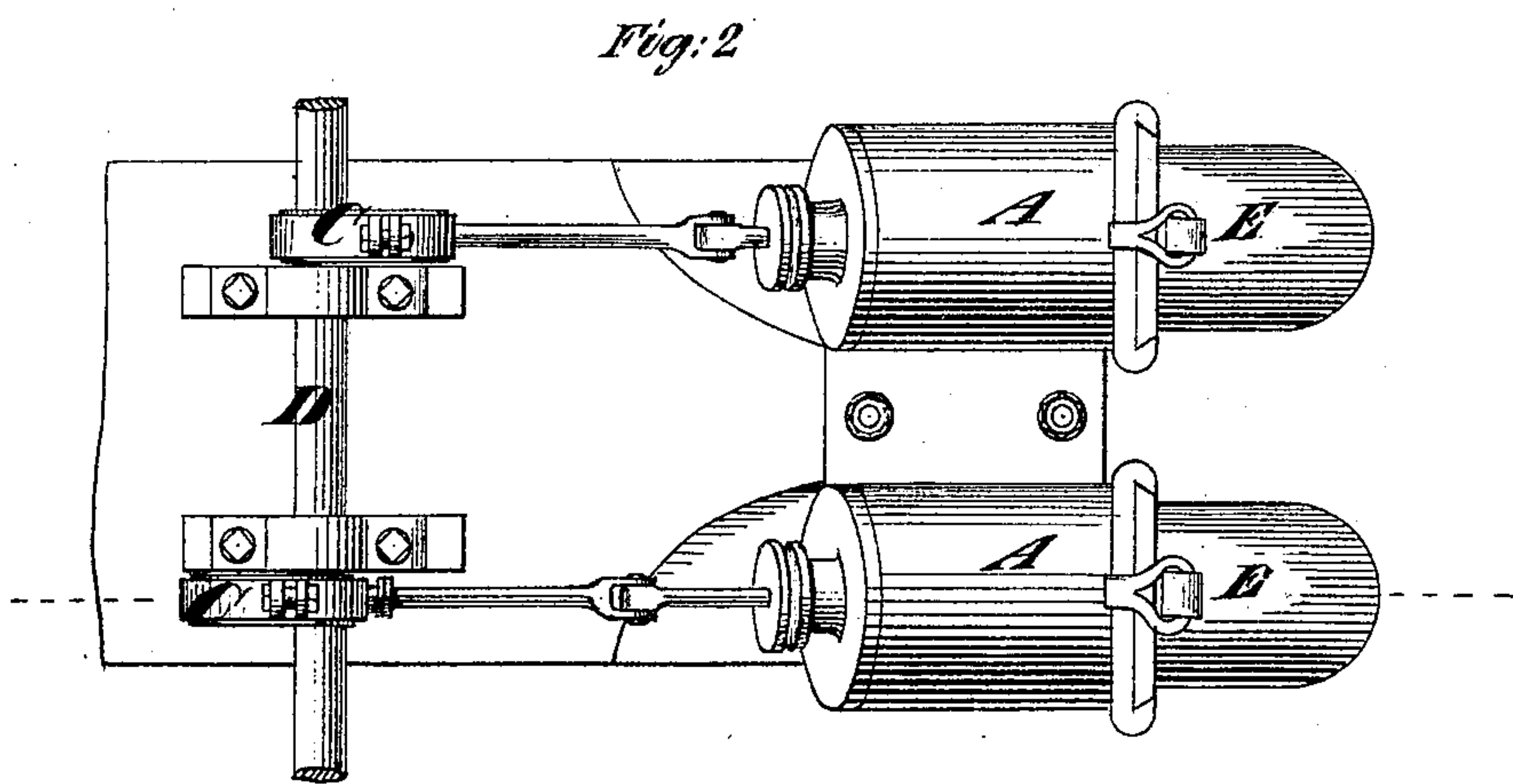
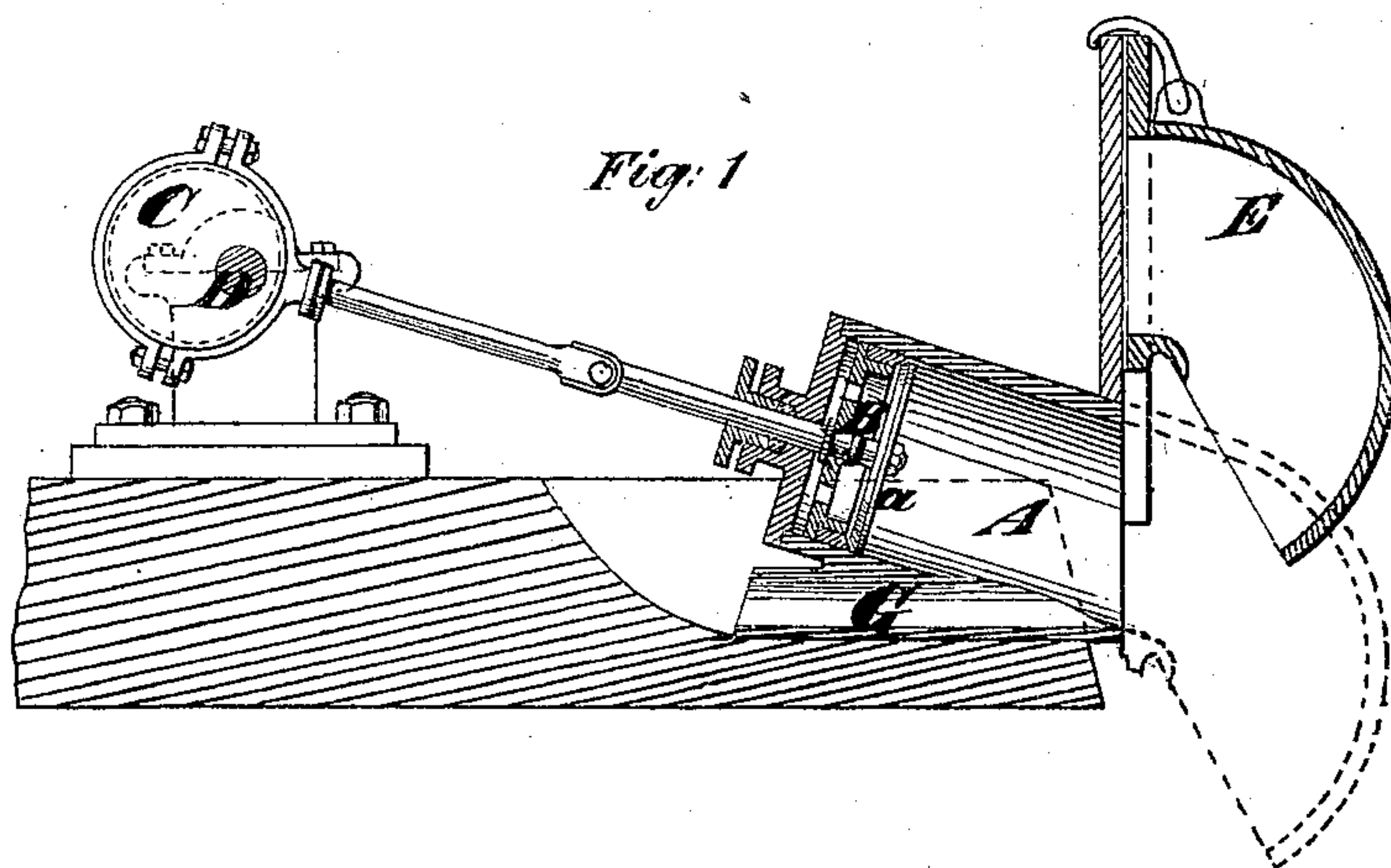


