

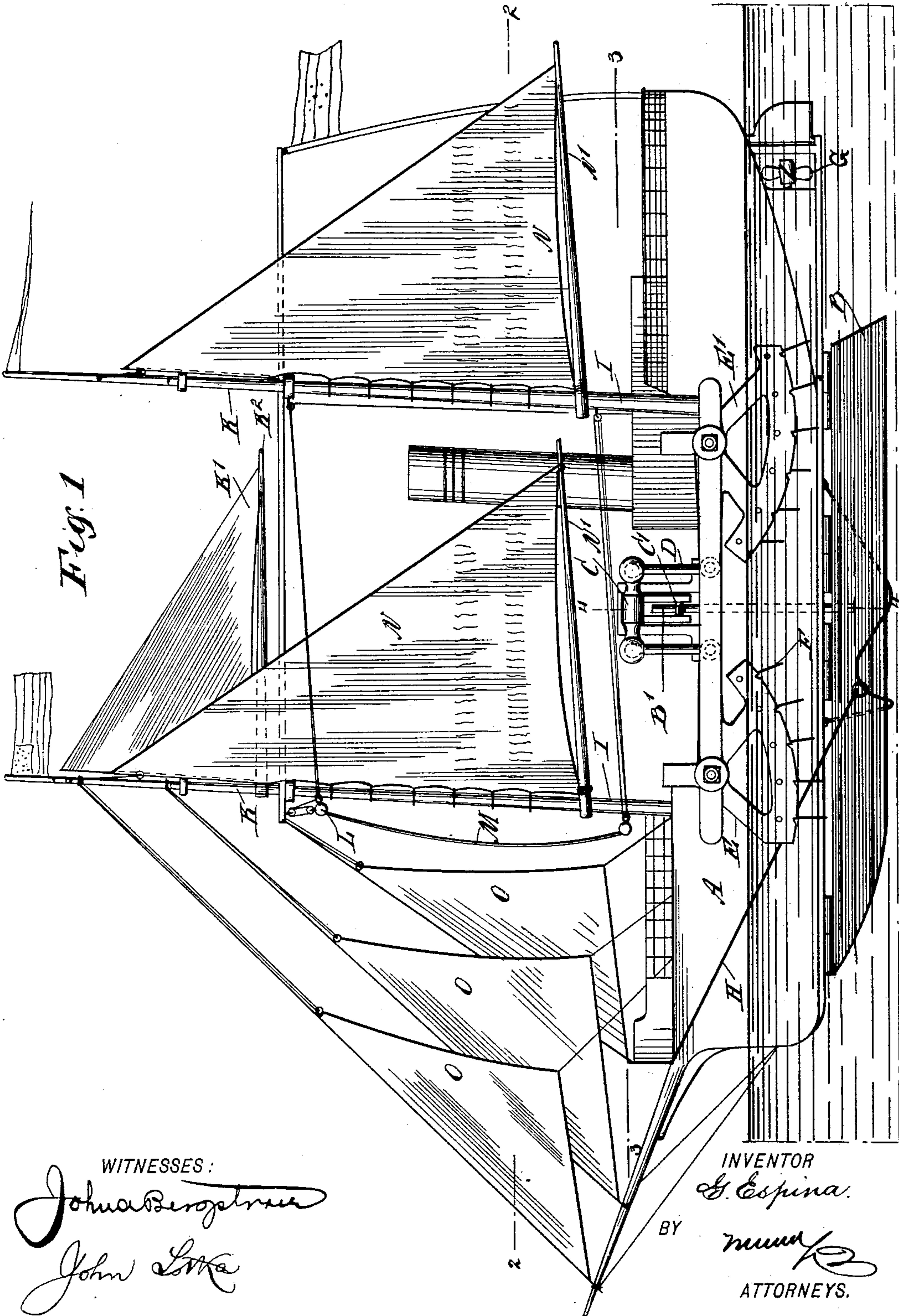
(No Model.)

3 Sheets—Sheet 1.

G. ESPINA.
MARINE VESSEL.

No. 591,749.

Patented Oct. 12, 1897.



