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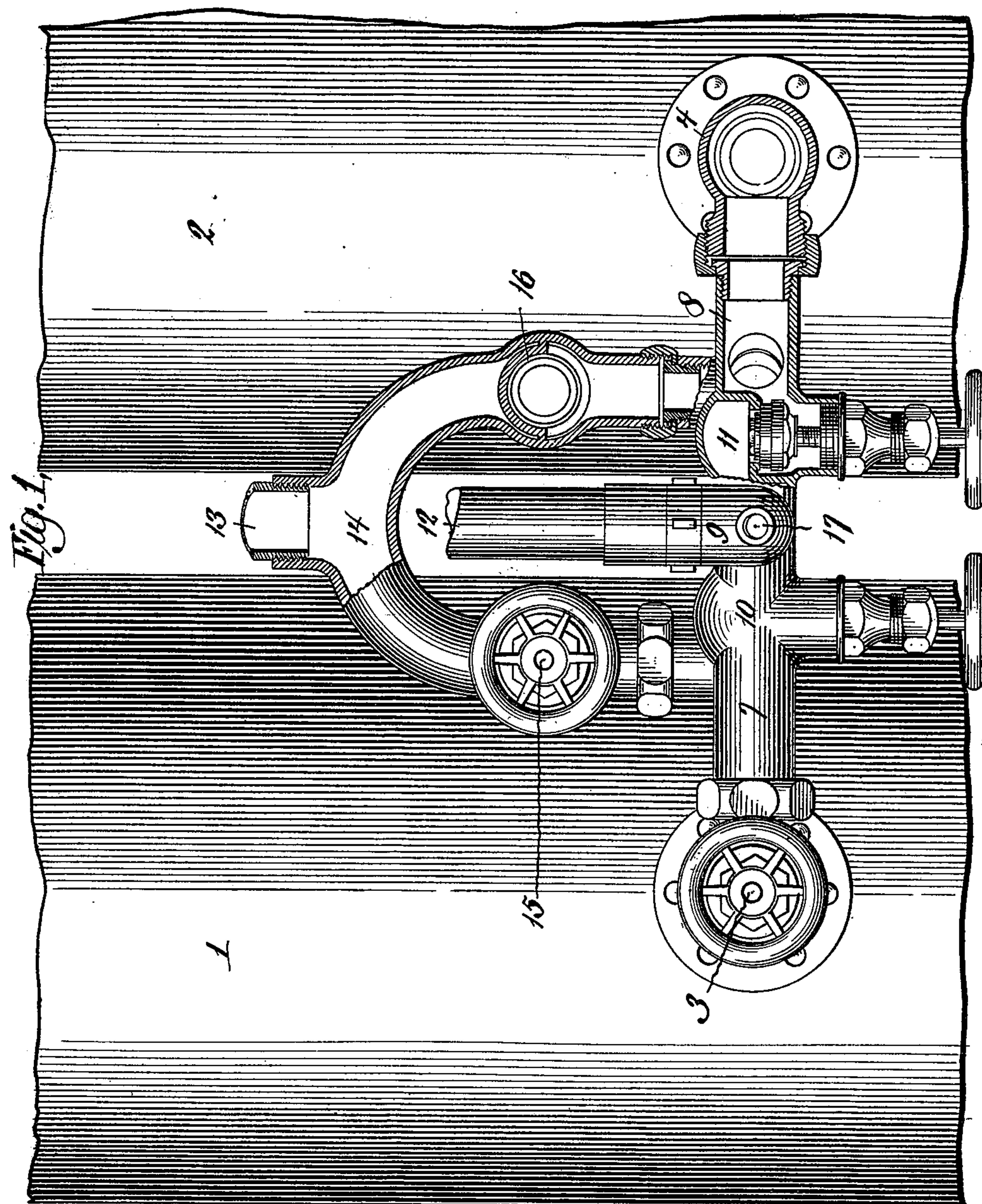
Patented June 4, 1901.

