(No Model.) 2 Sheets—Sheet 1.

T. O'BRIEN.

PROPELLER.

No. 502,910. Patented Aug. 8, 1893.

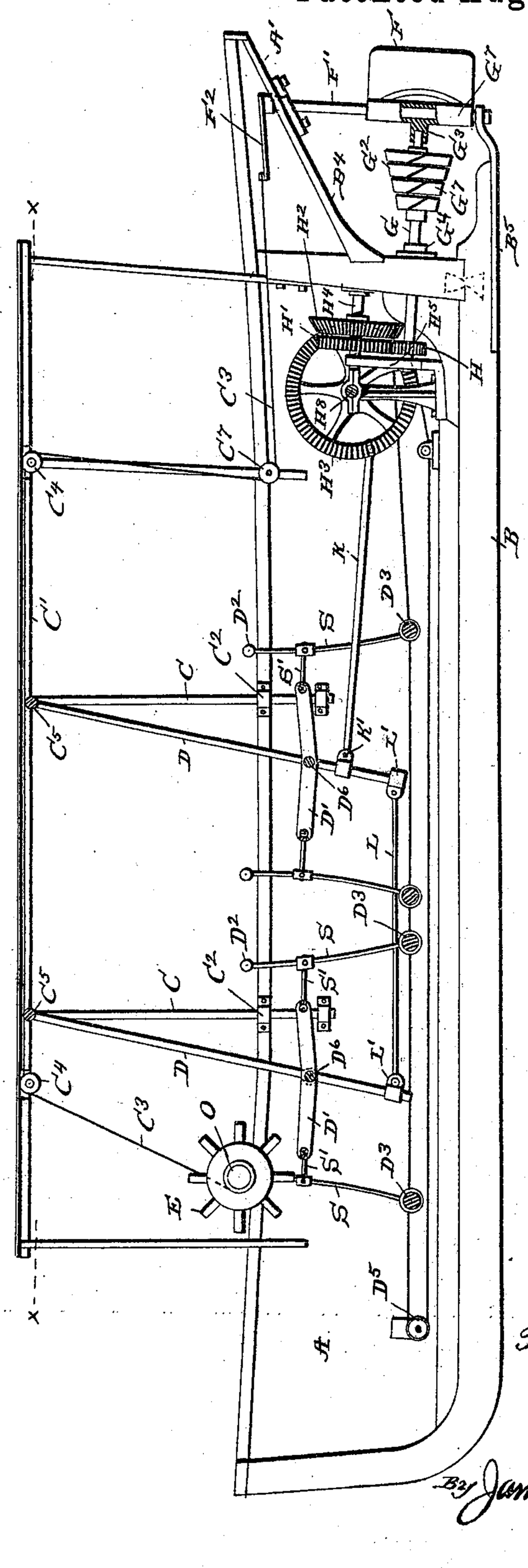

Fig. 1.

Witnesses:
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W. F. Matthews.

