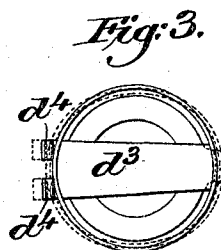
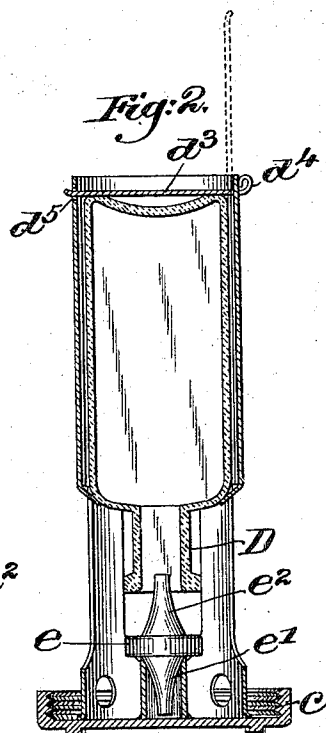
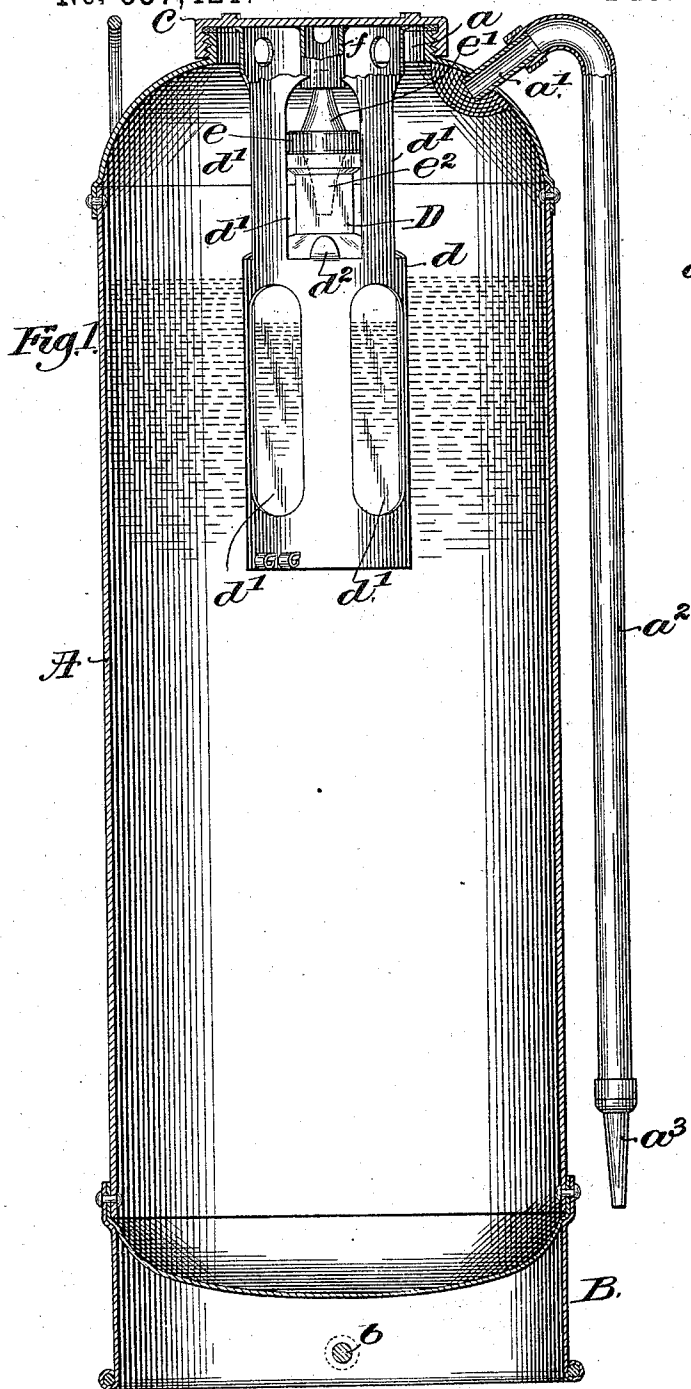


(No Model.)

A. J. KNIGHT & J. B. THOMAS.
PORTABLE FIRE EXTINGUISHER.

No. 537,421.

Patented Apr. 9, 1895.



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ALFRED J. KNIGHT, OF CHICAGO, ILLINOIS, AND JESSE B. THOMAS, OF
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PORTABLE FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 537,421, dated April 9, 1895.

