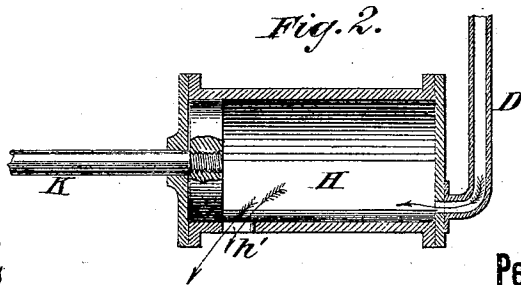
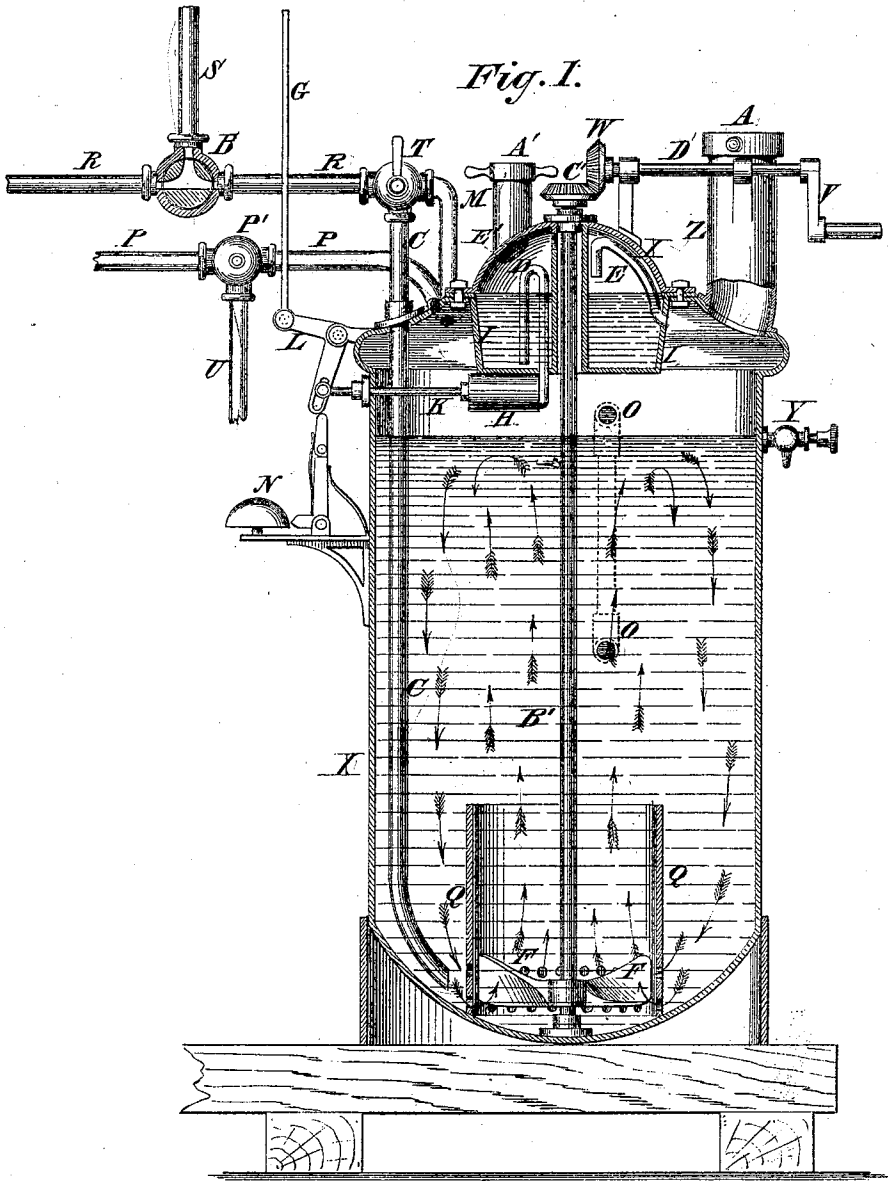


D. J. TAPLEY.
Fire-Extinguishers.

No. 141,607.

Patented August 5, 1873.



Witnesses:

A. Edgwick
J. Goethals

Inventor:

D. J. Tapley

Per

Wm. H. [Signature]
Attorneys.

UNITED STATES PATENT OFFICE.

DANIEL J. TAPLEY, OF DANVERS, MASSACHUSETTS.

IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. **141,607**, dated August 5, 1873; application filed March 29, 1873.

To all whom it may concern :

Be it known that I, DANIEL J. TAPLEY, of Danvers, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Fire-Extinguishers, of which the following is a specification:

Figure 1 is a detail vertical section of my improved machine. Fig. 2 is a detail sectional view of the pump for starting the siphon.

Similar letters of reference indicate corresponding parts.

My invention has for its object to improve the construction of fire-extinguishers of that class in which chemical action is used to generate a gas to be used alone or to impregnate a solution, and to furnish the motive power by which said gas or solution is projected from the machine so as to make the apparatus more effective and reliable in action, more convenient in use, and bring it more under the control of the operator. The invention consists in the improvement of carbonic-acid-gas fire-extinguishers, as hereinafter described and pointed out in the claims.

