

(No Model.)

O. A. STEMPEL.
FIRE EXTINGUISHER.

No. 489,767.

Patented Jan. 10, 1893.

Fig. I.

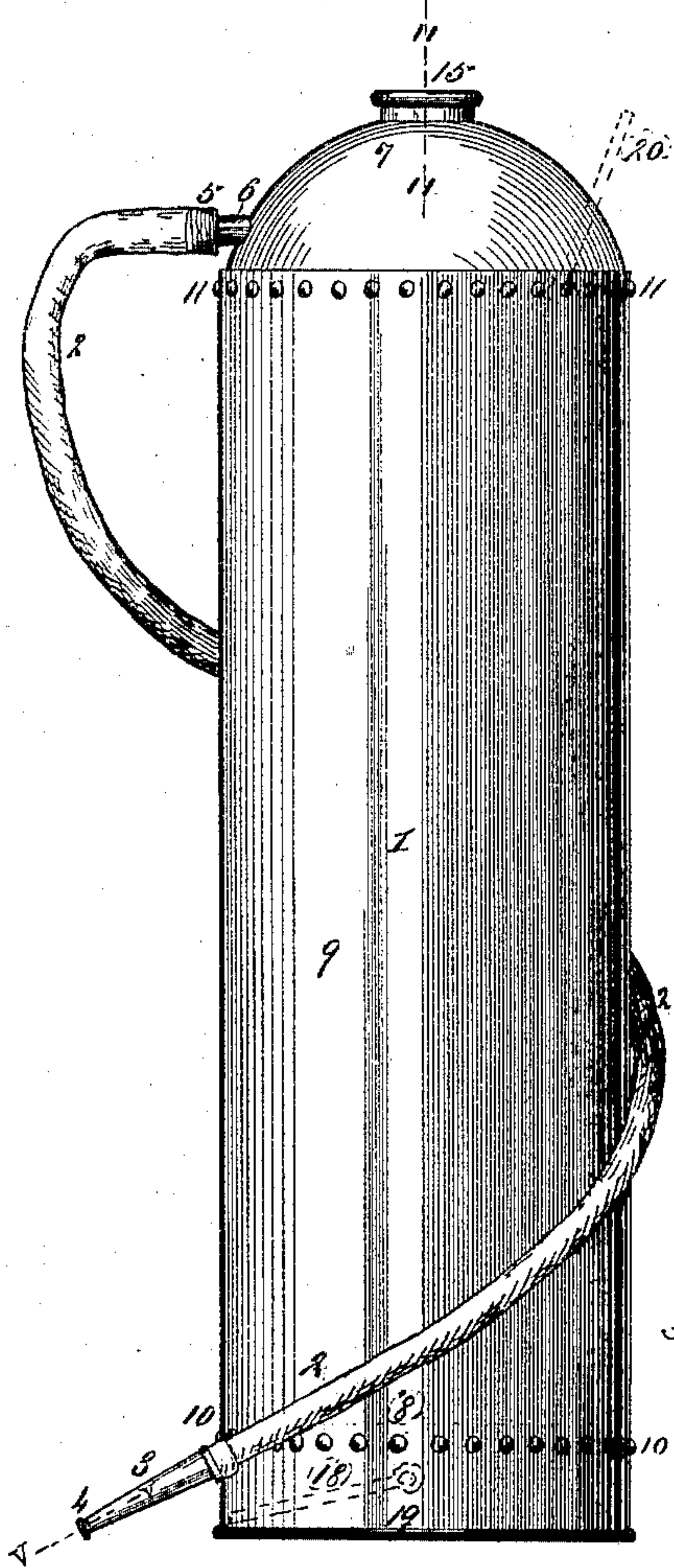


Fig. II.

