C. L. LEVEY.

Improvement in Fire Extinguishers.

No. 123,783. Patented Feb. 20, 1872.

Fig. I.

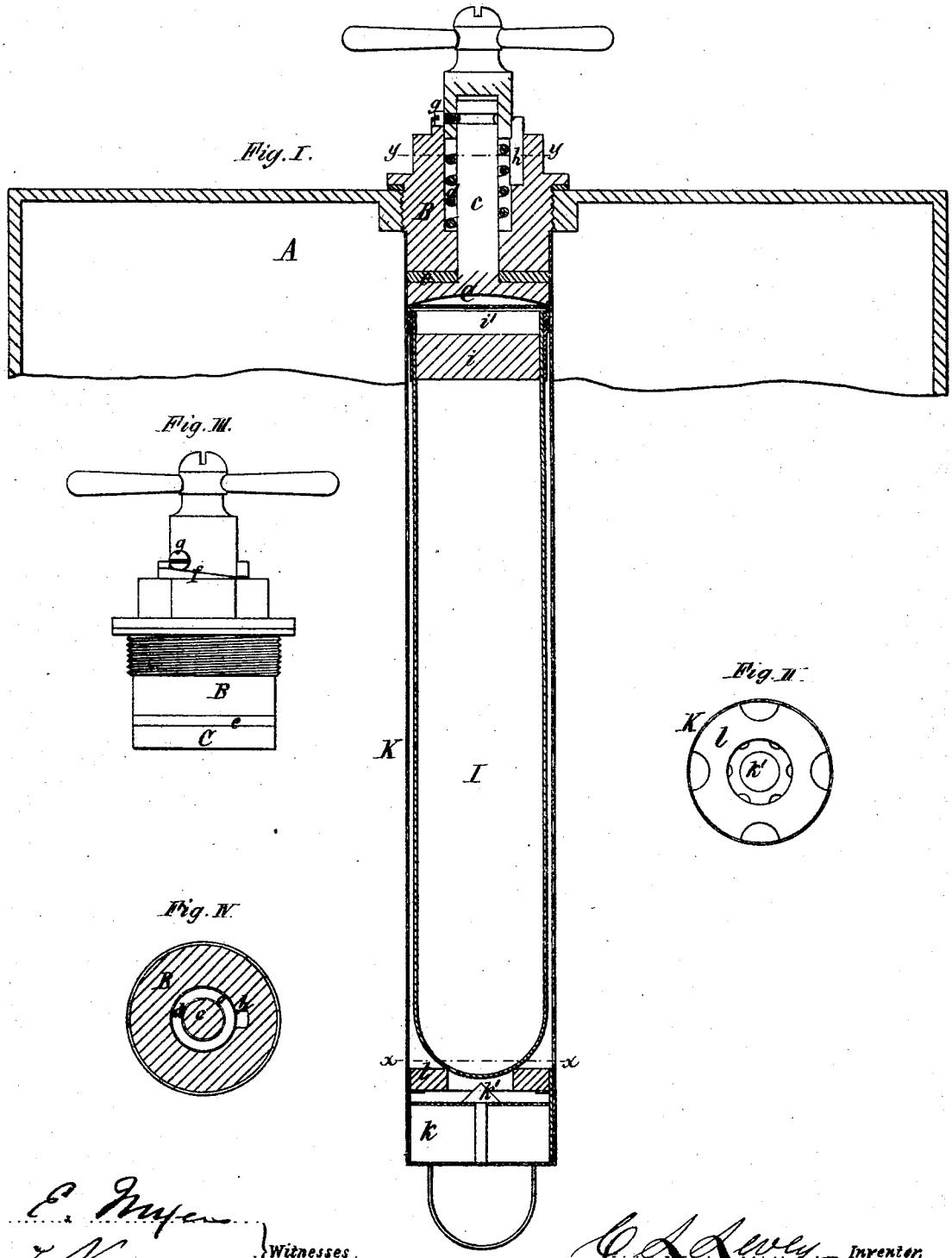


Fig. III.




Fig. II.




Fig. IV.




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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. 123,783, dated February 20, 1872.

SPECIFICATION.

I, CHARLES L. LEVEY, of the city and county of New York, in the State of New York, have invented certain Improvements in Fire-Extinguishers, of which the following is a specification:

In fire-extinguishers the acid which is used for generating the gas from the alkali is contained in a closed vessel, and kept separate from the alkali. It is essential to the good working of such devices that the acid should not come in contact with the alkali by leakage or otherwise before the apparatus is required to be used, and that the mixture of the materials should be readily effected when required.

