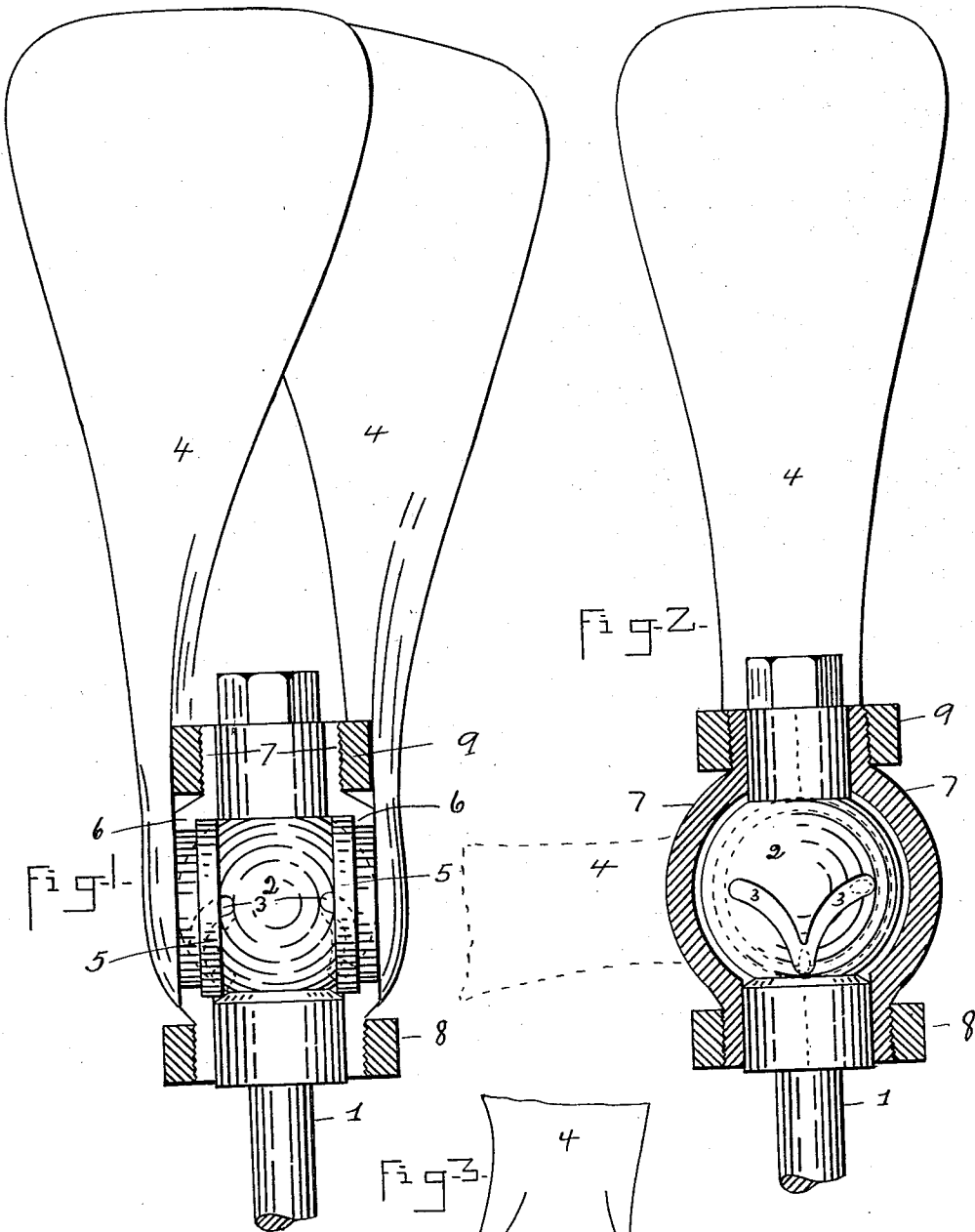


M. D. THOMPSON.
PROPELLER.
APPLICATION FILED JULY 15, 1909.

Patented Oct. 26, 1909.

938,291.



WITNESSES -

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PROPELLER.

938,291.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MILTON D. THOMPSON, a citizen of the United States, and residing at South Portland, in the county of Cumberland and State of Maine, have invented new and useful Improvements in Propellers, of which the following is a specification.

