A. M. GRANGER.

Fire-Extinguisher.

No. 224,678. Patented Feb. 17, 1880.

Fig 1.

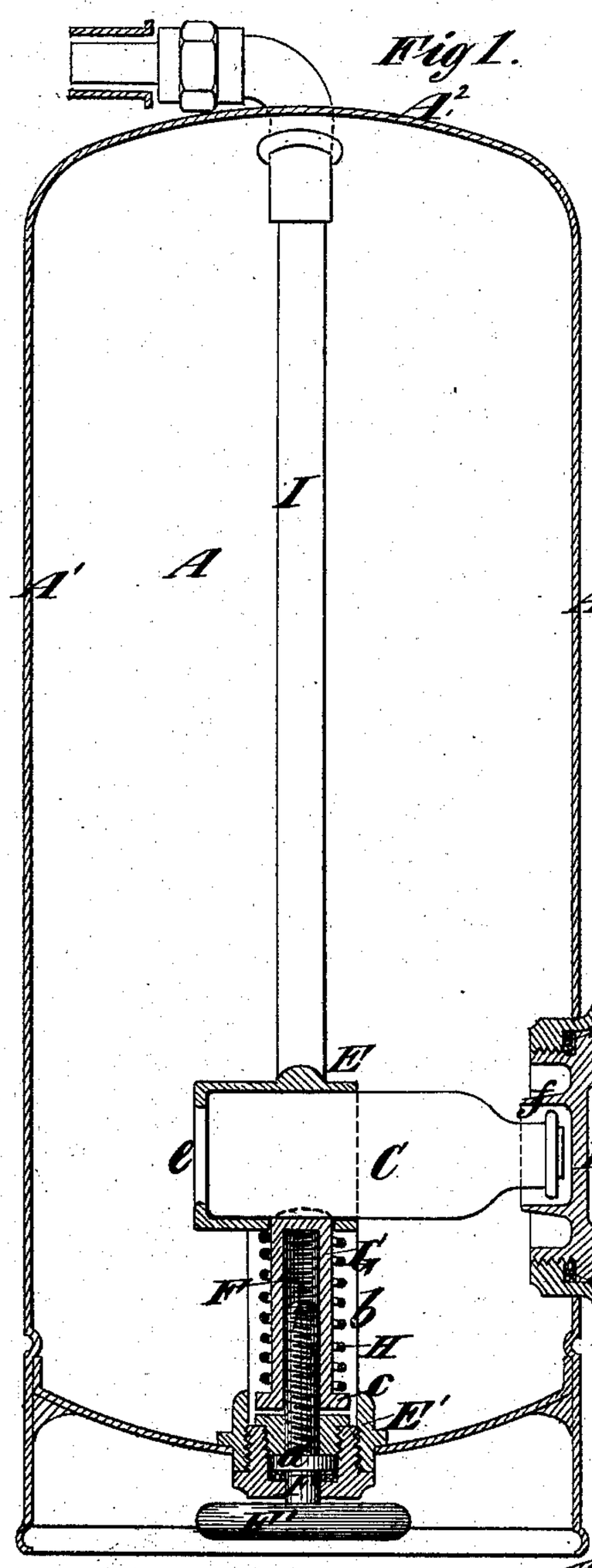


Fig 2.

