

No. 626,988.

Patented June 13, 1899.

W. H. DOUGLAS.
CHEMICAL FIRE EXTINGUISHER.

(Application filed Oct. 20, 1898.)

(No Model.)

Fig. 1.

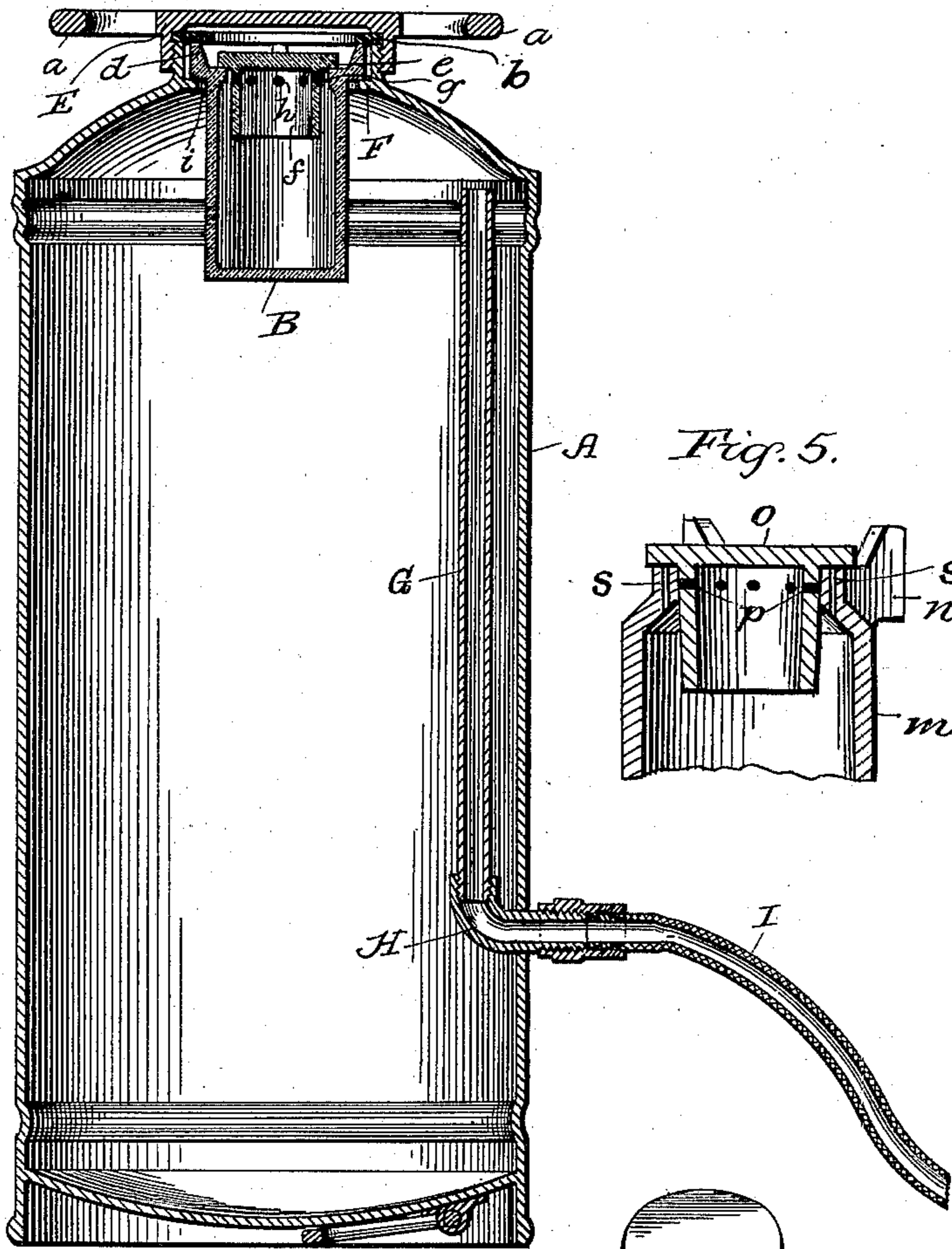


Fig. 2.

