W. L. ELLSWORTH.

Improvement in Fire-Extinguishers.

No. 130,626. Patented Aug 20, 1872.

Fig. 1.

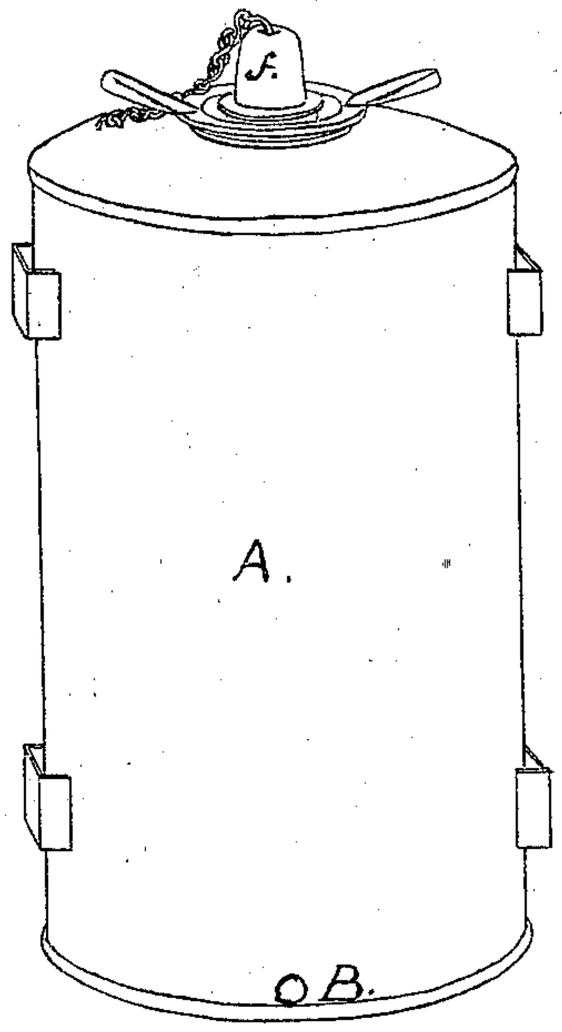


Fig. 2.

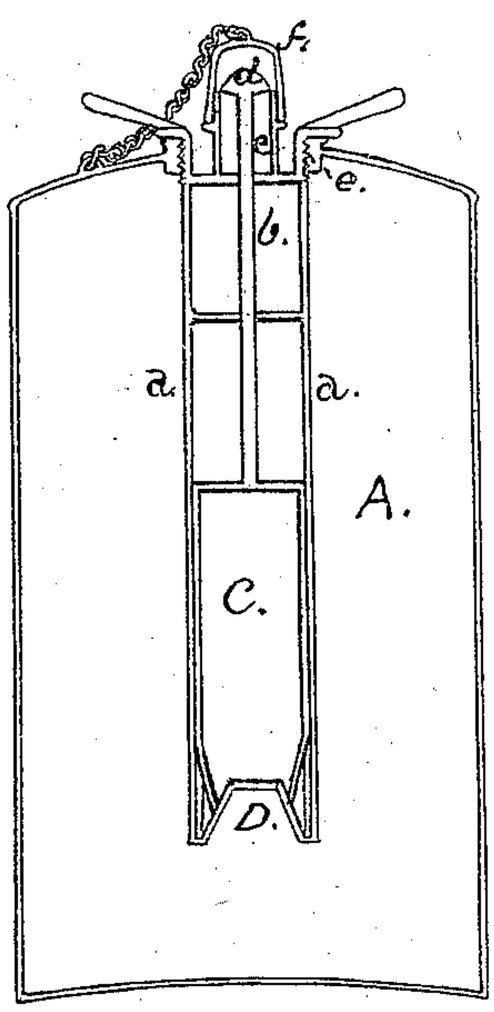
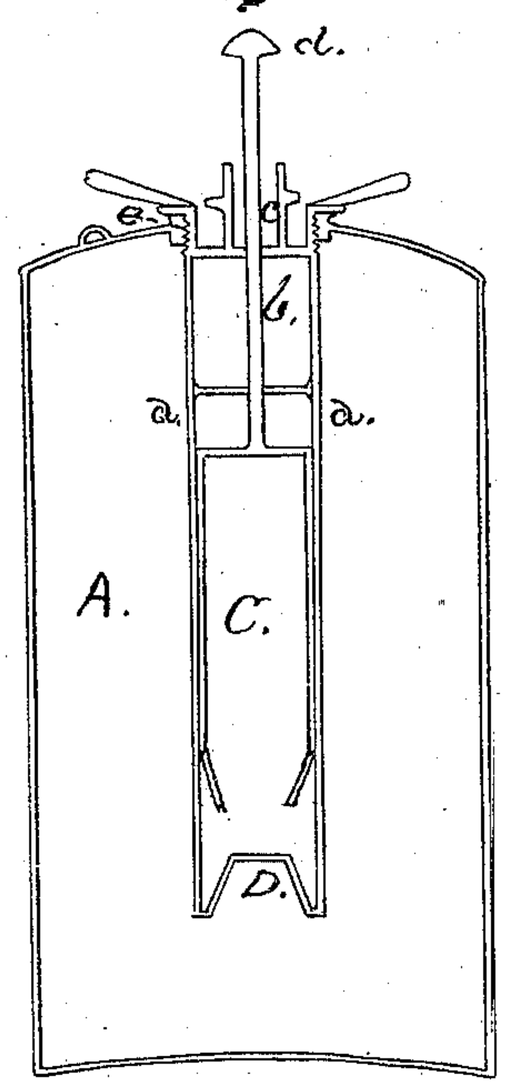


Fig. 3.



