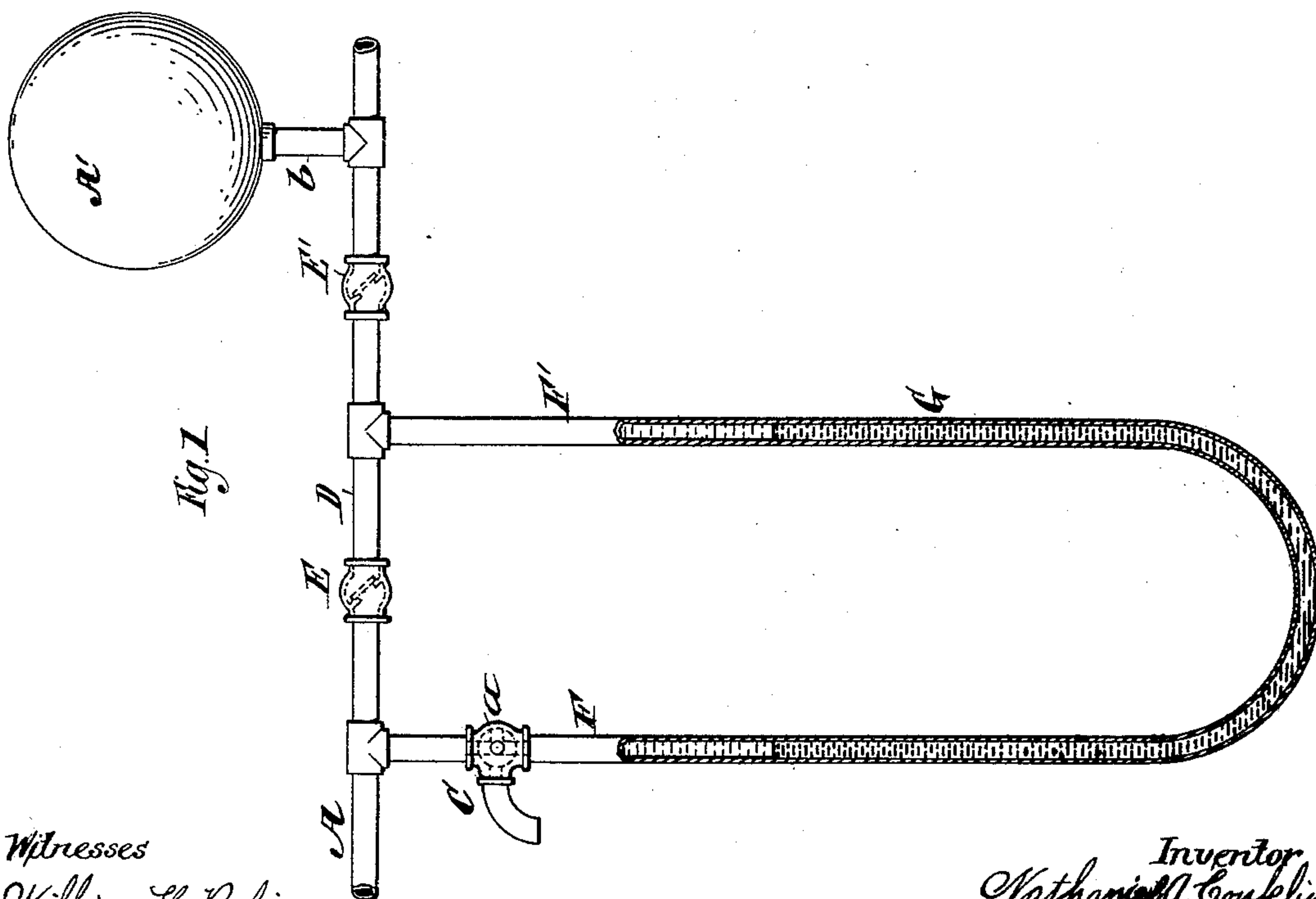
