E. Bigelow,

Fire Annihilator.

No. 109,576. Patented Nov. 29. 1870.

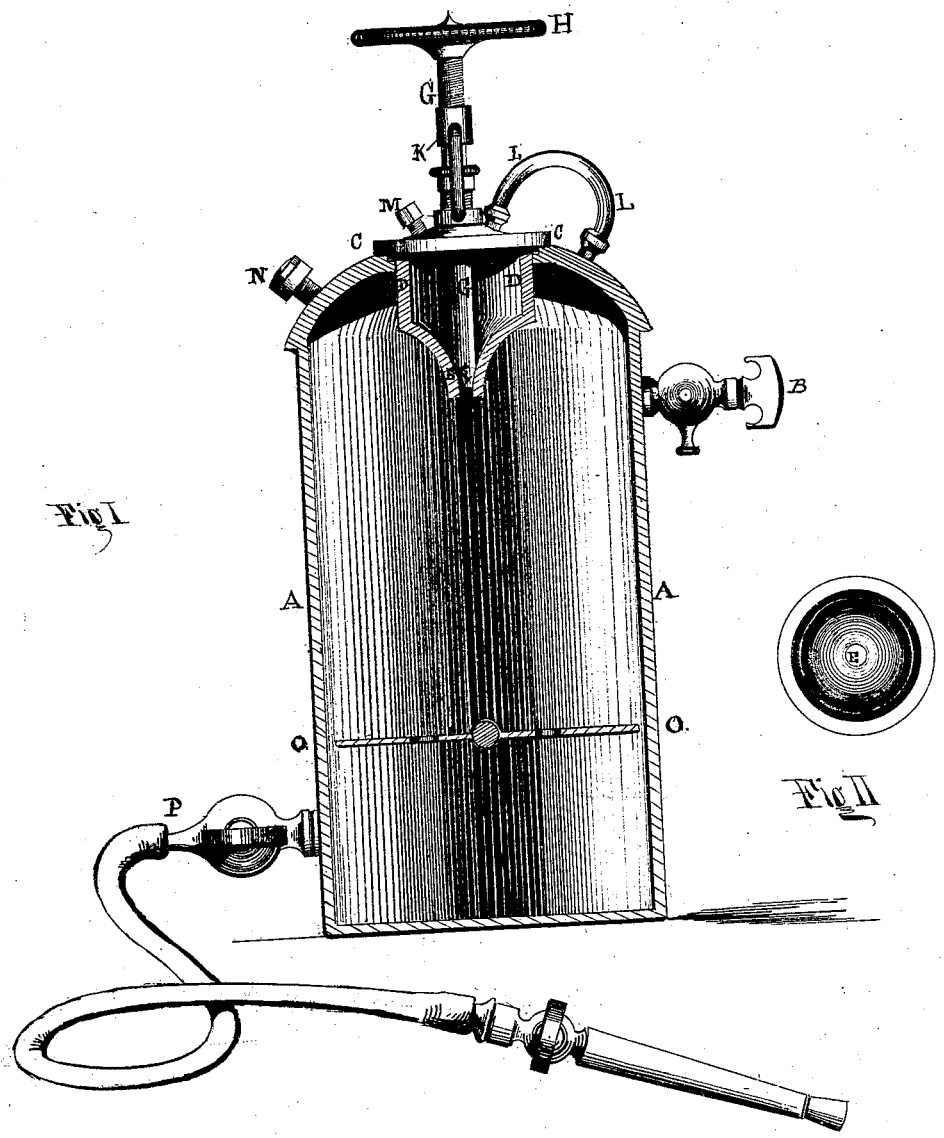

Fig I

Fig II

Witnesses.

Edmund Bigelow Jr.

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UNITED STATES PATENT OFFICE.

EDMUND BIGELOW, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN CHEMICAL FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. **109,576**, dated November 29, 1870.

To all whom it may concern:

Be it known that I, EDMUND BIGELOW, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Apparatus for Using Water Charged with Carbonic-Acid Gas in Putting Out Fires, sometimes called "Fire-Extinguishers;" and I declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in so arranging and combining the parts of apparatus for using water charged with carbonic-acid gas in putting out fires, and having a stationary reservoir for the acid within the body of the apparatus, that both the reservoir and the body of the apparatus may be charged and discharged without the necessity for removing the cap, top, or cover of the extinguisher, and that the outlet from the reservoir for acid into the body of the apparatus may be always securely closed, except when opened by the operator.

