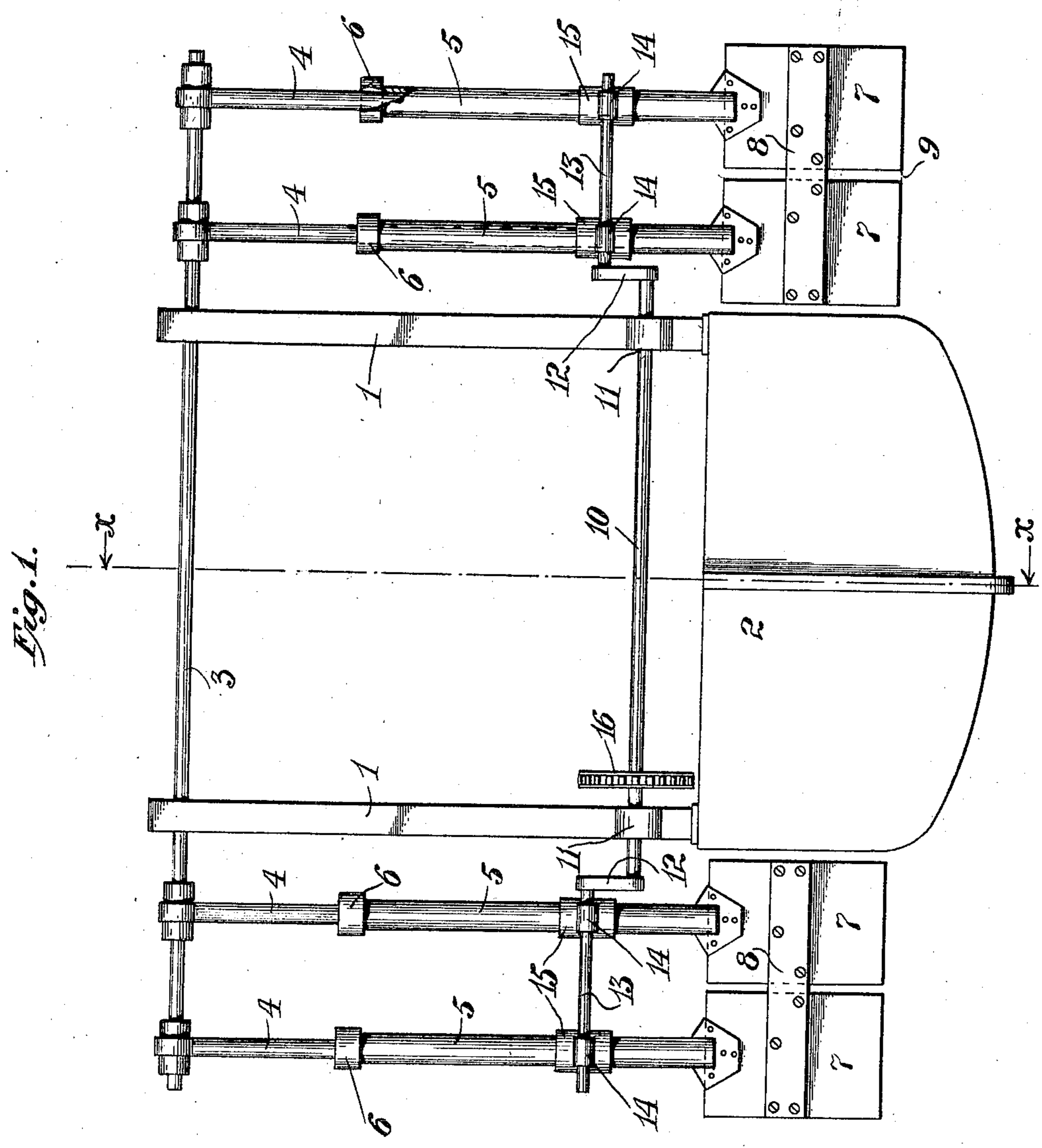


W. ARNOLD.
BOAT PROPELLING DEVICE.
APPLICATION FILED OCT. 31, 1910.

998,593.

Patented July 25, 1911.
2 SHEETS—SHEET 1.