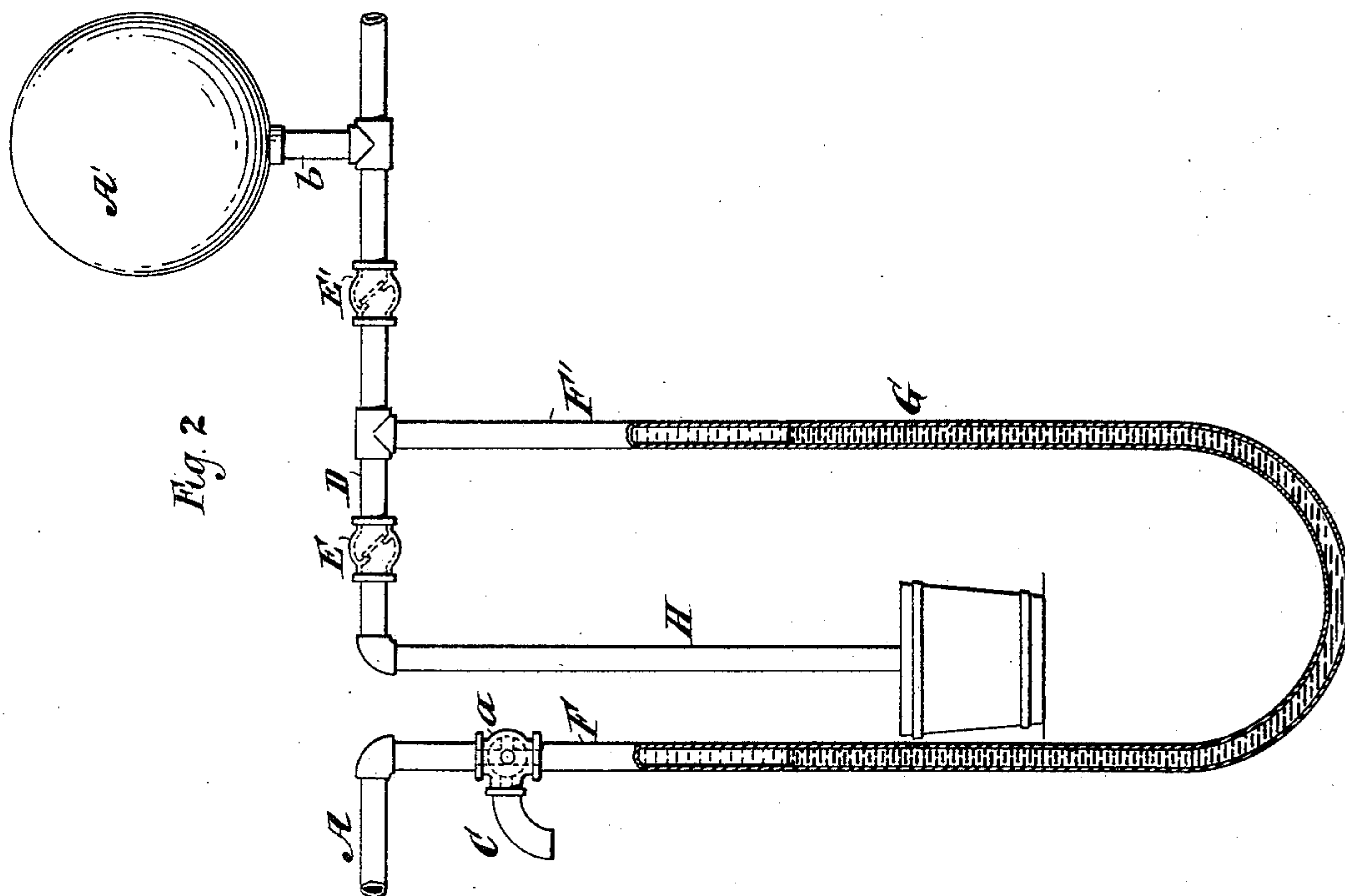


