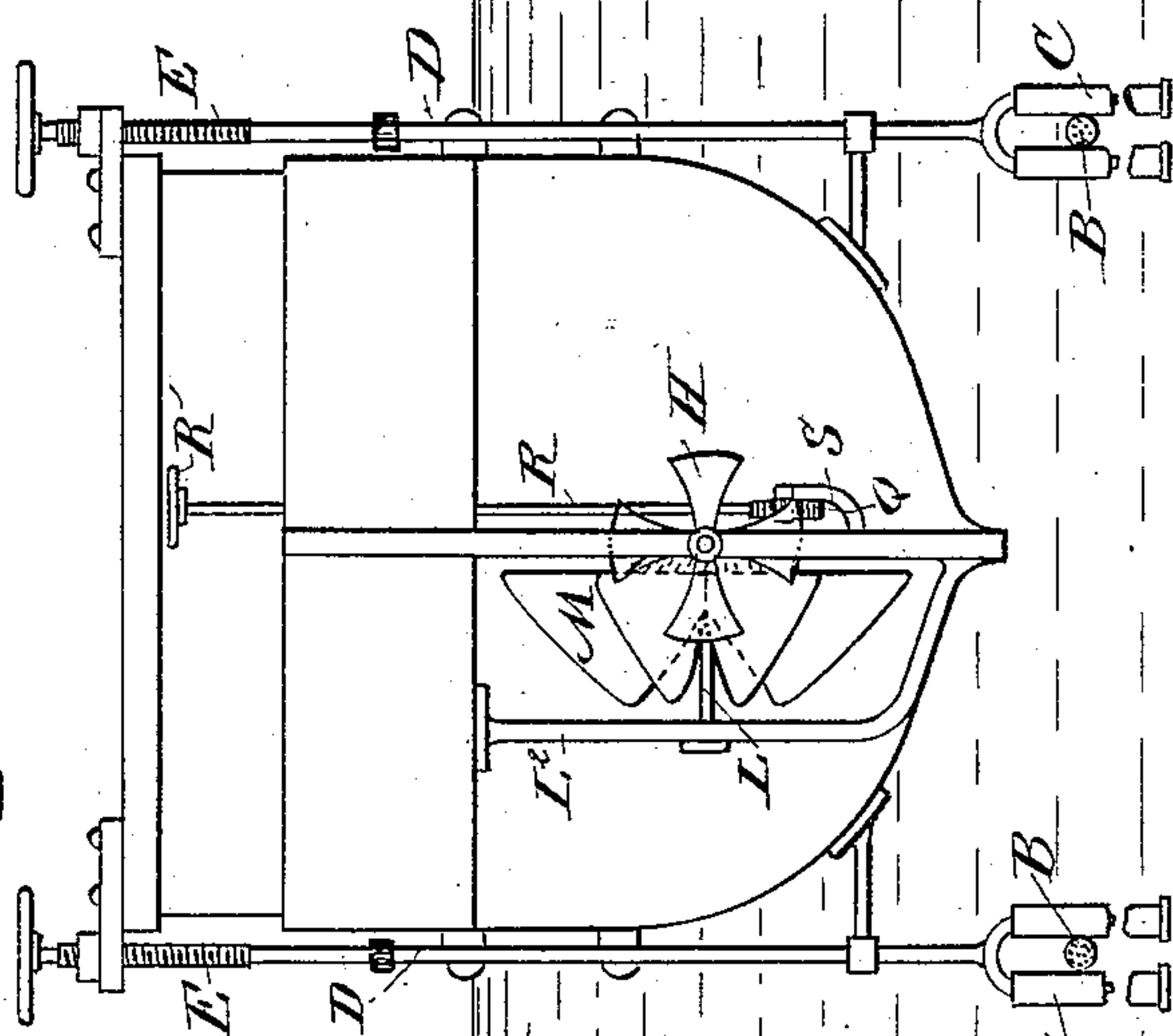


Fig. 2

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UNITED STATES PATENT OFFICE.

L. CHARLES THORP, OF PORT AU PRINCE, HAYTI.

PROPELLING VESSELS.

SPECIFICATION forming part of Letters Patent No. 308,109, dated November 18, 1884.

Application filed March 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, L. CHARLES THORP, of Port au Prince, in the Republic of Hayti, have invented certain new and useful Improvements in Propelling Vessels, of which the following is a full, clear, and exact description.

The object of my invention is to provide certain new and useful improvements in vessels used on ferries in crossing rivers, whereby the said vessels can be propelled across the stream by the action of the current.

The invention consists in the combination, with a marine vessel, of a propeller-screw mounted on a rod parallel with the longitudinal axis of the vessel, and geared with a shaft arranged at right angles to the longitudinal axis of the vessel, which transverse shaft carries a water-wheel. The current of the stream revolves the water-wheel, which in turn revolves the propeller-screw, thereby propelling the vessel forward.

The invention also consists in various parts and details, and combinations of the same, as will be fully described and set forth hereinafter.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal elevation of a vessel provided with my improvements. Fig. 2 is an end view of the same. Fig. 3 is an enlarged detail view of the propeller-screw and the device for throwing the same in and out of gear.

The vessel A is guided by cables or rods B, stretched across the river below the surface, which cables pass through forks C, held on the lower ends of vertical rods D, held on the sides of the vessel, which rods D are swiveled at their upper ends to the lower ends of screws E, held in suitable projections on the sides of the vessel, which screws are provided at their upper ends with hand wheels or cranks for turning them, and by means of the said screws the rods D and their forks C can be adjusted higher and lower, according to the tide. The cables B guide the vessel and prevent the current from carrying it down the stream. In each end of the vessel a horizontal shaft, F, is journaled in the stern-post G and in the standard I, and on each shaft F a propeller-screw,

H, is mounted within the usual screw-opening provided in vessels propelled by propeller-screws.

