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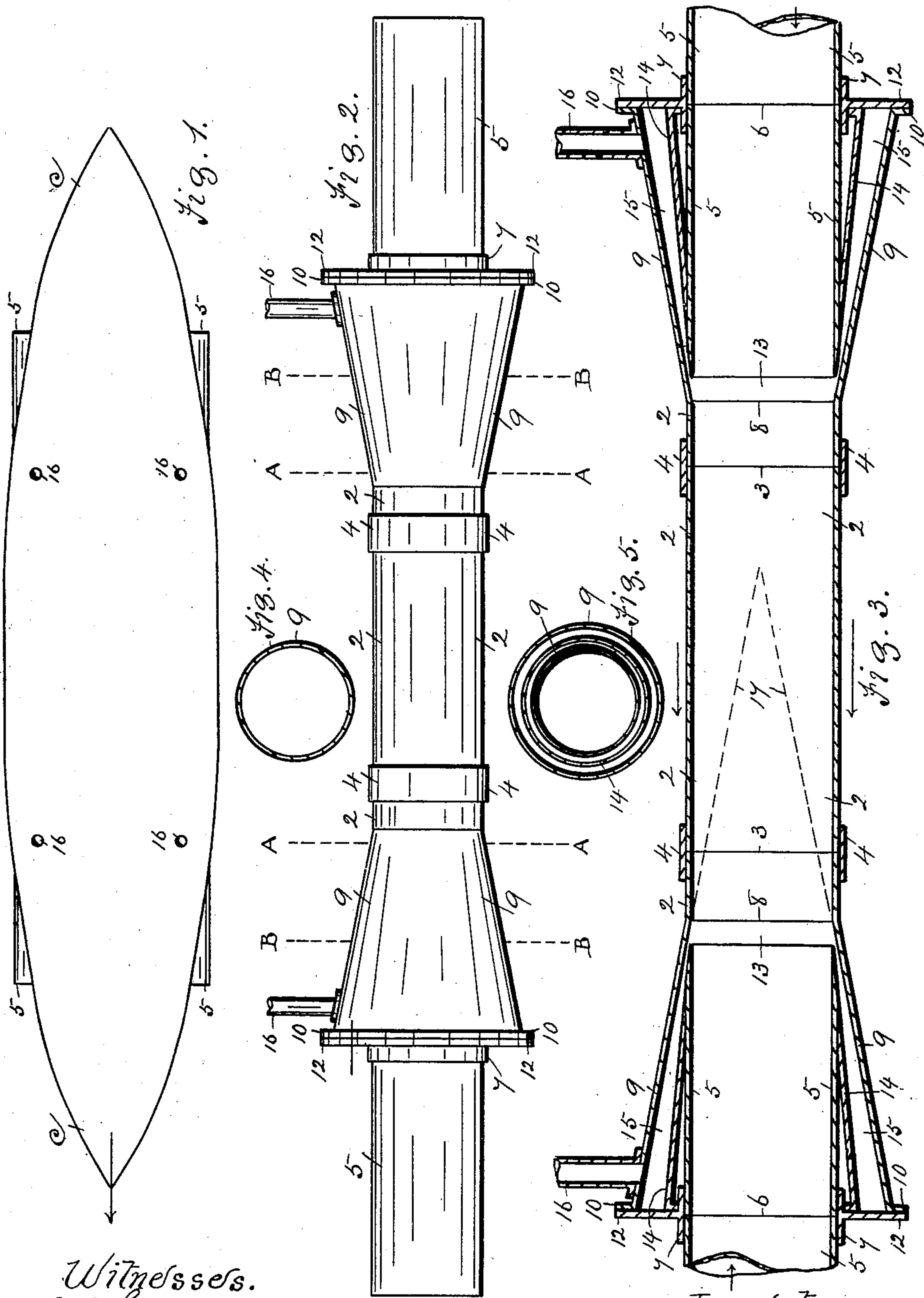
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HYDRAULIC PROPELLER FOR VESSELS.

APPLICATION FILED JULY 31, 1903.

NO MODEL.



Witnesses.
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HYDRAULIC PROPELLER FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 749,427, dated January 12, 1904.

Application filed July 31, 1903. Serial No. 167,687. (No model.)

To all whom it may concern:

Be it known that I, JOB DUDLEY, a citizen of Canada, residing at Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented new and useful Improvements in Hydraulic Propellers for Vessels, of which the following is a specification.

My invention relates to improvements in propellers for vessels in which a longitudinal tube with open ends and of suitable size and construction is rigidly secured in a vessel and extending from a fore part to a rear part thereof and adapted to admit sea-water at both ends and of admitting a pressure-stream of water to engage with said sea-water; and the objects of my invention are, first, to provide a vessel or boat with a longitudinal tube the ends of which are submerged to receive sea-water and means to engage said sea-water to propel the vessel; second, to provide means in a vessel to propel the same in either direction; third, to provide means in a vessel to propel the same in either direction and to change the position of the vessel from stern to stern in its own length of sea-water, and, fourth, to afford facilities for stopping the vessel in a minimum space of time. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan of a vessel or boat showing the end parts of two longitudinal tubes protruding through the end parts of the vessel and submerged. Fig. 2 is an enlarged elevation of the tube as it appears detached from the vessel and showing the water-inlet pipes on the enlarged parts of the tube. Fig. 3 is an enlarged sectional elevation of the tube, the two ends of which are broken and proportionate in size and construction to the tube shown in Fig. 2 of the drawings. This view, Fig. 3, shows the water-inlet pipes and also the annular water-inlets into the parallel part of the tube. Fig. 4 is a sectional end elevation of the tube through the broken vertical line A A of Fig. 2 of the drawings, and Fig. 5 is a sectional end elevation of the enlarged part of the tube through the broken vertical line B B of Fig. 2 of the drawings.