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

Figure I in the accompanying drawing is a perpendicular section of the extinguisher, showing the reservoir for acid in position. Fig. II is a view of the interior of the acid-reservoir from above, showing the valve-seat E at the bottom.

In Fig. I, A A is the main body of the extinguisher, which holds the water and alkali or alkaline solution. B is the high-water gage, placed at the height to which the body should be filled. C C is the cap, which covers the top of the body of the extinguisher, and is represented in the drawing as being circular in its general form and somewhat raised in the center. This particular shape, however, is not essential. D D is the acid-reservoir, the lip of which is made with a flange, so as to fit a shoulder made in the material of the top of the body of the extinguisher around the opening in the top, which is covered by the cap C. E is a valve-seat in the lower end of this reservoir, into which fits accurately a valve, F, worked by means of a stem, G G, on which is raised a screw-thread, and which passes up through the center of the cap C, and through the screw-threaded yoke K, and terminates in the wheel H. L L is a pipe opening into the body of the extinguisher, at a point above the high-water gage, and through the cap C into the reservoir for acid. M is a screw tightly fitting an opening into the reservoir for acid through the cap C. A collar covered by a cap would answer the same purpose. N is a collar opening into the body of the extinguisher and covered with a cap. O is a flat metallic disk, which nearly fills a cross-section of the body of the extinguisher, and is turned by a crank from the outside, for the purpose of agitating the contents and effecting a complete mingling of the gas and water. P is the discharge-valve, to which the hose is attached.

My invention, however, does not relate to the arrangement of the agitator or the discharge pipe or hose.

The reservoir for acid may be made of any convenient form, but should taper toward its lower end, in order to afford a good valve-seat, and facilitate the regulating of the discharge of the acid into the water in the body of the extinguisher, and should have its inner face made of lead, or some other suitable material capable of resisting the action of the acid employed, and should be of such depth as not to extend down to the level of the high-water gage. It is placed in position just within the top of the body of the extinguisher, and supported by the flange at its lip on the shoulder in the top, which flange is of such thickness that its upper surface is level with the upper surface of the top, on which the cap is to rest.

The cap C, with the yoke K attached, is fastened to the top of the body of the extinguisher by screws or by any means which may be thought better. I prefer screws.

The valve-stem is then passed down through the yoke K till the valve F fits firmly and closely into its seat E.

The acid-reservoir is then filled or supplied with the proper quantity of acid through the opening which is made by removing the screw M. The opening is then closed by returning the screw M to its proper position.

The body of the extinguisher is supplied with the proper quantity of water and alkali, or alkaline solution, through the opening

made by removing the cap from the collar N. This opening is then closed by replacing the cap upon the collar.

When the acid-reservoir is made with its inner surface of material able to resist the action of the acid, the extinguisher may be kept for an indefinite period supplied with both acid and alkaline solution ready for use whenever the occasion should arise.

When the extinguisher is wanted for use, the valve F is opened by turning the wheel H, the acid passes gradually, if desired, or suddenly, depending on the regulation of the valve F by the operator, into the alkaline solution, and the gas is produced, and the apparatus is ready for use.

The communication between the body of the extinguisher and the acid-reservoir by means of the pipe L L equalizes the pressure in the reservoir and the body of the extinguisher.

The power to admit the acid to the alkaline solution gradually is of great importance, because it saves the apparatus from the extra pressure which is produced by the too sudden evolution of a great body of gas.

I do not claim the valve described in the Carlier and Vignon patent, nor the rubber-packed valve, nor the spout described in Enno Sanders's patent; but

I claim as my invention and desire to secure by Letters Patent—

1. The combination, in apparatus for using water charged with carbonic-acid gas in putting out fire, of the air-tight reservoir for acid D, in a fixed position within the body of the apparatus, with the valve-seat E, the valve F, the stem G G, with a screw-thread raised thereon, the cap C, the screw-threaded yoke K, the wheel H, the equalizing pipe L L, and the screw M.

2. The combination, in fire-extinguishers for using water charged with carbonic-acid gas, of the body or tank A, the reservoir for acid D, fixed within the tank, the high-water gage B, and the collar N, with its cap, all substantially as and for the purposes set forth.

EDMUND BIGELOW.

Witnesses:

EDMUND BIGELOW, Jr.

G. W. BIGELOW.