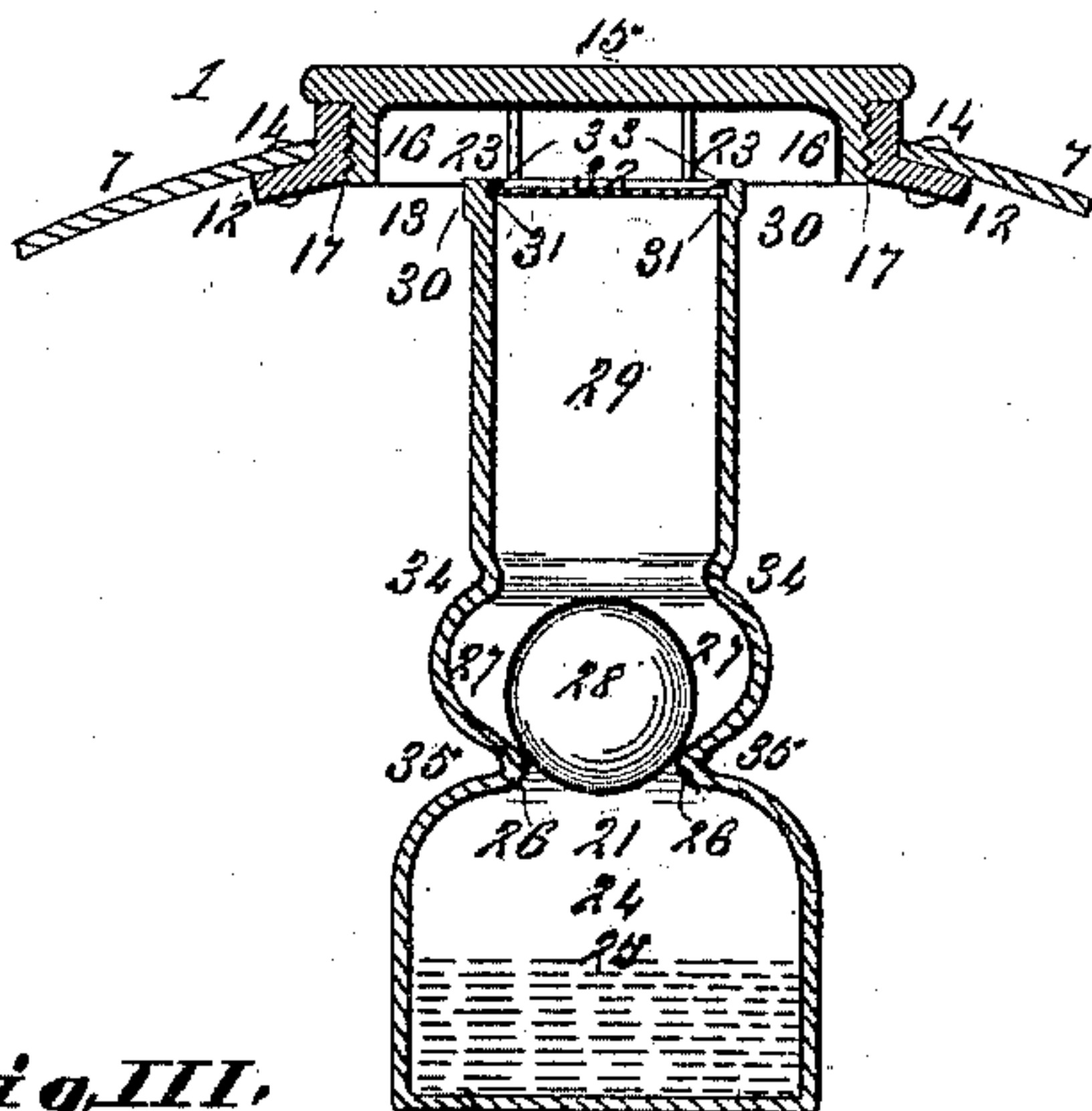


Fig. III.

