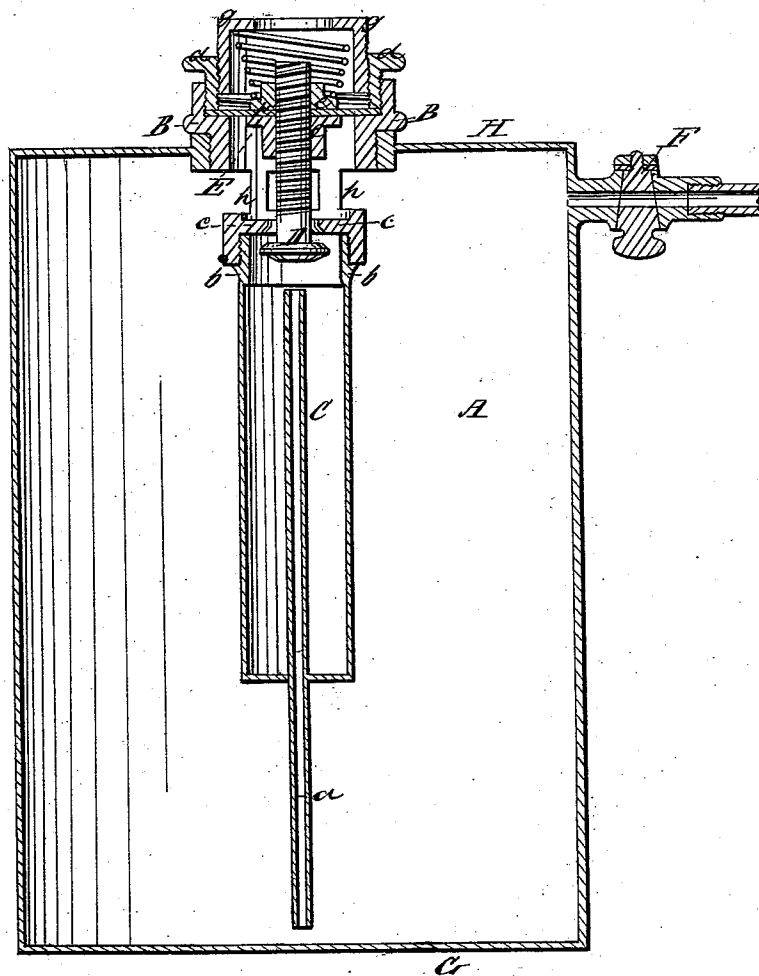


W. H. Laubach

Fire Annihilator

N^o 82,421.

Patented Sep. 22, 1868.



Witnesses
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W. H. LAUBACH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. 82,421, dated September 22, 1868.

To all whom it may concern :

Be it known that I, W. H. LAUBACH, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and Improved Fire-Extinguisher; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and letters of reference marked thereon, and forming part of this specification.

My invention consists of a case of suitable sheet metal, with a metal tube in the same, into each of which are placed certain chemicals, which, when mixed as hereafter described, generate a gas which, when applied to fire of any nature, completely extinguishes it. This invention, in its practical operation, is much more economical than any other fire-extinguisher, besides which it is of such a nature that the force produced by the generation of the gas can be so regulated that all danger of the explosion of the machine is entirely obviated by means hereafter to be described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the outer case, made of suitable sheet metal. B is the screw-cap, inclosing the chamber or case A. C is the inside vessel or tube, which is also made of suitable sheet metal, (or, if certain chemicals are used, then I make it of glass,) and made to contain one ingredient of the generating compound, with a screw and shoulder on the upper end *b b*. *a* is a vent-pipe. *c c* is the valve-seat, attached to the lower end of the cap B. D is a valve, covering the seat *c c*. E is a diaphragm, made of leather or any suitable material. F is the outlet-pipe, with hose attached. G is the bottom, and H the top, of the case or machine A. *d d* is a flange for fastening the edges of the diaphragm, and making it water and air tight. *e e* are nuts for fastening the stem of the valve D to the diaphragm E. *f f* is a spiral spring, pressing on the diaphragm E. *g g* is a cap for regulating the pressure of the spring *f* on the diaphragm E. *h h* are openings through the wall, above the valve-seat *c c*.