My invention relates to improvements in propellers and more particularly to propellers capable of being made to assume both operative and inoperative positions and in operative position such as are adapted to propel a vessel both forward and backward.

In the drawing herewith accompanying and making part of this application, Figure 1 is a longitudinal sectional view partly in elevation, one of the clamp members being removed: Fig. 2 is a sectional view taken on a line at right angles to that shown in Fig. 1 and Fig. 3 is an inside plan view of a portion of the propeller blade.

Same reference characters indicate like parts.

I have illustrated my invention as applied to a two-blade propeller, but it will be evident that any number of blades may be employed and be within the spirit and scope of my invention.

In said drawings 1 represents a propeller shaft on the end of which is a spherical-shaped terminal 2 in which are curved V-shaped grooves or cam ways 3, terminating at a common point, the apex of the V being toward the propeller shaft, as seen in Fig. 2. The propeller blades 4 are of the usual construction and have at one end on their inner faces circular flanged extensions 5 adapted to receive the edge 6 of clamp members 7. The clamp members are circular in cross section and there will be as many of these as there are propeller blades, the line of division between adjacent clamps lying in a plane passing through the center of the flanged portion of the propeller blade and longitudinally through the center of the shaft, as seen in Fig. 1. The clamp members are held in place at one end by a threaded nut 8 and at the other end by a threaded nut 9 as seen in Figs. 1 and 2 and when thus held are free to rotate on an axis coincident with that of shaft 1, the propeller blades and the clamp members having a tongue and groove construction. The inner face of the propeller blade is provided with an inwardly projecting dog 10 adapted to take

into the cam ways 3 in the spherical terminal 2. The rotation of the blades causes the dog 10 to travel in way 3 from the V end in either direction according to the direction in which the propeller shaft is rotated. The cam ways terminate at points which allow the propeller blades to travel until they reach a point at right angles to the propeller shaft, as indicated in dotted lines in Fig. 2.

The operation of my improved propeller is as follows. When the shaft is stationary the resistance of the water upon the propeller blades, when the boat moves in the water, causes the blades to assume a closed position in the water, as shown in Fig. 1, thus affording the least resistance to the movement of the vessel. This is important when the vessel is to be propelled by any other motive power. The rotation of the propeller shaft in one direction causes the propeller blades to open up in such way that the pitch of the blades propels the vessel forward, the dog 10 moving along its cam way. Rotation of the propeller shaft in the opposite direction causes a similar movement in the propeller blades in the opposite direction, reversing the pitch so as to propel the vessel backward.

The advantages of my improved propeller are that it can be made to assume automatically the three necessary positions, to wit: the position of least obstruction, the position to cause the boat to go forward and the position to cause the boat to go backward. Also the novel structure is very cheap and durable.

Having thus described my invention and its use I claim:—

1. In a propeller, a propeller shaft provided with a spherical terminal having V-shaped curved grooves in the surface thereof, in combination with propeller blades provided with dogs on their inner faces adapted to take into and travel in said grooves and means for holding the propeller blades in position upon said terminal.

2. In a propeller, a propeller shaft provided with a spherical terminal having V-shaped grooves in the surface thereof, the apex of said grooves located near the end of the shaft and the curved parts terminating on the surface near the longitudinal center of the terminal, in combination with propeller blades provided with dogs on their inner faces adapted to take into and travel in

said grooves, whereby the propeller blades are capable of quarter rotation in either direction.

3. In a propeller, a propeller shaft provided with a spherical terminal having V-shaped curved grooves in the surface thereof, in combination with propeller blades provided with flanged ends and with projecting dogs on their inner faces, said dogs adapted to take into and travel in said grooves, clamp members having threaded ends and being provided with openings to give entrance to said flanged ends of the blades, said clamp

members and said flanged ends being adapted to have a tongue and groove connection, and threaded nuts adapted to engage the ends of said clamp members.

In testimony whereof, I have signed my name to this specification in presence of two subscribing witnesses this 12th day of July, 20 1909.

MILTON D. THOMPSON.

In presence of—

L. M. SANBORN,

CHARLES H. JOHNSTON.