

No. 661,442.

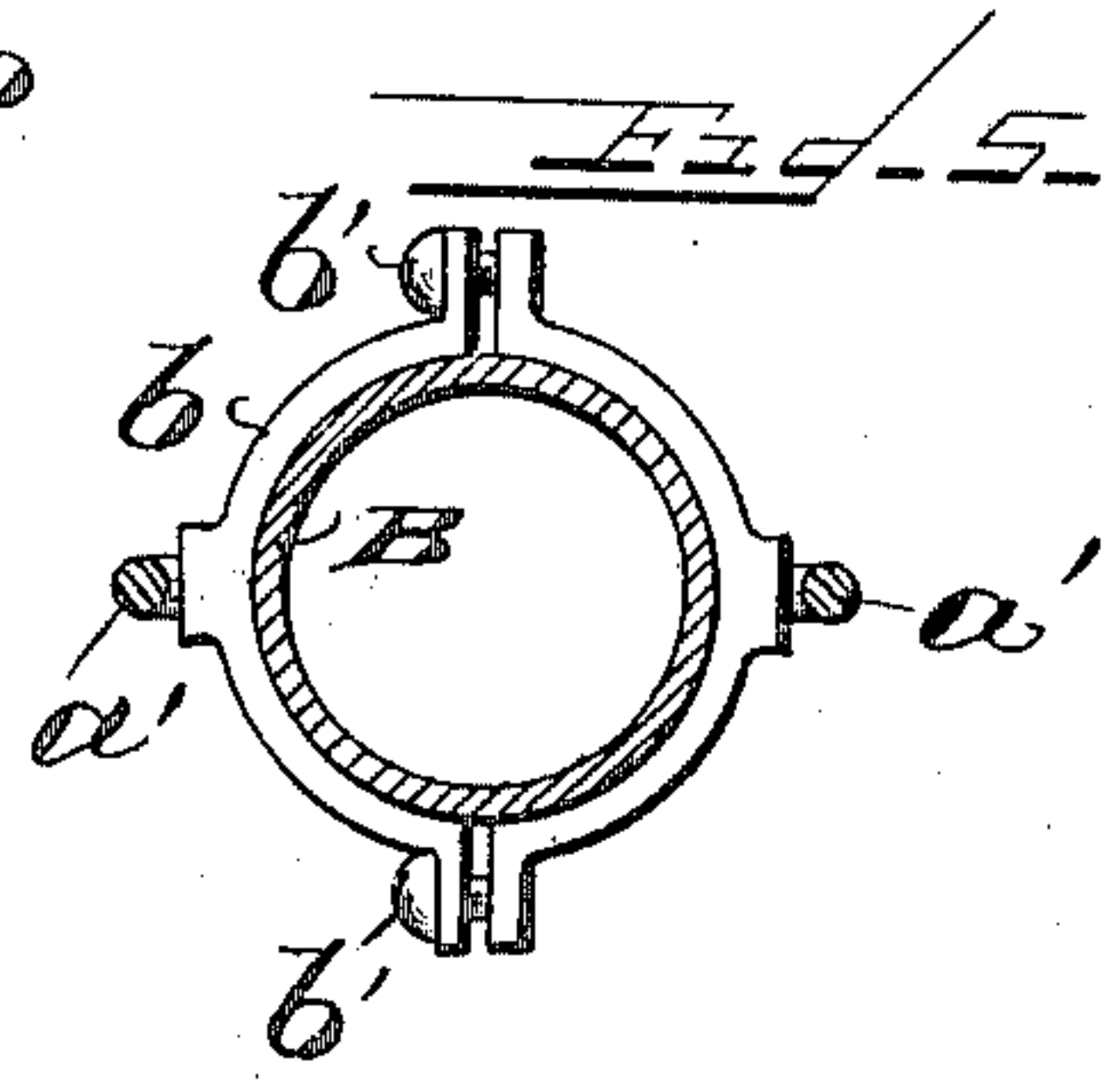
