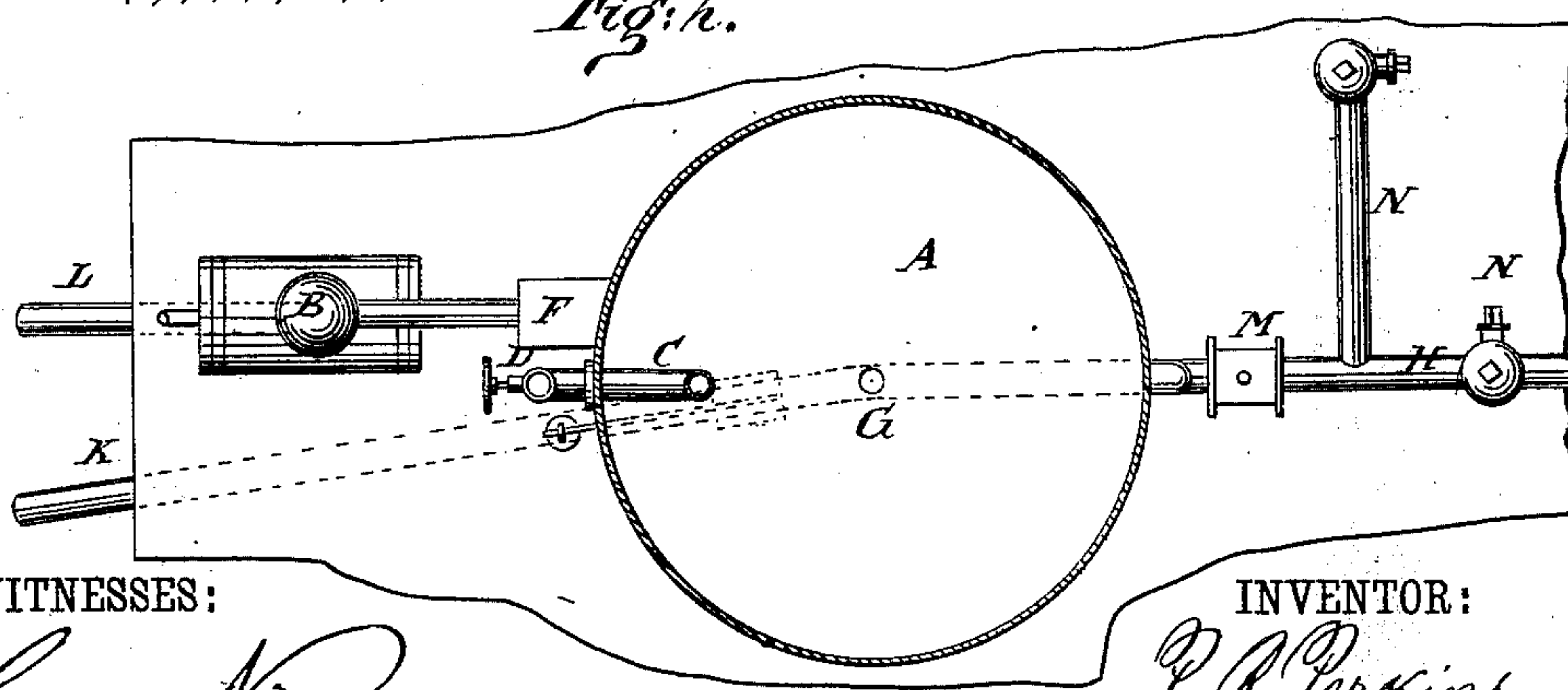
