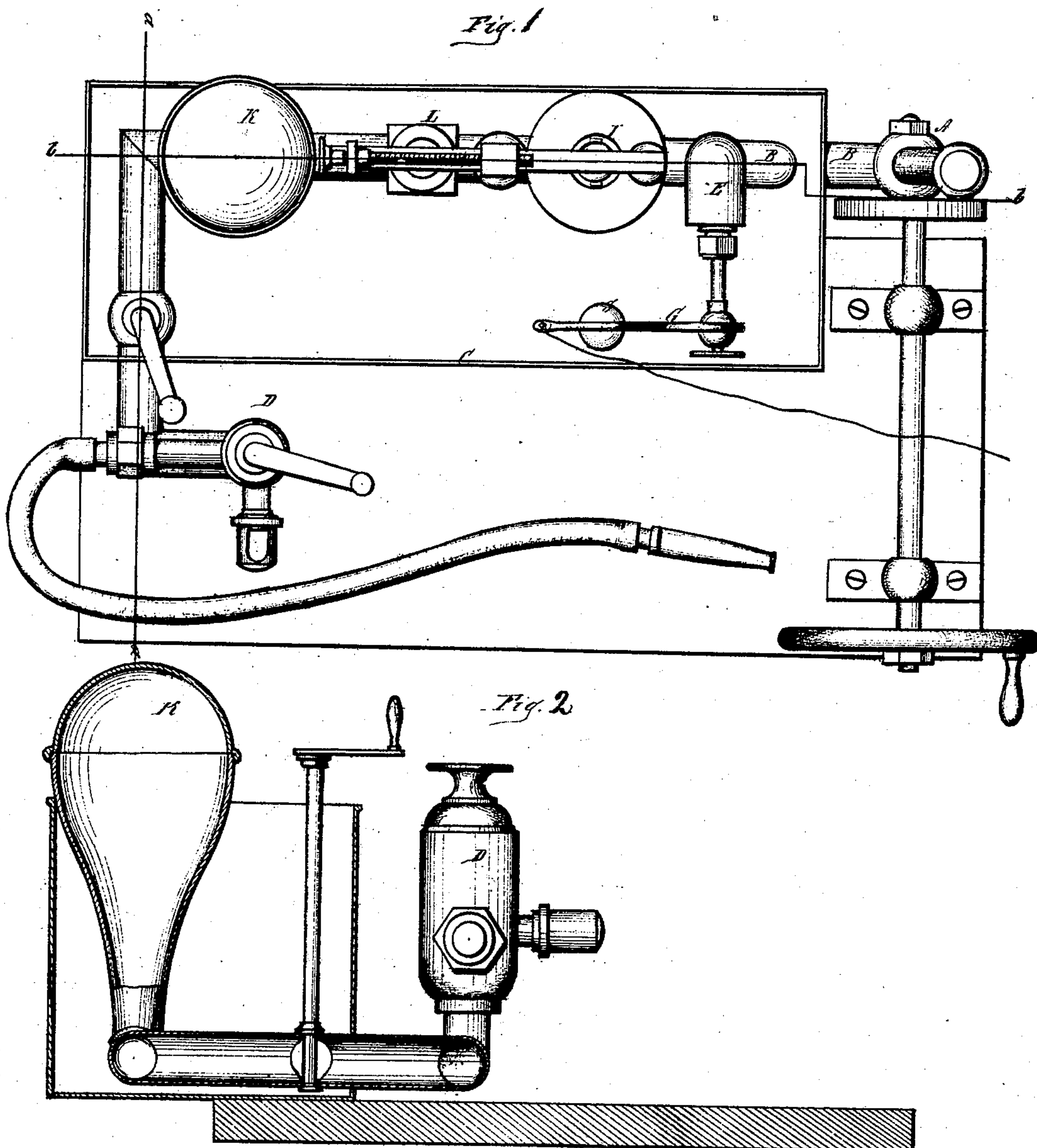


J. C. Hagan, 2, Sheets, Sheet 1.

Pump.