My invention relates more particularly to the construction of these acid receptacles, and consists, first, in the combination, with a fire-extinguisher, of an acid vessel constructed of glass or other fragile material, and a plunging piston for breaking this receptacle when the materials are required to be mixed, as hereinafter more fully described; second, in the combination, with the fragile acid vessel and movable plug or piston, of a perforated tube inclosing said receptacle, and a projecting pin arranged on the bottom of said perforated tube, to insure the breaking of the acid vessel when the plunging piston is forced against it by a stroke of the hand; third, in the combination with the fragile acid vessel, perforated tube, and projecting pin, of a ring of rubber or other elastic material, surrounding and projecting above said pin, so as to support the acid vessel and prevent accidental breakage thereof, while it yields and allows the said vessel to strike the projecting point when the plunging piston is forced against the vessel; fourth, in the combination with the movable piston, provided with a rubber washer, and the screw-plug, through which the piston-rod passes, of an incline formed on the screw-plug, and a projecting-pin arranged on the piston-rod so as to engage with the said incline, whereby the washer may be tightly pressed against the plug to form a gas-tight joint, and the plunging piston locked so as to prevent accidental breaking of the acid receptacle; fifth, in the combination with the acid vessel of a rubber plug or stopper and a screw-cap for closing the vessel tightly, as hereinafter fully described.

In the accompanying drawing, Figure I is a fragmentary sectional elevation of a fire-extinguisher provided with my improvements. Fig. II is a horizontal section on line *x x* in Fig. I. Fig. III is an elevation of the screw-plug and piston. Fig. IV is a section on line *y y*, Fig. I.

Like letters designate like parts in each of the figures.

A represents the upper portion of the tank of a fire-extinguisher. B represents the hollow screw-plug, screwed tightly in the top thereof. C is the movable piston, and *c* the piston-rod passing through the plug B, and terminating outside in a handle, *c'*. *d* is a spiral spring, arranged around the piston-rod *c*, bearing against a shoulder on the latter, and resting on a shoulder in the screw-plug B, so as to retain the piston in its upper position. The piston C is provided with a washer, *e*, of rubber or other suitable material, which is pressed against the under side of the screw-plug B, to prevent the escape of gas at that point. *f* is an incline formed on the upper portion of the screw-plug around the piston-rod *c* and *g*, a pin projecting from the latter so as to ride on the incline *f*. *h* is a longitudinal groove cut in the screw-plug so as to allow the pin *g* to move up and down therein with the piston-rod *c*. I is the acid vessel, constructed of glass or other suitable fragile material. It is provided with a rubber stopper, *i*, and a leaden screw-cap, *i'*, for closing its opening tightly. K is the perforated tube attached to the screw-plug B, as shown in the drawing. Its lower end is closed by a cap, *k*, which is provided with an upwardly-projecting cone or pin *k'*. *l* is a ring of rubber or other elastic material arranged around the cone *k'*, and projecting above the same. The glass vessel I, when placed in the tube K, rests on the rubber ring *l*, as shown in the drawing.

The operation of my improvements is as follows: When the vessel I is filled with acid it is securely closed and placed in the tube K, when the cap *k* is applied to the lower end of the tube K, and the screw-plug B screwed tightly in its place. The acid is confined in the vessel I, which is not liable to leakage, and guarded against accidental destruction by the rubber ring *l*. When the apparatus is required to be used, the handle *c'* is turned so

as to make the pin *g* coincide with the groove *h*, when the piston C is forced down upon the glass vessel I, which latter is pressed against the rubber ring *l*, bending it so that the bottom of the vessel comes in contact with the cone *k'*, which breaks the vessel and allows the acid to mix with the material surrounding it, whereby the gas is generated. The piston is returned by the spring *d* to its upper position as soon as it is relieved, and, by turning the handle so as to force the pin *g* upon the incline *f*, the washer *e* is tightly pressed against the under side of the screw-plug B, and a gas-tight joint formed.

It is evident, from the foregoing, that my improvements furnish means for keeping the materials in a fire-extinguisher separate until the apparatus is required to be used, when the mixture of the materials is easily and quickly effected.

I do not claim, broadly, liberating the acid in a fire-extinguisher by breaking the acid-bottle, as that has been done before; but my method and devices have great advantages over those heretofore described.

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

1. I claim, in a fire-extinguisher, the fragile acid vessel I, in combination with the plunging piston C, having a valve, *e*, substantially as and for the purpose described.

2. The fragile vessel I and plunger C, in combination with the perforated tube K and breaking-pin *k'*, all constructed and arranged substantially as and for the purpose set forth.

3. The acid vessel I and perforated tube *k*, in combination with the packing *l*, projecting pin *k'*, and removable bottom K, as set forth.

4. In a fire-extinguisher, the screw-plug B and plunger C, provided with the valve *e*, in combination with the incline *f* and stud *g*, substantially as described.

5. In an acid receptacle for fire-extinguishers, I claim the rubber plug *i*, in combination with the screw-cap *i'*, substantially as set forth.

CHARLES L. LEVEY.

Witnesses:
E. MYERS,
J. VIENNOT.