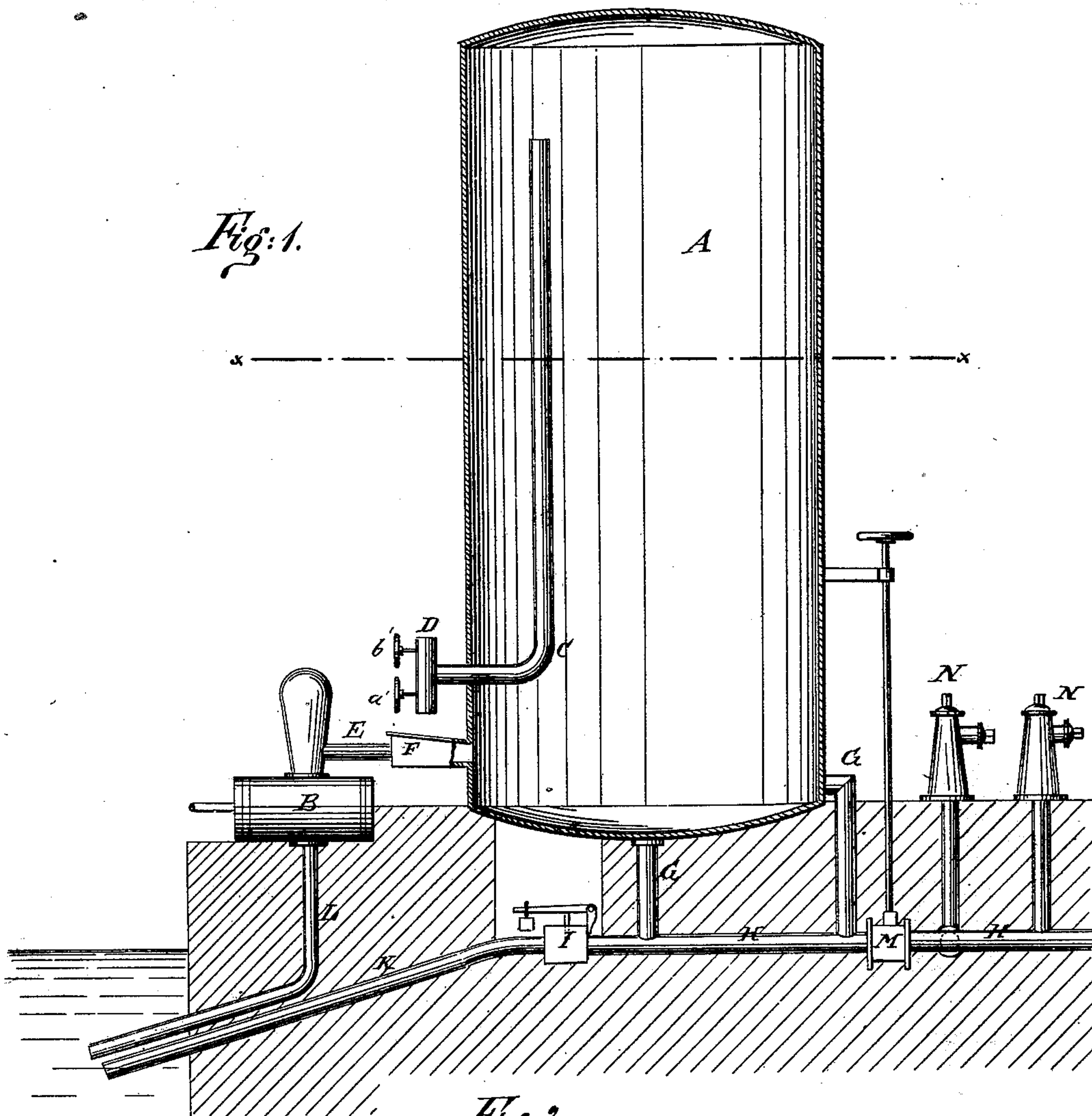