No. 104,019.

Patented June 7, 1870.



Witnesses:  
E. R. Brown.  
Henry P. Smith.

John C. Hagan, Inventor  
by T. C. Shearer  
his Attorney.

J. C. Hagar,

2. Sheets, Sheet 2.

Pump.

No. 104,019.

Patented June 7, 1870.

Fig. 3.

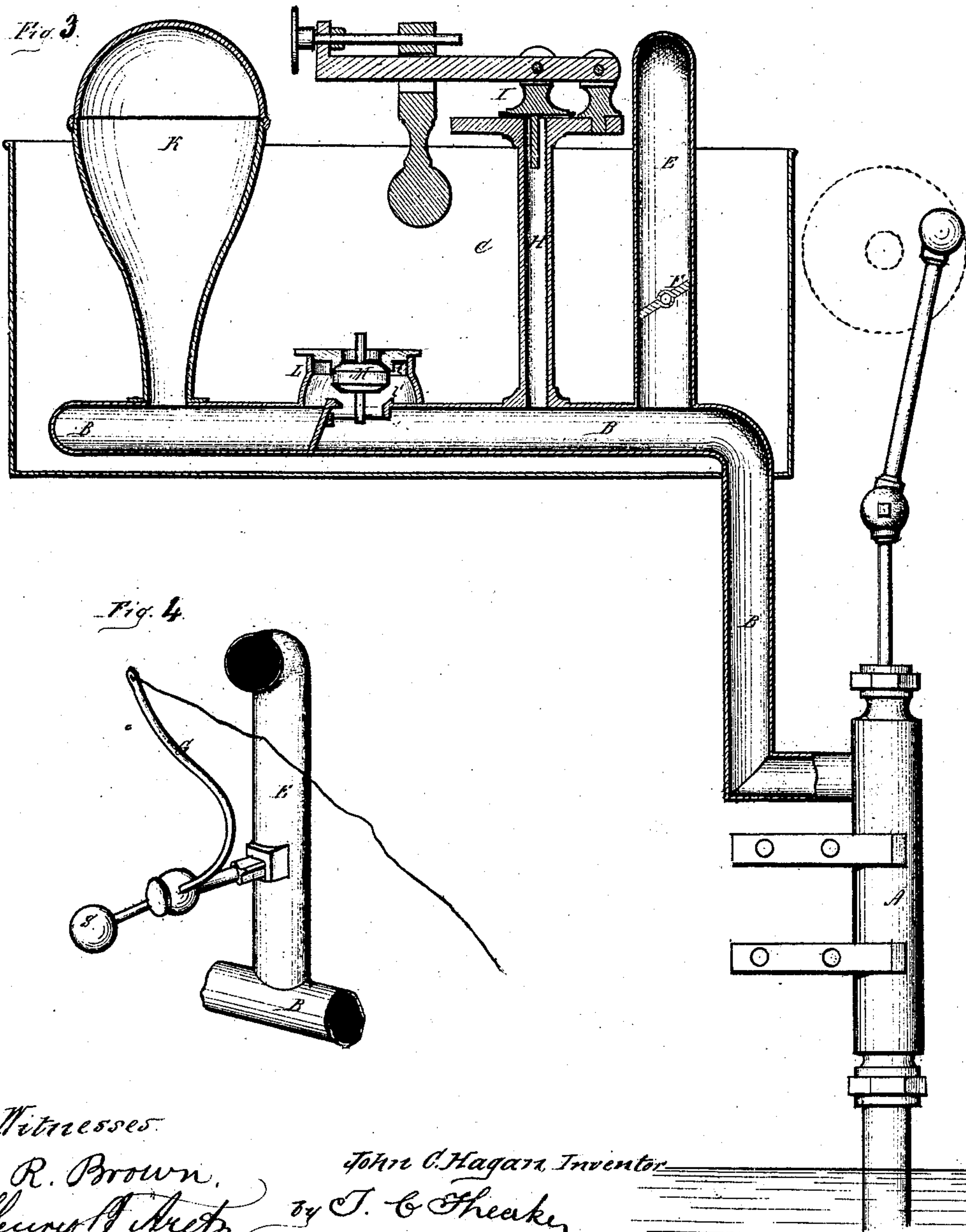


Fig. 4.