WITNESSES:

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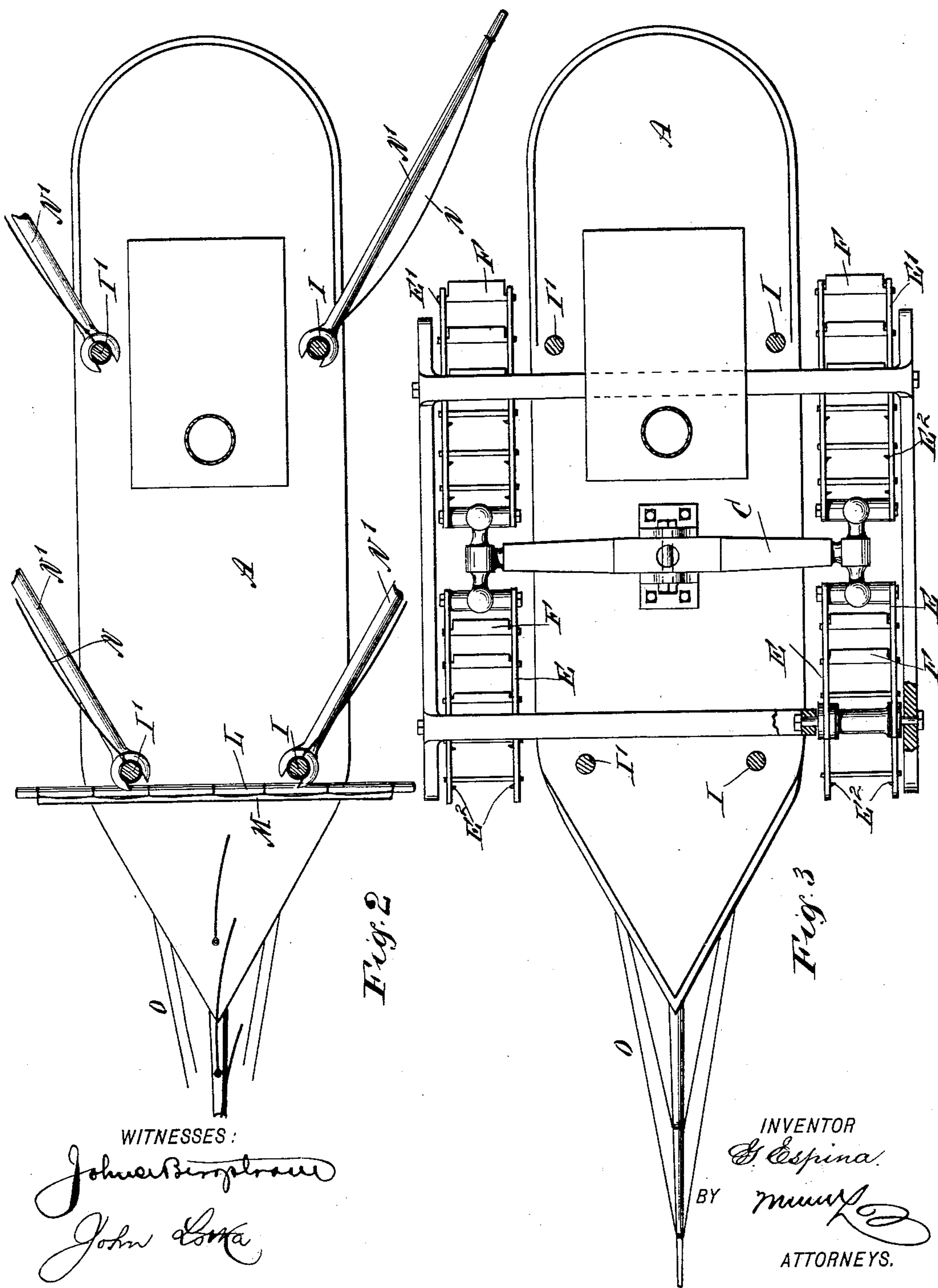
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G. ESPINA.
MARINE VESSEL.

