

No. 675,929.

Patented June 11, 1901.

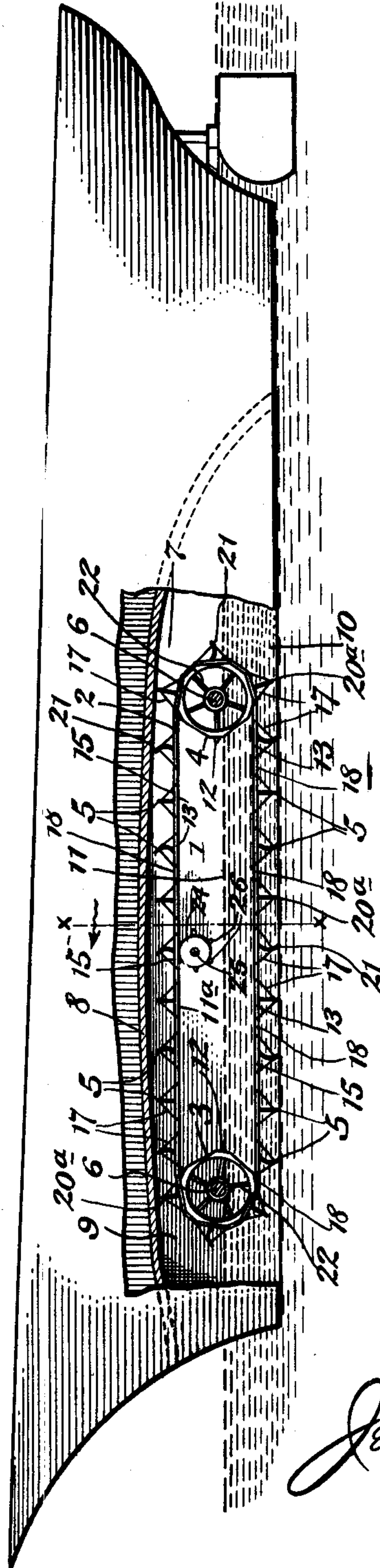
J. D. BROWN.
MARINE PROPELLER.