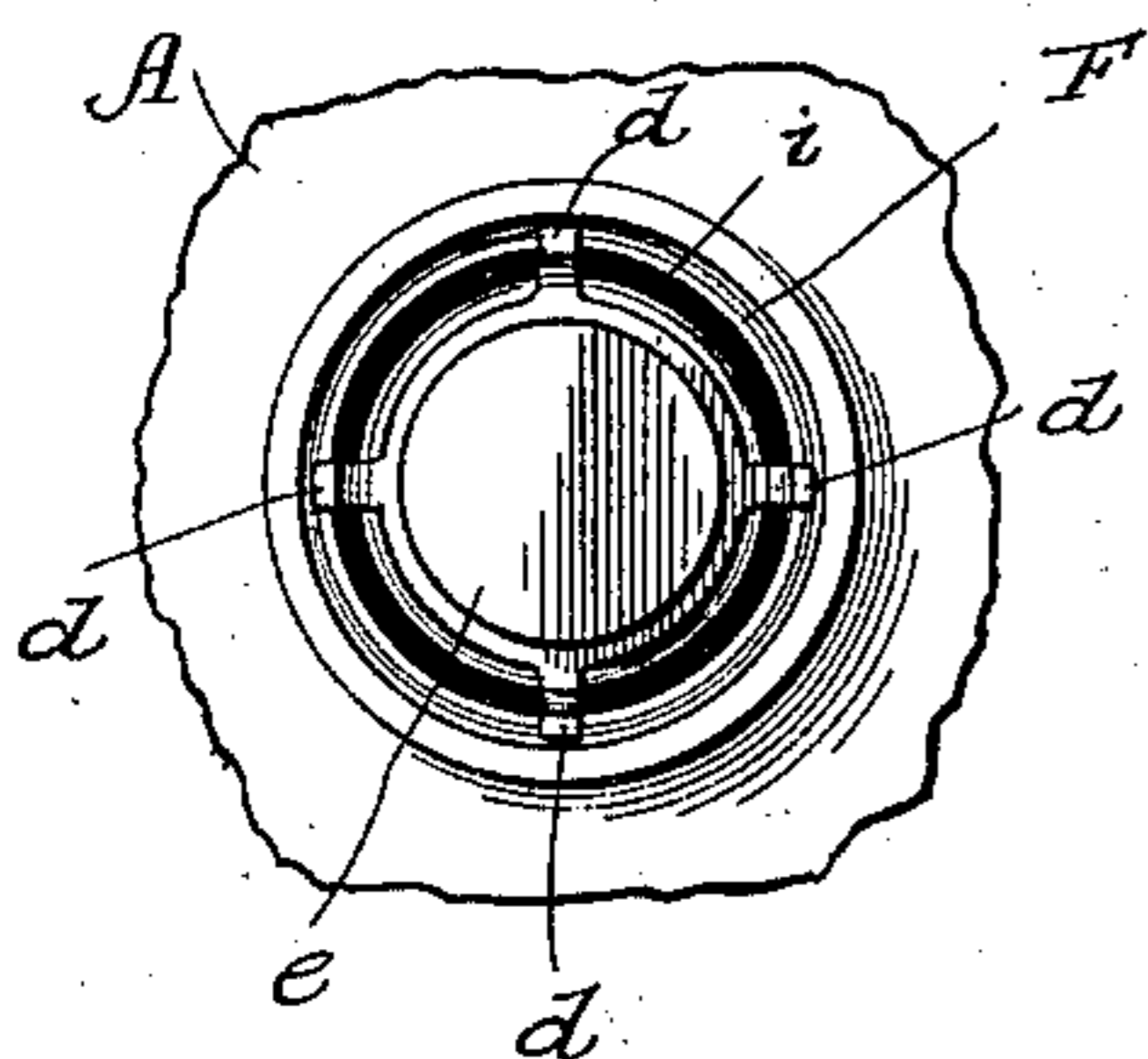


Fig. 5.