On the inner end of each shaft F a beveled pinion, J, is loosely mounted, and engages with a beveled cog-wheel, K, mounted on a shaft, L, at right angles to the shaft F, on which shaft L a water-wheel or bucket-wheel, M, is mounted in such a manner that it will revolve in a vertical plane parallel with the longitudinal axis of the vessel and at right angles to the vertical plane in which the propeller-screw H revolves. The shaft L is journaled in standards L' and in a bracket-arm, L², or in any other suitable manner, as may be desired. Clutch-teeth *a* are formed on the beveled pinion J, which are adapted to engage with clutch-teeth *b* on a clutch-collar, N, mounted on the shaft F, so that it can slide on the same, but revolve with the said shaft. A fork, O, is provided at the ends of its prongs with pins, which pass into an annular groove, *d*, in the clutch-collar N, and on the pivot of the said fork a worm-wheel, P, is mounted, which engages with a worm, Q, formed on the lower end of a vertical rod, R, provided at its upper end with a hand-wheel, R'. The fork O is pivoted to an arm, S, projecting from the standard I. By revolving the shaft R the worm Q is revolved, and in turn revolves the worm-wheel P, thus swinging the fork O in the direction toward or from the pinion J, and thus causing the clutch-collar N to be engaged with or disengaged from the said beveled pinion J. If the clutch-collar N is engaged with the bevel-pinion J, the shaft F can be revolved from the bevel cog-wheel K. If the vessel is to be moved toward the right, the front or right-hand shaft, F, must be disengaged so that it cannot be revolved by the cog-wheel K; but the left-hand or rear shaft, F, must be coupled so as to be revolved by its corresponding cog-wheel K, and vice versa. If the vessel is to be moved toward the left, the front or left-hand shaft, F, must be uncoupled so as not to be revolved by its corresponding bevel cog-wheel K, and the rear or right-hand shaft, F, must be coupled with its corresponding cog-wheel K. The current, which, as a rule, flows at right angles to the direction in which the vessel A is to move, strikes the water-wheel or bucket-wheel M, which revolves the same, and also revolves the shaft L and the

bevel cog-wheel K, which revolves the bevel-pinion J, the shaft F, and the propeller-screw H on the said shaft, whereby the vessel will be propelled forward across the stream. If the vessel is to be moved back, the front screw H is uncoupled, the rear screw is coupled, and the operation is repeated as above.

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

1. The combination, with a marine vessel, of a propeller-screw held at one end of the same parallel with the longitudinal axis of the vessel, and a water-wheel mounted in a frame at the same end of the vessel and at right angles to the propeller, and connected therewith by gearing, whereby when the end of the vessel in which the said water-wheel and propeller are journaled is upstream the current will revolve the water-wheel and cause it to operate the propeller, substantially as set forth.

2. The combination, with a marine vessel, of propeller-screws held at the bow and stern and in a plane parallel with the longitudinal axis of the same, water-wheels also mounted in frames at the opposite ends of the vessel and at right angles to the propellers, and clutches for throwing said propellers and water-wheels into and out of gear, whereby the boat may be propelled from bow or stern by throwing the proper propeller and water-wheel into gear through said clutches, substantially as set forth.

3. The combination, with a marine vessel, of a propeller-screw mounted on a shaft parallel with the longitudinal axis of the vessel, a water-wheel or bucket-wheel mounted on a shaft at right angles to the longitudinal axis of the vessel, gearing for operating the propeller-screw shaft from the shaft on which the water-wheel is mounted, a clutch for engaging the two shafts, a swinging fork embracing the clutch, and a worm and worm-wheel for swinging the fork and moving the clutch, substantially as herein shown and described.

4. The combination, with a marine vessel, 45
of a propeller-screw mounted on a shaft parallel with the longitudinal axis of the vessel, a bucket-wheel or water-wheel mounted on a shaft at right angles to the longitudinal axis of the vessel, the beveled pinion J, and the 50
cog-wheel K, for operating the propeller-screw shaft from the water-wheel shaft, the clutch-teeth *a* on the bevel-pinion J, the sliding clutch-collar N, provided with clutch-teeth *b*, the swinging fork O, embracing the clutch- 55
collar, the worm-wheel P, mounted on the pivot of the fork, the shaft R, and the worm Q, engaging with the worm-wheel, substantially as herein shown and described.

5. The combination, with a marine vessel, 60
of a cable stretched across the river, bars secured to the sides of the vessel for holding the cable in such a manner that the cable can guide the vessel, a screw-propeller mounted on a shaft journaled in the end of the vessel 65
and parallel with the longitudinal axis of the vessel, a water-wheel or bucket-wheel mounted on a shaft at right angles to the longitudinal axis of the vessel, and of gearing for operating the propeller-screw shaft from the water-wheel 70
shaft, substantially as herein shown and described.

6. The combination, with a marine vessel, of a propeller-screw mounted on a shaft parallel with the longitudinal axis of the vessel 75
at each end of the vessel, a water-wheel or a bucket-wheel mounted on a shaft at right angles to the longitudinal axis of the vessel at each end of the vessel, and of gearing for connecting the water-wheel shafts with the screw- 80
propeller shafts, substantially as herein shown and described.

L. CHARLES THORP.

Witnesses:

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