Application filed November 5, 1894. Serial No. 527,883. (No model.)

To all whom it may concern:

Be it known that we, ALFRED J. KNIGHT, of Chicago, county of Cook, State of Illinois, and JESSE B. THOMAS, of Boonton, county of Morris, State of New Jersey, have invented an Improvement in Portable Fire-Extinguishers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to portable fire extinguishers of the class wherein are employed main and auxiliary receivers, the latter within the former, and containing sulphuric acid or other equivalent substance, which when discharged into the main receiver to mix with the water and carbonate of soda, or other substance or substances contained therein, generates carbonic acid gas which possesses powerful fire extinguishing properties.

Our present invention relates particularly to the means for holding the auxiliary receiver within the main receiver, and for controlling the discharge of the contents of the auxiliary receiver into the main receiver.

Prior to our invention, in apparatus of this type, the auxiliary receiver has been provided with a gravity closure for its outlet, which, when the main receiver is inverted, drops from its position closing the said outlet and permits the contents of the auxiliary receiver to discharge into the main receiver, but in apparatus so constructed, so far as we are aware, no means has ever been provided operating upon righting of the receiver to direct the closure back to its closing position always with substantially identical surfaces of the closure and auxiliary receiver in contact to form the seal.

Our present invention comprehends a suitable guide for the stopper or closure to thus direct the same back again into its closing position.

Other features of our invention will be hereinafter described and pointed out in the claims.

In the drawings, Figure 1 represents in vertical section a fire extinguisher embodying our invention, the auxiliary receiver and its holder being shown partially in elevation; Fig. 2, a detail showing the auxiliary receiver

as inverted and with its closure removed from position closing the outlet for said auxiliary receiver, said figure showing the parts in the positions which they will occupy when the main receiver is inverted. Fig. 3 is a detail looking at the bottom of the holder for the auxiliary receiver, and Fig. 4 is a perspective of the preferred form of closure.

Referring to the drawings, in the particular embodiment of our invention selected and there shown to illustrate the same, A is the main receiver of suitable shape and construction, shown as provided with a suitable base B upon which it may rest when not in use, a handle *b* being also provided for a purpose to be described.

The main receiver at its end opposite the base B is provided with a filling opening *a* surrounded by an outwardly extended flange, exteriorly threaded to receive the screw-threaded cap *c*.

The outlet for the main receiver is shown at *a'*, it having connected to it, as herein shown, a flexible hose *a²* terminating in a discharge nozzle *a³*.

The auxiliary receiver is shown at D, the same being preferably a common glass bottle held in position within a suitable holder, herein shown as a metallic cylinder *d*, cut away and thereby lightened at *d'*, said holder being soldered or otherwise secured to the removable cap *c*.

The bottle is confined in position within the holder *d*, by and between the inturned lips *d²*, which clasp the enlargement of the bottle near the neck and at the bottom of the holder, by the tongue *d³*, having one of its ends provided with two ears *d⁴* which are extended through corresponding slots in the side of the holder and outside the latter are turned over, as best shown in Fig. 2, to constitute a hinge on which the said tongue may be turned from its full to its dotted line position Fig. 2. In its normal position the tongue *d³* extends across the bottom of the holder and projects into and through an opening *d⁵* in the holder at the side opposite the hinge *d⁴*.

The holder is preferably made of resilient metal, so that it may be compressed laterally, as shown in dotted lines Fig. 3, and thereby elongated in the direction of the tongue *d³*,

and when so elongated the longest diameter of the holder is greater than the length of the tongue d^3 , so that the latter by such elongation is withdrawn from the opening d^5 , which
 5 holds it in position locking the bottle within the holder and permits the said tongue to be turned into its dotted position, Fig. 2, to permit withdrawal of the bottle.

In the preferred construction, the over-
 10 turned ends d^4 at the hinged end of the tongue are shaped, as shown, to bear against the outside of the holder and serve as springs to throw the tongue into its dotted position as soon as its free end is released from the opening d^5 .
 15

The discharge opening for the auxiliary receiver, at the end of the neck of the latter, is closed by a stopper or closure e , which, in the construction herein shown, is provided
 20 with oppositely extended projections e' , e^2 , the latter extending into the neck of the receiver, as best shown in Fig. 1. The projection e' is extended into the end of a tubular guide f , depending from the cover c , as shown
 25 in Fig. 1, both the said projections in the preferred construction being made tapering or conical, as shown.

