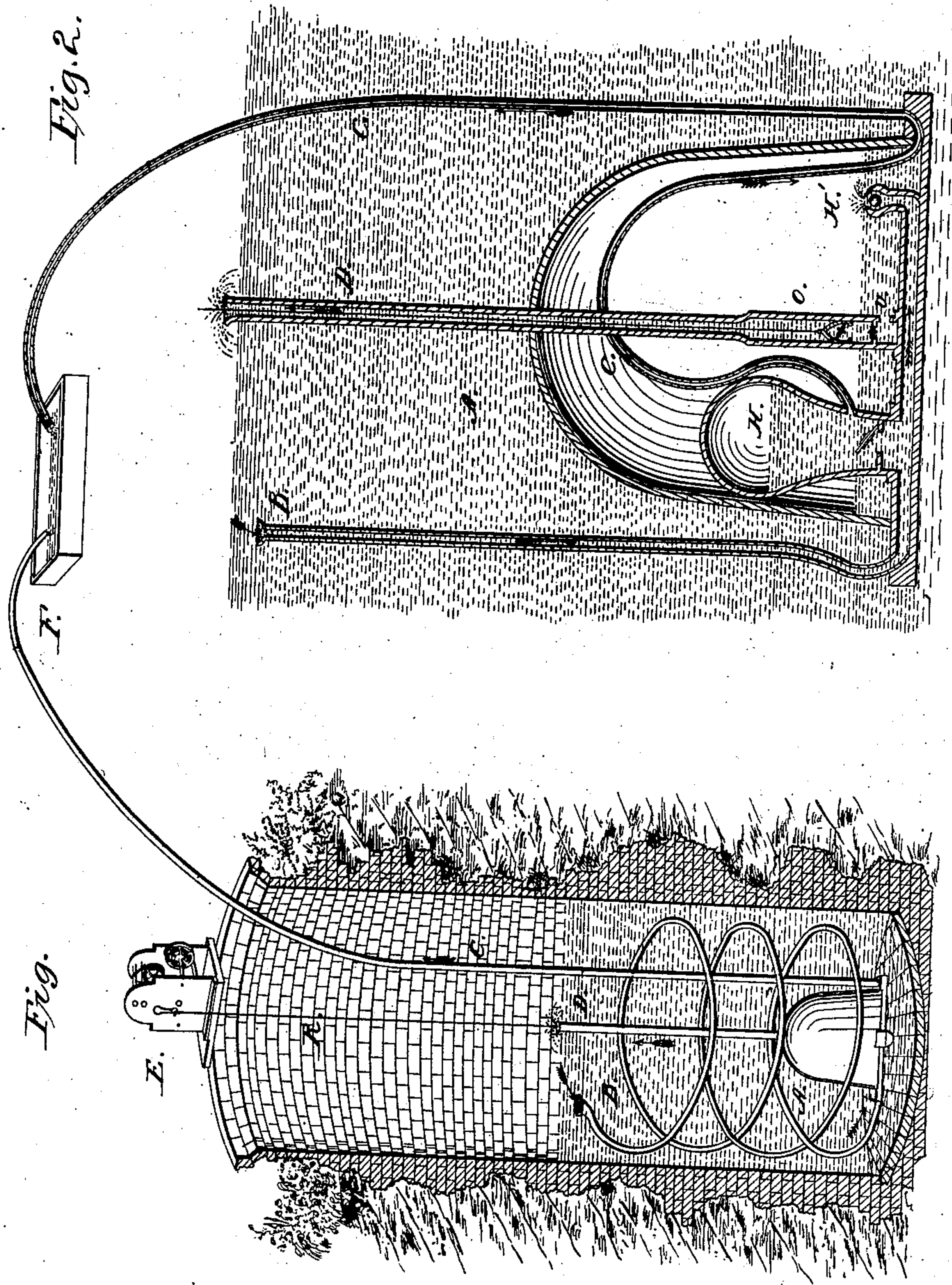


*C. Polley,*  
*Hydraulic Ram,*  
*N<sup>o</sup> 10,610.*  
*Patented Mar 7, 1854.*





# UNITED STATES PATENT OFFICE.

CLARK POLLEY, OF MAYS LANDING, NEW JERSEY.

## METHOD OF OPERATING HYDRAULIC RAMS.

Specification of Letters Patent No. 10,610, dated March 7, 1854.

*To all whom it may concern:*

Be it known that I, CLARK POLLEY, of Mays Landing, in the county of Atlantic and State of New Jersey, have invented a new and useful Submarine Hydraulic Ram for the purpose of Elevating Water; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view, and Fig. 2, a vertical section of the same.

The same letters indicate like parts in both figures.

Where water is to be elevated—from wells or cisterns—to a considerable height, forcing pumps are the machines ordinarily employed; the practical objections to which are their expensiveness and their liability to frequent and serious derangements, owing to the enormous pressure to which they are subjected.

The object of my invention is to avoid these objections by substituting in place of the expensive and fragile forcing pump, the cheap, simple and durable hydraulic ram, working in combination with an ordinary and inexpensive suction or lifting pump, and so arranged as practically to remove nearly all the strain and wear from the pump to the ram, resulting in great economy both in power and expense.

The nature of my invention and the manner in which I construct my machine is as follows.

In the accompanying drawings, A, Fig. 1, represents an air-tight box or chamber—submerged at the bottom of a well,—within which are inclosed a pump and hydraulic ram; B Fig. 1, represents a coil of pipe, through which flows—from the surface—the water, by the pressure and momentum of which the ram is to be operated; C, Fig. 1, represents the conduct pipe conveying the water from the ram to the receiving reservoir; and E, Fig. 1, represents a clock work machine (for which may be substituted

other and sufficient power) so constructed and adjusted as gradually and uniformly, by means of the connecting rod, R, to work the pump within the chamber and removing therefrom, through the pipe D, the waste water of the ram.

The adjustment of the ram and pump within the chamber, A, is represented in Fig. 2, which—with the exception of the pipe B being perpendicular instead of coiled—is an exact vertical section of Fig. 1.

The water passes from the surface down through the pipe, B, and flows out at H', until suddenly arrested by the closing of the valve it reacts upon itself and a portion is forced into the air-chamber of the ram at H, whence it is elevated by the atmospheric pressure therein, through the pipe C, to the receiving tank, F.

The waste water of the ram flows out into the bottom of the chamber, A, and through the aperture *v* whence it is removed by the slow and constant action of the pump, O, operated as before stated.

I do not wish to be confined to the specific mode above described of adjusting the various parts of my invention, but to retain to myself the privilege of altering these at my pleasure, but not in such manner as substantially to modify or change its character.

I do not claim in any manner the pump or hydraulic ram, but

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

The air-tight box or chamber, A, having within it and in combination therewith and with each other—substantially as herein set forth—the hydraulic ram and pump, and having suitable pipes attached in such manner as, that when the apparatus is submerged and the pump worked from above, the ram will be free to operate by the pressure and momentum of the water resting above it.

CLARK POLLEY.

Witnesses:

JOHN I. ESTELL,  
WILLIAM B. BROWN.