J. B. McLAREN.  
CHEMICAL FIRE EXTINGUISHER.

(No Model.)

(Application filed Jan. 19, 1901.)

3 Sheets—Sheet 1.



WITNESSES:

*W. H. Rayport*  
*A. A. Feiler*

INVENTOR

*John B. McLaren*

BY *E. M. Marshall*

ATTORNEYS

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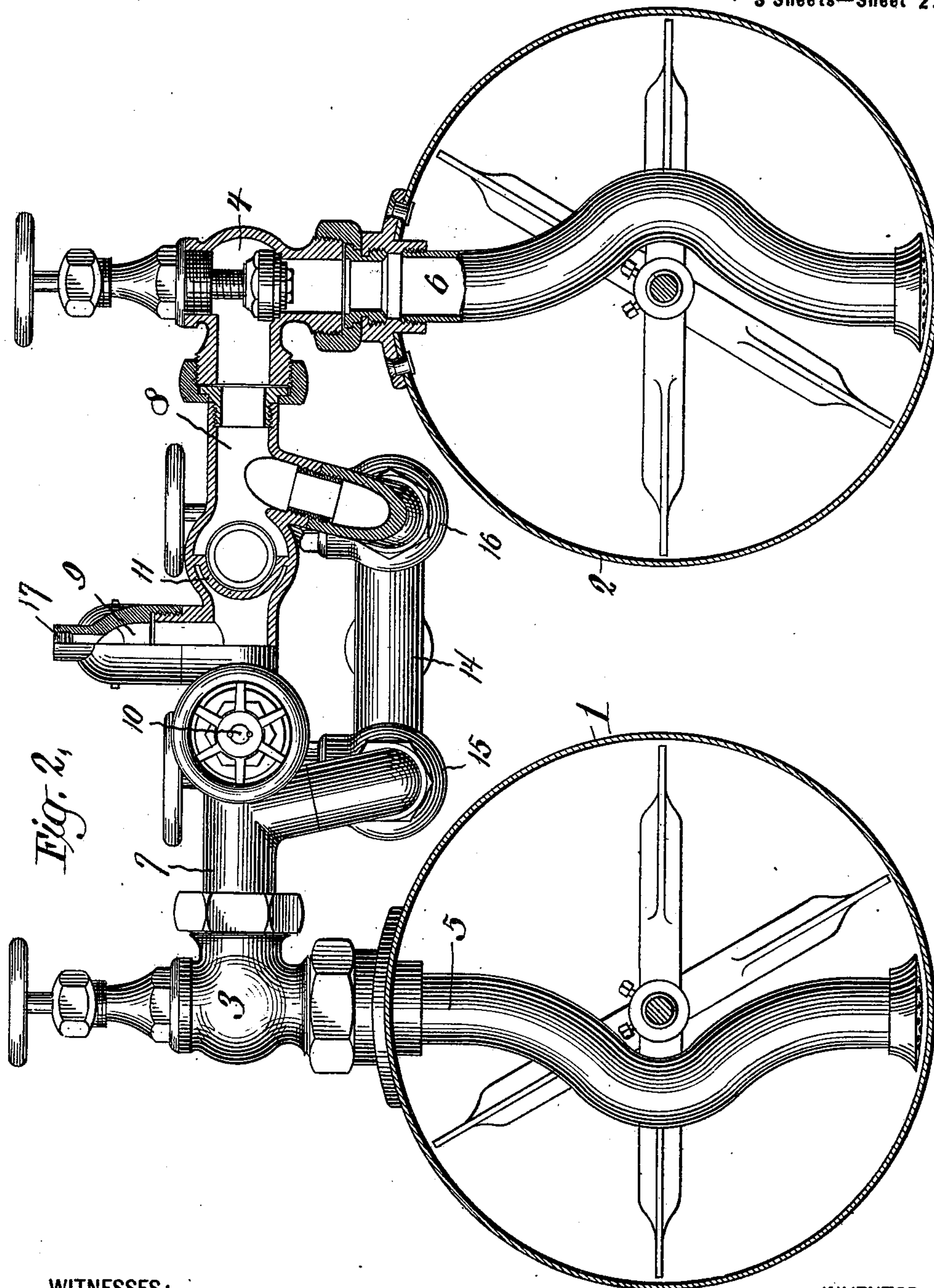
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(Application filed Jan. 19, 1901.)

