

S. S. NEWTON.
EXTINGUISHING FIRE IN BUILDINGS.
No. 173,987. Patented Feb. 22, 1876.

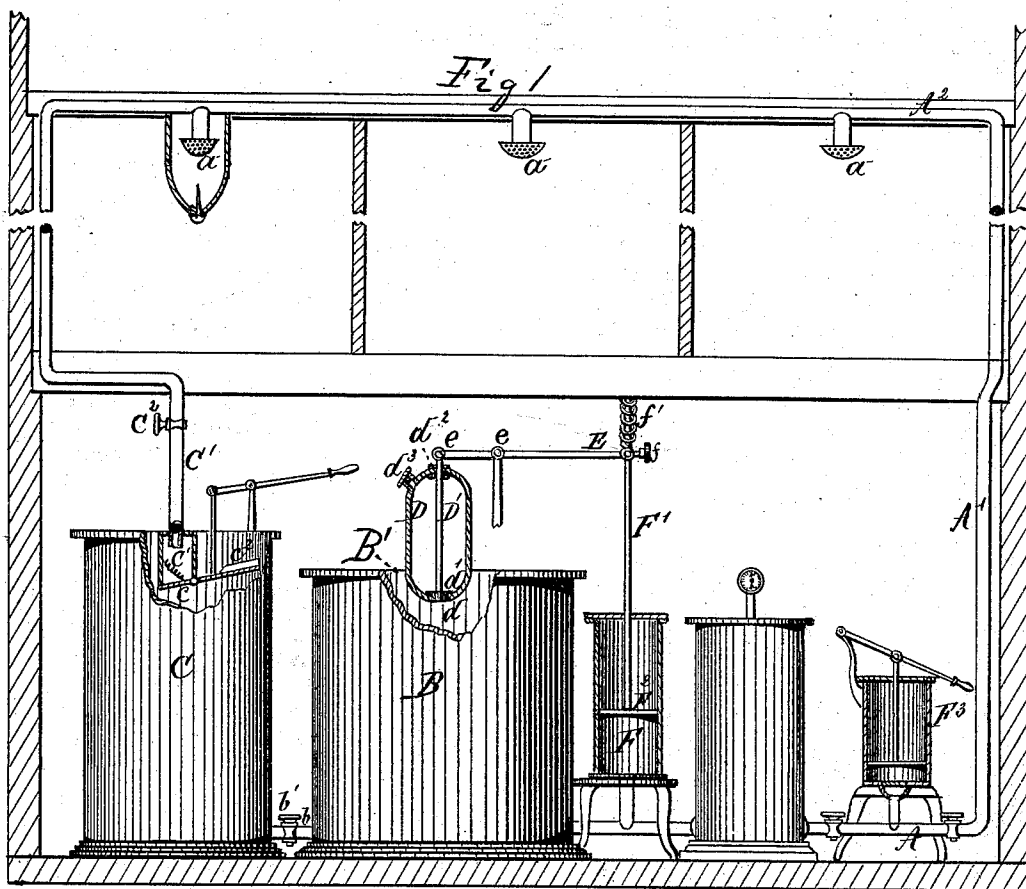


Fig. 2.

Witnesses
Henry Orth
Henri Guillaume

Inventor.
Stephen S. Newton
by *W H Doubleday atty.*

UNITED STATES PATENT OFFICE.

STEPHEN S. NEWTON, OF BINGHAMTON, NEW YORK.

IMPROVEMENT IN EXTINGUISHING FIRES IN BUILDINGS.

Specification forming part of Letters Patent No. **173,987**, dated February 22, 1876; application filed January 20, 1876.

To all whom it may concern:

Be it known that I, STEPHEN S. NEWTON, of Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Extinguishing Fires in Buildings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to the combination, with a supply-pipe and nozzle, or a series of supply-pipes and discharging-nozzles, arranged in the various rooms of a building, of an air-tight tank containing a supply of water and alkali, a bottle or other vessel containing acid, a valve for discharging the contents of the bottle into the air-tight water-tank, and a device which shall be put into operation automatically by an increase of temperature of the air in the building, to open the valve of the acid bottle or receiver, whereby carbonic-acid gas is generated in the water-tank and delivered with the water through the discharging-nozzle.