(Application filed Feb. 2, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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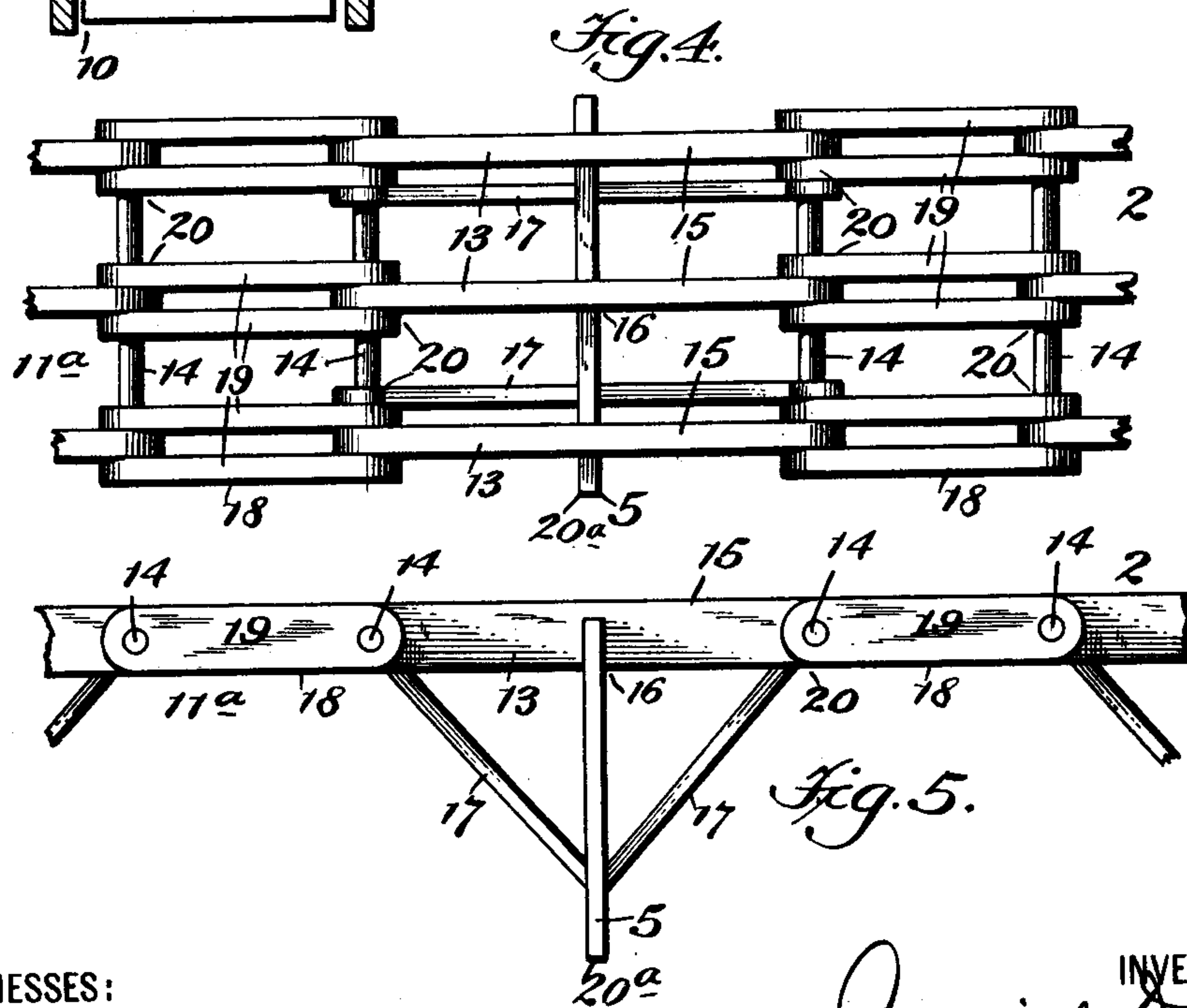
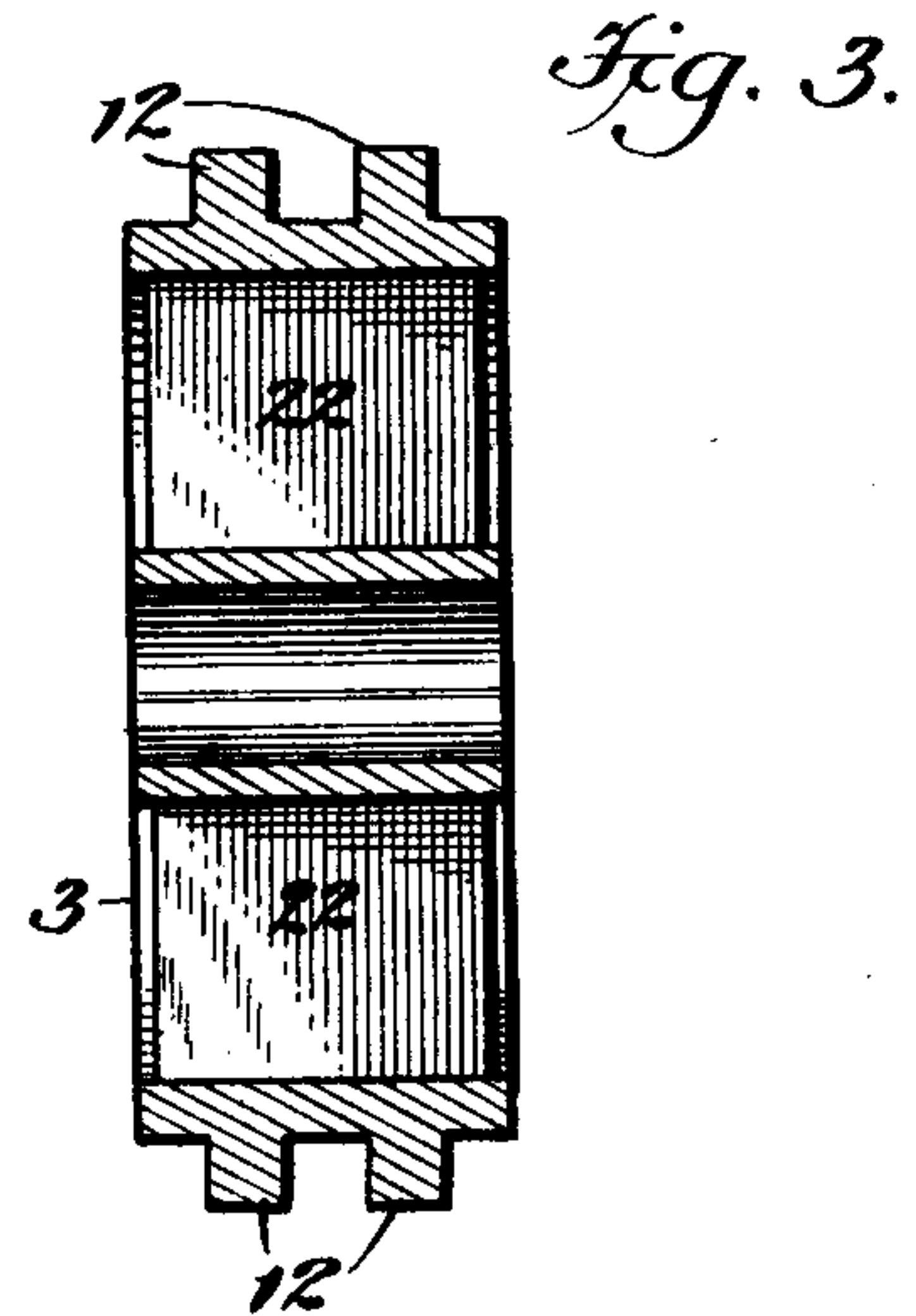
