

(No Model.)

T. G. TURNER.
CHEMICAL FIRE EXTINGUISHER.

No. 381,658.

Patented Apr. 24, 1888.

Fig: 1.

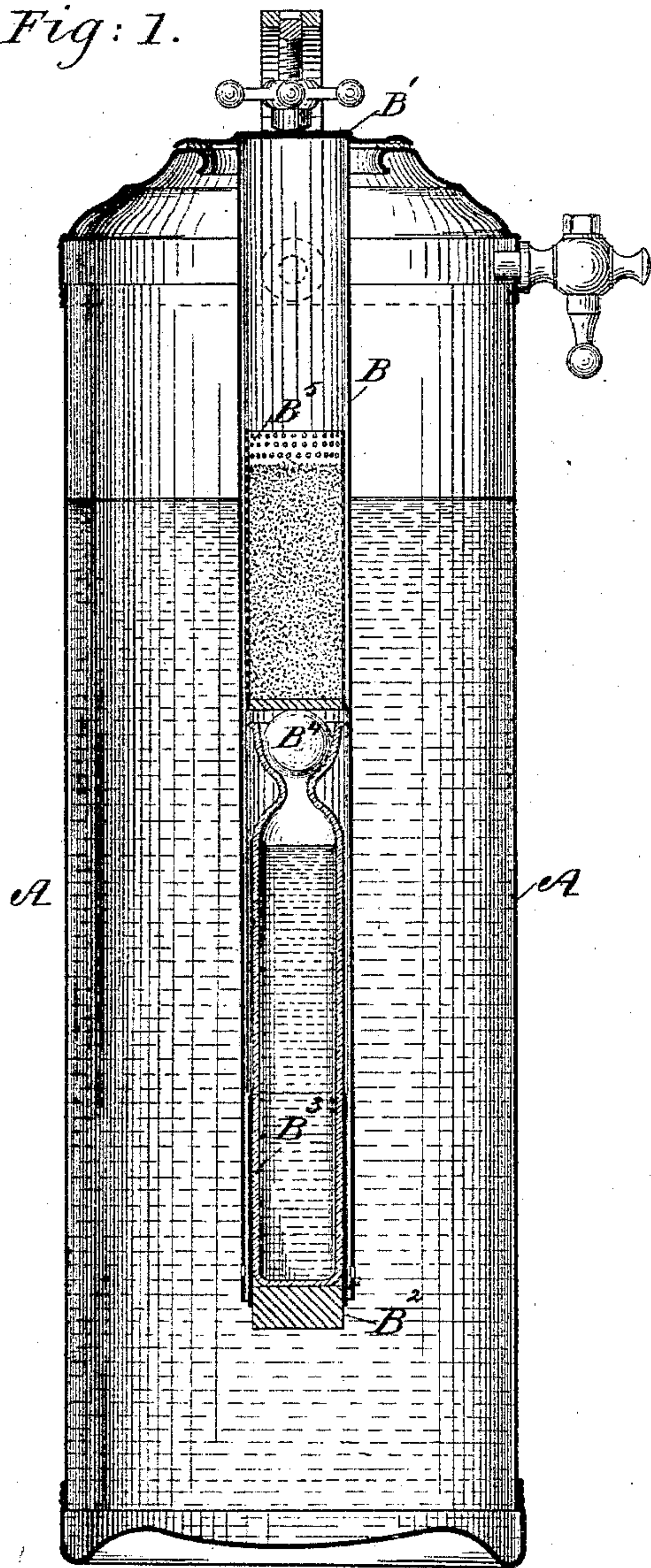


Fig: 2.