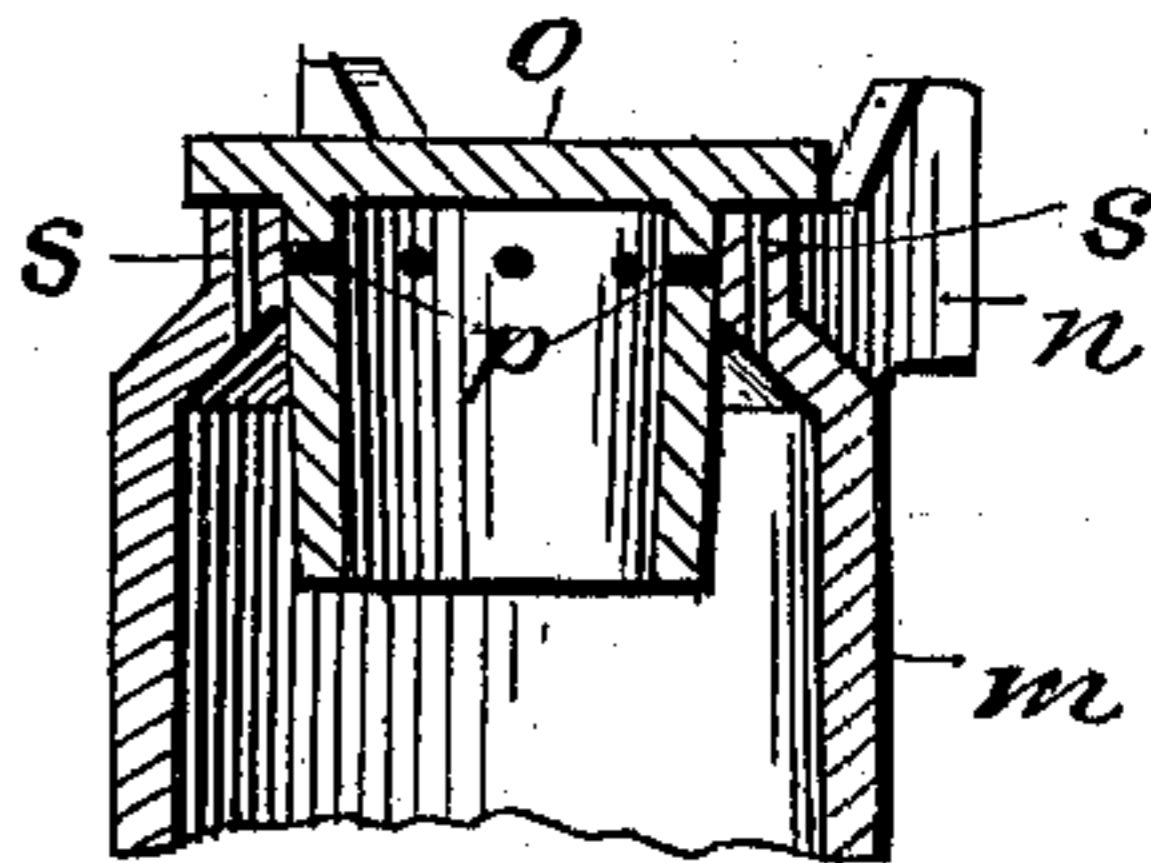


Fig. 3.