WITNESSES.

L. D. Lan

A. D. Curtiz

INVENTOR.

Wm L Ellsworth

Scale - 2/3 to inch.

UNITED STATES PATENT OFFICE.

WILLIAM L. ELLSWORTH, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. **130,626**, dated August 20, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, WILLIAM L. ELLSWORTH, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in the Construction of Fire-Extinguishers; and I do hereby declare that the following is a full, clear, and exact description thereof, and of its mode or manner of operation, reference being had to the accompanying drawing and to the letters of reference marked thereon and making a part of this specification.

My invention relates to the construction and arrangement of the vessel within the cylinder of the fire-extinguisher which contains the sulphuric or other acid, and the mode of discharging such vessel when the extinguisher is to be used.

In fire-extinguishers as heretofore constructed the acid-vessel has sometimes been made of glass, which has been broken by some device arranged for that purpose for the purpose of discharging the acid; and in other cases such acid-vessel has been suspended near or toward its lower end, and in such manner that when the cork is drawn from the vessel such vessel would capsize or tip over and thus discharge itself. In the former case, whenever the extinguisher is used, the acid-vessel is entirely destroyed by being broken, and to recharge the extinguisher a new acid-vessel has to be supplied and fixed in the extinguisher before it can be again used, while in the latter case the acid-vessel having been discharged has to be removed from the cylinder, reversed in position, before it can again be filled and then again inserted and fixed in the cylinder. The points or pivots on which such a vessel is suspended and turns are also very liable to become corroded by the action of the acid, and thus the free movement of the acid-vessel will be much interfered with and oftentimes almost prevented. In the use also of such a reversible acid-vessel the whole acid is discharged with a dash, and above the carbonate of soda or other alkali, which naturally settles at the bottom of the extinguisher, and after the acid is so discharged a smart shaking of the whole instrument is generally necessary to cause a proper mixing of the acid and alkali and insure a proper generation of the gas for use.

By my invention the acid-vessel is discharged without breaking or in any manner injuring the same, and the acid, though permitted to pass out freely therefrom, is discharged without any sudden shock or impulse, and is also discharged at or near the bottom of the cylinder, where settles and rests the alkali and materials with which it more gradually combines or mixes, and thus its action is made most effective. The mixing of the materials being thus effected more gradually, it has been found that a charge of the extinguisher will last longer than under other circumstances. In the use of my invention, also, the extinguisher is at once ready for use by a simple manipulation of a small rod or piston, and does not require any shaking or agitation, as when the reversible acid-vessel is made use of.

Figure 1 shows a fire-extinguisher charged, ready for use. Fig. 2 is a vertical section of the same, showing the position of the acid-vessel before being discharged. Fig. 3 is a vertical section of the same, showing how the acid-vessel is discharged.

The cylinder A contains the water and alkali or carbonate of soda, from which the carbonic-acid gas is generated by the action of the sulphuric or other acid upon them, and B is the orifice from which the generated gas is forced through any suitable tube. C is the acid-vessel within the cylinder A. This acid-vessel is of glass, lead, or any material not acted upon by the acid, and is contained or supported in an open frame formed by three or more brass, or lead, or other rods, *a a a*, not affected by the acid, and within which it can be moved up or down, at pleasure, by means of the rod *b*, which is fixed to the upper end or bottom of the acid-vessel C, and extends through a packing, *c*, to the outside of the cylinder A, so it can be lifted by the hand taking hold of the handle or cross-bar *d*. To the bottom of such frame or structure is fixed a cork, D, of lead, ground glass, or the like, made to accurately fit the mouth of the vessel C, so that when such vessel is in the position shown in Fig. 2 the vessel will be tightly closed and no acid can escape therefrom.

Whenever it is desired to make use of the

extinguisher the only manipulation necessary is simply pulling up the rod *b*, by which the bottle C will be lifted from off its cork D, when the acid will escape at the bottom of the cylinder A, but without any necessity for artificial disturbance or shaking of the materials of the cylinder, but directly upon or near the alkali used, and the instrument is at once ready for use. When the charge of the extinguisher has been expended the vessel C and its inclosing frame of rods is unscrewed at *e* and lifted from out of the cylinder. The cylinder A can again be charged and the vessel C again filled with its supply of acid, all in a few moments, and the cork being dropped into the mouth of the vessel C it is ready to be again put into and fastened in the cylinder A, and the extinguisher is again ready for use.

By this arrangement and construction of parts no oxidation can take place which will in any manner interfere with the proper manipulation or operation of the vessel C, as all its movements are positive and under the control of the operator. Careful experiment and observation have proved that by the use of such an acid-vessel, constructed and operating as described, an extinguisher of a given size, and with the same charge, will continue to act with effect a longer time than when constructed in the ordinary ways.

A cap, *f*, is made to fit tightly over the top or handle *d* of the rod *b* when the extinguisher is not required for use, so as to prevent the acid from being discharged by handling of the extinguisher.

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

1. The construction and arrangement of the acid-vessel C and its inclosing open frame, substantially as described, so that such vessel can be discharged by simply lifting the same, and also permitting such vessel to be discharged at or near the bottom of the containing cylinder.

2. I also claim, in a fire-extinguisher, the use and application of the acid-vessel C, constructed and operating substantially as described, in combination with an inclosing vessel, A, for the purposes set forth.

WM. L. ELLSWORTH.

Witnesses:
S. D. LAW,
A. S. GURLITZ.