

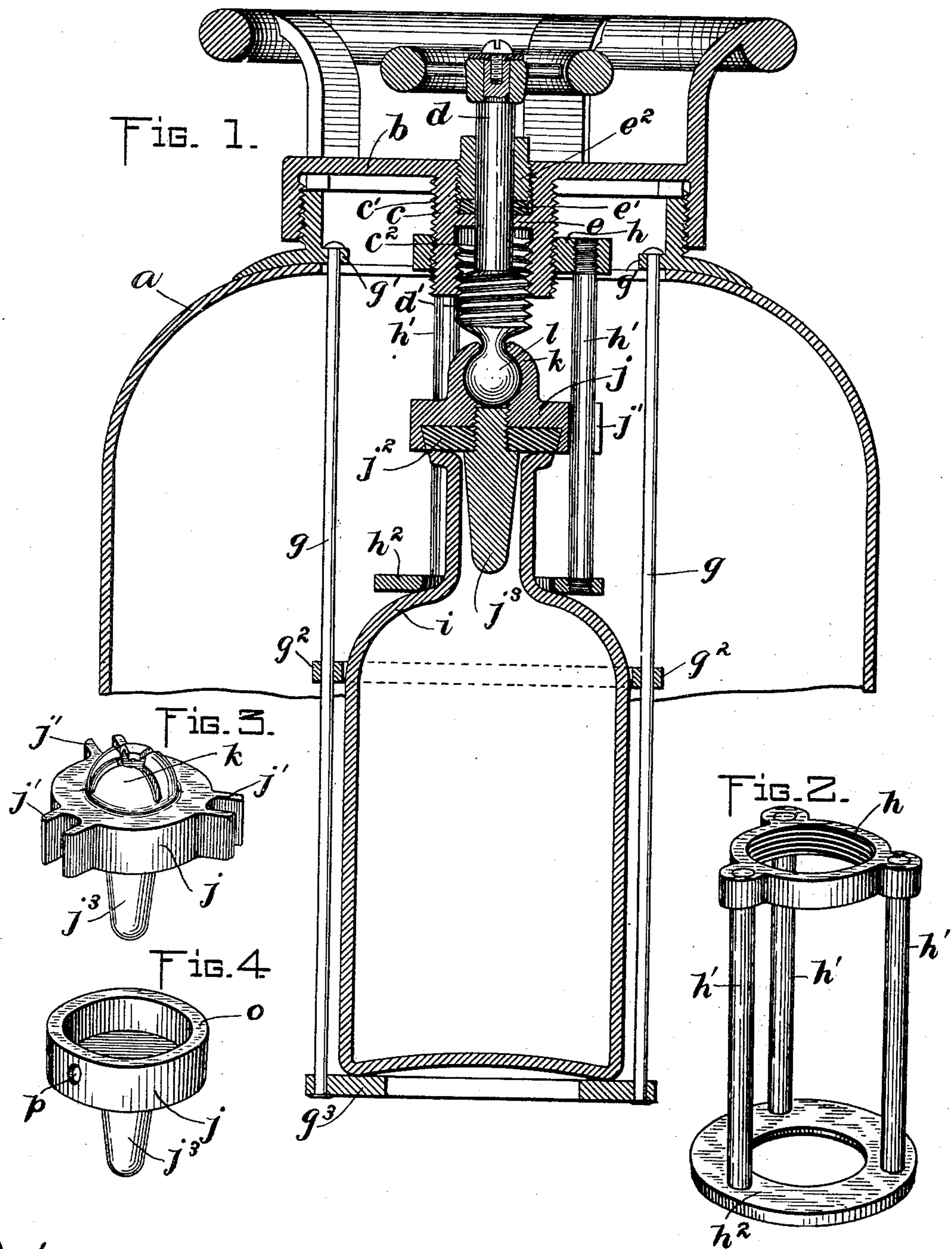
No. 686,931.

Patented Nov. 19, 1901.

A. C. BADGER.  
FIRE EXTINGUISHER.

(Application filed Nov. 17, 1900.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ARTHUR C. BADGER, OF BOSTON, MASSACHUSETTS.

## FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 686,931, dated November 19, 1901.

Application filed November 17, 1900. Serial No. 36,894. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR C. BADGER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

This invention relates to chemical fire-extinguishers, in which a bottle holding one of the chemical ingredients is contained in a holder attached to the casing holding the other ingredient or solution and is normally closed by a stopper, which slides on a stopper-guide secured to the cap or cover of the casing and projecting into the bottle-holder.

The invention has for its object, first, to provide certain improvements intended particularly for use in the type of chemical fire-extinguishers intended for fire-department use, whereby the stopper-guide may be conveniently secured to or adjusted on the cap or cover and the stopper may be maintained in a closed position after the casing is inverted and until the mixture of the chemical ingredients is desirable.