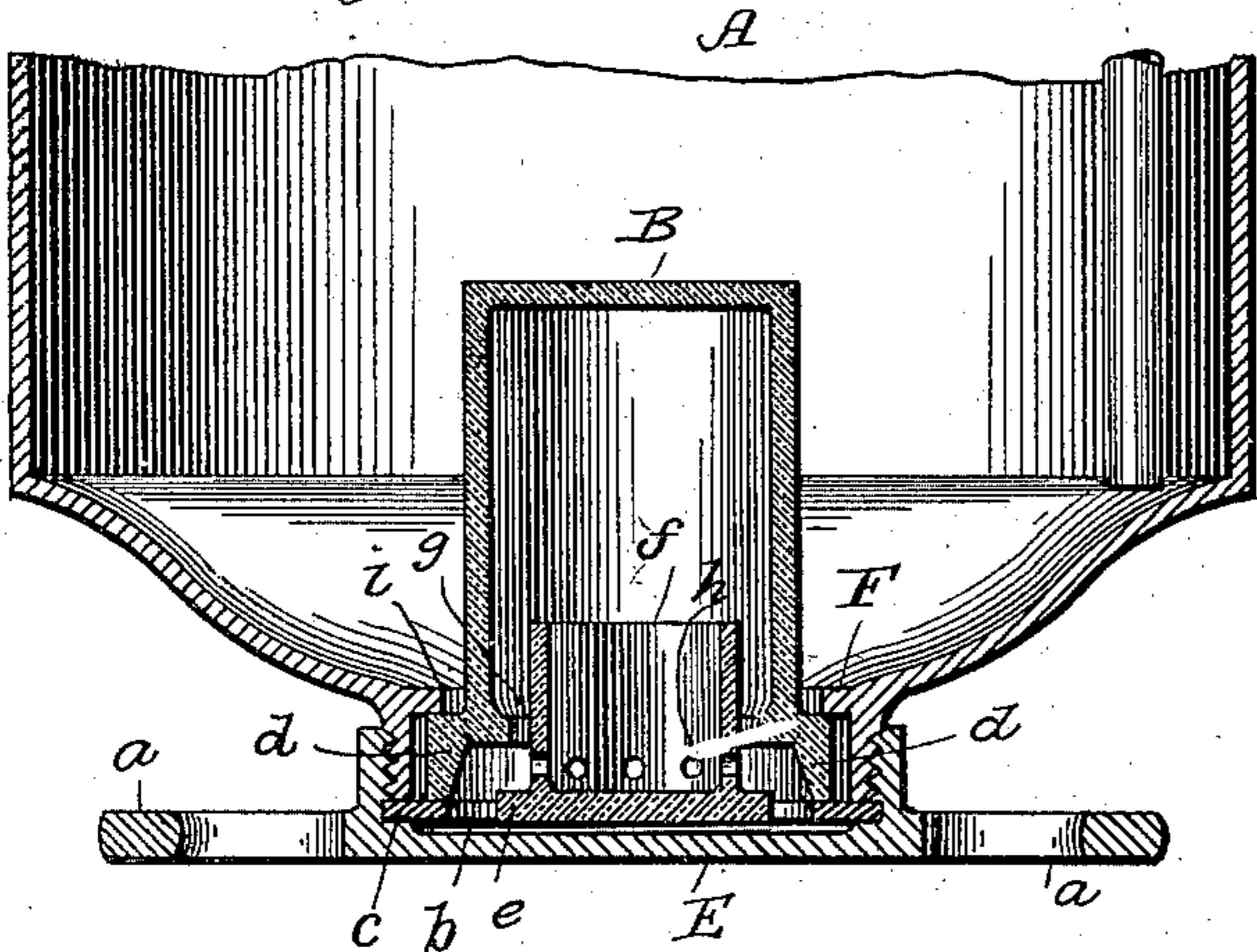
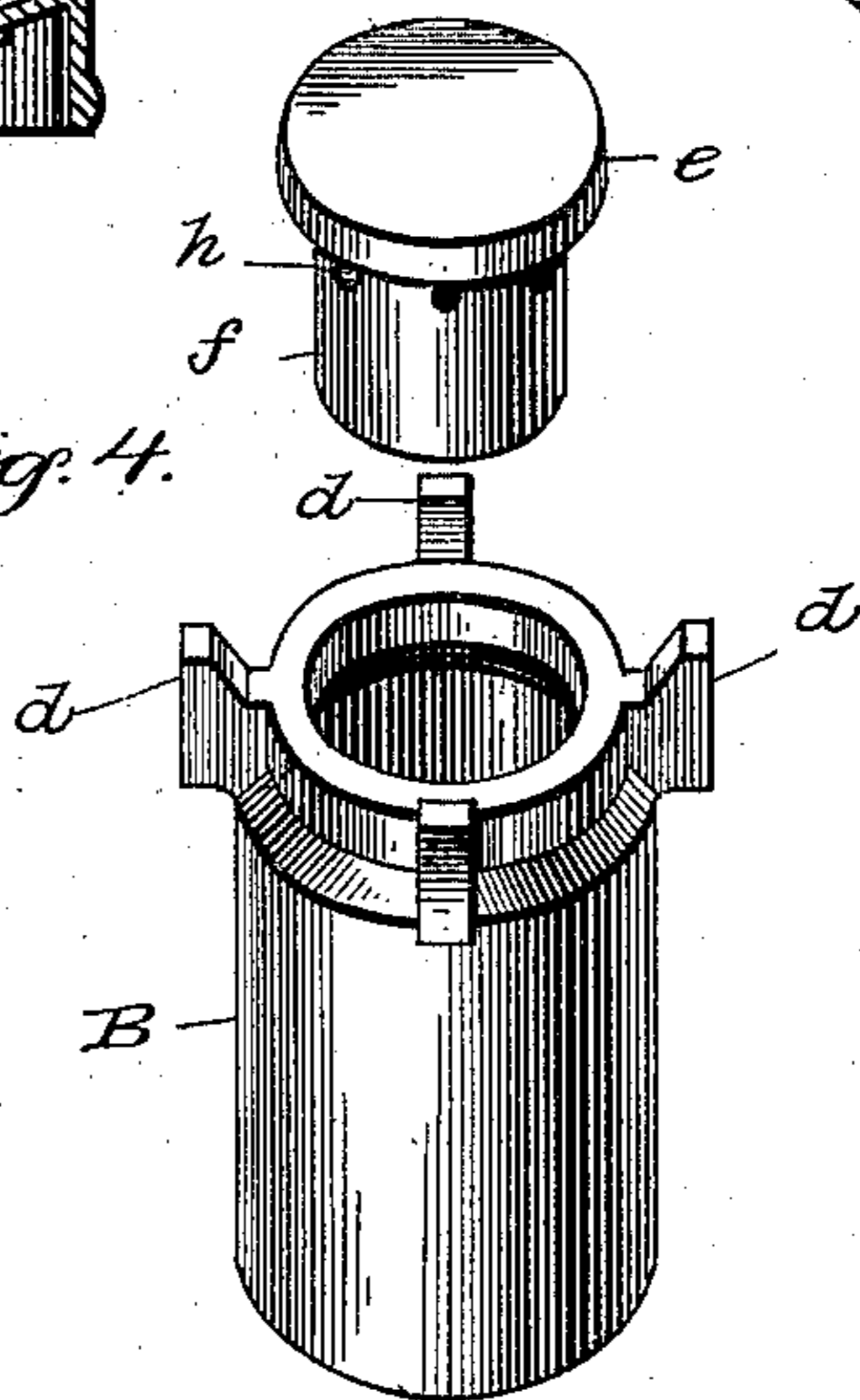