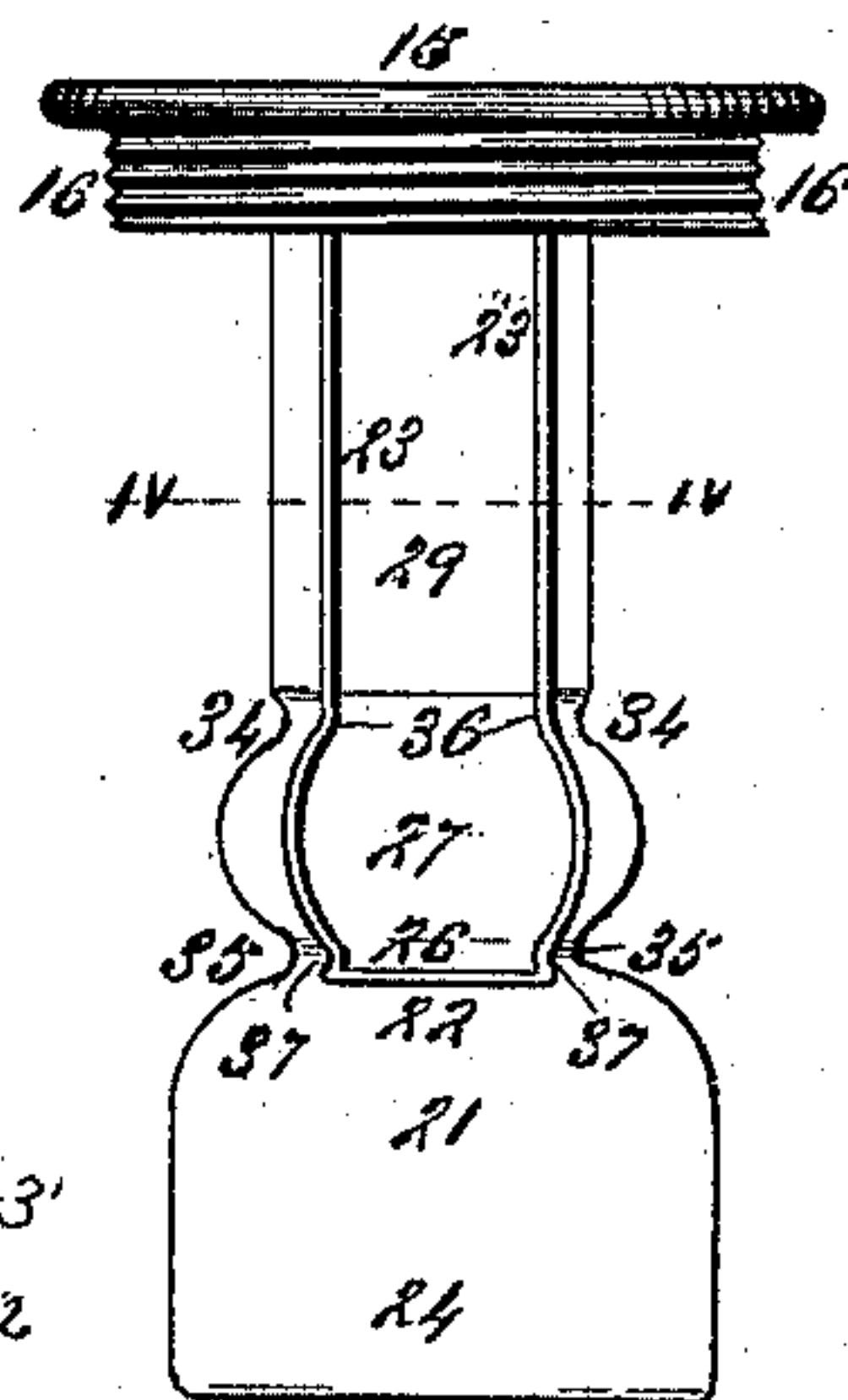


Fig. IV.

