

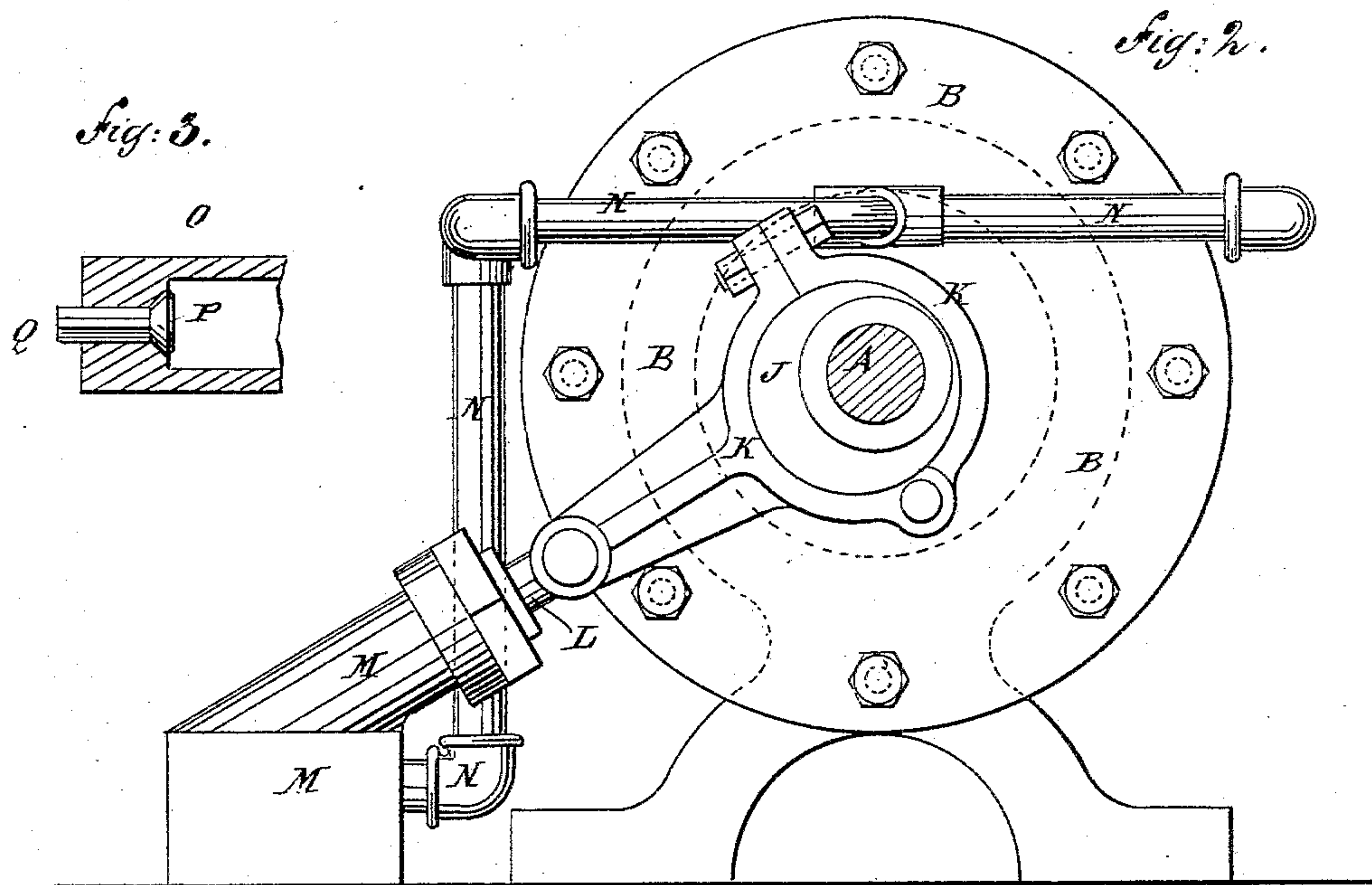
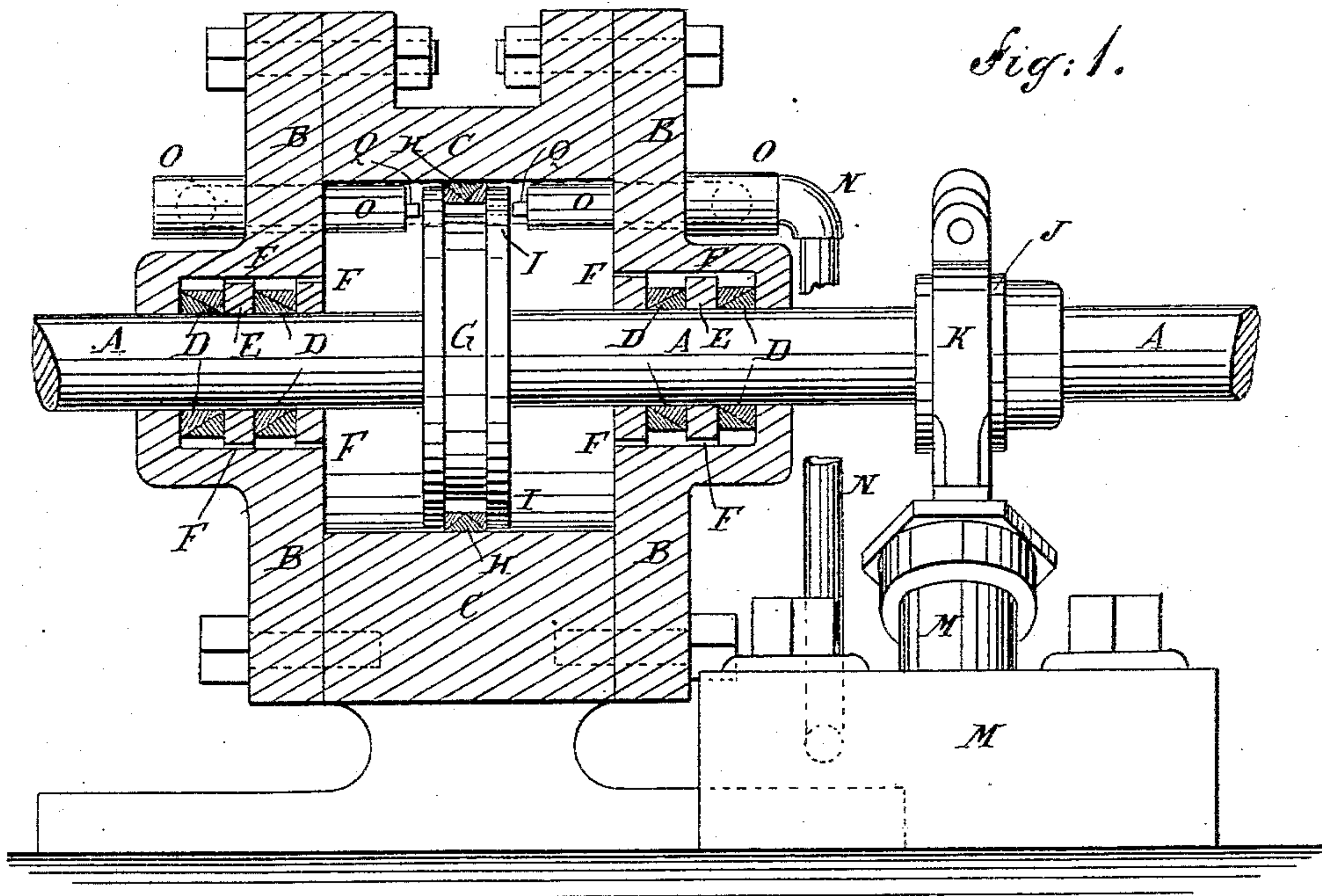
(No Model.)