Attest:
Raymond Richardson
Raymond Richardson

W. Arnold Inventor:
by *Dean F. Green* Att'y

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Fig. 2.

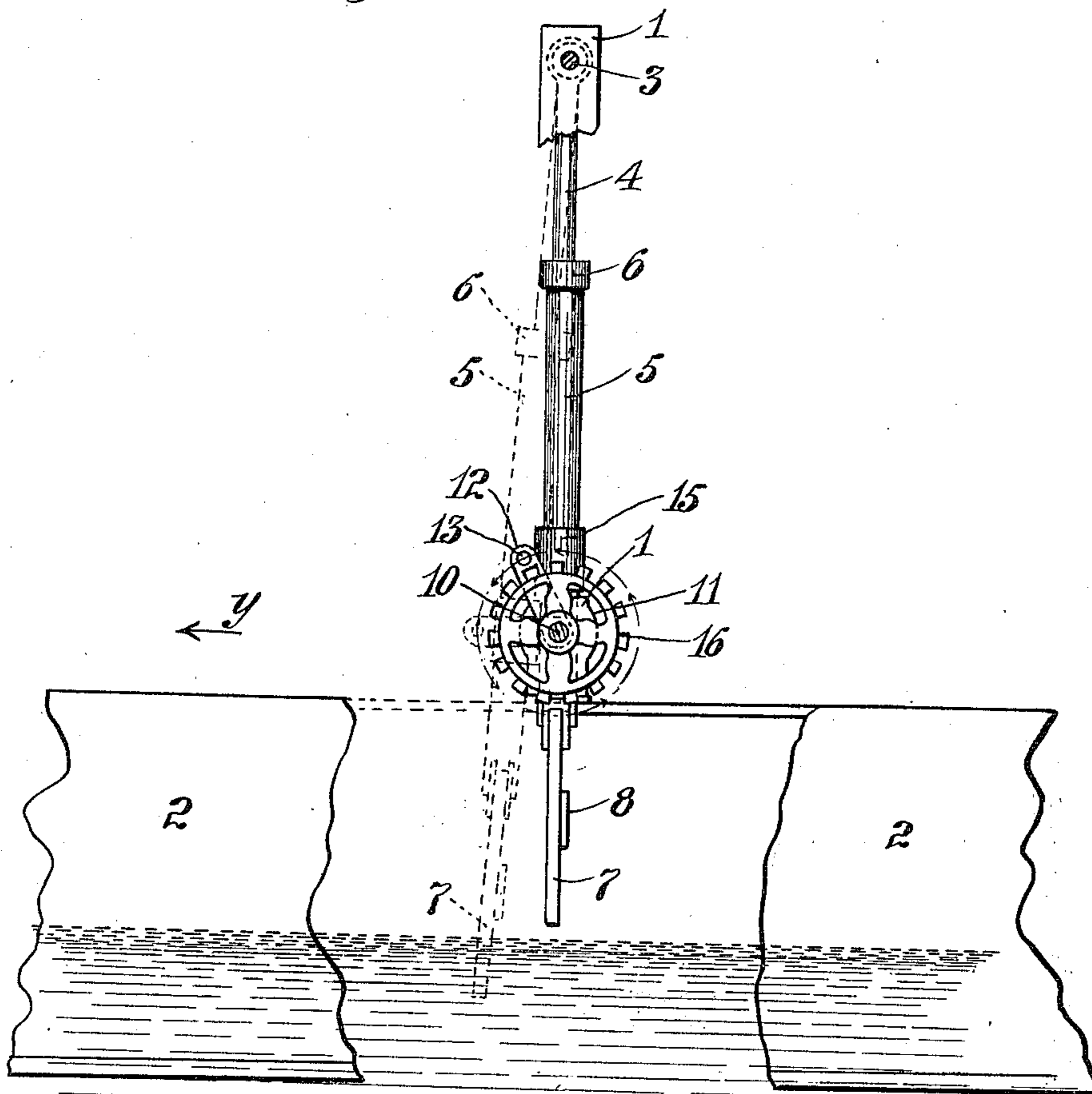
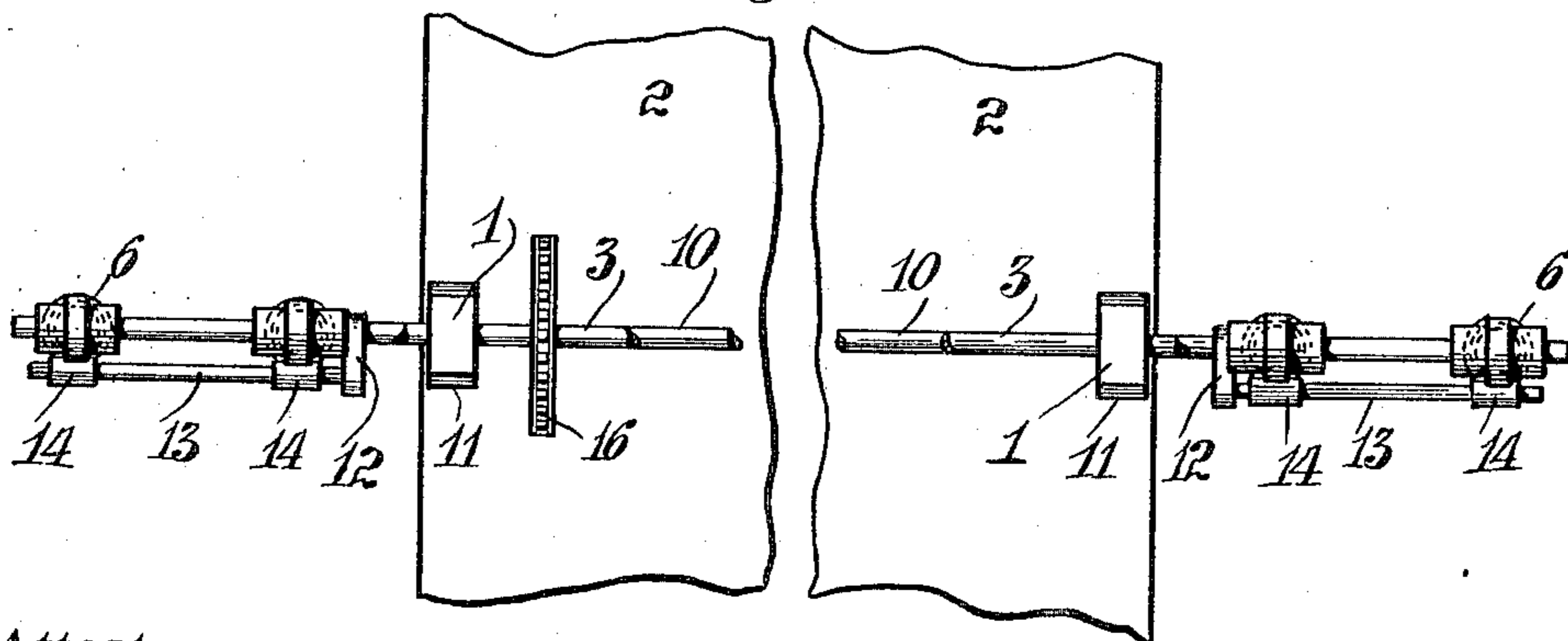