Witnesses:  
E. R. Brown,  
Henry J. Metch

John C. Hagar, Inventor  
by J. C. Sheaker  
his Attorney.



# UNITED STATES PATENT OFFICE.

JOHN C. HAGAN, OF NASHVILLE, TENNESSEE.

## IMPROVEMENT IN WATER-SUPPLYING APPARATUS.

Specification forming part of Letters Patent No. **104,019**, dated June 7, 1870.

*To all whom it may concern:*

Be it known that I, JOHN C. HAGAN, of Nashville, in the county of Davidson and State of Tennessee, have invented a new and useful mode of supplying cities and towns with water for family, manufacturing, and fire purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and to the letters of reference marked thereon.

The nature of my invention consists in a peculiar construction and arrangement of parts in a device for supplying cities and towns with water for family use and manufacturing purposes, and also for extinguishing fires without the use of fire-engines.

To enable those skilled in the art to which my invention appertains to make and use the same, I will proceed to describe its construction and operation.

In the drawing, Figure 1 is a top view of my improvement. Fig. 2 is a transverse vertical section taken in the line *a a*, Fig. 1. Fig. 3 is a longitudinal vertical section taken in the line *b b*, Fig. 1. Fig. 4 is a perspective view of a pipe and valve, hereinafter more particularly described.

A force-pump of suitable construction, and operated by any suitable power, is arranged so as to communicate with the river or lake from which the water is obtained. To the force-pump A is attached a pipe, B, leading to the reservoir from which the water is supplied or distributed to the city. The pipe B enters the reservoir C at or near the bottom, at one end, extending along the bottom and passing out at the other end, where it joins the pipe or pipes which convey the water through the city. To the pipe B, near the point where it enters the reservoir C, is attached a pipe, E, which extends vertically upward a short distance above the top of the reservoir, and then turns so as to discharge into the reservoir. In this pipe E is a butterfly-valve, F, on the shaft of which, outside the pipe E, is a lever, G, having on one end a weight, *g*, which tends to keep the valve open, and at the other end a rope or chain, by means of which the valve may be closed. To the pipe B, at a suitable distance from the pipe E, is attached a tube,

H, on the upper end of which is a valve, I, which may be adjusted so as to resist any desired amount of pressure.

Near the end of the reservoir farthest from the point where the pipe B enters, an air-chamber, K, is attached to the pipe B, for the purpose of equalizing the column of water and relieving the shock of the water from the pump when it collides with the water from the reservoir.

Between the air-chamber K and the tube H is a valve-chamber, L, provided with two valve-seats, *l l'*, between which works a puppet-valve, M.

At suitable positions along the line of the pipe E and those which conduct the water through the city, plugs or hydrants are placed, provided with suitable means for attaching hose. (See D, Fig. 2.) These hydrants are formed with air-chambers, for the same purpose as described for the air-chamber K.

The operation is as follows: Power being applied to the force-pump A, and the valve F being open, the water rises through the pipe E and is deposited in the reservoir C, from whence it passes over the top of the puppet-valve M, and is conveyed to the city through pipe B and its branches.

When it is desired to use the water for extinguishing fires without the use of fire-engines, the valve F is closed, when the pressure of the water will raise the puppet-valve M, thus preventing the passage of any water into the reservoir, and impelling it through the pipe B and its connections with a force corresponding with the degree of pressure to which the safety-valve I is adjusted.

When this invention is used only for the purpose of extinguishing fires, the reservoir and the pipe E may be dispensed with.

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

The valves F, I, and M, and air-chamber K, in combination with the pipe B and hydrant D, when constructed and operating as herein shown and described.

JOHN C. HAGAN.

Witnesses:

H. T. YARYAN,  
B. EMBRY.