

No. 688,692.

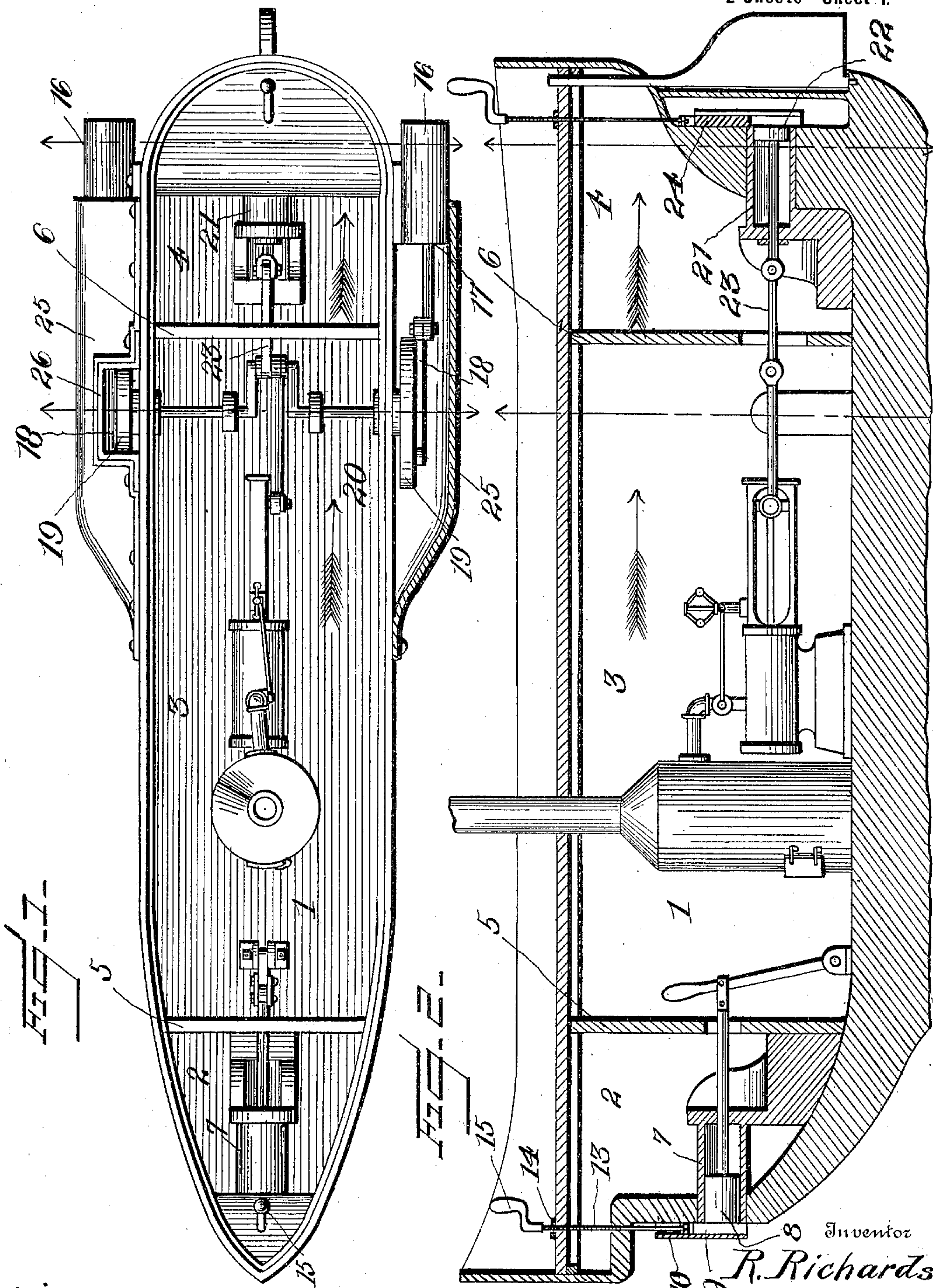
Patented Dec. 10, 1901.

