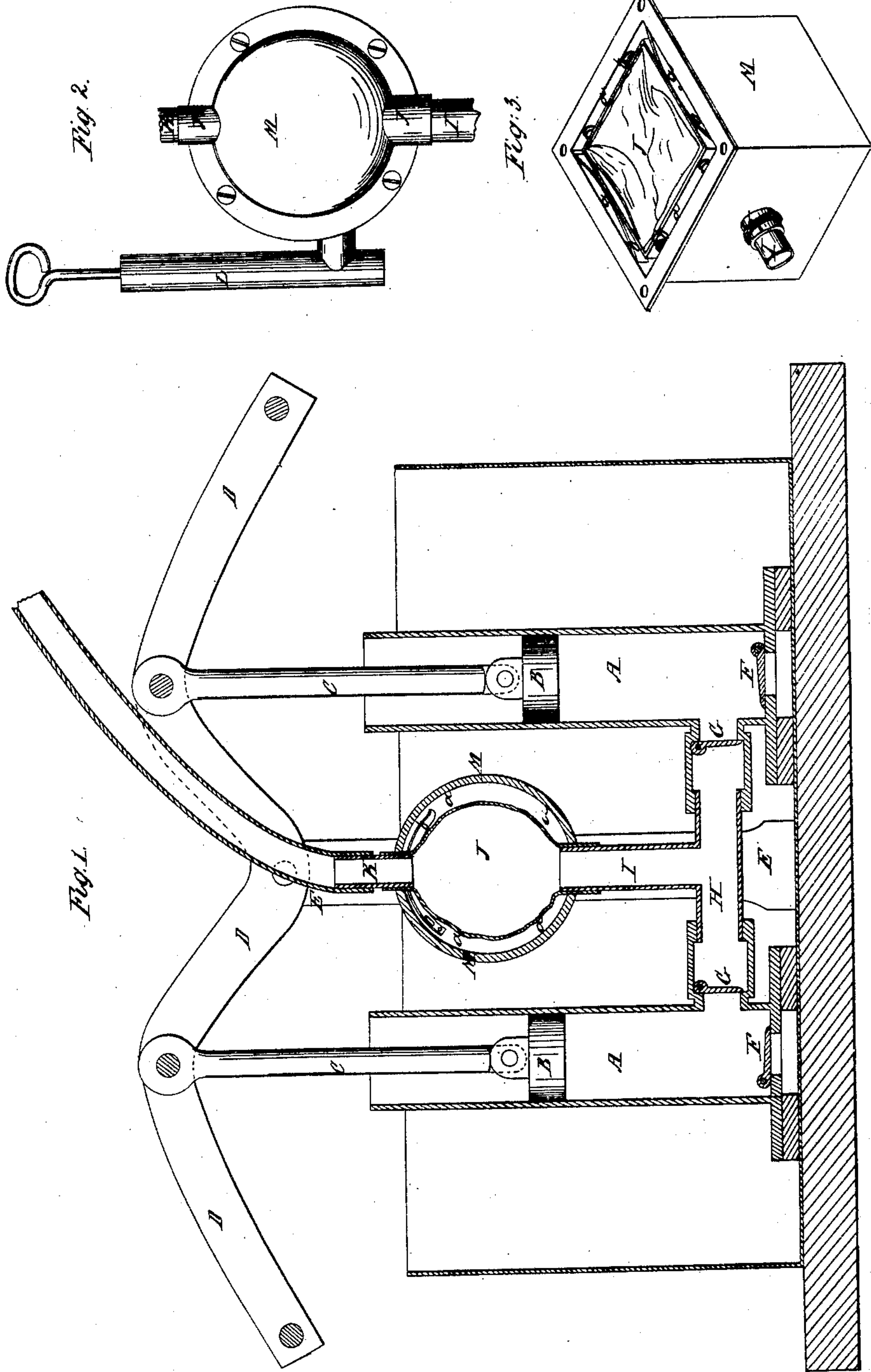


T. Clark,

Hydraulic Engine,

N^o 17,726.

Patented July 7, 1857.



UNITED STATES PATENT OFFICE.

THOMAS CLARK, OF PHILADELPHIA, PENNSYLVANIA.

AIR-CHAMBER TO EFFECT UNIFORMITY OF FLOW OF WATER, &c., THROUGH PIPES.

Specification of Letters Patent No. 17,726, dated July 7, 1857.

To all whom it may concern:

Be it known that I, THOMAS CLARK, of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and
5 useful improvements in hydraulic engines and applicable to pumps, fire-engines, and any other machinery or engine for raising or forcing water; and I do hereby declare the following to be a full, clear, and exact de-
10 scription of the same, reference being had to the accompanying drawings, making a part thereof, in which—

Figure 1 represents a central longitudinal and vertical section through a pumping en-
15 gine with my improvement attached. Fig. 2 represents the air chamber detached. Fig. 3 represents a modified form of air chamber, with one of its sides removed, to show the elastic or extensible sack or bag within it.

20 The nature of my invention relates to the placing of an elastic or extensible sack or bag, in the line of a pipe or water way, so as to form a part of said water way, when said sack or bag is incased or surrounded by, an air
25 tight chamber, for the purpose of promoting uniformity of flow through said pipe or water way.

To enable others skilled in the art to make, use, and apply my invention, I will proceed
30 to describe its connection with an ordinary suction and forcing pump, by which its application to any other hydraulic engine will be clearly understood.

A, A, represent a pair of cylinders, in
35 which are piston heads or plungers B, B, connected by rods C, C, to the break, beam, or lever D, which is supported on the upright E, in any of the ordinary ways of accomplishing this end.

40 F, F, are flap or drop valves, over the inlets into the cylinders; and G, G, are similar flap or drop valves, opening outward from the cylinder into the tube or water way H which is common to both cylinders. From
45 this water way H, midway between the cyl-

inders rises a pipe or tube I which leads into a spherical shaped elastic bag or sack J; and from this sack or bag, also leads a pipe K, to which the hose, nozzle, or whatever else may
50 be used for conveying the stream of water, is attached. It will be perceived that the bag or sack is in the line of the tubes or pipes I, K, or, that it is a part of the water way itself.

Around the bag or sack J is a metallic casing
55 *m* larger than the sack, so as to form an air chamber between the outside of the sack, and the inside of the casing as at *a, a*, &c., and to condense the air in said chamber, and give it greater elastic properties, an air pump L
(Fig. 2) may be used. Or instead of atmos-
60 pheric air any other elastic fluid or gas may be used, which will produce an equivalent effect.

In Fig. 3, I have shown a modified form of casing and sack—that in Fig. 2 being spheri-
65 cal, and the other square. Either form may be used, as I confine my invention to no specific form, leaving that to the circumstances of the case.

Springs *b, b*, or ribs may be interposed be-
70 tween the sack, and the casing, to prevent the former from coming in contact with the latter, and to act as a protector to the sack.

Having thus fully described the nature of my invention, I would state that I am aware
75 that an elastic medium, in connection with a perforated pipe or head, has been used as a spring to ease the strain on the hose or pipe. This I do not claim, but

What I do claim as new and desire to secure
80 by Letters Patent, is—

The arranging of an elastic or extensible sack or bag, in the line of a pipe or water-
way, when said sack is surrounded with a casing, and air chamber, for the purpose
85 herein set forth.

THOMAS CLARK.

Witnesses:

WM. STEINMETZ,

CHARLES D. FREEMAN.