No. 647,443. Patented Apr. 10, 1900.

# A. W. EDMANDS.

## FIRE EXTINGUISHER.

(Application filed Dec. 16, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

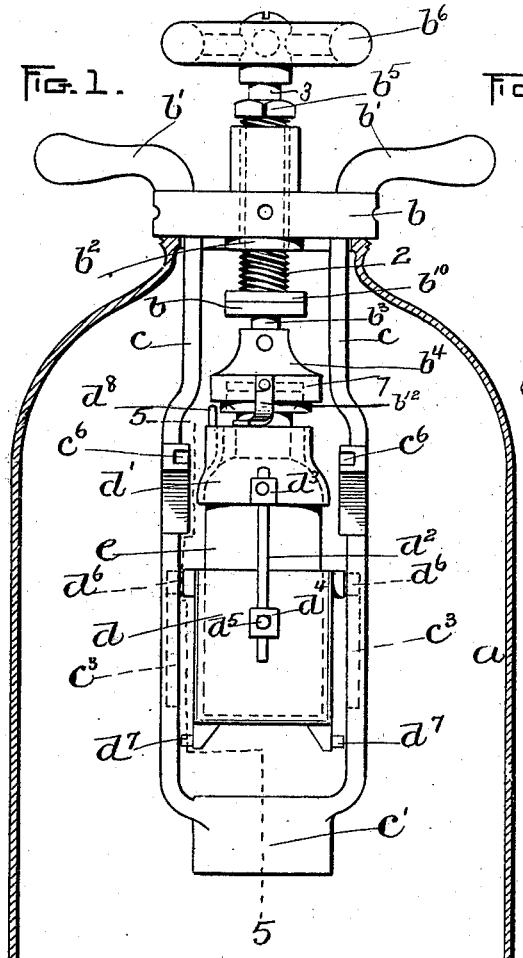
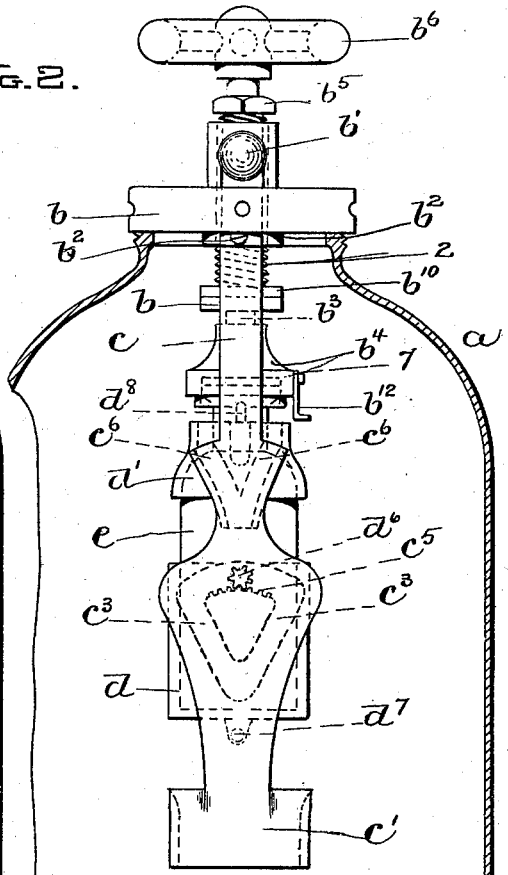



Fig. 2.




WITNESSES.

A. D. Harrison

P. W. Pezzetti

INVENTOR:

A. W. Edmands

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## FIRE EXTINGUISHER.

(Application filed Dec. 16, 1898.)

(No Model.) 2 Sheets—Sheet 2.

FIG. 3.