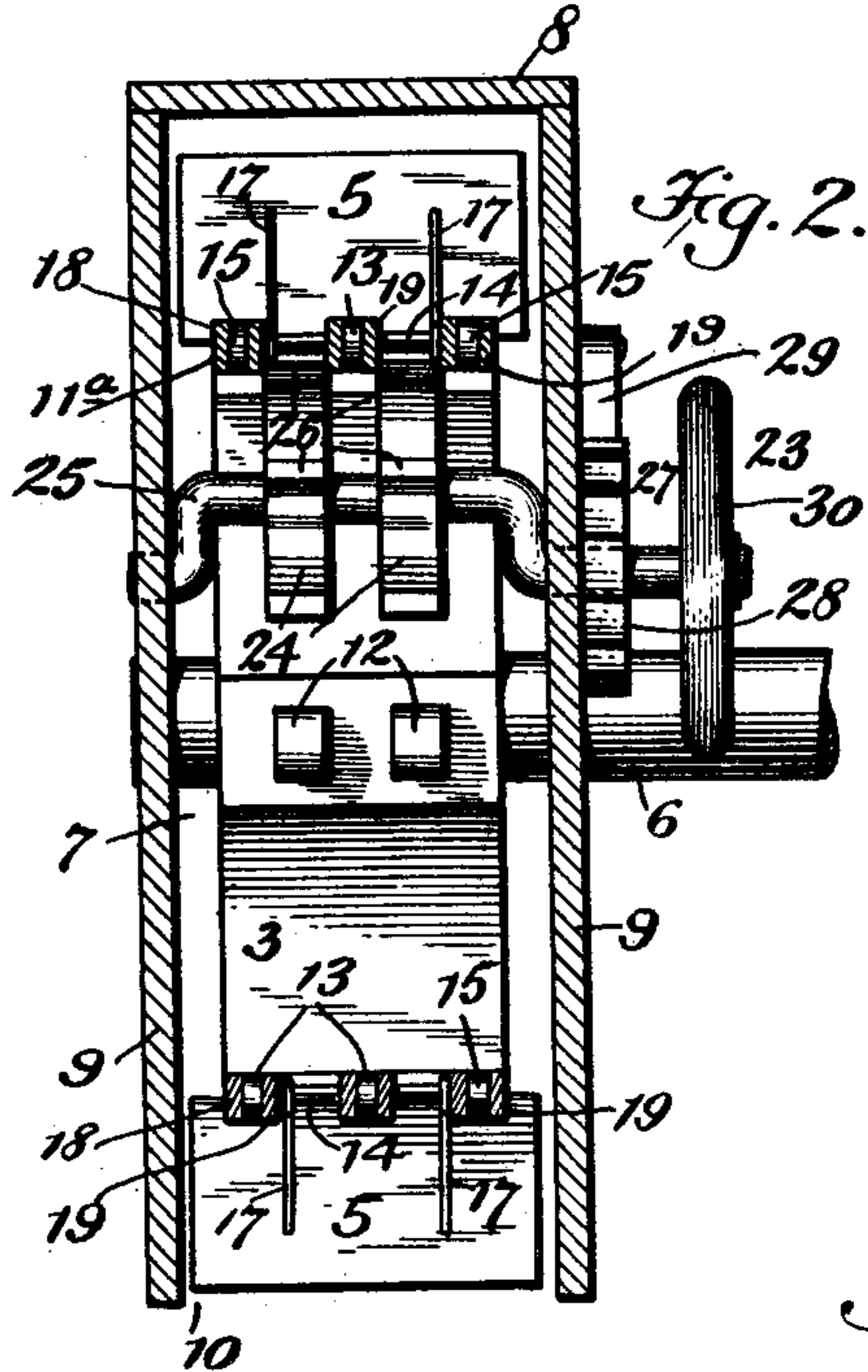
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2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JEREMIAH DUNN BROWN, OF PLAINFIELD, NEW JERSEY.

