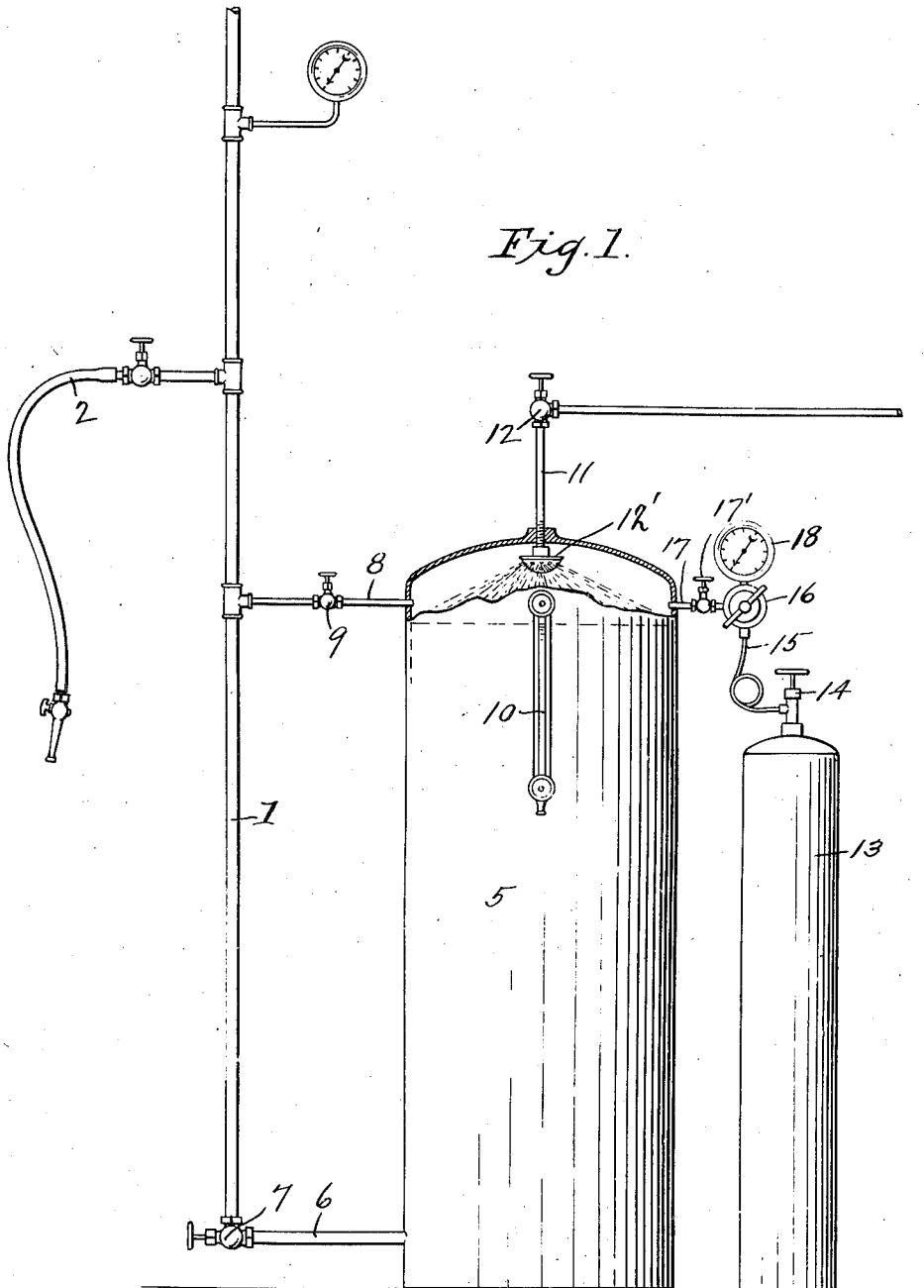


C. BRENT.
FIRE EXTINGUISHING STAND PIPE SYSTEM.
APPLICATION FILED NOV. 9, 1906.

1,006,528.

Patented Oct. 24, 1911.

2 SHEETS-SHEET 1.



Witnesses:

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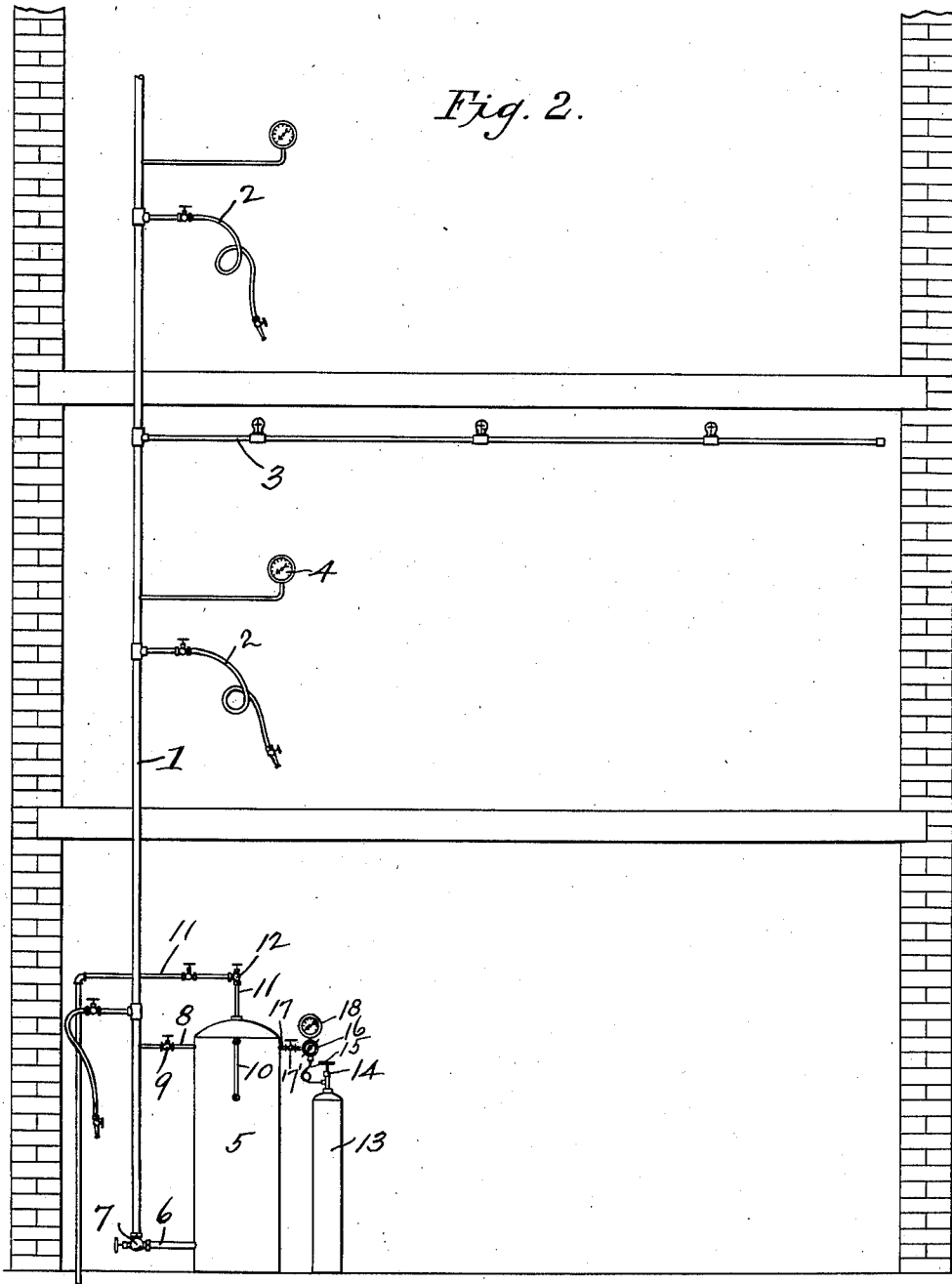
Attorney.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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FIRE-EXTINGUISHING STAND-PIPE SYSTEM.

1,006,528.

Specification of Letters Patent. Patented Oct. 24, 1911.

Application filed November 9, 1906. Serial No. 342,597.

To all whom it may concern:

Be it known that I, CHARLES BRENT, residing at Brandon, in the Province of Manitoba and Dominion of Canada, have invented a certain new and useful Improvement in Fire-Extinguishing Stand-Pipe Systems, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates generally to fire extinguishing apparatus and particularly to that class of such devices known as stand pipe systems.

More specifically the invention relates to a stand pipe system wherein the stand pipe is normally supplied with carbonated water under pressure and furnished to all parts of the building in which the apparatus is installed whereby when one of the valves or sprinkler heads is operated carbonated water will be discharged immediately, or during very cold weather when the pipes would be apt to freeze, or still further in case it should be desirable to supply the stand pipe with carbonic acid gas for use in walls or partitions, the entire apparatus may be easily converted into a dry pipe system, whereby gas will be supplied to all parts of the building.

It might also be said that this invention in one of its many aspects is an improvement over my prior co-pending application for improvements in fire-extinguishers, Serial No. 268,871, filed July 8, 1905, which relates to an apparatus for forming a saturated solution for use in extinguishing fire. It further, in a sense, applies the method of extinguishing fire set forth in my Patent No. 851,274, granted April 23, 1907, by the use of a saturated solution of a liquid and a fire extinguishing gas in a stand pipe system. Further the invention employs in a stand pipe system the features disclosed by my co-pending application for improvements in fire-extinguishers, Serial No. 296,489, and filed Jan. 17, 1906, wherein the apparatus is arranged to deliver water, water and gas in combination or gas alone.

The invention is susceptible of being arranged so that the stand pipe may be normally a dry pipe system but capable of being converted easily upon the opening of

one of the discharge devices, into a wet pipe system. It may, however, be arranged in a manner such that it is a dry pipe system at all times.