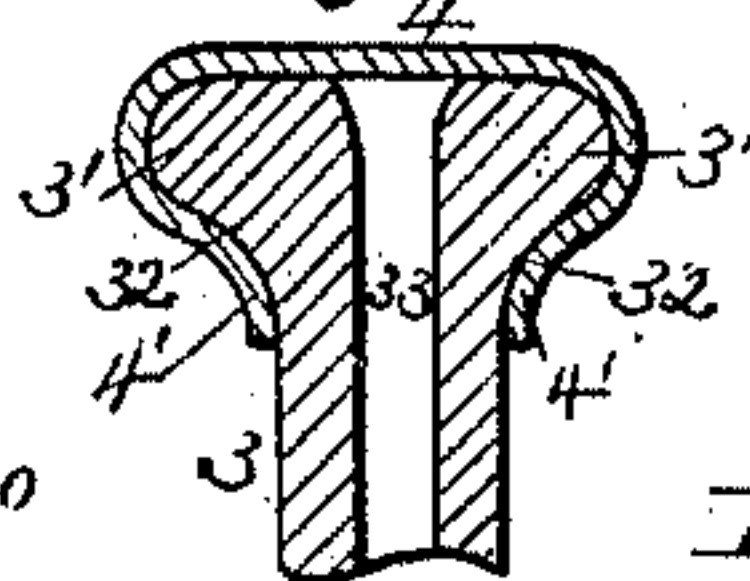
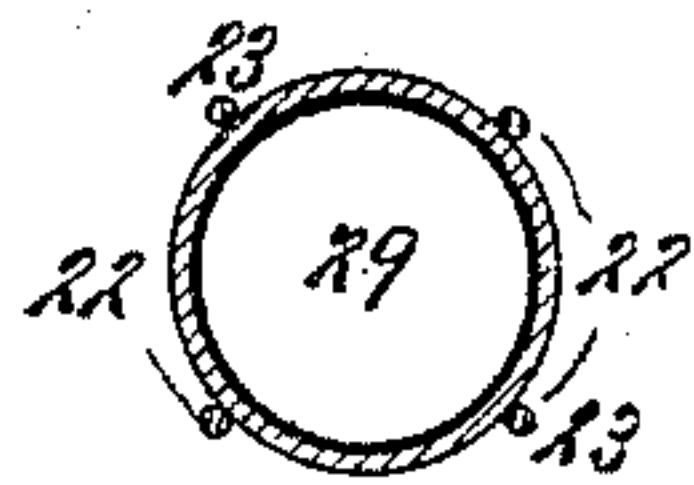


Fig. V.



Attest:
Walter E. Allen.
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Inventor:
Omar A. Stempel.

By Knight Bros.
Atty.

UNITED STATES PATENT OFFICE.

OMAR A. STEMPEL, OF ST. LOUIS, MISSOURI, ASSIGNOR OF TWO-THIRDS TO JOSEPH F. WANGLER AND MISSOURI LAMP AND MANUFACTURING CO., OF SAME PLACE.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 489,767, dated January 10, 1893.

Application filed August 20, 1892. Serial No. 443,571. (No model.)

To all whom it may concern:

Be it known that I, OMAR A. STEMPEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Fire-Extinguishers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to attachments for that class of fire extinguishers which are designed to be carried to the place of use and during the process of using, and in which chemicals are united with the liquid to be precipitated on the fire to extinguish the same; the said chemicals generating the force which expels or forces the liquid from said extinguisher onto said fire; the chief object of my invention being to provide a safe, sealed depository for the acid until the time that its generative capacity is to be used, and at said time an instantaneous, automatic breakage of the seal to liberate said acid and allow its passage to the liquid that the gas it engenders is to project from the apparatus onto the fire to extinguish the same.

Figure I is an elevation of an extinguisher tank within which my invention is embodied. Fig. II is an enlarged, detail, vertical section taken on line II—II, Fig. I, and shows the pendent bottle that contains the acid or other gas generative chemical; it also shows its fragile glass or other seal, and the lead or other heavy ball resting in abeyance until such time as the inversion of the tank shall precipitate it on the fragile seal, which it breaks and frees the chemical to effect its generative work. Fig. III is an enlarged elevation of the bottle containing the chemical, and shows it secured in a pendent position to the screw cap of the apparatus by the pendent yokes that are themselves secured to said cap; Fig. IV is a horizontal section, taken on line IV—IV, Fig. III, and shows the neck of the bottle and the yokes that embrace it, and Fig. V is an enlarged detail section, taken on line V—V, Fig. I, and shows the nozzle, the enlarged rim flange at its mouth and the elastic gas tight cap fitted over said rim.