Fig. 3.



Attest:
Comptroller
Raymond Richardson

Witnessed Inventor:
by *Heart. F. Smith* Atty.

UNITED STATES PATENT OFFICE.

WHITING ARNOLD, OF MANDARIN, FLORIDA.

BOAT-PROPELLING DEVICE.

998,593.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed October 31, 1910. Serial No. 589,869.

To all whom it may concern:

Be it known that I, WHITING ARNOLD, a citizen of the United States, and a resident of Mandarin, in the county of Duval and State of Florida, have invented certain new and useful Improvements in Boat-Propelling Devices, of which the following is a specification.

The object of my invention is to provide a new and improved boat propelling device which is simple in construction, permits of driving the vessel at comparatively high speed without requiring any undue power, can easily be applied on any existing vessel and can be used in vessels of any draft, thus adapting it particularly for use on vessels which are to be used in very shallow waters.

In the accompanying drawings in which like letters of reference indicate like parts in all the figures: Figure 1 is an elevation of a vessel provided with my improved propelling device. Fig. 2 is a vertical sectional view on the line $x-x$ of Fig. 1, parts being broken away. Fig. 3 is a plan view parts being broken away.

Standards 1 of any suitable shape or construction are erected on the vessel 2 and in their upper ends a horizontal shaft 3 is secured, which projects beyond the vertical planes of the sides of the vessel. On this shaft 3 a series of rods 4 are suitably mounted to swing in the manner of a pendulum and each rod 4 passes into the upper end of a tubular rod 5 provided with its upper end with an enlargement, forming a lubricant receptacle. To the lower end of each tubular rod 5 a paddle 7 is secured which paddles are thus located at the sides of the vessel. The two adjacent paddles on the said side of the vessel may be united by a blade 8 or a single paddle of the combined width of the paddles 7 and 8 may be attached to the lower ends of the two tubular rods 5 at the same side of the vessel indicated at 9. A horizontal driving shaft 10 is suitably mounted in bearings 11, which shaft extends transversely to the length of the vessel and is provided at each end with a crank 12 from which a crank pin 13 extends laterally and each crank pin 13 extends through a suitable bearing 14 on a sleeve 15 secured on the tubular rod 5. As shown the same crank pin 13 passes through the bearings 14 of the two tubular rods 5 at the same side of the vessel and it is, of course, to be understood that when there is

only one paddle 7 and only one tubular rod 5 at each side of the vessel the crank pin can be made shorter and if there is a greater number of paddles than two, the crank pin can be made longer.

If but a single tubular rod 5 with a paddle thereon is used at each side of the vessel, there is a tendency of the paddle to tilt or turn, but if the two paddles are united, as shown by the blade 8, or when two tubular rods 5 are attached to one paddle, such turning or twisting is avoided and friction reduced. The shaft 10 is provided with a sprocket wheel 16 by means of which the shaft can be rotated. I have shown the cranks 12 extending in the same direction, but they may be offset 45 or 90 degrees. As the crank pins 13 rotate they cause the bearings 14 to participate in their rotary movements and this causes the tubular rods 5 to slide up and down on the pendulous rods 4, which swing on the shaft 3 in the manner indicated by dotted lines, Fig. 2. As the tubular rods 5 slide up and down on the pendulous rods 4 the moving parts are lubricated by the lubricant in the cups 6 and thus the friction reduced to a minimum. The pendulous rods 4 only swing and do not move up and down and their weight is carried by the shaft 3 thus imposing no additional weight upon the crank shaft.

As the crank pins revolve in the direction indicated by the arrow, the paddles are moved forward then immersed in the water, then moved backward and upward and so on, thereby propelling the boat in the direction of the arrow y in Fig. 2.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination with a floating vessel, of a driving crank shaft, standards on the vessel, a shaft on said standards, a rod mounted to swing on said shaft, a tubular rod mounted on said swinging rod to participate in the swinging movement and to slide up and down on said rod inserted loosely in the tubular rod, said tubular rod having bearings for receiving a crank pin and a paddle secured to the lower end of the tubular rod, substantially as set forth.

2. The combination with a floating vessel, of a crank shaft, a pendulous rod mounted on the vessel, a tubular rod mounted to swing with and to slide on said pendulous rod, a bearing for a crank pin, on said tubu-

lar rod, a paddle on the tubular rod and a lubricant receptacle formed on the upper end of the tubular rod, substantially as set forth.

- 6 3. The combination with a floating vessel, of a crank shaft on the vessel, a fixed shaft above the crank shaft, a plurality of pendulous rods mounted on the fixed shaft at each side of the vessel, a tubular rod mounted to
10 slide on each pendulous rod, the pendulous rods extending loosely into the tubular rods, a paddle on the lower end of each tubular rod, a bearing for a crank pin on each

tubular rod, a crank pin on each crank of the crank shaft, which crank pin passes 15 through the bearings on a plurality of tubular rods on the same side of the vessel, and paddles on the lower ends of the tubular rods, substantially as set forth.

Signed at New York in the county of New 20 York and State of N. Y.

WHITING ARNOLD.

Witnesses:

W. H. H. YOUNG,
C. F. ROSS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."