The method of operating my machine is as follows: I first remove the cap B, to which the tube C is attached, from the case A. I then

fill the case A with water nearly up to the top. In this I introduce a suitable quantity of bicarbonate of soda, say about a quarter of a pound ($\frac{1}{4}$ pound) to one gallon of water. I then place in the inside vessel or tube C tartaric acid, say about a quarter of a pound ($\frac{1}{4}$ pound) to every gallon of water in the outside vessel A. I then screw the tube C onto the valve-seats *c c*. I then screw the tube C into the vessel A. The machine is now ready charged. When I want to use it for the purpose of extinguishing a fire I turn it upside down, so that H will then be the bottom and G the top. By this operation the liquid in the case A, which is impregnated with the bicarbonate of soda, passes through the apertures *h h* and up through the valve-seats *c c*, and comes in contact with the tartaric acid, which is inclosed in the tube C, and immediately generates gas, which produces a pressure upon the surface of the liquid in the case A. By having suitable hose and pipe attached to the cock F, and opening the same, the liquid can be thrown upon the fire with great force, and thereby extinguish it.

Should the pressure in the vessel A be too great, or more than desired or necessary, its action upon the diaphragm E will cause the valve D to close against the valve-seats *c c*, which will cut off the communication between the water in the chamber or case A and the tartaric acid in the tube C, and by this means the generation of more gas is prevented until the pressure is decreased by drawing off the liquid through the hose and cock F. While the valve D is closed there will be a small quantity of liquid of the case A left in the tube C, which will generate a small quantity of gas, that will find vent and pass up through the vent-tube *a*.

When the pressure of the gases on the diaphragm E is less than the pressure of the spring *f*, the valve D will open and allow the liquid in the chamber A to come in contact with the tartaric acid in the tube C, causing a fresh or new generation of gas.

By screwing down the cap *g*, the pressure of the spiral spring *f* on the diaphragm E is increased, and by unscrewing it the pressure is diminished. If the pressure of the gas in the vessel A is greater on the diaphragm E

than the pressure of the spring *f* on the opposite side of the diaphragm *E*, the valve *D* closes, and, if less, the valve *D* will open.

By raising or lowering (screwing or unscrewing) the cap *g*, the pressure in the chamber or case *A* can be regulated at pleasure.

In ordinary fire-extinguishers the gases are generated almost instantaneously to their full power and extent, which requires a very strong external covering or case to make them safe and to prevent explosion, and consequently necessitates the machines being made very heavy and scarcely portable. This is obviated in my invention, as the force or pressure will be always equal in the chamber *A* until it is emptied of its contents.

By the operation of my machine the tartaric acid is only used as required—that is, it is not all instantaneously used, in contradistinction to other machines. I do not confine myself to putting the bicarbonate of soda in the case *A* and the tartaric acid in the tube *C*, as I sometimes reverse the process in this way, by putting the acid in case *A* and the bicarbonate of soda in tube *C*, the result of which, so far as

generating gas, being the same; nor do I confine myself to using these two chemicals to generate the gas. I sometimes use any other chemicals that are their equivalents, except those that have heretofore been subjects of Letters Patent for the same purposes.

I do not claim extinguishing fire by means of water charged with carbonic or acid gas, nor do I claim reversing the apparatus to mix the acid and the alkali, as that is covered by the patent of William Mullaley, June 2, 1868; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The tube *C*, in combination with the diaphragm *E* and valve *D* and vent-tube *a*, operated and constructed substantially as described.

2. The diaphragm *E* and spiral spring *f*, constructed and operated as described.

3. The cap *g*, operating on the diaphragm *E*, constructed and operated as described.

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Witnesses:

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