Referring to the drawings:—1 represents the body of the apparatus that incloses the

reservoir in which the liquid is placed, and 2 is the hose, which is provided with the nozzle 3, having the enlarged rim 3' the neck 3² and the discharge throat 3³ through which said liquid is forced by the generated gas after the conjunction of the chemicals and said liquid, and 4 is a cap with its flange collar 4' that covers the mouth of the nozzle to prevent evaporation from the reservoir until the time arrives for the discharge. The said cap is preferably made of rubber, but may be of any other suitable material. The cap may either be removed by hand immediately previous to the discharge of the liquid, or if time is urgent from the spread of the fire, the generated gas in discharging the liquid will readily blow off the cap from the mouth of the nozzle, without the operator taking time to remove it. The said hose is bound in a gas-tight joint at 5 around the discharge nipple 6, that projects from the dome 7 of the apparatus. The raised bottom 8 is secured to the cylinder 9 of the apparatus by the rivets 10 and the dome 7 is secured to the top of said cylinder by the rivets 11.

12 represents a flanged collar around the mouth 13 at the summit of the dome, to which said collar is secured by the rivets 14.

15 represents the surmounting screw cap, the screw flange 16 of which is screw seated in the inner screw 17 of the flange collar 12, and thus effects a gas tight cover and joint at the mouth of the apparatus.

18 represents a bail handle that is secured beneath the raised bottom of the apparatus to the cylinder by the pivot bolts 19; and 20 is a handle which is secured by certain of the afore-said rivets 11 to the top of the cylinder at its near side. By the said handles the apparatus is moved from place to place, care being exercised to keep its dome elevated for reasons hereinafter explained, until the desired discharge of the liquid.

21 represents the pendent, chemical bottle, which is secured to the cap 15, by the two pendent yokes 22, the double rods 23 of which yokes are securely attached to said cap from which said yokes hang pendent. The said chemical bottle is constituted of the acid depository tank 24 at its base, in which the acid

25 is placed and held until the time of its use, the contracted throat 26 above said tank, the circularly expanded gullet 27, in which the break ball 28 is located, the said ball resting
 5 on the constrictive contraction of said throat. 29 represents the surmounting neck of said bottle, 30 is the circular expanded lip at the mouth 31 of said neck, 31 is a circular recess within said lip, 32 is the fragile break stopper
 10 or seal that is seated within said recess, and 33 is a rubber or other gasket ring or cement, that serves as a gum socket to prevent the escape of gas from the acid, and to hold said stopper in its seat previous to its breakage or
 15 distension from said seat, by the blow from the ball 28.

The double rods 23 of the pendent yokes 22 are bent inward within the respective recesses 34 and 35, to form respective clutch holds 36
 20 and 37 that engage in said recesses in the chemical bottle above and below the globular gullet 27 around which said rods of the yoke embrace and firmly hold said chemical bot-
 25 pendent. tle to the cap cover 15, from which it hangs

The aforesaid stopper or seal 32 may be made of thin glass like a watch glass or crystal, or it may be made of thin mica, or aluminum that is rolled into so thin a sheet that it will
 30 readily bend under a slight concussion or pressure, or it may be made of any other like suitable material.

I do not confine myself to any one suitable acid or other chemical used in the bottle or to
 35 any one alkali or other solution or liquid used in the cylinder or tank, as the chief elements of the present invention are on the novel means of hermetic confinement of the acid or chemicals and their gases apart from the liq-
 40 uid on which they operate, until such time as the discharge from the fire extinguisher is required, and the automatic and instantaneous release of said acid or chemicals on their generative mission at such time as said
 45 discharge is required.

The operation of the device is as follows:—
 The acid or other chemical or chemicals 25 used as a generative force, are placed in the small depository tank 24 of the pendent
 50 chemical bottle 21. The break ball 28, which is preferably made of lead, glass, or other heavy, and at the same time incorrodible substance is then placed within the gullet 27 of the bottle and rests on its contracted throat
 55 26. The hermetic seal stopper 32 is then seated in the circular recess 31, at the mouth of said bottle, and the gasket ring or cement closure 33 is seated around the lip of the bot-
 60 tle outside said stopper, to complete the closure of said hermetic seal. The pendent rod yokes 22, that are secured to the screw cap lid, are then expanded apart sufficiently to allow the free insertion between said yokes
 65 of the neck 29 and globular gullet 27 of said chemical bottle, and when said rod yokes are released, their clutch holds 36 and 37 spring into the recesses 34 and 35, and embrace