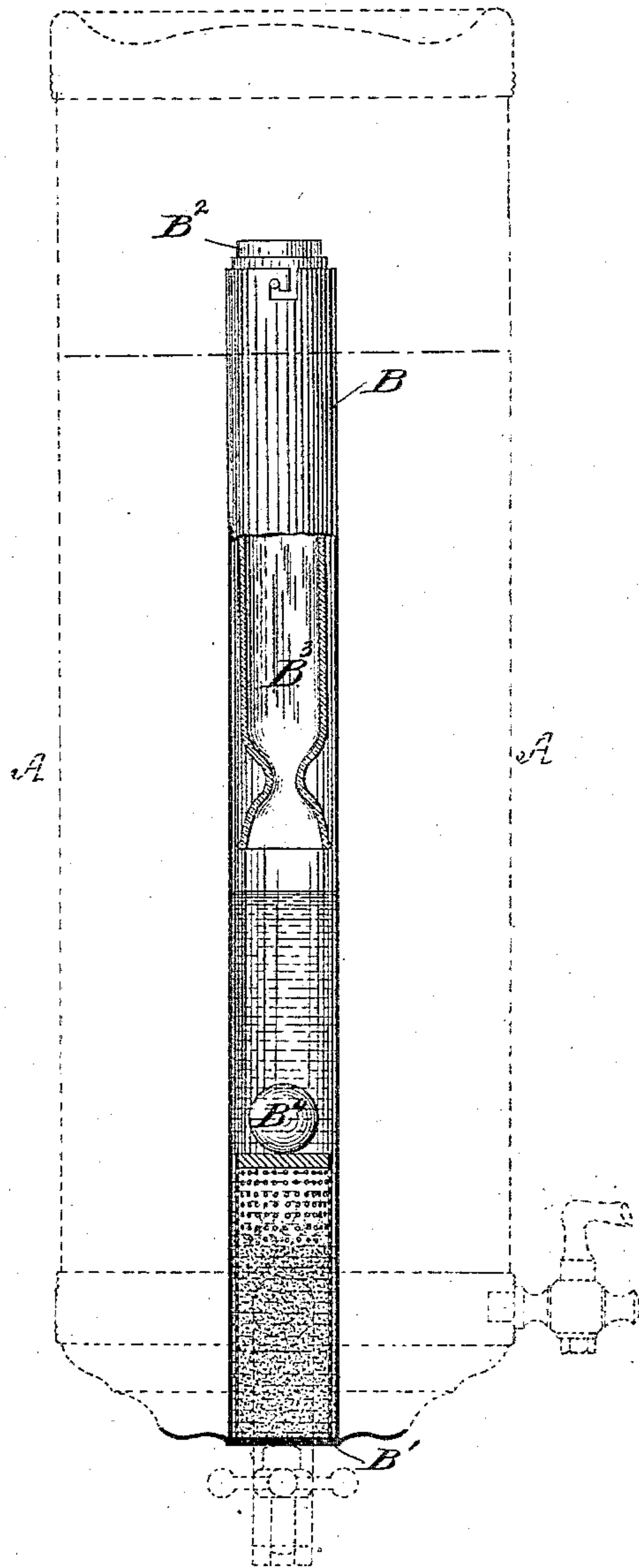
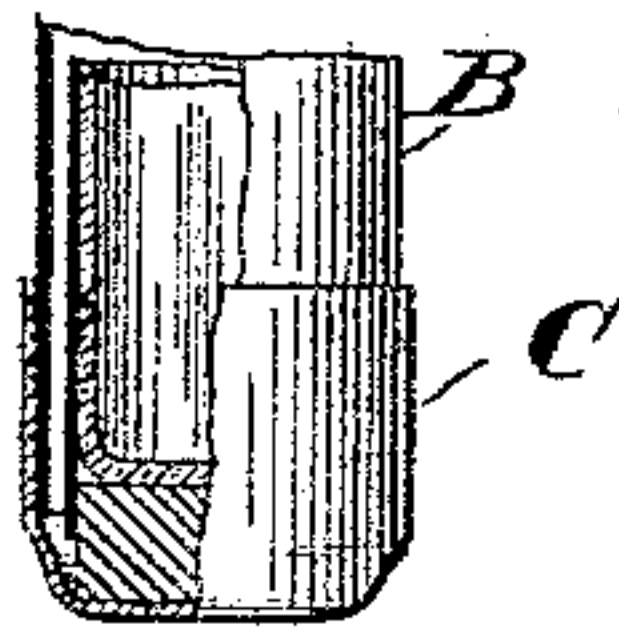


Fig: 3.



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CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 381,658, dated April 24, 1888.

Application filed December 27, 1886. Serial No. 222,730. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GILPIN TURNER, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Chemical Fire-Extinguishers, of which the following is a specification.

My invention relates to an apparatus for extinguishing fires; and it consists in the hereinafter-described method of constructing such a device, whereby the fluid used therein is forced out by means of a gas generated in the device without mingling with the fluid, the gas being used as a piston for that purpose exclusively. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional vertical elevation showing a receptacle for the fluid and another in the interior thereof for the reception of other vessels containing an acid and an alkali, one of its ends being provided with a cup which can be removed by the pressure of the gas generated within the receptacle. Fig. 2 is an elevation showing the parts in an inverted position; and Fig. 3 is an elevation, partly in section, of a portion of this interior receptacle, showing a removable cup upon its end.

Similar letters refer to similar parts throughout the several views.

The type of fire-extinguisher upon which mine is designed as an improvement is well represented in that known as the "Harkness," in which a fluid patented to Zaphel, September 26, 1876, No. 182,508, and February 5, 1878, No. 199,950, is used. In the Harkness machine this fluid is ejected by a pressure of air, such pressure being obtained by means of an air-pump at the time of charging the machine. This Zaphel fluid when used and brought into contact with fire evolves large volumes of heavy gases, which blanket the flame and smother the fire. One very important feature of this fluid is that it cannot be used in the ordinary fire-extinguishers, in which the expelling power is carbonic-acid gas, as the changing of the fluid by the addition of an acid or an alkali would cause a curdling or cheesing of the fluid, and when in that condition it could not be blown out of the extinguisher.

My improvement is designed to overcome the difficulty above referred to and enable me to use the fluid mentioned or any other that will produce a similar effect.