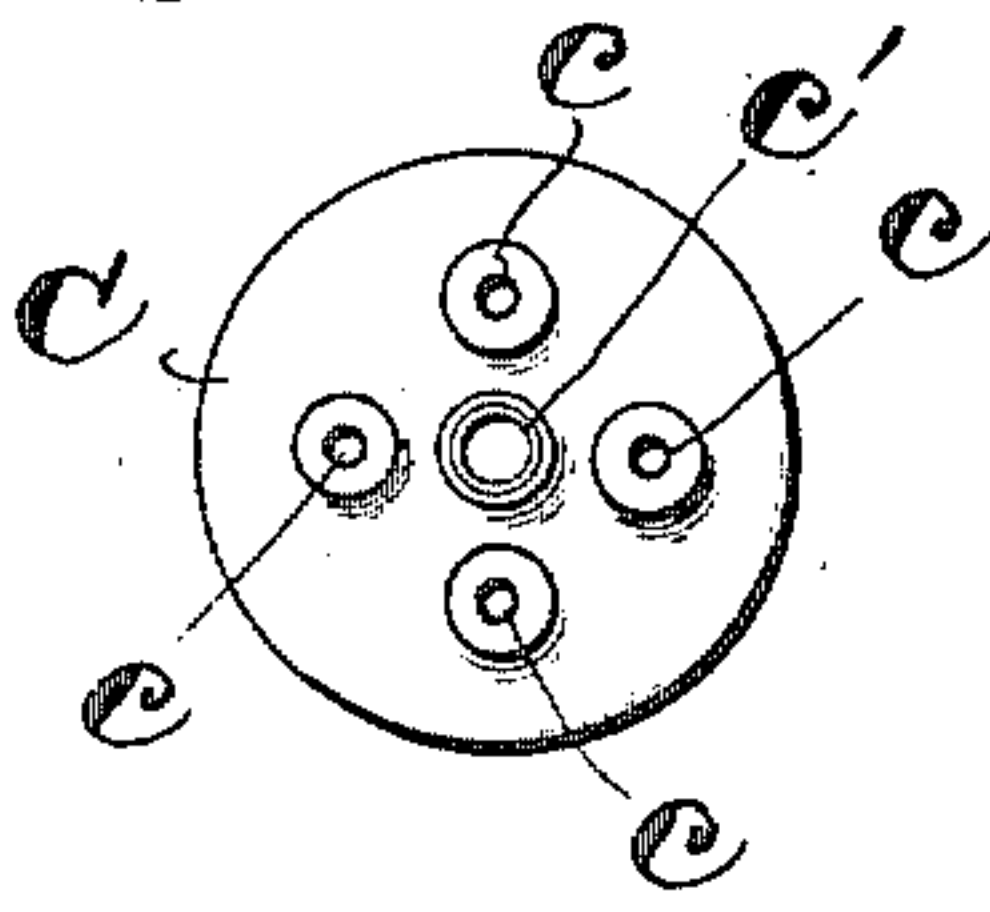
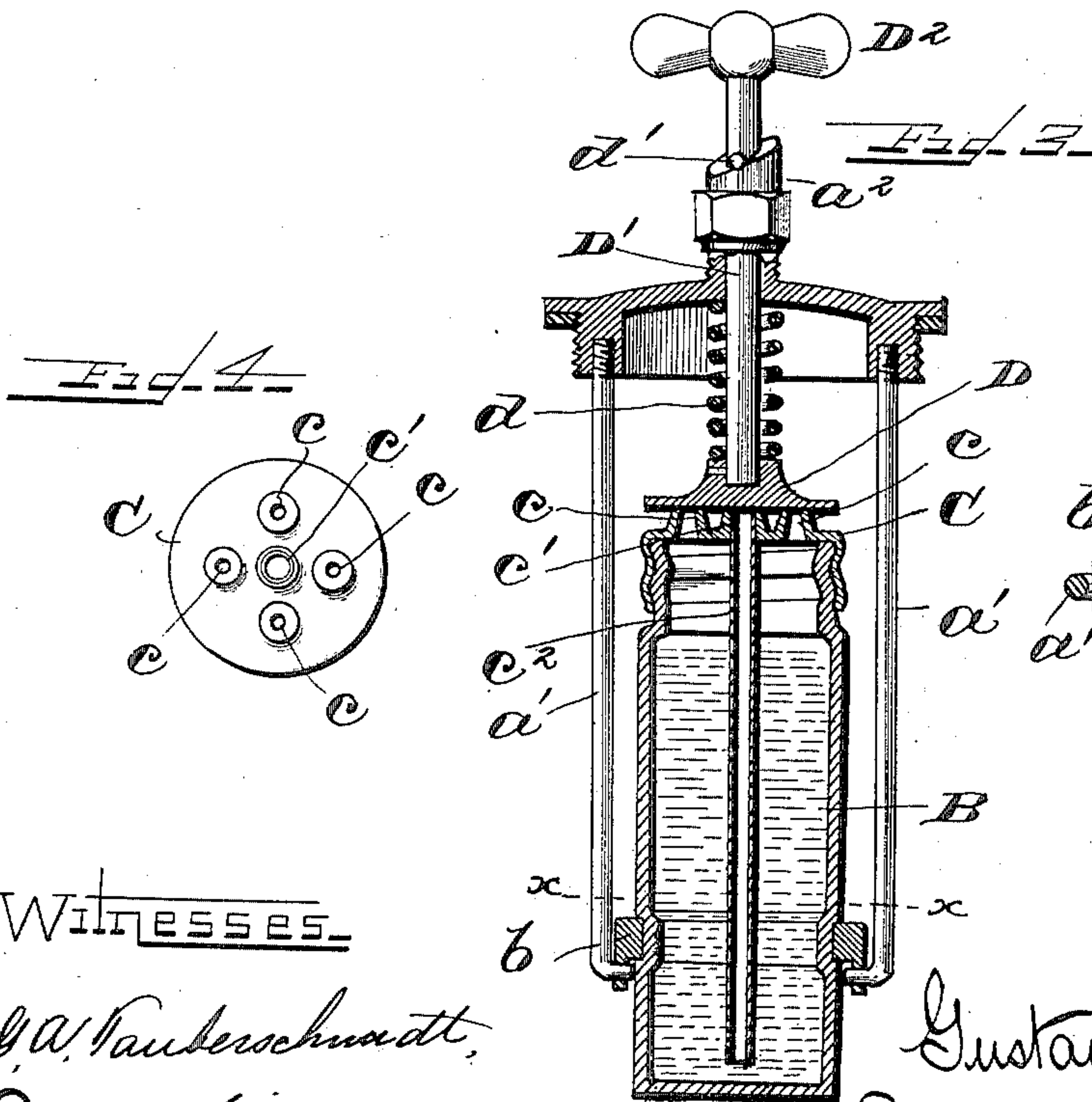