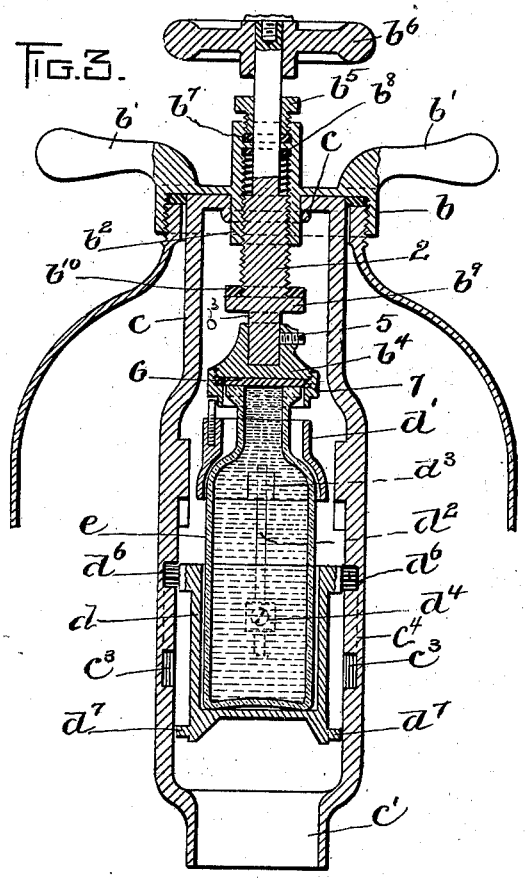



FIG. 4.

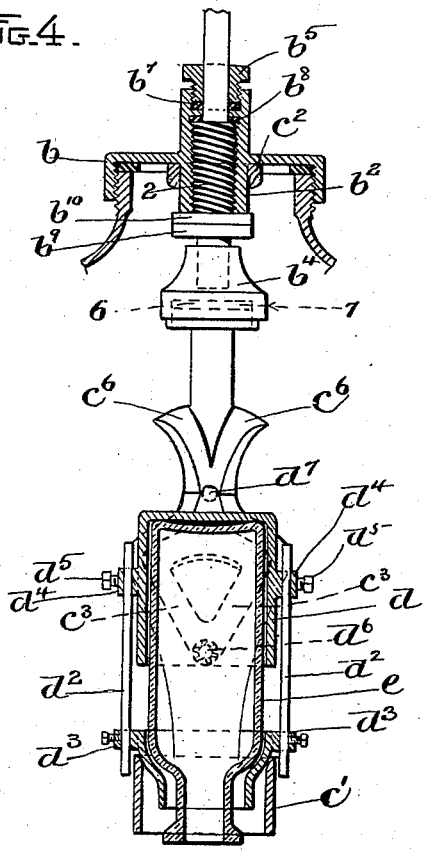



FIG. 6.

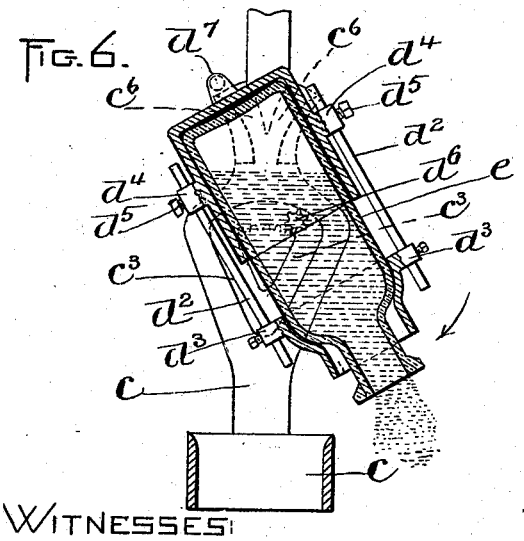
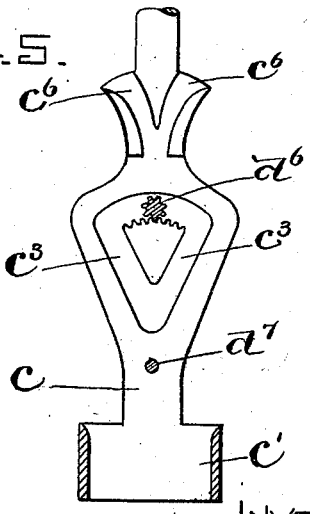



FIG. 5.




WITNESSES:
A. D. Harrison
P. W. Pezzetti.

INVENTOR:
A. W. Edmands
by Wright, Brown & Quinby
Attys.

# UNITED STATES PATENT OFFICE.

ALBERT W. EDMANDS, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH TO HENRY S. THRASHER, OF SAME PLACE.

## FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 647,443, dated April 10, 1900.

Application filed December 16, 1898. Serial No. 699,437. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT W. EDMANDS, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

This invention has relation to fire-extinguishers of that kind in which two liquids or chemicals are employed, one contained in an outer or inclosing casing or receptacle and another in an inner receptacle or vessel, whereby they are normally kept separate. When the extinguisher is used, the inner receptacle in that class of extinguishers to which my invention relates is inverted and its contents discharged into the main vessel, thereby causing the chemicals to mix and producing a pressure within the main vessel.