MARINE PROPELLER.

SPECIFICATION forming part of Letters Patent No. 675,929, dated June 11, 1901.

Application filed February 2, 1901. Serial No. 45,674. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH DUNN BROWN, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Marine Propulsion, of which the following is a specification.

This invention relates to marine propellers; and it has for its object to provide an improved mechanism of this class which shall be superior in point of resultant speed, positiveness of operation, and general efficiency.

In carrying out my invention I provide an endless chain or paddle-carrier upon which the paddles are mounted and which travels over sprocket-wheels, which are arranged so that the paddles travel through the water in one phase of the movement of the endless chain or carrier and travel above the water in the return phase of the movement. The sprocket-wheels are actuated by a beam-engine or by any adapted motor. The sprocket-wheels which carry the endless carrier are also provided with paddles, which are arranged radially of the same with respect to the spokes.

In the drawings, Figure 1 is a side elevation of the hull of a ship, the hull being broken away at the side to disclose the improved propeller, which is mounted in a suitable compartment in the longitudinal center of the ship. Fig. 2 is a detail transverse sectional view taken through the propeller-compartment upon the line *x x*, Fig. 1. Fig. 3 is a detail diametrical sectional view of one of the sprocket-wheels. Fig. 4 is a detail plan view of a portion of the endless paddle-carrier. Fig. 5 is a detail side view of the same.

Corresponding parts in all the figures are denoted by the same reference characters.

1 designates my improved propeller, which comprises an endless chain or paddle-carrier 2, which is mounted operatively upon sprocket-wheels 3 and 4, respectively. Upon the endless carrier 2 are mounted a plurality of paddles 5, which in the operation of the propeller are brought to bear in motion upon the body of the water. The sprocket-wheels are arranged with their axes or shafts 6 above the level of the surface of the water, and one or both of the same may be actuated by the customary beam-engine or any other suitable motive means. The propeller 1 may be

arranged at any suitable point with respect to the hull of the boat; but the preferable arrangement is that illustrated in the drawings, in which the propeller is shown as mounted within a propeller-compartment 7, which is formed in the longitudinal center of the hull of the ship and preferably at the bow of the same. This compartment is provided with a closed top 8 and with closed sides 9 and opens at the bottom, as at 10, through the keel of the ship, so that the water may rise in the compartment to a level, as at 11, slightly below the shafts 6 of the sprocket-wheel. The dimensions of the compartment and of the sprocket-wheels may be such that the endless carrier and the paddles are entirely housed within the compartment, as illustrated, and it is also manifest that if desired the paddles may project beneath the level of the keel of the ship. The sprocket-wheels 3 and 4 are thus arranged in the central longitudinal plane of the ship, and the carrier thus operates in the same plane and imparts its produced energy to the direct propulsion of the boat.

