

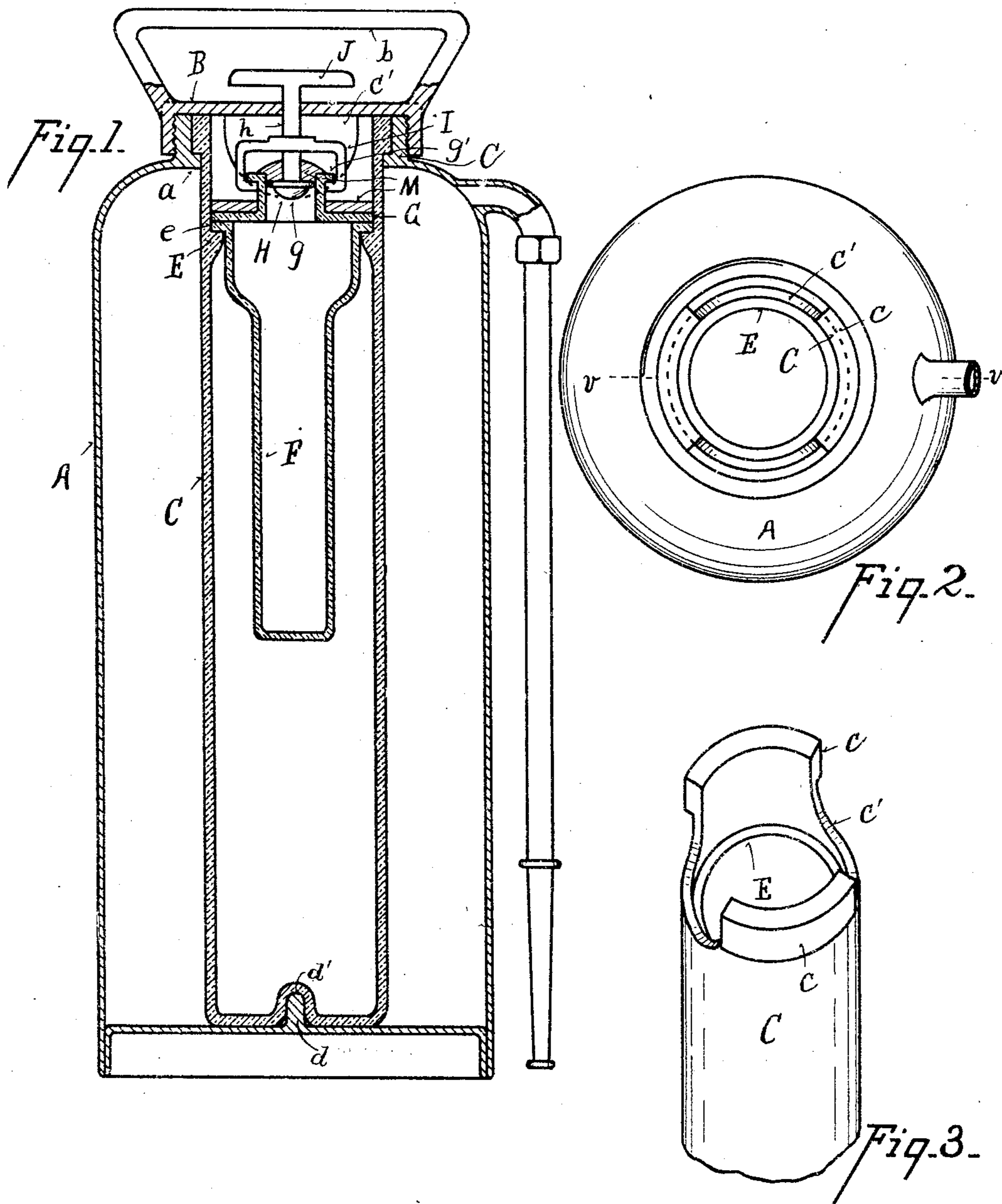
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FIRE EXTINGUISHER.

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FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 779,435, dated January 10, 1905.

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To all whom it may concern:

Be it known that we, JAMES E. MURRAY and CHARLES NUHRING, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Fire-Extinguishers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in fire-extinguishers.

One of its objects is to provide an apparatus adapted to contain three or more liquids or solutions of chemicals in separate compartments and so arranged that the contents of the separate compartments may be readily united or mingled together to form the fire-extinguishing medium and to generate the pressure with which to discharge the same upon the fire.

Another object is to provide improved means for sealing the respective liquids in their compartments and for breaking the seal to liberate and unite the liquids when desired for use.

It further consists in certain details of form, combination, and arrangement, all of which will be more fully set forth in the description of the accompanying drawings, in which—

Figure 1 is a central vertical section through a fire-extinguisher embodying our invention. Fig. 2 is a top plan view of the same with the cap and central receptacle removed. Fig. 3 is a perspective view of the upper portion of the middle or second compartment.

In devices heretofore in use for extinguishing fires it has been customary to employ either two liquids or a liquid and a solid, by the union of which a compound of liquid and gas was produced adapted to extinguish the fire. We have discovered that by employing three or more chemical substances, preferably in the liquid form in order that they may more quickly combine to produce the desired compound, we are enabled to produce a much more efficient compound of liquid and gases for the purpose.