My invention has for its object to provide improved guiding or supporting means for the inner vessel, whereby the latter is prevented from moving about inside of the casing, and the liability of said vessel, which is usually a glass bottle, to break by reason of the jarring or rough usage to which the extinguisher may be subjected is reduced.

The invention also has for its object to provide improved means for tilting or upsetting the inner vessel for the purpose of discharging its contents.

With these ends in view the invention consists in the improvements which I shall now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical section through the main casing of a fire-extinguisher constructed in accordance with my invention, showing the inner vessel and its supports in front elevation. Fig. 2 represents a side elevation of said vessel and its supports. Fig. 3 represents a median vertical section thereof. Fig. 4 represents a view of said parts looking from the side and with the inner vessel and its holder in section, showing said vessel inverted. Figs. 5 and 6 represent sections on the line 5 5 of Fig. 1, illustrating the successive positions assumed by the parts during inversion.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, $a$ designates the outer inclosing casing, having an annular orifice or mouth closed by a threaded cover $b$, which is formed with knobs or handles $b'$ $b'$ for the purpose of turning the same. Secured to a boss $b^2$, projecting downwardly from the under side of the cover $b$, is a frame $c$, comprising two side plates joined together at their top ends by a ring $c^2$, which surrounds the boss $b^2$, and terminating at their lower ends in an annular collar $c'$.

The holder for the inner vessel or bottle $e$ is composed of two parts $d$ $d'$, the lower one $d$ being cupped or recessed to receive the body of the bottle $e$ and the upper one $d'$ being adapted to fit over the neck of said bottle and rest against the shoulder or top of the body portion. The two parts $d$ $d'$ are held together by means of rods $d^2$ $d^2$, secured to lugs $d^3$ $d^3$ on the part $d'$ and passing through perforated lugs $d^4$ $d^4$ on the lower part $d$, being adjustably held in said lower lugs by means of set-screws $d^5$ $d^5$. By loosening the screws $d^5$ the upper part may be taken off to insert or remove a bottle.

The lower part $d$ of the holder on its upper edge is formed with trunnions $d^6$ $d^6$, made in the form of gear-pinions and occupying guide-slots $c^3$ $c^3$, formed in the side plates of the frame $c$. These slots or grooves are triangular in their outer contour, with the base of the triangle uppermost, and the central boss $c^4$, inclosed by each slot, is formed on its upper edge with gear-teeth $c^5$, engaged by the teeth of the trunnions $d^6$. The remaining portions of said slots have smooth edges and are of sufficient width to permit the trunnions to pass along them. The trunnions on the bottle-holder are placed below the center of gravity of said bottle and holder, so that the arrangement is top-heavy and tends to become inverted when unsupported at the top. The bottle is normally held in an upright position, as indicated in Figs. 1 and 3, by its engagement with a cap $b^4$, carried at the lower end of a spindle $b^3$, which screws through the cover $b$ of the main casing. The upper portion 3 of this spindle is smooth and passes through a gland or stuffing-box $b^5$, containing a packing $b^7$, while the lower portion 2 is enlarged and

formed with a quick thread adapted to engage a corresponding thread formed in the central socket of the cover $b$. The bottle-cap $b^4$ consists of a block or boss 4, secured by a set-screw 5 to the lower end of the spindle, a packing 6 on the lower face of said block, and a retaining ring or sleeve 7, screwed to said block. On the spindle $b^3$, below its threaded portion, is formed a boss or flange $b^9$, above which is a packing-ring $b^{10}$. An additional packing $b^8$ also surrounds the spindle above its threaded portion, so that when the spindle is unscrewed by turning the handle $b^6$, with which its upper end is provided, so as to raise the cap $b^4$, these two additional packings $b^8$ and $b^{10}$ will be compressed between the top and lower edge of the spindle-socket and the shoulders on the spindle formed by the flange $b^9$ and the top of the screw-threaded portion 2 of the spindle, thereby making an extra-tight spindle-joint.