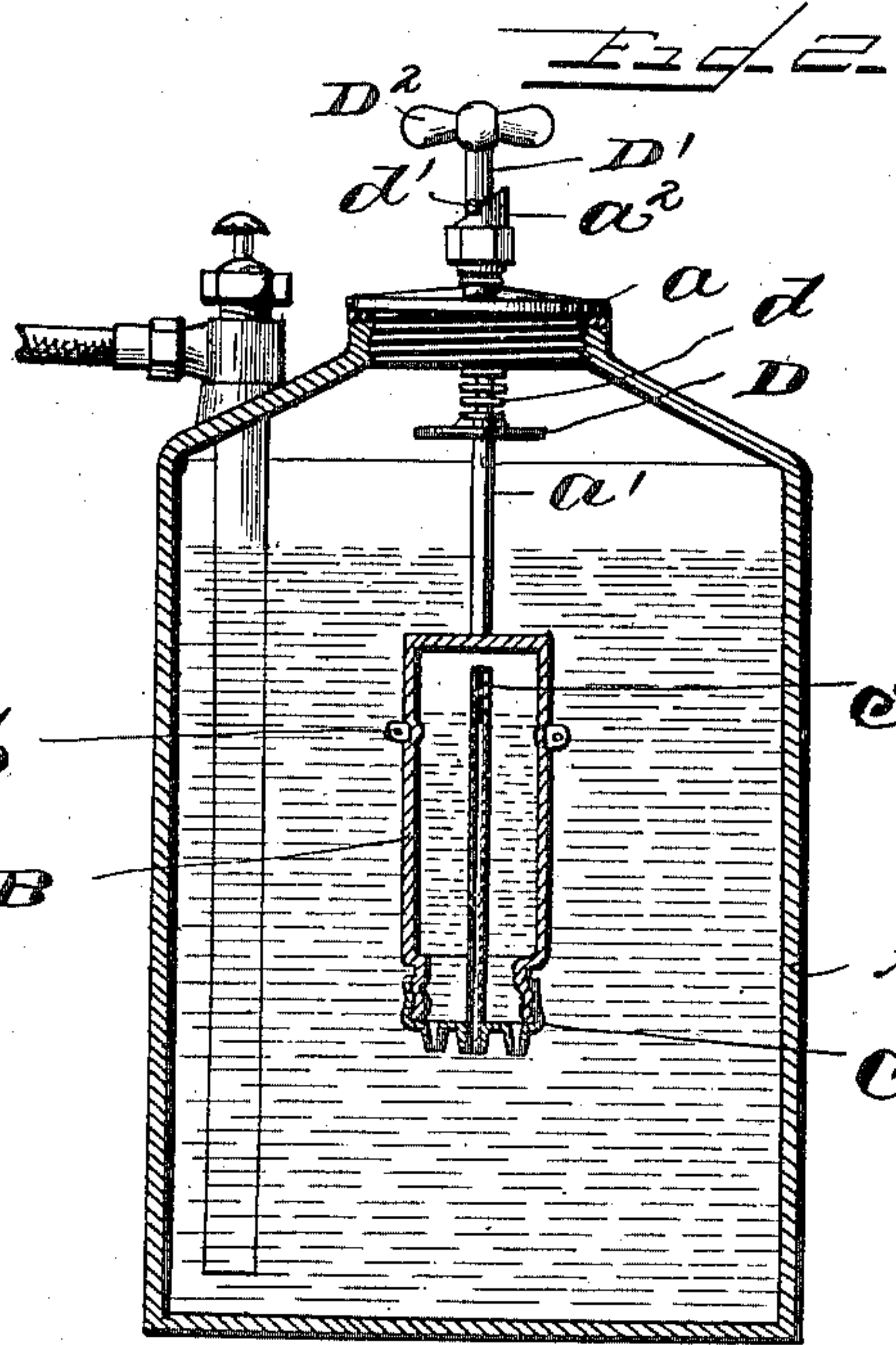