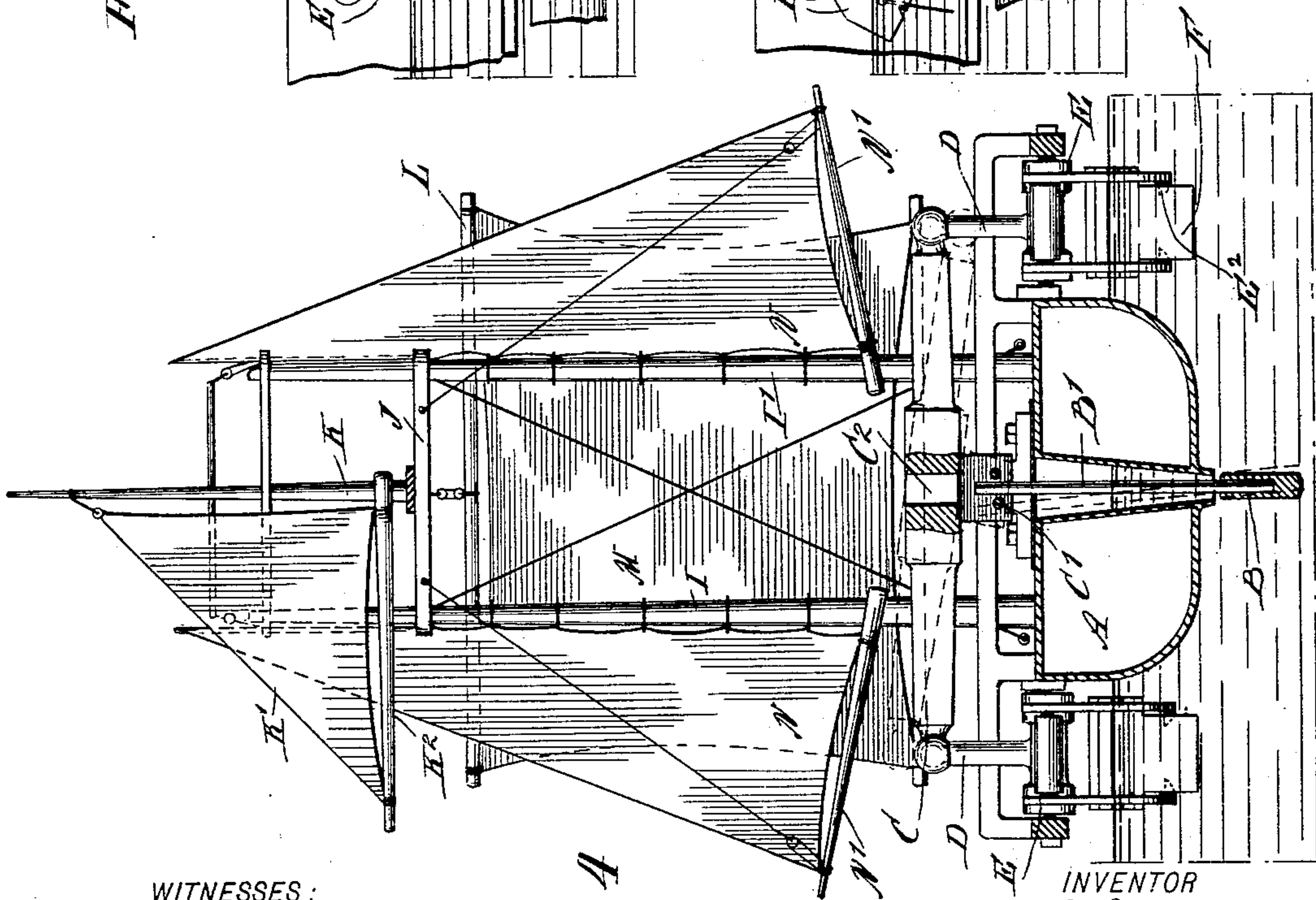
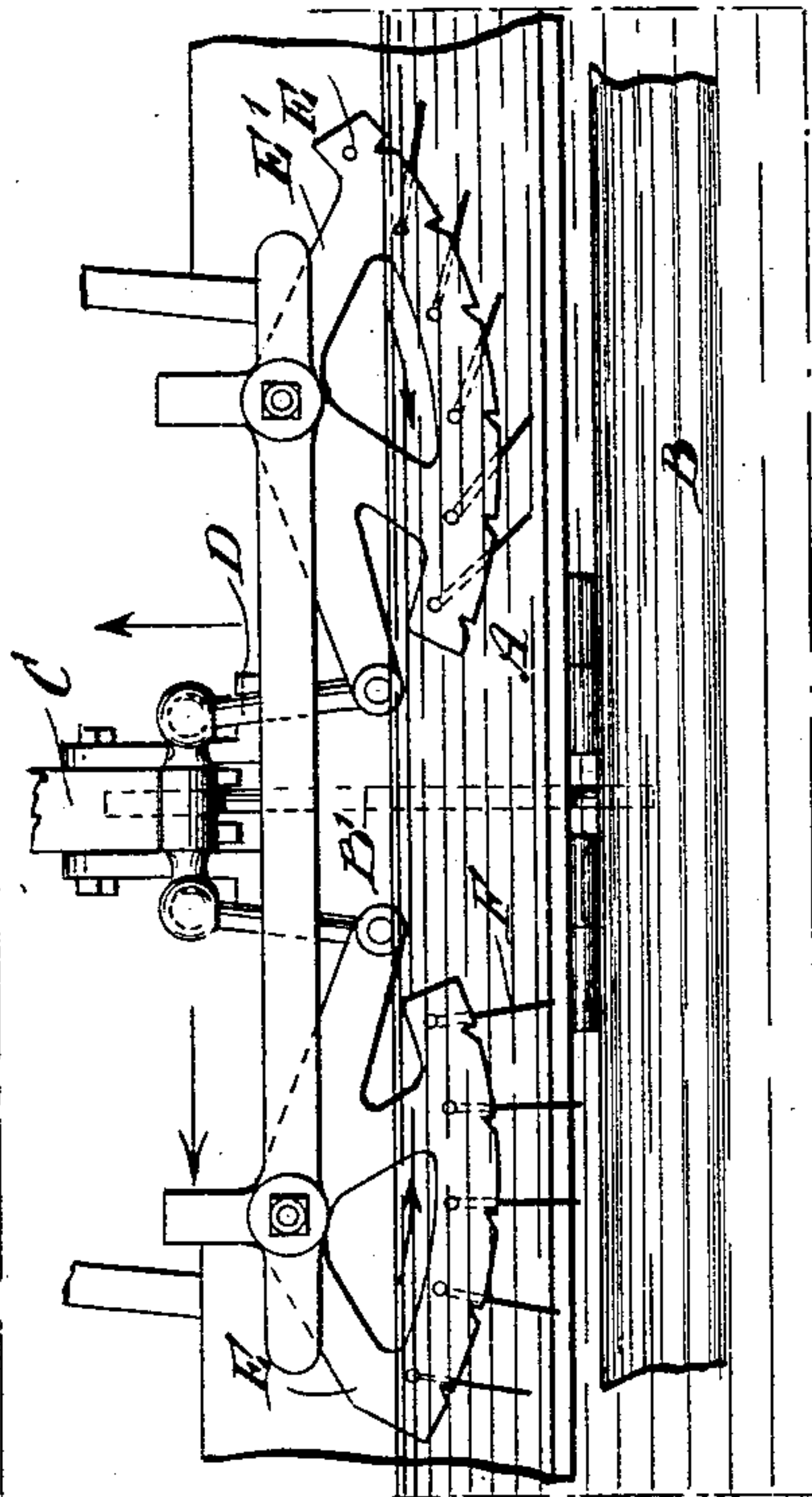
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3 Sheets—Sheet 3.

