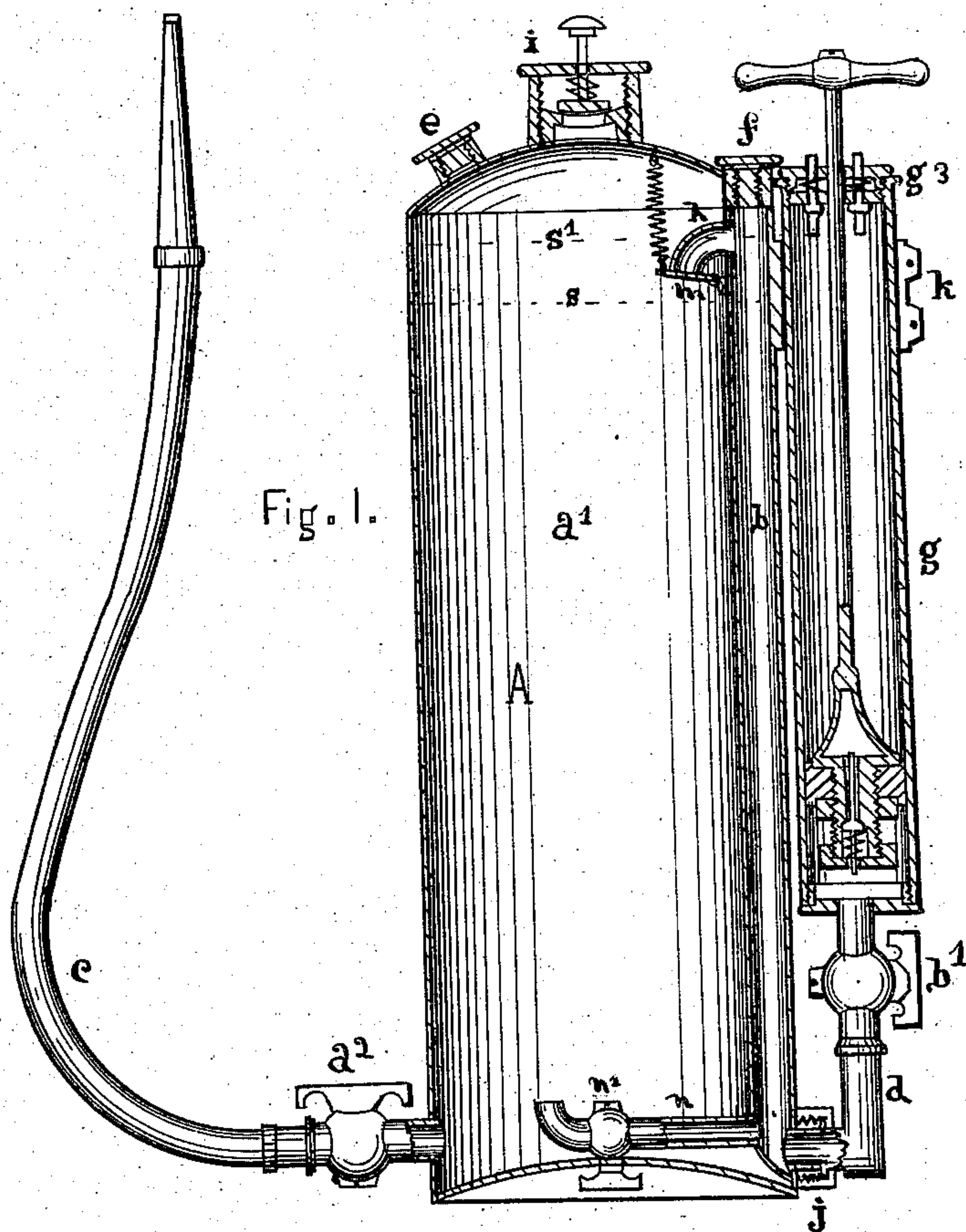


S. F. MACK & S. J. PARKER.  
Fire-Extinguishers.

No. 154,608.

Patented Sept. 1, 1874.



Witnesses

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# UNITED STATES PATENT OFFICE.

STEPHEN F. MACK, OF WAVERLY, AND SAMUEL J. PARKER, OF ITHACA, N. Y.

## IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. 154,608, dated September 1, 1874; application filed May 2, 1874.