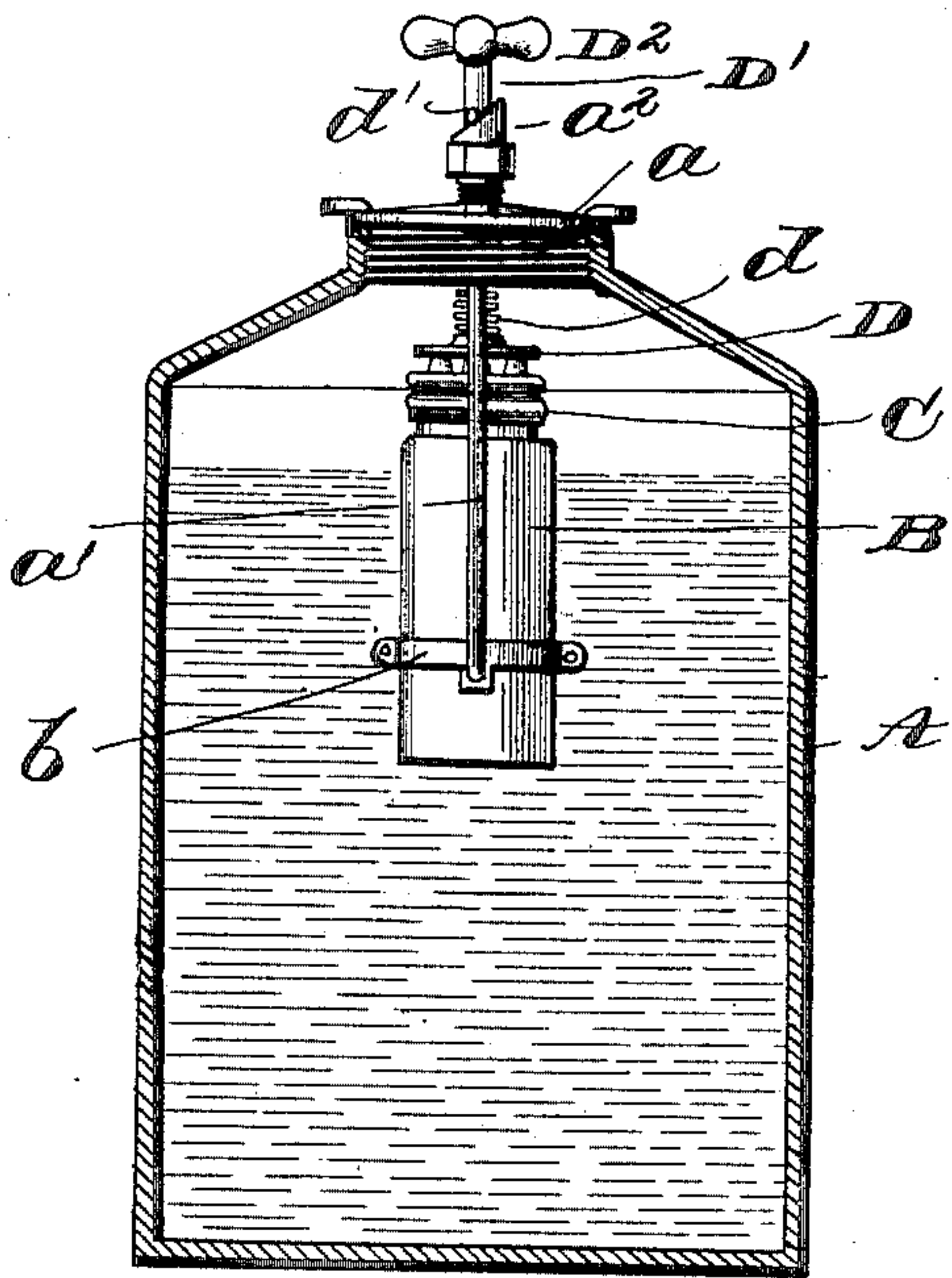
Patented Nov. 6, 1900.