The upper part $d'$ of the bottle-holder is provided with an upwardly-projecting stud $d^8$, and to the rim of the bottle-cap $b^4$ is secured a projecting plate or trip $b^{12}$. Normally the cap $b^4$ is screwed down tightly against the mouth of the bottle $e$, so as to hold said bottle in an upright position and also prevent its contents from being spilled or intermixing with the liquid in the outer casing $a$. When the extinguisher is to be used, the spindle $b^3$ is quickly unscrewed to its full extent, and the first rotation of the cap $b^4$ brings the trip $b^{12}$ into contact with the stud $d^8$ and overturns the bottle. The trunnions $d^6$ by reason of the rotation of the bottle-holder roll along the toothed upper edge of the boss $c^4$ until they come to the end of the toothed portion, when they become disengaged from said teeth and fall down the vertical portions of the slots $c^3$ to the lowest point of said slots. During the latter part of this inverting movement the bottle-holder becomes further engaged with the frame $c$ by the entrance of two studs or projections $d^7$ $d^7$, placed at opposite points on the lower edge of the portion $d$ of said bottle-holder, into downwardly-directed slots or grooves $c^6$, formed in the side plates of the frame. Each frame is provided with two such grooves $c^6$, forming a V, the one or the other being entered by the projection $b^7$, according to the direction in which the bottle tilts, this depending upon whether a right-hand or a left-hand thread is formed on the spindle $b^3$. The relative position of the trunnions $d^6$ and projections $d^7$ with respect to the frame $c$ just before the entrance of said projections into the slots $c^6$ is represented in Fig. 6, wherein the trunnions are shown as they are about to leave the toothed portions of the slots $c^3$.

The final position of the bottle and its holder is shown in Fig. 4, wherein said bottle stands inverted and straight upright and its mouth and neck project into the collar $c'$, forming the lower portion of the frame $c$. Said collar is slightly flared on its upper edge to readily admit the bottle-mouth. The trunnions $d^6$ and projections $d^7$ are then at the lowermost parts of their respective guiding-slots, and the whole disposition of the bottle is such as to prevent its being moved laterally or jarred out of place. The rigid confinement of the bottle $e$ in both its normal and inverted positions tends to preserve said bottle from being broken.

The devices for discharging the combined contents of the fire-extinguisher may be of any desired construction, and as they form no part of my present invention I have refrained from illustrating them.

I claim—

1. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, and a ring supported by said inclosing casing and designed to engage the neck of said inner vessel after inversion.

2. In a fire-extinguisher, the combination with the inclosing casing, of an inner vessel adapted to be inverted by gravity and having trunnions, and triangular guides for said trunnions, said guides and trunnions being constructed to automatically depress the vessel when inverted and direct it to a point below its normal point of support.

3. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, and means for rigidly confining said vessel after inversion, in a position below its normal level of support.

4. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, toothed trunnions providing an axis of inversion for said vessel, and toothed guides for said trunnions, whereby the inversion of the vessel causes the same to be displaced from its normal position of support.

5. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, toothed trunnions supporting the same, and guides for said trunnions toothed to preserve the latter in their initial position, and so disposed as to guide the vessel, when inverted to a position below its normal position of support.

6. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, pivotal supporting means therefor, and a locking-ring supported within said inclosing casing at the limit of the inverting movement of said vessel and coöperating with said pivotal supporting means to rigidly confine said vessel.

7. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, trunnions supporting the same, guides for said trunnions wherein the latter are adapted to travel, and a secondary guide adapted to assist in guiding the vessel during the latter part of its inverting movement.

8. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, trunnions supporting the same, downwardly-directed guides for said trunnions acting to guide the vessel, when in-

verted, to a position below its normal position of support, and a secondary guide adapted to assist in guiding the vessel during the latter part of its inverting movement.

9. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, a receiver adapted to confine the mouth or neck of said vessel when inverted, and means for directing said portion into the receiver.

10. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, a receiver adapted to confine the mouth or neck of said vessel when inverted, trunnions supporting said vessel, guides for said trunnions, and a secondary guide, the latter and the trunnion-guides being so disposed as to direct the mouth or neck of the vessel into the said receiver.

11. In a fire-extinguisher, the combination with the inclosing casing, of an invertible inner vessel, supports therefor, the cupped holder *d* provided with trunnions, guides on the said supports, along which said trunnions are adapted to travel, the projection *d'* on the holder, and a guide on the said supports for said projection.

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

ALBERT W. EDMANDS.

Witnesses:
F. S. COURTNEY,
ALICE M. CARR.