Fig. 4.



Witnesses
Victor J. Evans.
Frank Montgomery

Inventor
William H. Douglas.
by W. A. Redmond
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM H. DOUGLAS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
OF ELEVEN-TWENTIETHS TO WILLIAM H. BECK, OF SAME PLACE.

CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 626,988, dated June 13, 1899.

Application filed October 20, 1898. Serial No. 694,152. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DOUGLAS, a citizen of the United States, residing at Washington, in the District of Columbia, have
5 invented certain new and useful Improvements in Chemical Fire-Extinguishers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which
10 it appertains to make and use the same.

This invention relates to that class of portable fire-extinguishers comprising a main reservoir containing a liquid which when combined with a proper acid held in a normally-
15 sealed bottle contained within said reservoir forms a fluid which will most quickly extinguish fires, said acid being liberated automatically when the apparatus is inverted; and the object of the invention is to provide a
20 most simple and cheap means for sealing the acid-bottle, which is operated by gravity to liberate the acid when the apparatus is inverted, which will cause the acid to mix slowly with the solution in the main receptacle,
25 thereby overcoming the danger of explosion incident to constructions wherein there is a high pressure within the main receptacle created instantaneously by the rapid union of the acid with the alkaline solution; and to
30 this end my invention consists in the parts and combinations of parts hereinafter shown and described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical section of the apparatus in its normal position. Fig. 2 is a detail plan view. Fig. 3 is a vertical section of one-half of the apparatus, showing the same inverted for use. Fig. 4 is a detail perspective view of the acid-bottle
40 and its plug separated; and Fig. 5, a detailed vertical sectional view of the bottle, showing a modification.

Similar letters refer to similar parts throughout the several views.