More specifically the invention relates to a stand pipe connected to all parts of the building and supplied in each of the rooms, or any desired points, with suitable nozzle and hose connections, or with automatic sprinkler heads, whereby upon the operation of one of said devices the stand pipe will be ready for immediate use.

The main object of this invention, as a result of the arrangement of parts already stated, is the ease with which the entire device may be converted from a wet pipe system to a dry pipe system, or from a normally dry pipe system to a wet pipe system, or still further whereby it may be arranged as a dry pipe system at all times or a wet pipe system at all times, the changing or the conversion of the device from one to the other being automatic in some of the instances, and requiring very little adjustment in the others. Suitable means is provided for supplying this stand pipe with carbonated water and carbonic acid gas. This mechanism consists of a tank connected by a pipe leading from the bottom thereof to the stand pipe and controlled by a valve, and another by-pass leading from the upper part of said tank to the stand pipe and also controlled by a valve. A suitable gas container is arranged to deliver gas to said tank and the delivery is controlled by a suitable reducing valve whereby the pressure may be maintained at any desired point.

Referring to the drawings Figure 1 shows my apparatus applied to a building and Fig. 2 shows the water tank and connections in detail.

In the drawings 1 represents the stand pipe which is provided on the several floors or in different parts of the building with a hose and nozzle connection 2 sprinkler head connections 3 and with a suitable gage 4 indicating the pressure in the stand pipe. The stand pipe is connected in the basement of the building, or at any other desired point, with the water tank 5 by means of a pipe 6 containing a shut-off valve 7 and

by a by-pass 8 very much smaller in area than the pipe 6, controlled by a valve 9 and leading to the top of such tank 5.

The tank 5 is provided with a gage glass 10 and water supply pipe 11 having a valve 12 and connected to the water main or other supply. A spraying device 12' is arranged inside of the tank and upon the end of the supply pipe 11 whereby as the water enters the tank it will be sprayed or injected in a finely divided condition.

Gas supplying mechanism is provided for the device and it consists of a gas container 13, which has a valve 14 and a pipe 15 leading to a reducing valve 16. This valve 16 is connected to a pipe 17 which leads to the upper part of the water tank 5 and contains a valve 17'. A suitable gage 18 is arranged in connection with the reducing valve for indicating the reduced pressure.

In operation my device works as follows: The tank and the stand pipe being installed in the building and the gas container of carbonic acid gas being coupled to the device, the valve 14 is opened and the valve 17' is closed. The pressure desired in the tank being set by the reducing valve 16 and observed on the gage 18 and the shut-off valve 7 and the by-pass 9 being closed, the valve 17' is then opened, when the tank 5 fills up with carbonic acid gas at the pressure indicated on the gage 18 and regulated by the valve 16. The valve 12 in the supply pipe 11 is now opened when the water, which is at a higher pressure than the pressure indicated on the gage 18, is forced into the tank through the spraying device 12'. Each particle of water falling through an atmosphere of carbonic acid gas in the tank rapidly absorbs such gas and collects in the bottom of the tank in a saturated condition until the proper water level is indicated on the gage glass 10. Now if it is desired to maintain a wet pipe system the shut-off valve 7 is opened when the gas pressure in the tank forces the carbonated water through all the pipes of the system, then the apparatus is ready for use upon the opening of one of the discharge devices. If it is desirable to convert the system into a normally dry pipe system the by-pass valve 9 is opened very slightly when the gas gradually fills up the stand pipe and the water falls by gravity back into the tank. The system is now ready for use in any part of the building, and in case of fire occurring it

is only necessary to operate the nearest discharge device to throw a stream upon the fire: or if the system be connected with a thermally operated sprinkler head device, the operation is automatic and the carbonated water is sprayed upon the fire as soon as the sprinkler head is set-off. In the dry pipe system the pipes are filled with carbonic acid gas which is first discharged upon opening one of the discharge devices and is then immediately followed by the carbonated water, a small amount of carbonic acid gas continuing to flow through the by-pass with the discharge of carbonated water from the tank, it not being sufficient however to affect the nature of the discharge since the area of the shut-off valve 7 is very much greater than the area of the bypass valve 9. In fighting a fire within a partition or in any place where it is difficult or impossible to use a stream of water, the valve 9 may be opened to its fullest extent and the valve 7 closed. In this case dry gas only will be discharged from the tank and through the stand pipe system. In any discharge from the system whether of gas or water the pressure is kept constant within the tank since the valve 16 feeds the gas from the container 13 to the tank so as to automatically keep the pressure up to any degree it is set for. This system is therefore capable of discharging carbonated water, carbonated water and gas or gas only as may be found most efficient in fighting fire.

Having described my invention, I claim:

In fire extinguishing apparatus, in combination, a water tank, a stand-pipe, a pipe leading from the lower part of said tank to said stand-pipe, a valve in said pipe, a by-pass leading from the upper part of said tank to said stand pipe and of less cross sectional area than that of the pipe connecting the stand-pipe and the lower part of the tank, a valve in said by-pass, a gas container, valve and pressure regulating mechanism connecting said container with said tank, and means for supplying water under pressure to said tank.

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

CHARLES BRENT.

Witnesses:

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