The invention also has for its object to provide an improved construction of the sliding stopper, whereby it is prevented from tipping or becoming wedged or caught between the rods of the guide-cage during its sliding movement, so that its free movement to and from its closed position is insured.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical central section of a portion of a fire-extinguisher embodying my invention. Fig. 2 represents a perspective view of the guide-cage detached from the cap or cover of the extinguisher. Fig. 3 represents a perspective view of the stopper. Fig. 4 represents a perspective view of another form of stopper hereinafter referred to.

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

In the drawings, *a* represents the canister or casing, and *b* the cap or cover, having a screw-thread connection with the casing. From the center of the cap depends a tubular boss *c*, having an external screw-thread *c'* and an internal screw-thread *c''*. Above

the internal screw-thread *c''* the boss is provided interiorly with a stuffing-box to form a gas and liquid tight joint around the stem or shank *d*, hereinafter referred to, said stuffing-box comprising a gland *e*, packing *e'*, and a screw-threaded follower *e''*. To the interior of the casing is attached a bottle-holder, which, as here shown, comprises vertical rods *g*, attached to ears or lugs *g'*, affixed to the neck of the casing, and rings *g''* and *g'''*, affixed to said rods, the ring *g'''* supporting the bottom of the bottle, while the ring *g''* surrounds the upper portion of the bottle.

The stopper-holding guide or cage (shown detached in Fig. 2) is adjustably connected with the boss *c* and comprises an upper ring *h*, having an internal screw-thread to engage the external thread *c'* on the boss, parallel guide-rods *h'*, secured to ears on the ring *h* and projecting downwardly therefrom, and a ring *h''*, secured to the lower ends of the rods *h'* and adapted to bear upon the breast of the bottle *i*, as shown in Fig. 1.

*j* represents a stopper adapted to close the mouth of the bottle *i*. Said stopper is shown in Figs. 1 and 3 as provided with elongated grooved shoes *j'*, which are formed to engage and slide upon the guide-rods *h'*, the length of the shoes *j'* being sufficient to cause the stopper to slide freely on the rods without permitting it to tip at such an angle as to bind on the rods. The stopper is preferably composed of a body portion of a suitable rigid material, such as brass or porcelain, and may have a packing-ring *j''*, of lead or leather, on its under side formed to bear upon the mouth of the bottle. As here shown, the stopper has a downwardly-projecting stem *j'''*, formed to enter the neck of the bottle. The stopper is provided with a socket member *k*, formed to embrace a ball member *l* on the lower end of the stem *d*. Said stem has an external screw-thread *d'*, engaged with the internal thread *c''* of the boss *c*, so that rotation of the stem will move the stopper toward or from the mouth of the bottle. When the stem is adjusted to the position shown in Fig. 1, it holds the stopper firmly against the mouth of the bottle and prevents the escape of liquid from the bottle when the extinguisher is inverted. When the stem is turned to retract it from the position shown in Fig.

1, the stopper is withdrawn from the mouth of the bottle.

It will be seen that the externally-threaded boss *c* and the internally-threaded ring *h* constitute a convenient means for adjusting the stopper-guiding cage lengthwise of the casing and permitting the ring *h*<sup>2</sup> to bear upon a bottle of any length within reasonable limits and hold the bottle firmly against the inner ring *g*<sup>3</sup> of the bottle-holder. The stopper *j*, with its elongated shoes *j'*, may be employed independently of the stopper-controlling stud *d*.

In Fig. 4 I show instead of the shoes *j'* an upwardly-projecting flange *o*, formed on the stopper and made of such width that when its outer surface bears on the guide-rods *h* the stopper will have no tendency to tip and stick or bind against the guide-rods, the flange being an equivalent of the shoes *j'*. When the flange *o* is employed, the cage should have a greater number of guide-rods *h'* than are required for use with the shoes *j'*, five being a suitable number. The flange may have one or more orifices *p* to permit the escape of air from the space surrounded by the flange when the stopper falls against the cap after the casing is inverted.

I claim—

30 A fire-extinguisher comprising a casing hav-

ing a neck, a cap or cover detachably connected with the neck, a bottle-holder attached to the neck of the casing independently of the cover, a downwardly-projecting boss formed on the cap and having an external screw-thread and provided internally with a stuffing-box and an internal screw-thread, a stopper-guiding cage comprising a ring internally threaded to engage the external thread on the boss, and parallel guide-rods attached to said ring, said guiding-cage projecting downwardly into the bottle-holder and adapted to bear on the bottle with adjustable pressure, a stopper adapted to close the mouth of a bottle in said holder and having its margin formed to engage and slide upon said guide-rods, and a stopper-controlling stem engaged at its lower end with the stopper and extending through the boss of the cap or cover, said stem having an internal screw-thread engaged with the internal thread of the said boss, whereby it may be adjusted independently of the adjustment of the said cage.

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

ARTHUR C. BADGER.

Witnesses:

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A. D. HARRISON.