P. B. PERKINS.
Water-Works.

No. 218,057.

Patented July 29, 1879.



WITNESSES:

Chas. A. Nida
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UNITED STATES PATENT OFFICE.

PAUL B. PERKINS, OF GENESEO, ILLINOIS.

IMPROVEMENT IN WATER-WORKS.

Specification forming part of Letters Patent No. **218,057**, dated July 29, 1879; application filed May 16, 1879.

To all whom it may concern:

Be it known that I, PAUL B. PERKINS, of Geneseo, in the county of Henry and State of Illinois, have invented a new and useful Improvement in Water-Works, of which the following is a specification.

Figure 1 is an elevation of the works, partly in section. Fig. 2 is a plan of the works on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to supply water for domestic, manufacturing, and other purposes in cities and towns, and at the same time to furnish the requisite quantity of water under any desired pressure for extinguishing fires wherever the distribution-pipes may be extended by means of stationary pumping machinery discharging the water from its supply-source into and through an air-tight compression storage-reservoir that is provided with the necessary pipes, valves, and fire-hydrants, all connected with the town or city mains.

These parts or devices in their connected and combined operations effect and assure an adequate supply of water for domestic purposes, and for manufacturing and fire purposes as well, a supply limited only to the capacity of the pumping apparatus when it is in operation, and only to the capacity of the storage-reservoir when the pumping apparatus is idle.

By this device an ample supply of water for all purposes, even for an instantaneous and constant fire-stream, can be had without the incessant movement of the pumps, and because of the compressed-air cushion in the reservoir a steady equilibrium be maintained in the distribution-pipes in spite of the sudden opening or closing of hydrants or other services, and a complete absence of vibrations be secured in fire-hose and service-pipes.

The compressed air in the reservoir resting upon the water therein exerts a pressure similar, though more elastic, to that obtained by the altitude of a stand-pipe.

By this device sufficient water and air pressure can be stored to throw an instantaneous fire-stream, and to continue it until a fire can be made under a boiler and steam enough raised

to operate the pumping machinery for a further supply.

In the drawings, A represents the compression-reservoir for air and water. B is the pump that draws water from the source of supply and forces it into the reservoir.

C is the air-supply, extending nearly to the top of the reservoir, and connected on the outside with a pipe, D, set at right angles to it, which contains two valves, *a'* and *b'*.

Through *a'*, when *b'* is closed, air may be forced into the reservoir. Through *b'*, when *a'* is closed, the air-pressure in the reservoir may be relieved, if desired.

E is the inlet or discharge pipe from pump to reservoir, provided with an ordinary check-valve, F.

G G are the outlet-pipes from reservoir to the main H, in which is a relief or safety valve, I, that can be set to any desired pressure, and operates like an ordinary boiler safety-valve. Too high a pressure in the main will cause this valve to open, when the water in the main will flow out through the waste-pipe K back to the source of supply.

L is the suction-pipe leading to the pump.

M is a gate-valve to turn water on or off the distributing-pipes of the city.

All parts of the device, it will be seen, are subject to the same pressure as that obtaining in the reservoir.

N N are hydrants or service-pipes connected with the main.

In its operation the pump forces water from the source of supply into the reservoir, thereby creating a pressure proportionate to the space which the air in the reservoir is forced to occupy, so that when the valve M is opened the same pressure, less the simple friction in the pipes, is distributed through the entire system of pipes, hydrants, &c., thus substituting, in the distribution of the water, the pressure of compressed air for that of a column of water in a stand-pipe.

The compressed air will force the water from the reservoir through the pipes and hydrants when the pump is idle with the same or greater force than was used in storing said water.

With a constant amount of air in the reservoir the pressure it exerts is increased with

every stroke of the water-supply pump, and at any time the pressure can be still further increased by pumping air through the pipe C.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with the reservoir A, the pump B connected therewith by pipe E and valve F, and having the pipe L, and the air-

supply device C D, having valves *a' b'*, of the main H, having gate M connected with reservoir by pipes G, and having pipes that lead to hydrants N, as and for the purpose specified.

PAUL B. PERKINS.

Witnesses:

F. H. MCARTHUR,
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