In the preferred form of construction the paddle-carrier 1 consists of a sprocket-chain 11^a, with the alternate links of which the paddles 5 are connected. The sprocket-chain 11^a is preferably of double formation, and the sprocket-wheels 3 and 4 are provided each with two series of teeth 12, which take into the links of the double sprocket-chain. The links 13, which carry the paddles 5, comprise link-pins 14 and three longitudinal link-pieces 15, which are connected at their ends with the link-pins 14. The paddle 5 of each link 13 is connected at one edge, as at 16, with the link-pieces 15 and extends transversely of the link, intermediate of the link-pins 14. Suitable brace-pieces 17 extend between the link-pins 14 and the lower edge portions of the paddles and prevent buckling and loosening of the same under the operative strain imposed upon the paddles. The links 18, which are arranged intermediate of the links 13, consist of link-pieces 19, which are connected with the link-pins of the links 13 and are arranged in three pairs, the link-pieces 19 of the respective pairs embracing the ends of the link-pieces 15 of the links 13, as at 20, and having a pivotal connection with said link-pins. By means of

the links 18 the sprocket-chain is free to pass about the sprocket-wheels, the links 13 being rigid, and the teeth 12 of the sprocket-wheels engage with the link-pins 14, passing between the same and the link-pieces 19 of the links 18.

The paddles 5 preferably consist of straight or plain paddles 20^a and curved paddles 21, the curved paddles operating more effectively upon the water and the straight or plain paddles enabling the movement of the boat to be reversed by "back-paddling."

The sprocket-wheels 3 and 4 are preferably provided with laterally-broad spokes 22, which serve as paddles to supplement the operation of the paddles 5.

23 designates chain-adjusting means whereby the chain may be tightened or loosened, as desired, and said chain-adjusting means consists, in the preferred form of construction, of a double sprocket-wheel 24, which is mounted upon a crank-shaft 25, arranged transversely of the compartment 7, beneath the upper portion of the endless chain. The double sprocket-wheel 24 is provided with two series of sprocket-teeth 26, which take into the links 18 of the endless chain. One end of the crank-shaft 25 is provided within the boat and exteriorly of the compartment 9 with locking means 27, and said locking means may consist of a ratchet-disk 28 and a suitable pawl 29, arranged for operation in connection with the same. The crank-shaft 25 may be provided at one end with an operating-wheel 30, whereby the sprocket-wheel 24 may be raised or lowered to tighten the endless chain 2.

The operation and advantages of my improved propeller will be readily understood by those skilled in the art to which it appertains. The endless chain or carrier 2 is moved longitudinally of the ship by the sprocket-wheels 3 and 4, upon which it is supported, and the said chain in its lower and rearward phase of movement brings the paddles 5 to bear upon the water in or beneath the compartment 7 and forces the boat forwardly with enhanced speed. The combined bearing-surfaces of the paddles 5 which are at any one time in contact with the water are relatively greater than the bearing-surfaces of the paddles of the ordinary paddle-wheel, and the results obtained are therefore relatively

superior in point of speed of the ship and positiveness of operation.

By means of the adjusting means 23 the chain may be kept at all times tight and in perfect operative condition. The paddles 22, which comprise the spokes of the sprocket-wheels 3 and 4, assist materially in the propulsion of the boat. The curved form of the paddles 21 causes a relatively increased positiveness of operation and the straight or plain paddles 20 permit of positive back-paddling. The braced relation of the paddles and the endless chain, resulting from the arrangement of the braces 17, gives the whole propeller construction a rigidity and positiveness of operation not otherwise attained.

I do not desire to be understood as limiting myself to the details of construction and arrangement as herein described and illustrated, as it is manifest that variations and modifications may be made in the features of construction and arrangement and in the adaptation of the device to various conditions of use without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variations and modifications as properly fall within the scope of my invention and the terms of the following claims.

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

1. An improved marine propeller, comprising a suitably-supported endless carrier provided with alternately-arranged curved and plain paddles.

2. An improved marine propeller, comprising a suitably-supported endless carrier and paddles mounted upon the same, said endless carrier consisting of a sprocket-chain supported upon sprocket-wheels, the paddles being connected with the links of the sprocket-chain, and the sprocket-wheels being provided with interior radially-arranged supplemental paddles.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

JEREMIAH DUNN BROWN.

Witnesses:

GEORGE BALL,
WILLIAM R. MATTOX.