45 The reservoir A is preferably made of metal of such thickness as to withstand the great pressure exerted thereon by the gases generated by the mixing of the acid contained in the bottle B with the chemical solution contained in the reservoir. The neck surrounding the opening in the reservoir is screw-

threaded to receive a correspondingly-threaded cap E for closing the opening, the said cap being preferably formed with handles *a*, whereby the apparatus may be moved or carried from place to place. Within the cap is
55 arranged a flexible washer *b*, resting on a shoulder *c*, formed on the cap, which is adapted to engage the rim or edge of the neck of the reservoir in order to form an air-tight
60 joint between the cap and the reservoir. The washer *b* is made sufficiently wide to engage the lugs formed on the acid-bottle, as will be hereinafter described, for the purpose of holding the latter firmly in position in the reservoir. Within the neck of the reservoir an
65 inwardly-projecting flange F is formed, on which is supported the acid-bottle B, and between which flange and the washer *b* the lugs *d* of the bottle B are held. The bottle is of
70 sufficiently less diameter than the mouth or opening in the reservoir to provide a space *i* therebetween for the free passage of the fluid from the body of the reservoir into the neck thereof, so as to meet and mix with the acid
75 discharged from the bottle B.

G represents a tube arranged upright in the reservoir at one side thereof and which extends nearly to the top of said reservoir and is held by an elbow-joint H, secured in the
80 side of said reservoir. The outer end of the elbow-joint has connected thereto in any desired manner a flexible tube *l*, which is to be provided with any desired or suitable nozzle for discharging the fluid from the reservoir
85 when the apparatus is being used.

The acid-bottle B is preferably made of glass and is formed with lugs *d*, which are arranged, preferably, at equal distance apart around and project both laterally and vertically from the upper end of the bottle. These
90 lugs serve the double purpose of engaging the flange F of the reservoir in order to support the bottle therein and also to prevent the latter dropping or moving when the apparatus
95 is inverted, and they are arranged as described for the purpose of permitting of the free passage of the fluid between them to mix with the acid escaping from the bottle, as will now be described.

The plug for the bottle B is formed with a flange *e*, adapted to rest closely on the top or
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rim of said bottle, and its body *f* is formed of a hollow cylinder whose diameter is such that a space or opening *g* is left between it and the mouth or opening in the bottle, into which it extends in order to form a vent for the acid-bottle when the apparatus is inverted, as shown best in Fig. 3, and thus enable the acid to flow more freely through the series of openings or perforations *h*, formed around the cylindrical body of the plug at a point adjacent the flange *e*. Thus it will be observed upon inverting the apparatus the plug will drop until arrested by the cap, as shown in Fig. 3, in which position the perforations *h* are uncovered and the acid in the bottle flows or escapes therethrough in order to meet and mix with the fluid in the reservoir, the latter flowing freely through the space *i* between the opening in the reservoir and the body of the bottle B.

Owing to the space or passage *g* the bottle B is vented and the steady and uniform flow of acid therefrom is thereby attained.

It is evident that the washer *j* may be dispensed with and shoulder *c* on the cap enlarged to engage the lugs *d*, or that the latter may be made longer, so as to engage the cap itself without departing from the scope of my invention, and therefore I do not desire to be limited to the exact construction of the parts named as herein described and shown. Also it is evident that the body of the plug may be increased in diameter, so as to loosely engage the opening in the bottle B and practically close the space *g*, as shown in Fig. 5, in which a series of perforations *s* are shown as formed in the constricted neck of the bottle *m* to form a vent therefor, which perforations would be covered by the flange of the plug when the apparatus was not in use. The bottle *m* is

formed with the lugs *n*, and a plug *o*, having discharge-openings *p*, is provided therefor.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a chemical fire-extinguisher, of an alkali-reservoir, an acid-bottle having a vent and immovably mounted with reference to said reservoir, and a movable plug for said bottle provided with discharge-openings and adapted to close and disclose said vent according to the position of the plug.

2. The combination, in a chemical fire-extinguisher, of a bottle, a plug having a hollow cylindrical body formed with openings and adapted to enter the mouth of said bottle so as to provide a vent-space thereabout, and a flange formed on said plug to support the same in position and to close said vent-space.

3. The combination, in a fire-extinguisher, of an alkali-reservoir formed with a flange in its mouth, an acid-bottle having lugs extending laterally from and projecting above the mouth of said bottle, and a cap for the mouth of the reservoir adapted to close the same and to engage the said lugs, whereby the bottle is held firmly in position.

4. The combination in a chemical fire-extinguisher, of an acid-bottle, and a plug for said bottle provided with discharge-openings and a flange, the said bottle having a vent situated contiguous to said flange and adapted to be closed thereby.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. DOUGLAS.

Witnesses:

HUGH M. STERLING,
FRANK MONTGOMERY.