R. RICHARDS.  
MEANS FOR PROPELLING SHIPS.

(Application filed July 29, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses  
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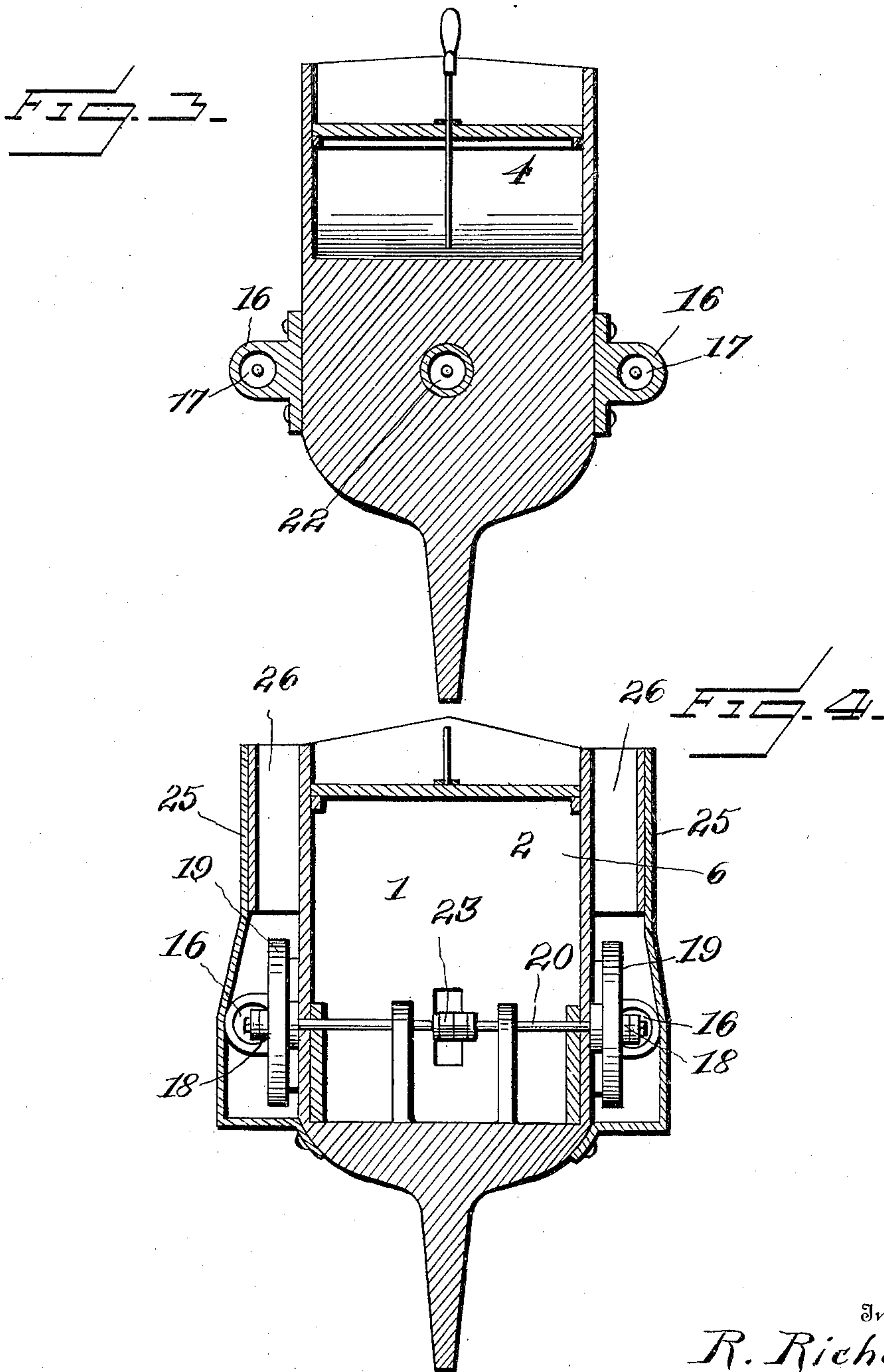
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# UNITED STATES PATENT OFFICE.

RICHARD RICHARDS, OF MIDWAY, KANSAS.

## MEANS FOR PROPELLING SHIPS.

SPECIFICATION forming part of Letters Patent No. 688,692, dated December 10, 1901.

Application filed July 29, 1901. Serial No. 70,093. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD RICHARDS, a citizen of the United States, residing at Midway, in the county of Crawford and State of Kansas, have invented certain new and useful Improvements in Means for Propelling Ships; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to means for propelling ships.