Similar characters refer to similar parts throughout the several views.

In the drawings the vessel or boat is indicated by C and is one of various designs which might be shown.

The longitudinal tube 2 may be made of several lengths or sections comprising the same, according to the length of the vessel. For instance, the joints of the tube are represented by lines 3 and 3 and are provided with collars 4 and 4, respectively. The collars 4 and 4 are secured to the tube 2, making the same continuous. The end tubes 5 are joined together at the lines 6 and 6 and are provided with collars 7 and 7, respectively. The collars 7 and 7 are respectively secured to the tubes 5, making the same one continuous tube.

The end parts 9 of the tube 2 gradually flare outward and enlarge in diameter from the lines 8 and 8 of said tube to the outer ends thereof, thereby forming a gradual taper from said ends to the said lines 8.

Both end parts of the tube 2, comprising the gradual enlargements 9 thereof, together with the tubes 5 and the other connected parts, are identical in position and construction. Therefore I deem it advisable to continue to describe one end part only to fully comprehend the same.

The gradual enlarged end 9 of the tube 2 is formed with a flange 10, which is secured to the annular mid-flange 12 of the collar 7. 13 is an annular opening formed between the line 8 or commencement of the gradual enlarged part 9 of the tube 2 and the inner end of the tubes 5. The annular opening 13 admits an annular stream of water from the chamber 15 into the parallel part of the tube 2 to engage with the sea-water in said tube. Between the end part 9 of the tube 2 and the tube 5 is an annular diaphragm 14, one end of which is secured to the annular flange 12 of the collar 7, and the opposite end of said diaphragm fits around the tube 5 to form a tapered annular water-chamber 15, which tapers gradually from the end wall or flange 12 toward the inner end of the tube 5 or to the annular opening 13. It will be noticed that the

annular and outer wall 9 and the annular inner wall 14, comprising the water-chamber 15, are larger in diameter at their outer end than at their inner end or opening 13.

5 A water pipe or tube 16 is secured on the enlarged part 9 of the tube 2 and in proximity to the outer end thereof to communicate with the larger part of the water-chamber 15. The diaphragm 14 of the chamber 15 allows a proper
10 working taper to the chamber 15 and very materially strengthens the tube 5 in the vicinity of the chamber, and especially the end part of the tube 5 at the opening 13. The broken lines 17 in the tube 2 show the conical
15 form and direction of the water from the chamber 15 into the tube 2. The water from the chamber 15 enters the tube 2 in an annular plug form and forces itself into the sea-water which flows into said tube through its
20 open ends. The annular stream of water through the opening 13 when engaging with the sea-water in the tube 2 forces the sea-water in said tube toward the rear or right-hand end of the drawings, and consequently the ves-
25 sel is propelled forward in the opposite direction.

The operation of the device is as follows: In order to propel the vessel or boat, the outer ends of the tubes 5—that is, both ends of the
30 device—are submerged, and therefore in communication with the sea-water, and consequently the continuation of the device comprising the tubes 2 and 5 is filled with the sea-water. Pressure-water is admitted to the
35 chamber 15 by means of the connected tube 16, as indicated by arrow. The chamber 15 at this time is filled with pressure-water, which finds an outlet through the opening 13 and into the tube 2 in the form as indicated
40 by the broken lines 17. The water from the chamber 15 engages the sea-water in the tube 2 and forces the sea-water toward the rear or right-hand part shown on the drawings, and consequently the vessel, together with the
45 tubing or propelling device, is propelled toward the left-hand, as indicated by arrows. The opposite and similar right-hand end part of the device is similar and used to propel the vessel in an opposite direction—that is, to
50 propel the vessel toward the right hand, both end parts of the device being similar and for a similar purpose and used only one at a time.

A vessel may be supplied with the device duplicated—that is, one at each side of the ves-

sel, as shown in Fig. 1 of the drawings. This 55 is the most advantageous manner, especially for speed and for turning purposes.

Various changes in the form, proportion, and minor details of my invention may be resorted to without departing from the spirit and scope 60 thereof.

Hence what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hydraulic propeller for vessels, a stationary tube with open ends enlarged and 65 tapering to the tube, a secondary tube with open ends, one said end open to the sea, and the opposite said end inserted in said tapering end of the stationary tube, an annular flange secured to the inner tube and to the enlarged 70 end of the stationary tube, an annular diaphragm between the tubes, to form an outer tapering water-chamber, an annular opening formed at the tapered end of the chamber into the stationary tube, and means to admit pres- 75 sure-water into said water-chamber, substantially as set forth.

2. In a hydraulic propeller for vessels, a stationary tube having open ends, an annular chamber around a forward part of the tube 80 and tapering toward the stern of the vessel to the tube, an annular diaphragm in the chamber and tapering toward the stern of the vessel, an annular opening formed in the tapered end of the chamber and communicating with 85 the tube, and means to admit pressure-water into said chamber, substantially as set forth.

3. In a hydraulic propeller for vessels, a stationary tube with open ends, enlarged and tapering to flush position with the tube, a 90 secondary tube with open ends, one said end inserted in the tapering end of the stationary tube and the opposite said end submerged in the sea, an annular flange secured to the secondary tube and to the enlarged end of the 95 stationary tube, an annular opening formed between the inserted end of the inserted tube and the stationary tube, an annular flange secured to the inserted tube and to the enlarged end of the stationary tube to form a water- 100 chamber between said tubes, and means to admit pressure-water in the larger part of said chamber, substantially as set forth.

Hamilton, Ontario, July 27, 1903.

JOB DUDLEY.

In presence of—

JOHN H. HENDRY,
W. S. McBRAYNE.