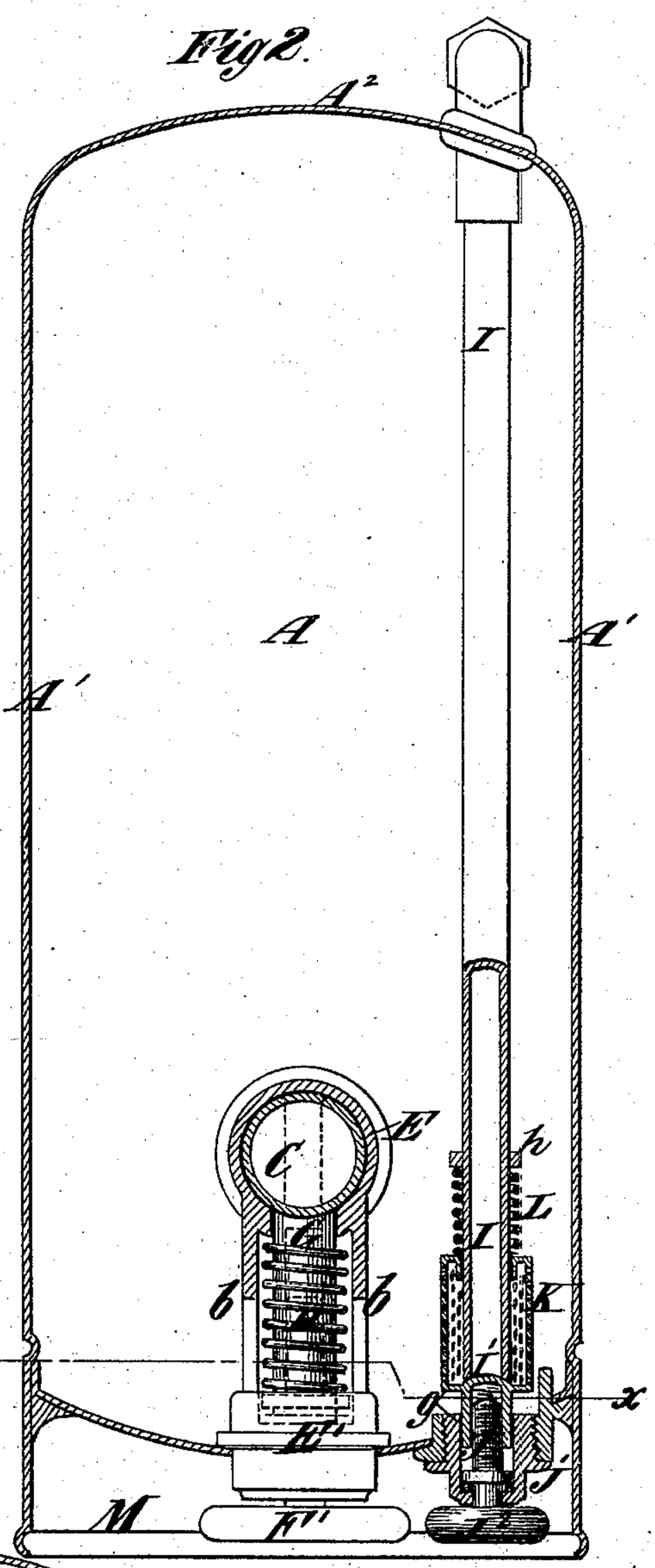
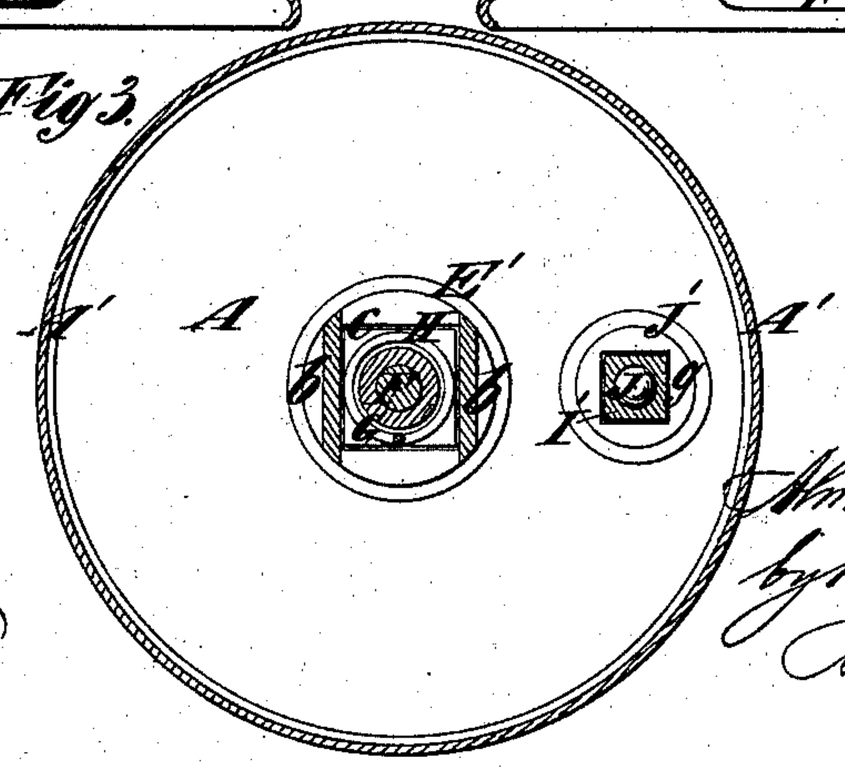


Fig 3.



Witnesses
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UNITED STATES PATENT OFFICE.

ALMON M. GRANGER, OF NEW ORLEANS, LA., ASSIGNOR OF ONE-HALF OF HIS RIGHT TO GEORGE H. ROBINSON, OF NEW YORK, N. Y.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 224,678, dated February 17, 1880.

Application filed December 4, 1879.

To all whom it may concern:

Be it known that I, ALMON M. GRANGER, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

My invention relates to chemical fire-extinguishers, and particularly the kind commonly known as "bottle-breaking" fire-extinguishers, in which an acid or one of the chemicals employed is contained in a bottle which is to be broken when the extinguisher is to be used.

The invention consists in various novel features of construction, whereby the convenience of using the extinguisher is increased, and whereby the liability of its being tampered with is reduced.

To this end my invention consists in a bottle-breaking chemical fire-extinguisher having an opening, serving for the introduction of both the acid-bottle and the alkaline substance, situated in the side below the water-line, where the joint around the cap or cover of said opening is kept covered by the liquid.

It also consists in a novel construction and arrangement of a bottle-breaking device; and in order to prevent the handles for operating the bottle-breaking device and the outlet-valve from being tampered with the said handles are inclosed and concealed in a hollow base or bottom.