In constructing fire-extinguishers with my improvements embodied therein, I use an outer receptacle, A, made of iron, copper, or any suitable material, and of any convenient form and size. This receptacle is closed at its ends, one of which is provided with an aperture through which to insert a smaller receptacle, B, which has a flanged top or cover, B', upon one of its ends, which is adapted to cover the aperture formed in the end of the outer receptacle, as shown in Fig. 1 of the drawings, the last-named receptacle, A, being provided with suitable mechanism for pressing the flange of the cover B' upon the end of receptacle A, and thus forming a tight joint at that point. When it is desirable to introduce the fluid into the outer receptacle, A, the inner one is removed, and it can then be inserted through the aperture above alluded to, the quantity thus inserted being sufficient to bring its upper surface up to about the height indicated by the dotted lines in Fig. 1 of the drawings.

The interior receptacle consists of a tube, the upper end of which—when the extinguisher is in the position shown in Fig. 1—is held firmly onto the upper end of the outer receptacle, its length being sufficient to cause it to extend nearly to the bottom thereof, its lower end being provided with a removable cup, C, Fig. 3, and an interior tube, B², for the reception of an acid, its upper end being adapted for the reception of a spherical or other form of valve, B⁴, above which there is placed a perforated tube or chamber, B³, which forms a receptacle for marble-dust or an alkaline carbonate. The construction and arrangement of the parts of my improved extinguisher are such that when it is in the position shown in Fig. 1 the fluid contained in the outer receptacle is entirely excluded from the interior one by reason of the confined air in the tube B and the removable cap C'; but when the position is reversed, as shown in Fig. 2, which is the case when it is to be brought into use, the acid and alkali in the interior receptacles commingle and gas is generated, and, owing to the fact that the then upper end of the inner receptacle, B, is above the upper surface of the fluid in receptacle A,

the gas and any air that may be in the tube will be compressed into that portion of the receptacle where it will act as a piston for forcing out the fluid without coming in contact with such fluid except upon its upper surface. In providing for the exclusion of the extinguishing-fluid—this gas, or gas and air—from the receptacle B, it is proposed to use a cap, C, made of rubber or other material, which is to be placed upon the end of B, it being made to offer a certain amount of resistance to its removal, in order that the required amount of pressure shall have accumulated in receptacle B before it is blown off.

Having thus described my invention and the method of operating it, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the exterior receptacle, and the interior receptacle closed at its upper and open at its lower end, of the perforated vessel or tube placed in the upper, and the acid-containing vessel in the lower, portion of the interior receptacle, and the valve normally closing said acid-containing vessel, substantially as and for the purpose described.

2. The combination, with the exterior receptacle, and the interior receptacle closed at its upper and open at its lower end, which terminates a short distance from the bottom of the exterior receptacle, of the gas-generating ingredients placed in said interior receptacle, and the flexible cap placed over the open end thereof, substantially as set forth.

3. The herein shown and described fire-extinguisher, composed of the exterior receptacle having an aperture in its upper end, the interior receptacle provided with a flanged cover which overlaps and closes said aperture, and having its lower end open and extended to within a short distance of the bottom of the exterior receptacle, the perforated vessel located in the upper, and the vessel for the acid in the lower, portion of the interior receptacle, the valve normally closing the acid-vessel, and the flexible cap placed over the open end of the interior receptacle, substantially as and for the purpose described.

4. A fire-extinguisher composed of the exterior receptacle for holding the extinguishing-fluid, the inner vessel, the cap normally closing the inner vessel for excluding the sur-

rounding fluid therefrom, and receptacles for the gas-generating ingredients arranged at different levels in said inner vessel, the lower receptacle having an opening in its top and the upper receptacle being perforated, whereby the ingredients are caused to combine by inverting the apparatus for generating the gas, which, moving the cover and being liberated, is conveyed through said fluid to the top thereof by said inner vessel, substantially as and for the purpose described.

5. The combination, with the exterior receptacle for holding the extinguishing-fluid, of the interior receptacle, the cap normally closing said interior receptacle, from which the extinguishing-fluid is at all times excluded, and receptacles for the gas-generating ingredients confined in said interior receptacle at different levels, the lower receptacle having an opening in its top and the upper receptacle being perforated, whereby the ingredients are caused to combine upon inverting the apparatus, the gas being conveyed through the fluid without commingling therewith to the top, where it acts as a piston to expel the fluid, substantially as set forth.

6. The combination, with the exterior receptacle, of the interior receptacle, the cap normally closing said interior receptacle, from which the extinguishing-fluid is at all times excluded, removably connected with the top and extending to within a short distance of the bottom of said exterior receptacle, and receptacles for the gas-generating ingredients placed in said interior receptacle at different levels, the lower receptacle having an opening in its top and the upper receptacle being perforated, whereby the ingredients are caused to combine upon inverting the apparatus for making the gas which is conveyed through to the top of the extinguishing-fluid without commingling therewith, substantially as and for the purpose described.

Signed at New York, in the county of New York and State of New York, this 21st day of December, A. D. 1886.

THOMAS GILPIN TURNER.

Witnesses:

SIMON HESS,
J. H. HARRIS.