*To all whom it may concern:*

Be it known that we, STEPHEN F. MACK, of Waverly, Tioga county, New York, and SAMUEL J. PARKER, of Ithaca, Tompkins county, New York, have invented an Improved Fire-Extinguisher, of which the following is a specification:

Our invention relates to the mechanism for the propulsion or ejection of the fluid or fluids out of the extinguisher by the continued pressure of gas and atmospheric air; and our invention will be apparent as we describe it.

Figure 1 is a sectional elevation of our extinguisher. In it A is the cylinder or body of our extinguisher, with two chambers in it. The larger one, *a'*, takes up most of the cylinder; the lesser one, *b*, the rest of the cylinder. The larger chamber has going out of it the exit-tube *c* and its stop-cock and nozzle, and a screw-capped opening, *e*, at its top. The chamber *b* has the entrance-tube *d* with stop-cock, *h'*, and beyond it the air-pump *g*, and a capped opening, *f*, at its top, and a downward-curved spout. This mechanism is for such fluids as these: Into the part *a'* we put carbonate of soda, with or without the admixture of other articles or salts, either dissolved, or before use to be dissolved, in water. In the lesser part, by the opening *f*, we put tartaric acid, either dissolved or to be dissolved in water before the extinguisher is used, or other similar salts or articles which produce gas on being commingled with each other in the presence of water. And by the atmospheric air forced in by the pump *g*, we, through the curved spout of the chamber *b*, force the fluid of the chamber *b* on or into the chamber *a'*. Thus the gas evolved and the atmospheric air make the pressure necessary to eject the fluid or fluids of the extinguisher out of itself and on the fire, when one happens. A schedule of the manner of use, quantity of carbonate of soda, tartaric acid, and water, or other materials used, accompanies each fire-extinguisher when sold, or is attached to it.

When desirable to use the extinguisher, the chambers being charged according to the schedule, the stop-cock *b'* is opened, and the

pump worked vigorously a short time; and, as just said, this forces the acid contents of lesser chamber on the alkaline contents of the larger chamber, when reaction takes place, gas is evolved, and aids the atmospheric air of the pump, as has been stated, in making at once the ejecting pressure. And it is apparent that, if by any means the salts become inert, the pump alone can be depended on for ejecting force, though less desirable than the speedier plan of the gas and air together.

Further, the portion of the pump *g* above the portion *g'* we fill with water, or chemical substances in water or solution, if we think desirable, in order that we may with greater certainty force the acid fluid of the chamber *b* on the chamber *a'*; and for this purpose we construct the capped top of the pump with a valve or valves, *g''*, which allow air to enter the pump, but do not allow the pump-fluid to escape. Thus the first action of the pump is to force the fluid used or solution above the piston on the chamber *b*, driving the contents it has on *a'*, when air next in order follows, as directed by the schedule accompanying the extinguisher, as has already been said.

Lastly, to further perfect our extinguisher, when desirable, we make a connection at the bottom of the chambers *a'* and *b* with a stop-cock, *n'*, which is opened or closed in the hollow in the base of the extinguisher. The parts of this device are the pipe *n*, with faucet or stop-cock *n'*, and its arrangement and use are apparent, as it allows the commingling of the fluids of the chambers, or of the chambers and pump through the pipe *n*, in several ways.

It is no part of the design of our invention to agitate the fluids of the chambers, but merely to mingle them, so that chemical reaction can take place. We preferably pour the contents of the lesser chamber over its top, on the undisturbed contents of the larger chamber, by the action of the air-pump; and it is apparent that we can arrange our tube from the air-pump, so that it shall not enter the bottom of the cylinder or common reservoir, thus avoiding even the appearance of any agitation of the contents of the main

chamber or reservoir; hence we disclaim the use of an air-pump and its connection at the bottom of the reservoir, for the purpose of agitation of the contents of the reservoir.

The advantages and uses of our invention are apparent to those skilled in the art to which it appertains.

We claim—

1. The two-chambered cylinder A, containing the parts or chambers *a'* and *b*, with openings *e* and *f*, in combination with the air-pump *g*, substantially as and for the purpose set forth.

2. A pump, *g*, with valve or valves *g'*, and containing fluid in its upper portion, above the piston, in combination with the chamber or chambers, one or both, of the cylinder A, substantially as set forth.

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