Inventor
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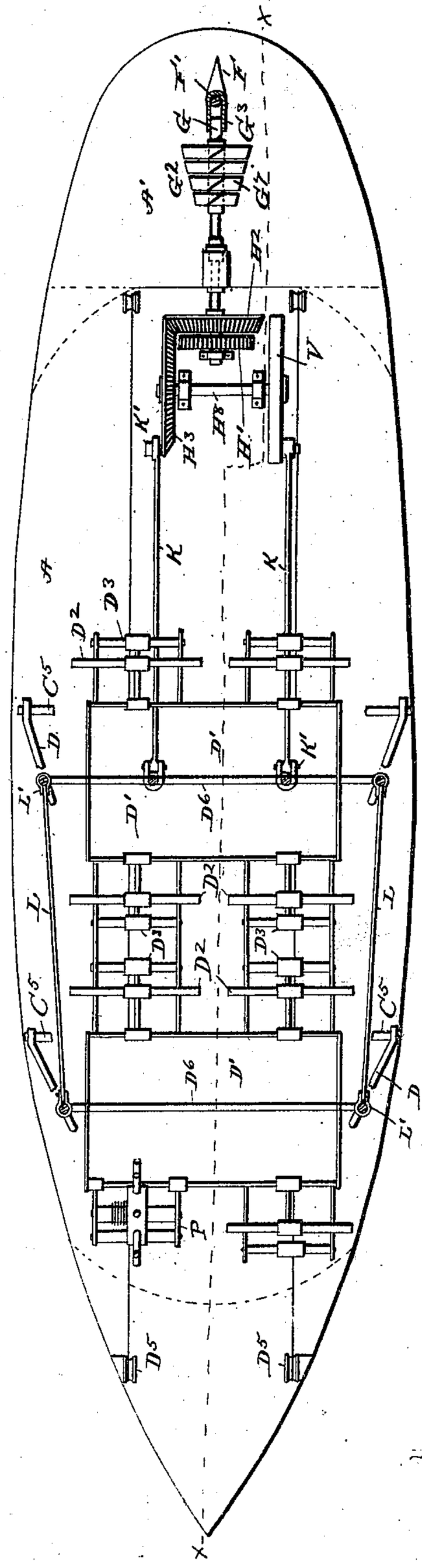

Fig. 2.

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UNITED STATES PATENT OFFICE.

THOMAS O'BRIEN, OF NEW YORK, N. Y.

PROPELLER.

SPECIFICATION forming part of Letters Patent No. 502,910, dated August 8, 1893.

Application filed August 23, 1892. Serial No. 443,855. (No model.)

To all whom it may concern:

Be it known that I, THOMAS O'BRIEN, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Propellers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in boats, and it has for its general object to provide a boat with a series of movable seats, and utilize the motion of said seats to drive a screw and propel the boat.

Other objects and advantages will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1, is a vertical, longitudinal section taken in the plane indicated by the line *x*, *x*, of Fig. 2. Fig. 2, is a horizontal section taken in the plane indicated by the line *x*, *x*, of Fig. 1, looking downwardly.

In the said drawings, similar letters designate corresponding parts in both views, referring to which—

A, indicates the boat which is provided with a long overhanging stern A′, to afford space for the propeller, and with a deep keel B, adapted to render the boat more steady and thereby reduce lateral movement, and consequent frictional wear of the swinging seats presently to be described.

Journaled in suitable bearings in the stern counter B^4, and the plate B^5, extending rearwardly from the heel of the keel is the rudder post F′, to which the rudder F, is connected in any suitable manner. This rudder post F′, is provided at a suitable point in its length, preferably as shown, with a loose sleeve G′, which has a forwardly extending branch G^3, in which is journaled the rear end of the propeller shaft G.

Fixedly mounted upon the forward end of the shaft G, which extends through the stern of the boat and is journaled in the bearings G^4, H^5, is a pinion H, which meshes with a gear wheel H′, fixed on a shaft H^4, as shown. This shaft H^4, also carries a beveled gear wheel H^2, which meshes with a large beveled gear wheel H^3, fixed on the transversely disposed drive shaft H^8. Also fixed upon the drive shaft H^8, is a crank wheel V, (illustrated in Fig. 2;) and to this crank wheel V, and the gear wheel H^3, is connected the machinery for rotating the propeller G^2, which machinery will be presently described.

The propeller G^2 that I prefer to employ in conjunction with my improvements, comprises a series of screws G^7, which are suitably fixed upon the shaft G, and increase in size gradually as they recede from the stern of the boat so that the small forward screw will reduce the resistance to the second screw and so on, whereby it will be seen that less power will be required to rotate the propeller which is a highly important desideratum. The blades of the screws G^7, are pitched at an approximate acute angle with respect to the shaft, as illustrated, and their ends are beveled inwardly and forwardly as shown by reason of which they will take into the water as a wedge and the resistance to the propeller will thereby be further reduced.