3 Sheets—Sheet 2.



WITNESSES:

*D. M. Haywood*  
*A. H. Taylor*

INVENTOR

*John B. McLaren*  
BY *E. M. Marshall*

ATTORNEYS



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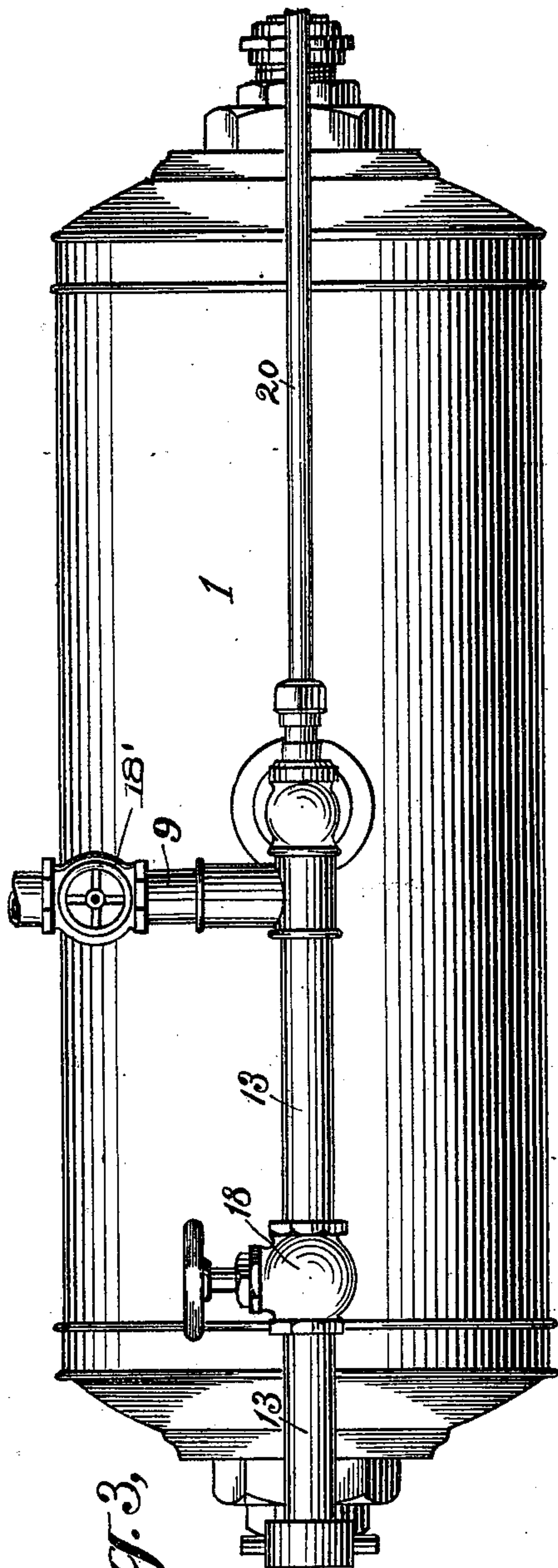


Fig. 3.