X represents one of a pair of tanks of any desirable form or capacity, and which is provided with a gage-cock, Y, at the desired water-line. The tank X is filled with water to the line of the gage-cock Y, through the pipe P U leading from the water-supply, and terminating in the top or cover of the tank. The pipes P, at their point of junction with the pipe U, are provided with a three-way cock, P', to enable the water to be directed into one or the other of the tanks X, as required. The alkali to impregnate the water is introduced into the tank X through a port, Z, in its top, which port is closed with a cap or plug, A. In the lower part of the tank X is secured a hollow vertical cylinder, Q, having apertures in the lower part of its sides for the free ingress of the solution. F is a propeller screw or wheel placed in the cylinder Q and attached to a vertical shaft, B', the lower end of which revolves in a step, and its upper end passes up through a stuffing-box in the top of the tank X. To the upper end of the shaft B' is attached a bevel-gear wheel, C', the teeth of which mesh into the teeth of a bevel-gear wheel, W, attached to the end of a shaft, D'. The shaft D' revolves in bearings in suitable

supports, and may be actuated by hand-power applied by a crank, V, or by any other convenient power. By this arrangement the propeller-screw F, when in operation, forces a current upward from the lower part of the tank X to prevent the undissolved alkali from settling at this point and clogging the lower end of the pipe C. In the upper part of the tank X is secured an acid-chamber, I, which is made of an annular form to allow the shaft B' to pass through it without contact with the acid, and may be lined with glass or porcelain to prevent the corrosive action of the acid. The acid is introduced through a port, E', in the top of the tank X, which port is closed by a cap or plug, A'. The acid is discharged from the chamber I into the tank X by a siphon, D, the short arm of which opens into said acid-chamber, and the long arm of which opens into the cylinder of the air-pump H, so that by a single stroke of the piston the air is withdrawn from said siphon, and the acid flows through the siphon into the cylinder of the pump H, and escapes through the opening h' into the tank X, as indicated by the arrows in Fig. 2. As the acid mingles with the alkaline solution in the tank X chemical action begins, and the gas generated forces the impregnated solution out through the pipes C R S. The pipes R R S at their point of junction are provided with a three-way cock, B, so that the discharge-pipe S may be connected with the pipe R of either tank, as required. The pipes C R at their point of junction are provided with a three-way cock, T, with which is also connected a pipe, M, opening through the top of the tank X into the gas-space above the solution in said tank. This enables a stream of dry gas to be discharged when desired by simply adjusting the three-way cock T, which cock, under ordinary circumstances, is adjusted to leave the connection between the pipes C R open, the three-way cock B alone being used for connecting the discharge-pipe S with the branches R R alternately, the three-way cock T being only used for converting the machine from a solution-thruster to a dry gas-thruster when required. G is a wire, rod, electric conductor, pneumatic tube, or other connection leading up through the various stories of the building, and the lower end of which is

connected with the piston-rod K of the pump H by a bent lever, L, or other suitable device, so that the said pump may be operated to discharge the acid from any story of the building in which the watchman may be, and in which he wishes the discharge to take place, the three-way cock B being always left open, and being only used when it is necessary to recharge one or the other of the tanks. N is a gong or other alarm, which is connected with the piston-rod K of the pump H in such a way as to sound an alarm and notify the attendant whenever the acid has been discharged. The gaseous pressure in the tank X and acid-chamber I is equalized by a tubular or other passage, E, leading through the wall of the acid-chamber without passing through the wall of the tank X. O is a water-gage connected with the tank X to indicate the height at which the liquid stands.

It will be perceived that the tube E is firmly fastened inside the chamber I and the pump-cylinder, with its siphon rigidly attached to said chamber, so that, for all practical purposes, they form together a single article, being at the same time removable and replaceable.

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

1. The combination, with the tank and acid-chamber I, of the siphon D and air-pump H

arranged in the tank and operated from the outside, in the manner and for the purpose described.

2. The combination, with the pump-operating mechanism, of the spring-held lever that strikes the gong, and causes the latter to be sounded whenever acid is admitted to the tank.

3. The pump and siphon D fixed to the chamber I, as described, so that the latter may be removed by simply drawing out the piston-rod and detaching its fastening-bolts.

4. The combination, with the acid-chamber I and the acid-discharging apparatus, essentially as herein described, of the connecting-rod G, substantially as and for the purpose set forth.

5. The removable acid-chamber I having the pipe E and siphon-pump attached thereto, and arranged as described.

6. The hollow cylinder Q, in combination with the propeller-screw F and tank X for giving direction to the current, substantially as herein shown and described.

7. The combination of the branch pipe M opening into the gas-space of the tank X with the main pipe C R S, substantially as herein shown and described.

DANIEL J. TAPLEY.

Witnesses:

JAMES T. GRAHAM,
T. B. MOSHER.