The operation of the apparatus is as follows, viz:—The cover c is removed and the receiver filled to at or near the level shown with a mixture of water and carbonate of soda. The auxiliary receiver D is then more or less filled with sulphuric acid and the receiver inserted in the holder d and the tongue d^3
 35 turned into its full line position Fig. 2, locking the said auxiliary receiver in position between the said tongue and the inturned lips d^2 . The closure e , previously inserted in the holder and during insertion of the bottle being held in elevated position by the fingers inserted through the openings d' in said holder, is then permitted to drop by gravity upon the neck of the receiver to close the discharge opening therefor. The cover d is
 40 now screwed down over and to close the filling opening for the main receiver, the holder and auxiliary receiver at such time depending, it may be, into the liquid contained within the said main receiver. The apparatus
 45 may now be set aside and be permitted to remain inactive for any period of time. When it is needed for use, however, the operator grasps the handle b and inverts or turns the main receiver upside-down, causing its contents to drop to the lowest end of the receiver
 55 adjacent the discharge outlet a' , and at the same time the closure e drops by gravity away from and uncovering the discharge opening for the auxiliary receiver, as shown in Fig. 2, permitting the contents of said auxiliary receiver to gradually discharge into the main receiver and mix with the carbonate of soda and water therein contained and generate carbonic acid gas, which projects itself
 60 through the hose a^2 and nozzle a^3 upon the fire as directed.

It will be noticed that when the closure

drops away from the discharge opening for the auxiliary receiver, as shown in Fig. 2, it is prevented from rolling out from the holder
 70 or otherwise dropping from inoperative position, by the tubular guide f , which holds the said closure in such position that upon righting of the main receiver the closure again drops back into its position Fig. 1 closing the
 75 auxiliary receiver, the tubular guide at such time directing the said closure into its proper closing position.

By providing a means such as described for directing the closure into its closing position upon righting of the receiver, it is possible to use the apparatus for a time until the fire is extinguished, and then again right the receiver and at once stop the discharge of carbonic acid gas from the nozzle a^3 and
 85 preserve so much of the contents of the receiver as remains unused for future use.

The projection e^2 on the closure, when the latter is removed to uncover the discharge opening for the auxiliary receiver, preferably
 90 stands in the position, as shown in Fig. 2, directly in front of the said discharge opening to retard the discharge of the contents of the said auxiliary receiver, so that the latter mixes with the contents of the main receiver
 95 only so fast as is needed to supply sufficient gas for use.

We have found the apparatus constructed as herein shown very effective, yet our invention is not limited to the particular construction shown, for it is evident our invention
 100 may be embodied in other constructions without departing from the spirit and scope of the invention.

By providing the projection e^2 to stand in front of or within the discharge opening for the auxiliary receiver, we are enabled to make the discharge of the contents of said auxiliary receiver slow, yet providing a large superficial area on the closure exposed to the action
 110 of the contents of the said auxiliary receiver to insure the dropping away of the closure when the main receiver is inverted.

Having described our invention, and without limiting ourselves as to details, what we
 115 claim, and desire to secure by Letters Patent, is—

1. In a portable fire extinguisher constructed and to operate as described, the combination with an auxiliary receiver having a discharge opening, of a closure for said discharge opening, said closure having oppositely extended projections, one of the same entering
 120 said opening, and a guide for the other of said projections to direct said closure back to its closing position, substantially as described.
 125

2. A portable fire extinguisher, consisting of a vertical main receiver having a filling opening at one end, and an outlet, a cap closing said filling opening, a holder depending
 130 from said cap, and an auxiliary receiver removably contained in said holder, a gravity closure for the discharge opening of said auxiliary receiver, and a tubular guide within

said holder to return the said closure to its closing position when the said main receiver is placed in its normal upright position, substantially as described.

5 3. In a portable fire extinguisher, a main receiver, a removable auxiliary receiver, a resilient holder for and encircling the latter, and a locking tongue pivoted to said holder at one side and normally entering an opening
10 in the said holder at its opposite side, the said tongue being released by lateral compression of said holder at its sides to elongate the same in the direction of the length of said tongue, substantially as described.

15 4. In a portable fire-extinguisher construct-

ed to operate as described, the combination with an auxiliary receiver having a discharge opening, of a closure for said discharge opening, said closure, at its outer side, being provided with a projection, and a guide for said
20 projection to direct said closure back to its closing position, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALFRED J. KNIGHT.
JESSE B. THOMAS.

Witnesses:

FREDERICK L. EMERY,
AUGUSTA E. DEAN.