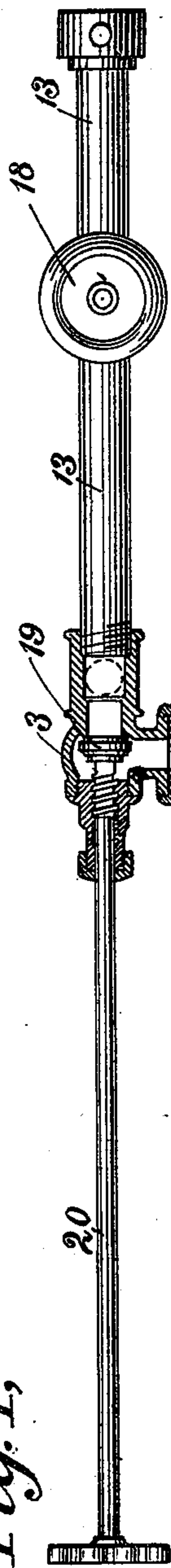
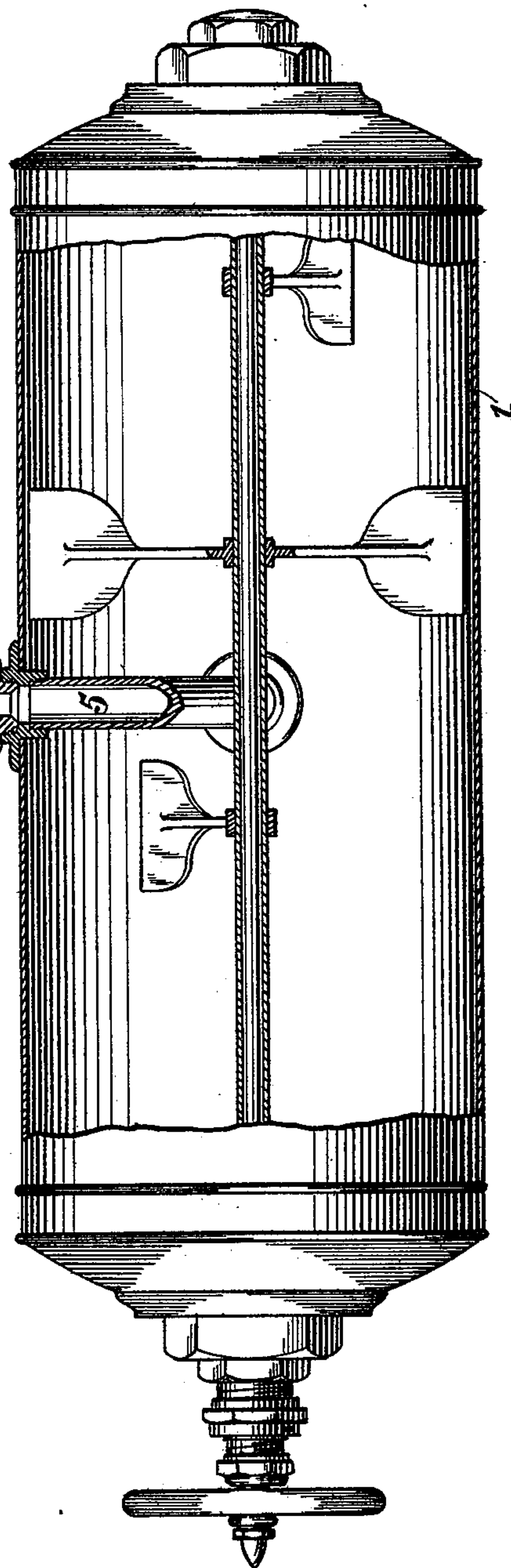


Fig. 4.



WITNESSES:

*D. N. Raybourn*  
*A. H. Felt*

INVENTOR

*John B. McLaren*

BY

*E. M. Marberry & Son*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JOHN B. McLAREN, OF MUSKEGON, MICHIGAN.

## CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 675,400, dated June 4, 1901.

Application filed January 19, 1901. Serial No. 43,887. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. McLAREN, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Chemical Fire-Extinguishers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in portable and stationary chemical fire-engines, chemical tanks for combination hose-wagons, combination hook-and-ladder trucks, and other combination fire apparatus; and its object is to prevent the engine from being rendered useless after a charge in its tank or tanks has been used up and until such charge is renewed by rendering it possible to connect the engine to a waterworks-hydrant and then to maintain a stream on the fire through the chemical-hose and at the same time to refill the tank or tanks and charge the same ready for use again.