G. W. COON.
FIRE EXTINGUISHER.

(Application filed Apr. 2, 1896.)

(No Model.)

Fig. 1



WITNESSES

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UNITED STATES PATENT OFFICE.

GUSTAVUS W. COON, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
TO JESSE D. KINGSBERRY, TRUSTEE.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 661,442, dated November 6, 1900.

Application filed April 2, 1896. Serial No. 585,941. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS W. COON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Fire-Extinguishers; and I 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.

The object of my invention is to provide means for the purpose of effecting a more complete intermingling of the acid with the alkali water; and it consists in certain simplification and novel arrangement and combination of parts whereby these results are attained. The best form of apparatus which I have contemplated for the carrying out of my principle of operation is shown in the accompanying drawings, and my invention is disclosed in the following specification and claims.

In the said drawings, Figure 1 is a view of one of my fire-extinguishers, the outer or water receptacle being shown in section. Fig. 2 is a like view showing the acid-holder, also in section and in its discharging position. Fig. 3 is an enlarged sectional view of the acid-holder and connected parts. Fig. 4 is a view of the discharge end of the acid-holder; and Fig. 5 is a transverse section of the acid-holder on line $x x$, Fig. 3.

In the drawings, A denotes the usual tank or receptacle for holding the alkaline water. This is closed in a well-known way by a screw-cap a . To this cap is secured the acid-holder B, which is in this instance a glass vessel or jar. This acid-holder is provided below its center of gravity with a metallic ring or band b , which in this instance is shown as made in two parts and the parts secured together upon the holder by short screws $b' b'$.

From the cap a depend two rods $a' a'$, which are bent inwardly at their lower ends and have these inwardly-extending portions journaled in proper bearings provided in the ring or band b . The upper end of the acid-holder is provided with a cap C, and this cap is provided with one or more openings c . These openings are for the discharge of the acid and are preferably made tapering, as shown in

the drawings, to insure the issuing of the acid in smooth compact streams or currents. In some constructions of chemical fire-extinguishers the acid has been brought suddenly into and instantly commingled with the alkaline water, and the sudden generation of a large amount of gas often results in the bursting of the tank. In other forms of construction, particularly those that require to be inverted to commingle the acid and water, the acid is ejected with the water, resulting in injury to persons and property.

In order to avoid these objectionable results, the acid should be diffused in the water at such a rate as not to produce an explosion and also at such a rate that the acid shall have time to act upon the contents of the tank and lose its injurious qualities before leaving it. To this end I make the openings small and provide a means, hereinafter described, for forcibly ejecting the acid from the acid-holder in small streams to quite a distance from the openings themselves, as will be hereinafter more fully explained.

The cap is also provided with an opening c' , in which is fitted a tube c^2 , extending to nearly the opposite end of the holder. These openings are preferably through short nozzle-like projections, as best shown in Fig. 2, and the outer ends of these projections are made to conform to a single plane or level, so that they may all be tightly closed by the flat under surface of the cover D. This cover is secured to the lower end of a rod D' , which extends outwardly through the tube or sleeve a^2 , with which the cap a is provided. A spring d encircles the rod, bearing at one end against the under side of the cap a and at its opposite end upon the upper side of the cover D and tends to hold the cover D tightly down upon and closing the openings $c c'$ of the cap C when the acid-holder is filled and turned and put in condition for use, as shown in Fig. 1.