around the globular expansion 27 of the gul-
 let, and hold the chemical bottle firmly in
 suspension to said screw-cap. The liquid 70
 which may be an alkali solution, or any other
 suitable liquid is then, or having been pre-
 viously inserted in the cylinder or tank 9 of
 the apparatus, the screw-cap lid 15, with its
 pendent chemical bottle is then screw seated 75
 within the mouth of the apparatus. The cap
 4 of the nozzle 3 is also seated on said nozzle
 to prevent the escape of gas and evaporation
via said nozzle previous to the ultimate dis-
 charge. The apparatus is now ready for use, 80
 and may be carried by its handles 18 and 20,
 or a strap secured to said handles will facili-
 tate said carriage by suspending it from the
 shoulder or to the back of the carrier. Care
 should always be maintained not to tip the 85
 top of the apparatus over sufficiently to pre-
 cipitate the break ball from its seat within the
 globular gullet 27 of the bottle, until such time
 as the apparatus is to come into active service.
 On arrival at the fire that it is desired to ex- 90
 tinguish the cap may be removed from the
 nozzle, or if the necessity is urgent time need
 not be taken to remove said cap, for the dis-
 charge will itself instantaneously blow off said
 cap. The apparatus is then turned upside 95
 down to precipitate or roll the break ball 28
 from its seat in the globular gullet 27, which
 ball rolls through the neck of the bottle and
 against the fragile or flexible stopper 32 which
 it breaks if of glass or bends if of mica or of 100
 tissue rolled aluminum so as to precipitate it
 from its seat and open the way for the then
 inverted chemical bottle to precipitate its
 acid or other chemical, into the main reser-
 voir or tank where it mixes with the alkali 105
 or other liquid and generates the gas that ef-
 fects the discharge of said liquid through the
 nozzle 3. The nozzle being attached to the
 hose 2 is readily pointed by the expert in any
 direction in which it is required to direct the 110
 discharge to best aid in the extinguishing of
 the fire.

Another important advantage of my fire
 extinguisher is, that the acid or other chemi- 115
 cals are so perfectly isolated within the chemi-
 cal bottle by the hermetically sealed stop-
 per, from the liquid on which their genera-
 tive force is to be exercised, until such time
 that said extinguisher is to be actively op-
 erated, so that there can be no discharge by 120
 accident or otherwise until said apparatus
 is inverted so as to roll said break ball from
 its globular gullet bed.

The apparatus can even be placed on its
 side and the ball still safely abides within 125
 said safety bed. It can be deposited in said
 position on railroads or steam ships without
 the break ball being precipitated from its bed.

I claim as my invention:—

1. In a fire extinguisher, the combination 130
 of the chemical bottle 21, having the acid or
 chemical tank 24 the break ball 28 deposit-
 ed within said bottle and the stopper 32; sub-
 stantially as described.

2. In a fire extinguisher, the combination of the body of the apparatus 1, having the cap 15, the chemical bottle 21 suspended from said cap, and having the acid or chemical depository tank 24, the stopper 32 and the break ball 28; substantially as described.

3. In a fire extinguisher, the combination of the body of the apparatus, having the cap 15, the chemical bottle 21, having the chemical depository tank 24 and the globular gullet 27, the break ball normally reposing in said gullet, the pendent clutch yokes 22, secured to said cap and that hold said chemical bottle, and the stopper 32; substantially as described.

4. In a fire extinguisher, the combination of the body of the apparatus having the cap 15, the pendent yokes 22, secured to said cap, the said yokes having the curvilinear

holds 36 and 37, the pendent chemical bottle 21, the said bottle having the depository tank 24, the contracted throat 26, the globular gullet 27 and the surmounting neck 29, the break ball 28 and the break stopper 32; substantially as described.

5. In a fire extinguisher, the combination of the body of the apparatus, having the screw cap 15, the hose 2, the nozzle 3, the cap 4 that covers the mouth of said nozzle, the pendent yokes 22, the chemical bottle 21 embraced and supported by said yokes, the chemical in said bottle, the liquid in said body of the apparatus, the break ball 28, and the break stopper 32; substantially as described.

OMAR A. STEMPEL.

In presence of—

BENJN. A. KNIGHT,
ED. S. KNIGHT.