Patented Oct. 12, 1897.



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Fig. 4

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UNITED STATES PATENT OFFICE.

GIL ESPINA, OF CARÁCAS, VENEZUELA.

MARINE VESSEL.

SPECIFICATION forming part of Letters Patent No. 591,749, dated October 12, 1897.

Application filed April 15, 1897. Serial No. 632,231. (No model.)

To all whom it may concern:

Be it known that I, GIL ESPINA, a citizen of the Republic of Venezuela, and a resident of Carácas, Venezuela, have invented new and useful Improvements in Marine Vessels, of which the following is a full, clear, and exact description.

My invention relates to marine vessels, and has for its object to provide an improved propelling mechanism for ships.

The invention will be fully described hereinafter, and the features of novelty pointed out in the claims.

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

Figure 1 is a side elevation of my improved vessel. Figs. 2 and 3 are sectional plans thereof taken, respectively, on the lines 2 2 and 3 3 of Fig. 1. Fig. 4 is a central transverse section of the ship on line 4 4 of Fig. 1, and Figs. 5 and 6 are broken side elevations showing the propelling mechanism in two different positions.

The vessel is provided with a hull A and a keel B, arranged to swing about a longitudinal horizontal axis, so that when the vessel rolls from one side to the other the keel will swing about its axis. This swinging movement I utilize for propelling the vessel or assisting in the propulsion thereof. This I accomplish by providing the swinging keel B with an upward extension B', having a sliding engagement with two pins C' on a walking-beam C, pivoted at C² to swing in a transverse vertical plane. The ends of the walking-beam are connected by rods D to the paddle-frames E and E', respectively, located in advance and in the rear of the walking-beam and mounted to swing in longitudinal vertical planes. These frames carry pivoted paddles F, adapted to abut against stops E², secured to the paddle-frames to limit the forward swinging movement of the paddles relatively to the frame. It will be understood that the paddles are active only during the rearward-swinging movement of the paddle-frames, as is clearly shown in Figs. 5 and 6. Since one end of the walking-beam

C goes up when the other end goes down, the paddle-frames will move differently on opposite sides of the ship—that is, the forward paddle-frame on one side will be active at the same time as the rear paddle-frame on the opposite side.

It will be understood that the above-described propelling mechanism is to be supplemented by sails, or when the vessel is becalmed by an auxiliary screw-propeller G, such as is carried by many sailing vessels.

To enable the vessel to readily pass over bars and other shallow places, I provide means for raising the keel laterally and holding it in an approximately horizontal position, said means consisting of ropes H, extending from the deck along the sides of the hull and attached to the keel B, as shown. When it is desired to thus raise the keel, the extension B' is lifted out of engagement with the keel.

The arrangement of masts and sails is as follows: I construct the masts in pairs, one mast I of each pair being on the port side and the mating mast I' at the corresponding point on the starboard side. The two masts are connected by a transverse beam J, which forms a support for the topmast K, arranged centrally and common to both masts I and I'. The beam J of the foremast also forms a support for the yard L of a square sail M, which is in a central position, so as to catch the wind that passes between the two masts of each pair. The topmasts K carry topsails K', having the ordinary booms K², and the masts I and I' carry the outwardly-extending sails N, having booms N'. The vessel may also have a series of jibs O at the bow. The hereinbefore-described arrangement of masts and sails permits of a very thorough utilization of the wind, and the masts, being well braced transversely, are exceptionally strong.

It will be understood that various modifications may be made without departing from the nature of my invention as defined in the appended claims.

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

1. The combination of the hull having a

longitudinal central hinge at its bottom, the keel whose upper edge is secured to said hinge to swing laterally when the vessel rolls, and propelling mechanism operated by the swinging of the keel, substantially as described.

2. The combination of the hull, the keel mounted to swing laterally and adapted to be actuated by the rolling of the vessel, the walking-beam extending transversely of the vessel and arranged to swing vertically, said beam being operatively connected to the swinging keel, and propelling mechanism actuated by the walking-beam, substantially as described.

3. The combination of the hull, the keel mounted to swing laterally and adapted to be actuated by the rolling of the vessel, the walking-beam extending transversely of the vessel and arranged to swing vertically, said beam being operatively connected to the swinging keel, the paddle-frames arranged to swing vertically in planes ranging longitudinally of the vessel, and the pivoted paddles arranged

to yield in one direction, substantially as described.

4. A propelling mechanism for vessels, comprising two swinging paddle-frames located one in advance of the other at the sides of the vessel and so connected that their adjacent ends will move up and down in unison, and transverse paddles pivoted to said frames and adapted to abut against stops thereon, substantially as described.

5. The combination of the swinging paddle-frames, located one in advance of the other at the sides of the vessel, the transversely-swinging walking-beam arranged between the swinging frames and connected to the adjacent ends thereof, and the transverse paddles pivoted to the said frames substantially as described.

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Witnesses:

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