An objection to chemical fire-engines and combination chemical fire apparatus as heretofore constructed is that while the tanks are being recharged no stream can be maintained from the engine or combination apparatus and the apparatus is useless, possibly, at a critical period. To obviate this difficulty to a certain extent, it is common to provide engines or combination fire apparatus with two or a greater number of tanks, which are used in alternation. This is not altogether satisfactory, because even if it be attempted to use the tanks in alternation one tank may be exhausted before the other tank is fully recharged and available for use. The objection might be overcome by increasing the capacity of the tanks; but this greatly increases the weight and bulk of the apparatus.

By my invention it is possible to maintain a continuous stream from the chemical fire apparatus at all points where a supply of water under sufficient pressure is available even when a tank or all of the tanks of the chemical fire apparatus are being recharged or are unavailable for other reasons. This I accomplish by providing a hydrant connection of such size and so connected with the supply

and discharge pipes of the apparatus that it will both serve to fill the tanks of the apparatus with water and at the same time to maintain a discharge of water through the chemical hose.

In the accompanying drawings, Figure 1 is a top view and partial section of pipe connections and portions of the tanks of a two-tank chemical fire-engine or two-tank combination fire apparatus provided with my invention, and Fig. 2 is an end elevation and partial section of these pipe connections and a transverse section of these tanks. Fig. 3 is a side elevation and partial section of a single-tank apparatus provided with my invention, and Fig. 4 is a top view and partial section of the parts shown in Fig. 3.

Referring now to the drawings, and, first of all, to Figs. 1 and 2, numerals 1 and 2 designate the two tanks of a two-tank chemical fire-engine or combination fire apparatus. 3 and 4 are the outlet-valves of the tanks 1 and 2, respectively, said valves being connected to the discharge-pipes 5 and 6 within the tanks and to other discharge-pipes 7 and 8, leading to a common discharge-pipe 9. 10 and 11 are valves interposed in the pipes 7 and 8, respectively, so as to control the discharge from the two tanks 1 and 2. To the pipe 9 the hose 12 may be attached. 13 is a water-supply pipe designed to be connected to a hydrant or other source of supply of water under pressure when the engine or apparatus is in operation. At its inner end said pipe 13 is connected to a branch connection 14, the branches of which are connected, respectively, to pipes 7 and 8. In these branches there are valves 15 and 16. The operation of this apparatus is as follows: Supposing both tanks 1 and 2 to be empty and to be in process of being recharged, they may be filled with water by opening the valves 15 and 16 and 3 and 4, pipe 13 having been connected to a hydrant or other source of supply of water under pressure. At the same time a stream may be maintained through the hose if the valves 10 and 11, or either of them, are open, for in such case water will be supplied through the pipes 7 and 8, or either of them, to the hose through the pipe 9, the size of the supply-pipe 13 and the internal diameter of the branch connection 14 being amply suffi-



cient for maintaining the stream from the hose and for filling the tanks as well. As soon as the tanks have been filled and the chemicals inserted the admission of water to the tanks is stopped by closing valves 3 and 4. This does not interrupt the stream through the chemical-hose, however. As soon as the water in either of the tanks has been charged with the chemicals the valves 15 and 16 are closed, and thereafter the tanks are discharged and filled alternately, or as nearly so as possible. It will be seen, therefore, that when both tanks of the engine or fire apparatus are being filled or are out of service for other reasons a stream of water may be maintained through the chemical-hose, and although the stream is not gas-charged, still the ability to furnish such a stream adds considerably to the effectiveness of the apparatus. It will also be seen that either tank may be filled from the pipe 13 while the other is discharging and that the water from the pipe 13 may be mixed with the gas-charged water flowing from either of the tanks, so as to economize in the expenditure of gas-charged water. Thus supposing that tank 1 is empty and that tank 2 is discharging through valves 4 and 11 into the hose 12, tank 1 may be filled by opening valves 15 and 3 and keeping valve 10 closed, (pipe 13 having previously been connected to a hydrant,) and at the same time uncharged water from pipe 13 may be mixed with the charged water from tank 2 by opening either valve 16 or valve 10. A pressure-gage may be connected to pipe 9 at opening 17.