It also consists in various details of construction, to be hereinafter explained.

In the accompanying drawings, Figure 1 represents a central vertical section of a fire-extinguisher embodying my improvements. Fig. 2 represents a similar section taken at right angles to Fig. 1; and Fig. 3 represents a horizontal section on the dotted line *x x*, Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A designates the reservoir or chamber of the extinguisher. In order to better resist the internal pressure the sides A′ of the reservoir or chamber and its head A^2 are represented as formed in a single piece of seamless drawn metal and the head A^2 as convex or dome-shaped. This feature forms no part of my present invention, but may form the subject of a future application for a patent.

The mouth or opening B, for the introduction of the alkaline liquid and the acid-bottle C, is situated at the side of the extinguisher below the level of the liquid, and is made funnel-shaped, so as to facilitate the introduction of liquid.

D designates a plug, by which said mouth or opening is closed.

a designates a packing-ring, of rubber or similar material, for making a water and air tight joint. When this mouth or opening is arranged below the level of the liquid the packing is at all times kept moist and leakage prevented. Should, however, any leakage occur it will be readily discovered and stopped, as the opening is upon the side.

The device for holding the acid-bottle, as here represented, consists of a frame composed of band E, supported by upright arms *b*, which extend upward from a plug or stock piece, E′, made permanently fast to the bottom of the reservoir or chamber.

F designates a screw actuated by hand-wheel F′, and G designates a nut, which is provided at its lower end with a square flange, *c*, which rests between the upright arms *b* and prevents the nut from turning. The screw F is provided with a collar, *d*, whereby its longitudinal movement is prevented, and hence, as the screw is turned, the nut is advanced and constitutes a plunger for breaking in the side of the bottle.

H designates a spiral spring acting to force down the nut G as the screw is turned.

In operating this screw to break the bottle the pressure and strain are all sustained by the bottle-holding frame.

The band-support E for the bottle has at its rear end a cross-bar, *e*, to prevent the bottle from being inserted too far, and the plug D is provided with a recess, *f*, for supporting the bottle.

Instead of the bottle being horizontally arranged, it might be arranged vertically, and the nut and screw might be arranged horizontally; but in any case the bottle is to be arranged transversely to the movement of the breaking device, to facilitate the breaking and enable an ordinary bottle to be used.

I designates the outlet or discharge pipe, and I′ designates an outlet-valve arranged at the lower or inner end thereof, where it is sub-

merged with liquid. The valve I′ consists of a square nut, made convex upon its end, and fitting a correspondingly concave seat in the end of the discharge or outlet pipe I.

J designates a screw arranged in a plug, J′, secured to the bottom of the reservoir or chamber, and provided with a hand-wheel, J². The said plug is provided with a square socket, *g*, for the reception of the valve or nut I′, to prevent the latter from turning.

Resting upon the top of the valve I′, and preferably permanently attached thereto, is a cage, K, which moves up and down on the exterior of the outlet or discharge pipe I, for the purpose of guiding the valve I′ in its movements. This cage is perforated, so as to serve as a strainer to prevent the clogging of the discharge-pipe.

L designates a spring arranged between the cage K and a fixed collar, *h*, upon the discharge or outlet pipe I, and acting upon the valve I′ to force it downward when not raised by the screw.

In order to prevent the bottle-breaking device and the outlet or discharge valve from being injured or tampered with, the hand-wheel F′, for operating the bottle-breaking device, and the hand-wheel J², for operating the outlet-valve, are both preferably inclosed in a hollow base, M, below the bottom of the reservoir or chamber. When so arranged they are both concealed, and offer no temptation to tamper either with the bottle-breaking device or the outlet-valve.

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

1. A bottle-breaking chemical fire-extinguisher having an opening, serving for the introduction of both the acid-bottle and the alkaline substance, situated in the side below the water-line, where the joint around the cap or cover of said opening is kept covered by the liquid, substantially as and for the purpose herein described.

2. The combination, with a bottle-holding frame in a fire-extinguisher, having an opening in the side through which the bottle may be inserted, of a plunger and guides therefor, and a screw for actuating said plunger, adapted to be worked from the bottom of the extinguisher, substantially as specified.

3. A fire-extinguisher in which the handle of or means of actuating the valve-opening device is contained within a hollow base below the bottom, and therein concealed and protected, substantially as herein described.

4. A bottle-breaking fire-extinguisher in which the handle of or means for actuating the bottle-breaking device is contained within a hollow base below the bottom, and therein concealed and protected, substantially as herein described.

5. A bottle-breaking fire-extinguisher in which the handle of or means of actuating the valve-opening device and the handle of or means of operating the bottle-breaking device are both arranged within a hollow base below the bottom, substantially as and for the purpose herein described.

6. The combination, with the exit-pipe and attached valve-seat, of the valve having attached to it a strainer and cage which moves upon the said pipe so as to guide the valve to its seat, substantially as herein described.

ALMON M. GRANGER.

Witnesses:
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