The object of the invention is to provide simple, durable, and inexpensive means for propelling ships by drawing into cylinders carried by the ship a body of water, which is then violently forced out through the open ends of the cylinders against the surrounding body of water, thereby securing a great water resistance, in contradistinction to the powers obtained by paddle-wheels and screw-propellers, which so churn the water as to greatly lessen its resistance to the screw or paddles of the propeller.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, which will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a plan view of a boat illustrating my invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a cross-sectional view through the stern of the boat and the three cylinders arranged at that end, and Fig. 4 is a similar view amidships through the lubricating-conduits.

Referring to the drawings, 1 denotes the hull of a vessel to which my invention is applied, and it may be divided into compartments 2, 3, and 4 by partitions 5 and 6. Located in the bow of the vessel is a cylinder 7, which projects entirely through the bow and has an open forward end. Arranged within the cylinder and adapted to reciprocate therein is a piston 8, which may be actuated by any suitable means, such means in the present instance being conventionally illustrated as consisting of a pivoted lever; but of course

in a steamship construction the piston will derive its power from the engine.

9 denotes a gate-valve mounted to slide in guideways 10, secured to the bow of the vessel and operated by a screw-shaft 13, swiveled to the upper stem of the valve and working through a nut 14, fixed to the bow of the vessel. By rotating this screw-shaft, which is provided with a crank 15, by means of which it may be manipulated, the gate-valve may be caused to raise or lower to open or close the open end of the forward cylinder.

The cylinder placed at the bow of the vessel is designed for the purpose of backing the vessel out of harbors and other places, and when the vessel is moving forwardly the movement of the piston is stopped by throwing the machinery out of gear and the gate-valve closed to prevent water entering the open end of the cylinder.

16 denotes cylinders arranged on the outside of the hull of the vessel, at the stern thereof, and having rear open ends and provided with pistons 17, which are connected by links 18 to crank-wheels 19, fixed to the ends of the driven crank-shaft 20 and located on the outer sides of the hull of the vessel.

21 denotes a cylinder arranged within the hull of the vessel and having its open end extending through the stern of the vessel, and 22 denotes a piston working in said cylinder and connected to the crank-shaft 20 by a link 23.

Each of the cylinders is provided with a gate-valve 24, similar in construction and operated substantially the same as the one hereinbefore described, so that an extended description of said gate-valves is not thought to be necessary.

To protect the crank-wheels and links from the action of water or obstructions met with by the vessel, I provide shields 25, which extend from about the middle of the vessel to and entirely inclose the forward ends of the side cylinders, so that it will be absolutely impossible for water or obstructions to interfere with the movements of the crank-wheels, links, and pistons.

Lubricating-conduits 26 may extend vertically along the sides of the hull and afford access to the links and crank-wheels for the purpose of oiling them or for repairing the



parts, thus rendering it unnecessary to remove the shields to attend to these parts and enabling said parts to be attended to while the ship is in the water, which would not be the case were it necessary to remove the shields in order to get access to the parts, for the reason that said parts are below the surface of the water.

It will be noticed by referring to the drawings that the two rear side pistons work in alternation with the intermediate stern-piston, so that it is practically a propelling force at the rear of the vessel, and, owing to the fact that they work in alternation as the vessel is proceeding on its course through the water, it is evident that each piston forces the water from its cylinder against the solid mass of water at the rear of the cylinder and not against foam and water of a churning unstable character. It will of course be understood that when the piston at the bow of the ship is in action and the vessel is backing out of the harbor or other place the gate-valves at the rear end of the stern-cylinders will be closed, so as to prevent water from entering said cylinders and tending to impede the progress of the vessel.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and details of construction may be made within the scope of the invention without depart-

ing from the spirit or sacrificing any of the advantages thereof.

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

1. The combination with a vessel provided with cylinders on its opposite sides open at their rear ends, of pistons arranged to reciprocate in said cylinders, an engine carried by the vessel, operative mechanism located at the sides of the vessel and connecting the engine with the pistons, and shields secured to the sides of the vessel and tapering rearwardly and covering and protecting the operative mechanism connections at the sides of the vessel, substantially as set forth.

2. The combination with a vessel provided with cylinders on its opposite sides, open at their rear ends, of pistons arranged to reciprocate in said cylinders, an engine carried by the vessel, operative mechanism located at the sides of the vessel and connecting the engine with the pistons, shields secured to the sides of the vessel and tapering rearwardly and covering and protecting the operative mechanism connections at the sides of the vessel, and lubricating-conduits leading downwardly into and communicating with the interior of said shields, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RICHARD RICHARDS.

Witnesses:

GEORGE SHOUP,  
JOHN WILLIAMS.