J. W. EVANS.

Means of Propelling Vessels.

No. 141,340.

Patented July 29, 1873.



Witnesses:
J. H. Barnes
G. H. French

James W. Evans
per Wm. Brown & Allen
Attorneys

UNITED STATES PATENT OFFICE.

JAMES W. EVANS, OF NEW YORK, N. Y.

IMPROVEMENT IN MEANS OF PROPELLING VESSELS.

Specification forming part of Letters Patent No. **141,340**, dated July 29, 1873; application filed March 1, 1873.

To all whom it may concern:

Be it known that I, JAMES W. EVANS, of the city, county, and State of New York, have invented an Improved Means for Propelling Canal-Boats and other vessels, of which the following is a specification:

This invention consists in the combination, with open-mouthed cylinders, arranged in the stern of a vessel, and furnished with branches extending toward the bow of the vessel, pistons, arranged to work back and forth therein, and valves, controlling openings in the pistons, whereby, as they recede, water rushes into their cylinders mainly through the branches before mentioned, and as they move outward the water is forced out, and, by reacting on the body of water behind the boat, propels the latter forward.

In the accompanying drawing, Figure 1 is a longitudinal section of the propelling device taken through one of the cylinders, and Fig. 2 is a top view of the same.

Similar letters of reference indicate corresponding parts in both figures.

A A are the two cylinders, which are arranged in the stern of the boat—one on each side of the rudder-post. They are inclined to the keel of the boat, so that the water expelled from them will be directed slightly downward and will not create a wave to wash the banks of a canal. These cylinders are open at the mouth or outer end, and are fitted with pistons B B, which have a reciprocating motion imparted to them by eccentrics C C on a shaft, D, which is driven by a steam-engine or other means. Branches G G unite with the cylinders A A near their mouths, and extend toward the bow of the vessel, so that the water which follows up the pistons as they recede within their cylinders will be conducted from the fore portion of the vessel, so that its progress is rather assisted than retarded by the induction of water to the cylinders. The piston-rods pass through stuffing-boxes on the inner ends of the cylinders, and are connected with the rods of the eccentrics. The pistons

are furnished on the outer side with valves *a*, which, as the pistons recede or move inward, open passages in the pistons and establish an equilibrium on both sides of them, and also to permit any water to escape which may be behind the piston. There are arranged on plates at the ends of the cylinders elbow-pipes E E, which, when it is desirable to back the boat, may be dropped in rear of the cylinders to form continuations thereof, and direct the current of water created by the movement of the pistons toward the bow of the boat. These elbows, in practice, will be shifted by a lever, under control of the engineer, and they might be made to assist in steering the boat when desirable to turn short, by shifting one only into operation, so that the force of one piston will be acting to back the boat while the other is working to propel it.

As the pistons move inward water rushes into the cylinders through the branches G, and also through their mouths, and as they move outward they expel it with force and create a reaction on the water adjacent to them, and thereby cause the boat to move in the opposite direction. As the pistons move inward their valves open and equalize the pressure on both sides of the pistons, and also permit the water behind the pistons to pass through them. The water rushes in after the receding pistons and fills that portion of the cylinders in front of them. When the pistons move outward the valves close, and the water is expelled from the cylinders with much force.

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

The combination of the cylinders A A, provided with branches G G, and arranged at an incline to the keel of the boat, and the pistons B B and their valves *a*, essentially as and for the purpose set forth.

JAMES W. EVANS.

Witnesses:

FRED. HAYNES,
DAVID MISELL.