Suitably secured to the sides of the boat by straps C^2, or the like, and rising therefrom, are a series of stanchions C, upon which is mounted a roof C′, which is provided with suitable friction pulleys C^4, for the passage of the rudder chain C^3. This rudder chain C^3, which is connected to the tiller F^2, in the ordinary manner, takes around pulleys C^7, and over the pulleys C^4, and is wound upon the rotary drum O, as shown. This drum O, which is journaled in suitable bearings P, is provided with a hand wheel E, whereby it may be readily rotated to change the course of the boat when desired.

Extending transversely of the roof C′, and preferably connecting the upper ends of the stanchions C, as shown, are cross beams C^5, to which are pivotally connected the swinging hangers D, of the seats D′. Each pair of swinging hangers D, are connected, at about the point illustrated, by the cross bars D^6, upon which the seats D′, for the passengers are mounted, and the hangers on each side of the boat are connected by rods L, attached to the hangers by clips as L′, so that the movements of the seats and hangers will be simultaneous.

Taking around suitable pulleys D^5, arranged adjacent to the sides and ends of the

boat and at the bottom thereof, are endless fulcrum or purchase chains to which the foot pieces D^3, are connected, as better illustrated in Fig. 2, of the drawings. These foot pieces D^3, of which four are preferably employed to each seat capable of seating four passengers, are respectively provided with an upwardly extending lever S, having a transverse hand piece D^2, at its upper end for the grasp of the passengers. Each of the levers S, is connected to its respective seat by a link S′, which is pivotally connected in a suitable manner to both the lever and seat so as to allow the levers and seats to swing in the manner presently set forth.

Flexibly connected by clips as L′, or otherwise, to the rear hangers D, are pitmen K, which are pivotally connected at their opposite ends to crank pins K′, on the wheels H^3, V, respectively, so that when the seats are swung, the wheels will be rotated and the propeller will be set in motion.

In operation, the passengers upon the seats D′, cause the same to swing in the well known manner; and this swinging motion is converted into rotary motion through the medium of the mechanism set forth, to rotate the propeller and propel the boat. Thus it will be readily perceived that the boat may be propelled with but little exertion, and the occupants may enjoy the additional pleasure of swinging.

It will be seen from the foregoing description that the seats D′, swing in the direction of the length of the boat. This is advantageous for the reason that the seats may have a long movement, and consequently a large crank wheel H^3, may be employed and a great leverage exercised, which is an important desideratum.

Although I have in some respects, specifically described the construction and relative arrangement of the several elements of my improved boat, I do not desire to be confined to such specific construction and arrangement, as such changes or modifications may be made as fairly fall within the scope of my invention.

Having described my invention, what I claim is—

1. In a boat, the combination with a rotary propeller, of a pendent seat hung from a suitable support and having a swinging movement in the direction of the length of the boat, and mechanism intermediate of the seat and the propeller, such mechanism being adapted to convert the swinging motion of the seat into rotary motion of the propeller shaft, substantially as specified.

2. In a boat, substantially as described, the combination with a rotary propeller; of a series of swinging seats; means for connecting the seats so that they will move together, an endless fulcrum or purchase chain; the levers connected to the chain and with the seats, and mechanism intermediate of the seats and the propeller, adapted to convert the oscillatory motion of the seats into rotary motion of the propeller shaft, substantially as and the purpose set forth.

3. In a boat, substantially as described, the combination with a rotary propeller; of the seats, the hangers suspending the seats, the rods connecting the hangers of the seats, the endless fulcrum or purchase chains, the foot rests connected to said chains, the levers connected to the foot rests, the links connecting said levers to the seats, and mechanism intermediate the seats and the propeller adapted to convert the oscillatory motion of the former into rotary motion of the latter substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS O'BRIEN.

Witnesses:

CHAS. F. L. JUDESBERG,

EUGENE SWEENEY.