Figs. 3 and 4 show an arrangement of pipes and connections which may be employed for a single-tank apparatus. The tank in said figures is numbered 1. Numeral 3 designates its discharge-valve, and numeral 5 the internal discharge-pipe of the tank. Numeral 13 designates the water-supply pipe, and in this pipe is a valve 18 for controlling the flow of water from the hydrant. The pipe 9, to which the chemical-hose may be connected, is in this instance connected to the casing of the valve 3, and the valve-disk 19 of said valve 3 is operated by a long valve-rod 20. In the pipe 9 there is, at any convenient point, a valve 18', corresponding to valve 10 or valve 11 of Figs. 1 and 2, by which flow of water through the pipe 9 may be stopped when it is desired simply to fill the tank. The operation of this form of apparatus is the same as that shown in Figs. 1 and 2. While the tank is discharging normally, the valve 3 is open and the valve 18 closed, and the fluid in this tank is forced upward by the pressure within the tank through the discharge-pipe 5 and valve 3 into the pipe 9; but when the charge of the tank is exhausted the pipe 13 may be connected by a hose to a hydrant or other source of water-supply, and the valve 18 being then open, water from the hydrant is supplied to the chemical hose through the pipe 9, and

if the valve 3 be open at the same time then the hydrant connection will serve not only to maintain a stream from the chemical hose, but also to fill the tank.

Having thus completely described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a chemical fire-extinguisher, the combination, with a pressure-tank in which pressure may be produced and water may be gas-charged, by chemical means, and a discharge-conduit therefor, arranged to permit the flow of water into or out of the tank, of a water-supply pipe, connected to said discharge-conduit, and of sufficient capacity to maintain a stream from the extinguisher and simultaneously to fill the tank through the discharge-conduit, whereby water from said pipe may serve to fill the tank and simultaneously to maintain a stream from the extinguisher, and provided with a suitable valve.

2. In a chemical fire-extinguisher, the combination, with a pressure-tank in which pressure may be produced and water may be gas-charged, by chemical means, and a discharge-conduit therefor, arranged to permit the flow of water into or out of the tank, and having a valve, of a water-supply pipe, connected to said discharge-conduit at a point intermediate between the said valve and the outlet of the conduit, and of sufficient capacity to maintain a stream from the extinguisher and simultaneously to fill the tank through the discharge-conduit, whereby water from said pipe may serve to maintain a stream from the extinguisher while the tank is being charged, or both to maintain a stream and to fill the tank simultaneously; said water-supply pipe being likewise provided with a suitable valve.

3. In a chemical fire-extinguisher, the combination, with a plurality of pressure-tanks in which pressure may be produced and water may be gas-charged, by chemical means, and discharge-conduits for said tanks which unite in a single discharge-pipe, and are provided with valves near the tanks and near the points where the discharge-conduits unite, of a water-supply pipe having branches which are connected to said discharge-conduits at points between the valves thereof, and are provided with valves, said pipe being of sufficient capacity to maintain a stream from the extinguisher and simultaneously to fill one of said tanks through its discharge-conduit; whereby water from said supply-pipe may serve to maintain a stream from the extinguisher while one or all of the tanks are being charged, or are otherwise unavailable, or to fill any of said tanks, at will.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN B. McLAREN.

Witnesses:

D. HOWARD HAYWOOD,  
HARRY M. MARBLE.