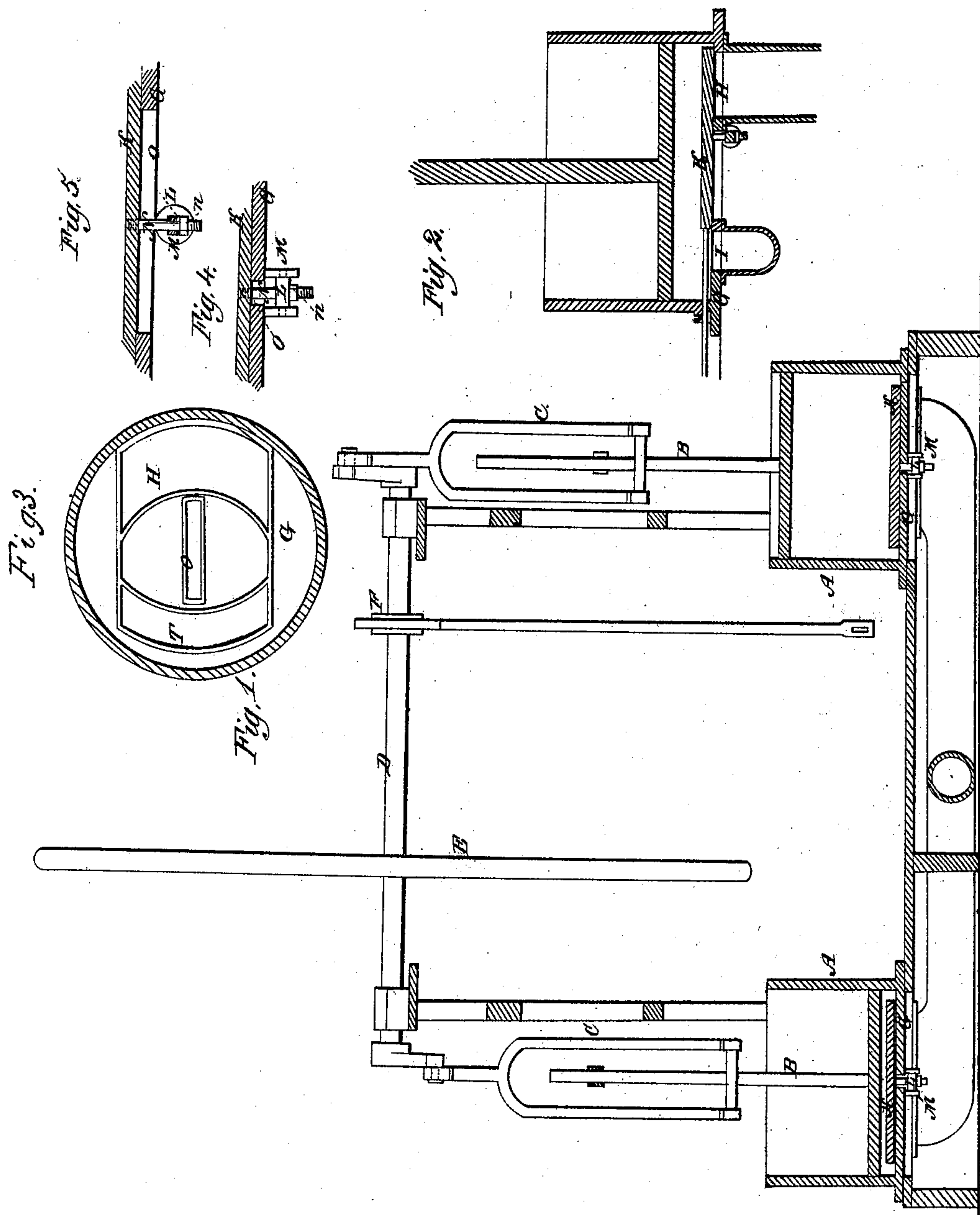


*T. G. McLaughlin,*

*Hydraulic Engine.*

*N<sup>o</sup> 5,214.*

*Patented Aug. 7, 1847.*





# UNITED STATES PATENT OFFICE.

THOMAS G. McLAUGHLIN, OF PHILADELPHIA, PENNSYLVANIA.

## HYDRAULIC ENGINE.

Specification of Letters Patent No. 5,214, dated August 7, 1847.

*To all whom it may concern:*

Be it known that I, THOMAS G. McLAUGHLIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Hydraulic Engines for Propelling Machinery and for other Purposes; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a vertical transverse section through the center of the cylinders, valves, &c. Fig. 2 is a longitudinal section through the center of one of the cylinders detached, showing the valve, openings for the admission and discharge of the water, &c. Fig. 3 is a top or bird's eye view of the bottom plate of the cylinder, the valve being removed. Fig. 4 is a section through the bottom plate of the cylinder and valve, on a larger scale than the succeeding, showing the combination for holding the valve to its seat. Fig. 5 is a transverse section of ditto.

The same letters in the several figures refer to corresponding parts.

A are the cylinders, which are placed in a vertical position and secured firmly in their places in any convenient manner.

B are piston rods, working in boxes on the frame and attached to connecting rods C.

D is the main horizontal shaft—E fly wheel—F cam for moving valves.

G are the bottom plates of the cylinder in which are formed the opening H, I, through which the water is admitted and discharged. These openings are made in the form of a segment of a circle in order to get them as capacious in width as possible, and are in size in relation to each other as 1 is to 2, the discharging opening H, being the largest. They are covered with an ordinary slide valve K of a corresponding form, moved by a cam F, on the shaft or in any convenient manner.

My improvement consists in securing to the bottom of the valve a cross head L, having an antifriction wheel or pulley M on each extremity, which run on the under side of the bottom plate G of the cylinder,

for the purpose of counteracting the upward pressure of the water from the column against the lower surface of the valve, and holding said valve firmly on its seat during the operation of the engine. The several parts for effecting this result are described as follows. A small rod or bolt N having a screw formed on each extremity, is secured to the center of the lower surface of the valve at its upper end, and extends downward through a slot or oblong opening O, in the bottom of the cylinder, between the openings for the admission and discharge of the water, and also through an opening in a horizontal cross head or bar L, extending crosswise, or at right angles to the slot O, and having an anti-friction roller M on each extremity. These rollers rest against and move on the under surface of the bottom plate, with and parallel to the movement of the valve, and are raised or depressed by means of a nut *n* on the bolt, pressing against the under side of the cross head.

When it is understood that the full force of the column of water used is alternately against the under surfaces of the valves where they cover the openings, the necessity of the above arrangement for holding them firmly on their seats, without materially affecting the power of the engine will be apparent.

I do not claim, getting a power from a column of water, on the principle of the hydrostatic paradox, by the employment of cylinders, pistons, and valves, nor do I claim any novelty in the formation of those parts, but

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

The combination of the movable cross head L, anti-friction wheels M, and bolt N, with the valve K, traversing with said valve, and holding it firmly on its seat during the operation of the engine, in the manner and for the purpose described.

THOMAS G. McLAUGHLIN.

Witnesses:

HUGH CLARK,  
SAMUEL PALMER.