In the accompanying drawings, A represents a metallic tank provided with a screw-

threaded cap B, having a handle *b* for convenience in handling and for screwing the cap in place. Within the tank A is located a receptacle or jar C, preferably of glass or other vitrified material. This jar is preferably supported relative to the tank A by means of lugs *c*, engaging an annular flange *a* near the mouth of the tank, and held in place at the opposite end by a stud *d*, entering a recess *d'* in the bottom of the jar C, the cap B engaging the upper face of the jar to hold it in contact with the flange *a*. The upper edge of the jar C is notched at *e'* to permit the liquid in the tank to enter the recess beneath the cap when the tank is inverted.

Within the jar C, a short distance below the notches *e'*, is an annular rib or flange E, upon which is seated the flange *e* of the inner compartment or jar F, which depends from said flange *e* into the jar C.

G represents a cap seating on the upper face of the jar F and provided with a central opening *g* and a flange *g'*. A plug or valve H, supported on a stem *h*, which passes through the cap B, serves to close the opening *g*, while a yoke I, attached to the stem, engages the flange *g'*.

J represents a cross-bar at the outer end of the stem *h*, by means of which the stem and parts H I may be drawn toward the cap to break the seal and permit the contents of the several compartments to unite.

In practice the tank is partly filled with a liquid of a non-corrosive nature—for instance, a solution in water of bicarbonate of soda. The jar C is then introduced and partly filled with a liquid, say a solution of ammonium chlorid in water. The jar F is then introduced and nearly filled with sulfuric acid. The cover G is then placed in position and the joint sealed with paraffin or other suitable sealing material M, after which the metal cap B, stem *h*, and yoke I are adjusted to the position indicated in the drawings and the metal cap screwed down tightly in place. When required for use, the cross-bar of the stem is pulled out, which first retracts the valve H and then breaks the seal and lifts the cap G by means of the yoke I. The tank is then inverted, whereupon the contents of the two jars

flow out and mingle with the contents of the tank, being quickly effected by reason of the chemical reaction taking place between the respective liquids. The result of the reaction is that a greatly-increased amount of non-combustible gas is generated, which gases are partly absorbed in the liquid and partly serve to generate a pressure by means of which the liquid is discharged upon the fire, where the liquid from its nature, the non-combustible gases carried thereby, and the tendency of the liquid to generate non-combustible gases in contact with the fire has a greatly-increased capacity to extinguish fire.

By storing the chemicals in the extinguisher all in the liquid form no time is required for their solution previous to use, and the reaction takes place with great rapidity and a uniform product is formed and discharged.

We do not wish to limit ourselves to the particular form of apparatus shown, as our invention is capable of considerable modification without departing from the principle thereof.

Having described our invention, what we claim is—

1. In an apparatus of the character indicated, a tank from which the extinguishing materials are adapted to be discharged by the pressure of carbonic acid generated at the time of use, a plurality of receptacles located therein one within the other, means for closing and sealing said receptacles, and mechanism operated from the exterior of the tank for breaking the seal and opening the mouth of the respective receptacles to unite the contents of the tank and respective receptacles into a single mixture.

2. In an apparatus of the character indicated, a tank, a plurality of receptacles located therein, one within the other and adapted to keep separately from each other a plurality of chemicals in solution, a sealed lid closing the mouth of the respective receptacles, and means operated from the exterior of the tank for breaking the seal and uniting the contents of the respective receptacles and tank, whereby the respective chemicals are at all times retained in solution and ready for instant combination and use.

3. In a fire-extinguisher from which the extinguishing materials are adapted to be discharged by the pressure of carbonic acid generated at the time of use, a tank holding an alkaline solution, a receptacle located within the tank holding in solution other chemicals adapted to generate extinguishing-gases un-

der heat of the fire, a receptacle located within said first-named receptacle containing acid, means for sealing said receptacles to prevent any reaction and deterioration of said chemicals from long standing, and mechanism operated from the exterior of the tank for breaking the seal to unite the contents of the respective receptacles and tank when required for use.

4. In an apparatus of the character indicated, a tank from which the extinguishing materials are adapted to be discharged by the pressure of carbonic acid generated at the time of use, a plurality of receptacles located within the tank, one of said receptacles serving to close the mouth of the other, and mechanism to unite the contents of the respective receptacles and tank when required for use.

5. In an apparatus of the character indicated, a tank from which the extinguishing materials are adapted to be discharged by the pressure of carbonic-acid gas generated at the time of use, a receptacle located within the tank, a second receptacle closing and sealing the mouth of said first-named receptacle, and mechanism operated from the exterior of the tank for uniting the contents of the respective receptacles and tank when required for use.

6. In a fire-extinguisher, a tank, a receptacle seating upon a projection near the mouth of the tank, a passage communicating with the tank near the mouth of said receptacle, a ledge within the receptacle below said passage, a receptacle located within said first-named receptacle seating upon said ledge, a cap adapted to close and seal both receptacles, and means for detaching said cap to unite the contents of the tank and receptacles when required for use.

7. In an apparatus of the character indicated, a tank, from which the extinguishing materials are adapted to be discharged by the pressure of carbonic acid generated at the time of use, a plurality of receptacles located therein one within the other, a cap closing and sealing the mouth of both receptacles, and means for detaching the cap to unite the contents of the tank and both receptacles when required for use.

In testimony whereof we have affixed our signatures in presence of two witnesses.

JAMES E. MURRAY.
CHARLES NUHRING.

Witnesses:

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