(No Model.)

N. A. CONKLIN.
APPARATUS FOR ELEVATING WATER.

No. 406,880.

Patented July 16, 1889.



Witnesses

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UNITED STATES PATENT OFFICE.

NATHANIEL A. CONKLIN, OF BROOKLYN, NEW YORK.

APPARATUS FOR ELEVATING WATER.

SPECIFICATION forming part of Letters Patent No. 406,880, dated July 16, 1889.

Application filed December 24, 1888. Serial No. 294,450. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL A. CONKLIN, of Brooklyn, in the county of Kings and State of New York, have invented a new and
5 useful Improvement in Apparatus for Elevating and Distributing Water, of which the following is a specification.

The invention consists in the construction and novel arrangement of parts, as herein-
10 after set forth, and especially pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, of the apparatus embodying my improvement; and Fig.
15 2 shows the apparatus arranged for drawing water from a cistern, cesspool, or other place not connected directly with the main supply-pipe.

This invention is designed more particularly as an improvement on the device for which application for patent was filed under
20 date of August 23, 1887, and numbered 283,559, in which is described a device for operating a pump by alternately reducing the pressure on the water-pipe by means of a
25 discharge and restoring cock of larger internal area than the supply-pipe.

In the present invention I provide for an absolute stoppage of the direct flow of liquid
30 to the opened cock, and force the water by a circuitous route to balance its pressure against a plunger which it is forced to lift. The tension so stored is subsequently added to the restored pressure to effect a return-stroke. By cutting off the water from over
35 the storage medium the original pressure is available to force this medium without resort to detached chambers designed for the purpose in the application above referred to.

Referring by letter to the drawings, A designates the supply-pipe through which water is received from the street-main at a given or
40 varied pressure.

C is a cock having a three-way plug or valve
45 a, which obviously can be set at a right angle to pass water into the main apparatus, and at the same time closing the outlet of the cock C, and at another angle to shut off the water from the pipe A while opening the cock and
50 permit a return and discharge of water that had passed below the cock.

As shown in Fig. 1, the pipe D is a continuation of the pipe A, and the pipes A D are in effect one pipe. The said pipe portion D is provided with two reflow check-valves E E',
55 and is extended directly to an upper reservoir, (not shown in the drawings;) or it may be first connected by any suitable means, but preferably by a pipe b, with an air-chamber A'.

A U-shaped pipe has one of its ends F connected to and communicating with the cock
60 C, and its other end F' communicating with the pipe D beyond the valve E. This U-shaped pipe acts as a water-receiver and has a plunger G therein, which is preferably mercury.

The operation of the device described is as follows: The plug a being turned to close the outlet of the cock C, the water flows freely from the supply-pipe into the pipe F and
65 through the valve E into the pipe F', establishing an equilibrium of pressure on the plunger. By turning the plug one-fourth revolution from the position indicated above a flow is established from the pipe A to the
70 pipes D and F', which presses down upon the mercury or plunger and forces a corresponding rise in the pipe F, or until the mercury in the pipe E balances the water-pressure in the supply-pipe A. By restoring the plug a
75 to its original position, as shown in the drawings, the pressure of water in the supply-pipe is exerted upon the mercury in the pipe F', and together acting upon the valve E' forces the surplus water into the chamber A' or beyond it at an increased pressure. When re-
80 quired, a flow of water can be obtained through the cock C by a half-turn of the plug, reversing the position shown in the drawings.

In Fig. 2 the pipe D has no direct communication with the pipe A and does not receive
90 water therefrom, but is extended, as at H, into and receives its supply by suction from a source other than the pipe A, and its operation may be described as follows:

When the plug a is turned to allow the water under pressure from the pipe A to the pipe
95 F, the mercury in the pipe F' will rise to balance the pressure in the pipe F. Upon releasing the pressure of water in the latter, by turning the plug a quarter-turn, the equalizing of
100 the mercury in the pipes F F' will induce a suction through the valve E, which then be-

comes the foot-valve of the pump. By restoring the position of the plug *a* the water-pressure again forces the mercury into the pipe *F'*, expelling the water through the valve *E'* at a pressure somewhat less than that in the pipe *A*.

It is obvious that other devices may be used in lieu of the mercury plunger—for instance, a flexible diaphragm, as illustrated in my application above referred to—the main object being to provide a pressure-storing device, in which the three-way cock forms an essential part, operating by a reciprocating motion to increase the pressure normally exerted from the street-main. It is also obvious that other arrangement or construction may be substituted for the three-way cock described without departing from the spirit of my invention.

Having described my invention, what I claim is—

1. In an apparatus for elevating water, the combination, with a supply-pipe, of a pipe *D*, having check-valves *E E'*, a receiver having its ends connected to the supply-pipe and the pipe *D*, a plunger in said receiver, and a three-

way cock in the receiver adjacent to the supply-pipe, substantially as specified.

2. The combination, with the supply-pipe, of the receiver having the plunger and communicating at its ends with the supply-pipe, the three-way cock in said receiver, the check-valve in the supply-pipe between the ends of the receiver, the check-valve beyond said receiver, and the air-chamber beyond the last-named check-valve, substantially as specified.

3. In a water-distributing system, the combination, with the supply-pipe, of the pipe *D*, extended therefrom, the receiver having its ends communicating therewith, the stop-cock in one branch of said receiver, the pressure-storing device in said receiver, the check-valve between the ends of the receiver, the check-valve beyond said receiver, and the air-chamber having connection with the pipe *D* beyond the last-named check-valve, substantially as specified.

NATHANIEL A. CONKLIN.

Witnesses:

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