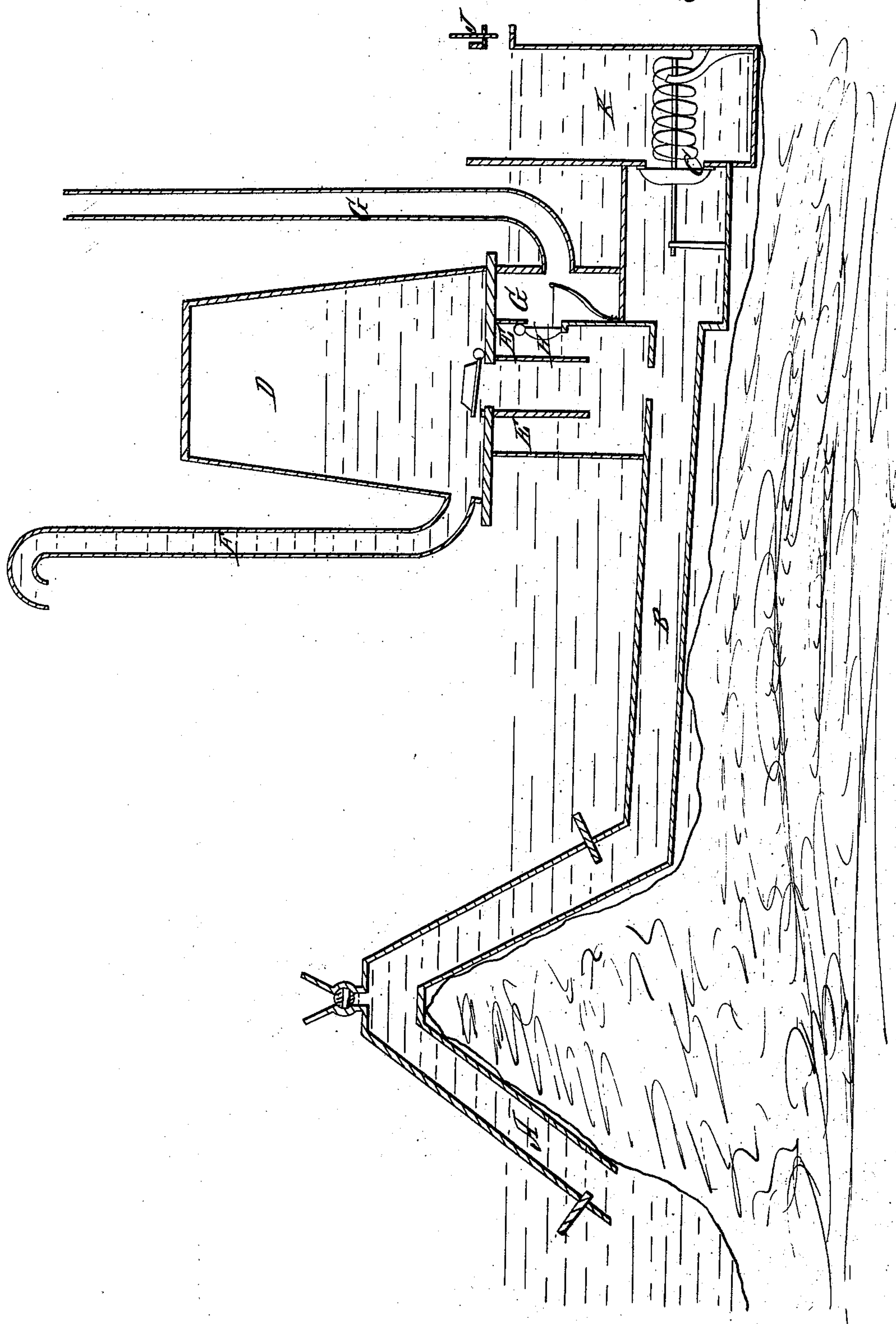


*Patented Aug. 22, 1848.*



# UNITED STATES PATENT OFFICE.

DAVID A. LEIGHTON, OF MIDDLEBURGH, NEW YORK.

## HYDRAULIC RAM.

Specification of Letters Patent No. 5,725, dated August 22, 1848.

*To all whom it may concern:*

Be it known that I, DAVID A. LEIGHTON, of Middleburgh, Schoharie county, State of New York, have invented a new and useful improvement in the construction of water-rams to enable said water-rams to operate advantageously when placed under water, which I call "Leighton's air and water chamber for water-rams," a full and complete description of which is in the following specification, with its accompanying drawings, to which reference is made.

Let A B C D E F in the drawing represent a water ram of the usual construction, syphon form, A B representing the main pipe, C outlet valve, D air vessel, E secondary air vessel, F rising main being essentially the ram, delineated and described in Ewbank's *Hydraulics and Mechanics*, Greely's edition, 1848, pages 370, fig. 169.

The improvements which I propose to make consist in the first place of an air chamber and conduit G, G, placed outside and around the orifice of the air valve H, and carried up above the surface of the water in which the working parts of the ram are immersed, in order to secure access of the air to the air valve, without which protection the air valve would be inoperative and the machine subjected to the imperfect action resulting from the absorption of air in the air vessel by the pressure of the fluids. This chamber and conduit need not be in the form represented in the drawings, but (especially in large machines) a continuing chamber of size sufficient to admit access to the air valve H without deranging the other parts of the machine.

At the lower termination of the ram containing, or inclosing and surrounding the outer valve and its spring—which valve I arrange to act horizontally and to be kept on, and drawn to its seat by a spring, (spiral or otherwise)—I erect a chamber K of sufficient height to be elevated above the level of the water in which the ram stands, with an outlet to permit the water as it accumulates from the valve, to pass off at the said level. This outlet has a valve or door to close it J, whenever it may be desirable to do so for the purpose of access to the valve C and its spring, and the removal of the accumulated water to effect that purpose.

I claim—

1. The improvement of the water ram as usually constructed by the addition to the lower or secondary air chamber on the outside of it, surrounding and protecting the external orifice of the air valve; of an air chamber or conduit which shall exclude the access of water to the said valve, whenever the ram shall be immersed in water to a point above the level of said valve, by which improvement I am, for certain purposes enabled to work my machine when immersed in water.

2. I also claim the employment of a water chamber at the termination of the ram, inclosing and securing the outlet valve in the manner set forth in the above specification.

DAVID A. LEIGHTON.

Witnesses:

T. G. YOUNGLOVE.

RICHD. VARICK DE WITT.