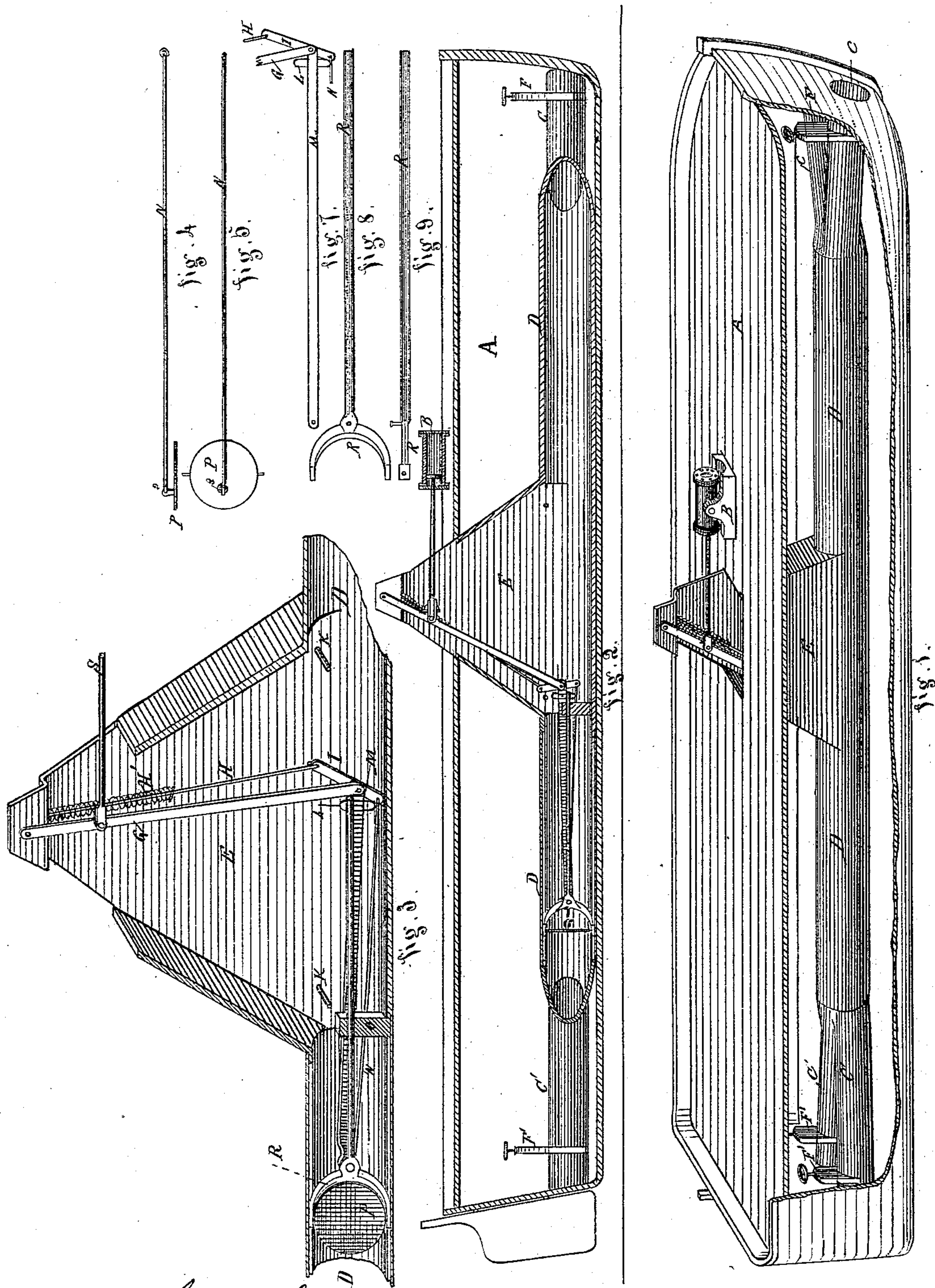


L. H. WATSON.  
Improvement in Propulsion of Boats.  
No. 126,168. Patented April 30, 1872.



Witnesses { S. A. Johnston  
J. B. Black

Inventor

Lewis H. Watson



# UNITED STATES PATENT OFFICE.

LEWIS H. WATSON, OF PITTSBURG, ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO SAMUEL W. GATES AND JOHN S. HUNTER, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN PROPULSION OF BOATS.

Specification forming part of Letters Patent No. 126,168, dated April 30, 1872.

*To all whom it may concern:*

Be it known that I, L. H. WATSON, of Pittsburg, Allegheny county, Pennsylvania, have invented certain Improvements in Propelling Canal and other Boats by Steam, of which the following is a specification:

The nature of my invention consists in a simple and effective device for drawing in water at the bow and discharging it through suitable pipes at the stern, thus obtaining sufficient thrust to force the boat forward and also reduce the swell at the bow, as will hereinafter be more fully set forth.

In the accompanying drawing, Figure 1 represents the boat, with the side broken away to show the arrangement of the pipes and cylinder. Fig. 2 is a half section of a boat with my propelling apparatus attached. Fig. 3 is a section of my propelling apparatus, showing the position of the valve while returning after having made its stroke. Fig. 4 is an edge or side view of the valve with the connecting-rod attached, which operates the valve. Fig. 5 is a front or face view of the valve, showing the pivots on which it turns. Fig. 7 is a side view of the main connecting-rod, showing a portion of the pendulum, with attachment for turning the valve. Fig. 8 is a side view of the forked rod which carries the valve. Fig. 9 is an edge view of the same rod, showing the pin to which the main connecting-rod is attached.

A represents the boat; B, the engine. Extending along the bottom of the boat is the cylinder D D and the receiving and discharging pipes C C and C' C', which latter are provided with valves F F and F' F', to be closed while repairing the machinery, thus obviating the necessity of entering a dry-dock. Within the cylinder D is placed the forked rod R, to which is pivoted the valve P, as shown in Fig. 3, the opposite end running in the guide O. The link I is turned by means of the tappets K at each end of the stroke, thereby changing

the position of the valve P, which is so arranged that it presents its edge to the water, while moving in the direction of the bow of the boat, until the link I strikes the tappet K, which turns the valve into position, when it will close the cylinder D perfectly, as shown in Fig. 2, thus, on its return stroke, forcing all the water through the discharge-pipes C' C' and out at the stern, and, by the reaction, propelling the boat forward. When it is desired to back the boat the operator will shift the connecting-rod N to the upper end of the link I, thereby reversing the action of the valve, which will then force the water out at the bow in the manner before described. The rod H' and the spring H' are intended to hold the valve in position until it is changed by the tappets K. Thus it will be seen that a reciprocating motion is given to the forked rod R by the engine B through the medium of the connecting-rod S, pendulum G, and the main connecting-rod M. The reverse-bar should be placed within easy reach of the steersman to enable him to reverse the action of the valve P without any assistance from the engineer. It is evident that the valve P may be operated by attaching the link I to the forked rod R, which rod may be connected directly to the engine, thus dispensing with the connecting-rod M and pendulum G.

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

The forked rod R, with valve P pivoted thereto, working in guides in cylinder D, in combination with connecting-rods M and N, link I, tappets K, rod H with spring H', and pendulum G, the whole constructed and arranged as described, for the purposes set forth.

LEWIS H. WATSON.

Witnesses:

S. A. JOHNSTON,  
J. B. FLACK.