W. COUSINS.

HYDRAULIC THRUST BLOCK FOR PROPELLER SHAFTS.

No. 303,813.

Patented Aug. 19, 1884.



WITNESSES:

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HYDRAULIC THRUST-BLOCK FOR PROPELLER-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 303,813, dated August 19, 1884.

Application filed February 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM COUSINS, of the city, county, and State of New York, have invented a new and useful Improvement in Hydraulic Thrust-Blocks for Propeller-Shafts, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of my improvement. Fig. 2 is an end elevation of the same, the shaft being shown in section. Fig. 3 is a sectional side elevation of the inner end of one of the inlet-pipes.

The object of this invention is to promote durability and reliability in thrust-blocks for propeller-shafts.

The invention consists in a hydraulic thrust-block for propeller-shafts, constructed with a piston attached to the shaft, and placed in a cylinder supplied at both ends with water by a force-pump through pipes provided with valves opened by the movements of the said piston, whereby the thrust of the shaft will be sustained by a water-cushion. The escape of water around the shaft is prevented at each end of the cylinder by a pair of packing-rings, separated by a partition and held against the shaft by the pressure of water entering the packing-chambers through openings in the cylinder-head and partition, as will be hereinafter fully described.

A represents the propeller-shaft, which is provided with a propeller, and is driven in the ordinary manner. The shaft A passes through bearings in the heads B of the cylinder C, which bearings are made water-tight by pairs of packing-rings D, inserted in annular grooves in the said bearings, and separated by partitions E. The packing-rings D are held against the shaft A by the pressure of water from the cylinder C, which enters the packing-chambers through small openings F in the heads B and partitions E, as shown in Fig. 1.

To the shaft A, in the middle part of the cylinder C, is attached a piston, G, the face of

which is grooved to receive the packing-ring H. The packing-ring H is held out against the inner surface of the cylinder C by the pressure of water, which enters the packing-chamber through small openings I in the flanges of the piston G.

To the shaft A is attached an eccentric, J, the eccentric-strap K of which is provided with an arm, to which is pivoted the piston-rod L of an ordinary force-pump, M. The discharge-pipe N of the force-pump M passes to and along the side of the cylinder C, and with it are connected pipes O, passing through openings in the opposite cylinder-heads B, and terminating near the sides of the piston G. The inner ends of the inlet-pipes O are provided with valves P, opening inward. The stems Q of the valves P project a little beyond the ends of the pipes O, so that should the shaft A move longitudinally in either direction it will bring the piston G in contact with the stem Q of a valve, P, open the said valve, and allow the pump M to force water into that end of the cylinder C to sustain the thrust of the said shaft. By this construction the friction and wear of the ordinary thrust-bearings will be avoided, and the amount of power required to drive the propeller will be greatly reduced.

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

1. A hydraulic thrust-block for propeller-shafts, constructed substantially as herein shown and described, and consisting of a piston attached to the shaft and placed in a cylinder supplied with water by a force-pump, as set forth.

2. The combination, with the propeller-shaft A and the force-pump M, of the cylinder C, the piston G, and the inlet-pipes O, provided with valves P Q, substantially as herein shown and described, whereby the thrust of the propeller-shaft will be sustained by a water-cushion, as set forth.

WILLIAM COUSINS.

Witnesses:

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EDGAR TATE.