The sleeve a^2 has its upper end made inclined from one side to the other or of cam shape, as shown, and the rod D is provided with a pin d' , resting upon the upper end of the sleeve. The upper end of the rod D is provided with a handle D^2 , by which the rod can be turned in either direction. Such turn-

ing of the rod causes the pin d' to engage with the cam-surface of the upper end of the sleeve, which raises the rod and compresses the spring d , releasing the acid-holder, permitting it to
 5 turn upon its pivotal supports, and assume an inverted position, as shown in Fig. 2, in which position the acid contained is discharged into the water in the outer tank.

If the acid-holder were inverted in a closed
 10 tank of water, the gas-generator would soon develop such a pressure upon the water as to seriously retard the outward flow of the acid from the holder. To avoid this is one of the objects of my present construction.

15 The acid-holder is never entirely full, and during the movement of inverting its position a part of the air within the holder escapes, admitting a small amount of water to the interior of the holder, generating gas
 20 therein, which rises to the upper end of the holder when it reaches its inverted position, creating a pressure upon the acid in the holder and forcing the acid out through the openings c . As soon as the pressure in the
 25 tank exceeds the pressure within the holder the flow of acid from the holder is checked; but this excess of pressure outside the holder will force water upward in the tube c^2 upon the top of the acid within the holder, thereby
 30 generating gas and an increase of pressure therein, which will cause the acid to be again forced outwardly through the openings c . The openings c being of small size, the streams of acid become commingled with the water
 35 before reaching the bottom, so that no acid is ever forced out of the tank, while the small size of the streams and the retarding effect of an excess of pressure in the tank secure such a gradually-progressive increase of pressure
 40 that all danger of an explosion is avoided.

What I claim, and desire to secure by Letters Patent, is—

1. In a chemical fire-extinguisher, the combination with the tank for holding alkaline
 45 material, of the acid-holder having one or more discharge-openings of small size and means for introducing alkaline material into said acid-holder to generate gas therein, substantially as described.

50 2. In a chemical fire-extinguisher, the combination with the tank for containing an alkaline solution, of an acid-holder having an acid-discharge opening or openings and means
 55 other than the said discharge-opening for introducing material into the acid-holder to generate gas therein, substantially as described.

60 3. In a chemical fire-extinguisher the combination with the tank for holding an alkaline solution, of an acid-holder therein hav-

ing an acid-discharge opening or openings means for closing and opening said discharge-openings and means other than the said discharge-openings for introducing a liquid into
 65 said holder to generate gas therein, substantially as described.

4. In a chemical fire-extinguisher, the combination with a tank for holding an alkaline solution, of an acid-holder having discharge-
 70 openings, of means other than the discharge-openings for introducing material into said acid-holder above the acid to generate gas therein, substantially as described.

5. In a chemical fire-extinguisher the combination with the tank for holding the alkaline
 75 solution, of the acid-holder having openings in one end of the same, said holder having a tube extending from one of the said openings to near the closed end of the holder
 80 and means for depressing the open end of the holder below the surface of the said solution, whereby the pressure engendered in the tank is caused to force the solution into the holder, substantially as described.

6. In a chemical fire-extinguisher the combination with the tank for holding the alkaline
 85 solution, of the acid-holder having openings in one end and the tube extending to near its opposite end, said holder being pivoted intermediate its ends, means for holding
 90 the open end of the holder above the said solution and means for inverting it to bring said opening beneath the solution, substantially as described.

7. In a chemical fire-extinguisher the combination with the tank for holding the alkaline
 95 solution, of the acid-holder having openings in one end and the tube extending to near the closed end of the holder, said holder being eccentrically pivoted, means for holding
 100 the holder with the end provided with openings uppermost and releasing means, substantially as described.

8. In a chemical fire-extinguisher, the combination with the tank for holding the alkaline
 105 solution, of the acid-holder located therein having openings in one end and a tube within said holder extending from one of said openings to near the opposite end of the same,
 110 means for closing the openings in the acid-holder and means for removing the closure and bringing the acid-holder into operative relation with the alkaline solution, substantially as described.

In testimony whereof I affix my signature
 115 in presence of two witnesses.

GUSTAVUS W. COON.

Witnesses:

L. P. WHITAKER,
 J. D. KINGSBERRY.