Having thus set forth the nature of my invention, I will proceed to describe different methods which I have adopted for carrying it into practice.

In Figure 1, A A¹ A² represent a series of supply-pipes, arranged in or upon the walls of a building, with one or more nozzles or sprinklers, *a*, in each room, or in as many rooms as may be desired. Under one arrangement each of these nozzles is to be provided with one of the usual check-valves, held closed by means of an easily-fusible solder. As the construction and operation of this class of valves is fully understood, no specific description of them need be given; but in practice I prefer to use one patented to me in Letters Patent dated December 21, 1875. B is a water-tank, provided with an opening, B', through which to fill it, or it may be filled by means of a force-pump. In practice I prefer the latter method. C is a receiving and supply tank, connected with tank B by a pipe, *b*, having a cock, *b'*. C¹ is a pipe leading from

the supply-pipe to tank C. C² is a cock in pipe C¹. *c* is a valve closing the end of pipe C¹. *c'* is a spring, which holds the valve firmly against the open end of pipe C¹. *c''* is a counterpoise, which may be substituted for spring *c'*. D is the acid bottle or receiver, provided with an opening, *d*, into the tank B. D' is a valve-stem, carrying a valve, *d'*, at its lower end, and working in a stuffing-box, *d''*, at the upper part of the bottle or acid receiver. *d'''* is an opening into the bottle. E is a lever, fulcrumed at *e*, and connected to the valve-stem D' at *e'*. F is an air-cylinder. F¹ is a piston-rod, carrying at the lower end a piston, F², which fits air-tight within cylinder F. The piston-rod is secured to lever E, at *e*, by means of a set-screw, *f*. *f'* is a spiral spring surrounding the end of piston-rod F¹, one end of the spring resting against the lever E, the other end pressing against any suitable support. F³ is an air-pump.

The operation of these devices is as follows: The tank B is filled, or partially filled, with water in which has been dissolved a suitable quantity of alkali, say carbonate of soda, the proportion of soda to be varied according to circumstances, but about that commonly used in fire-extinguishers. Air is then forced into the pipes A A¹ A², the valves of the nozzles being securely closed, until the piston F² and piston rod F¹ are forced upward and the valve *d'* is thrust firmly into the opening *d*. The bottle is then filled with acid. As the piston-rod F¹ is forced up the spring *f'* is compressed. The tension thus produced by this spring must be such as to insure that it will overcome the friction of the piston in the cylinder and elsewhere, and the weight of the acid upon the valve, so that when the air-pressure within the pipe and upon the under side of the piston F² is released, the spring will force the piston down, thus raising valve *d'*, and permitting the acid to enter and mix with the alkaline water in the tank B. It is evident that whenever the temperature of the room in which one of the nozzles is located is raised sufficiently to release easily-fusible solder, this opening of the valve *d'* will take place, as will be readily understood without further explanation.

I do not wish to be limited to the use of the

particular acid-bottle here shown, nor to this precise construction of valves for discharging or dumping the acid, nor to the devices shown and described for actuating the valve; and many modifications might be adopted without departing from the spirit of my invention.

As the purpose and operation of the receiving-tank C, pipe C¹, and the cock and valve attached thereto are fully set forth in my patent of December 21, 1875, it is not necessary to describe them in this patent.

What I claim is—

The combination of the following elements, namely: a series of supply-pipes and discharging-nozzles, which are closed by an easi-

ly-fusible solder, a tank containing an alkaline solution, an acid-bottle, an air pump for compressing air within the supply-pipe, and a piston connected with the acid-bottle and with the supply-pipes, substantially as set forth, whereby, when the air-pressure within the supply-pipes is released, the acid will be discharged into the alkaline solution.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

STEPHEN S. NEWTON,

Witnesses:

WM. DAVIS,

ALEX. S. PATTEN.