

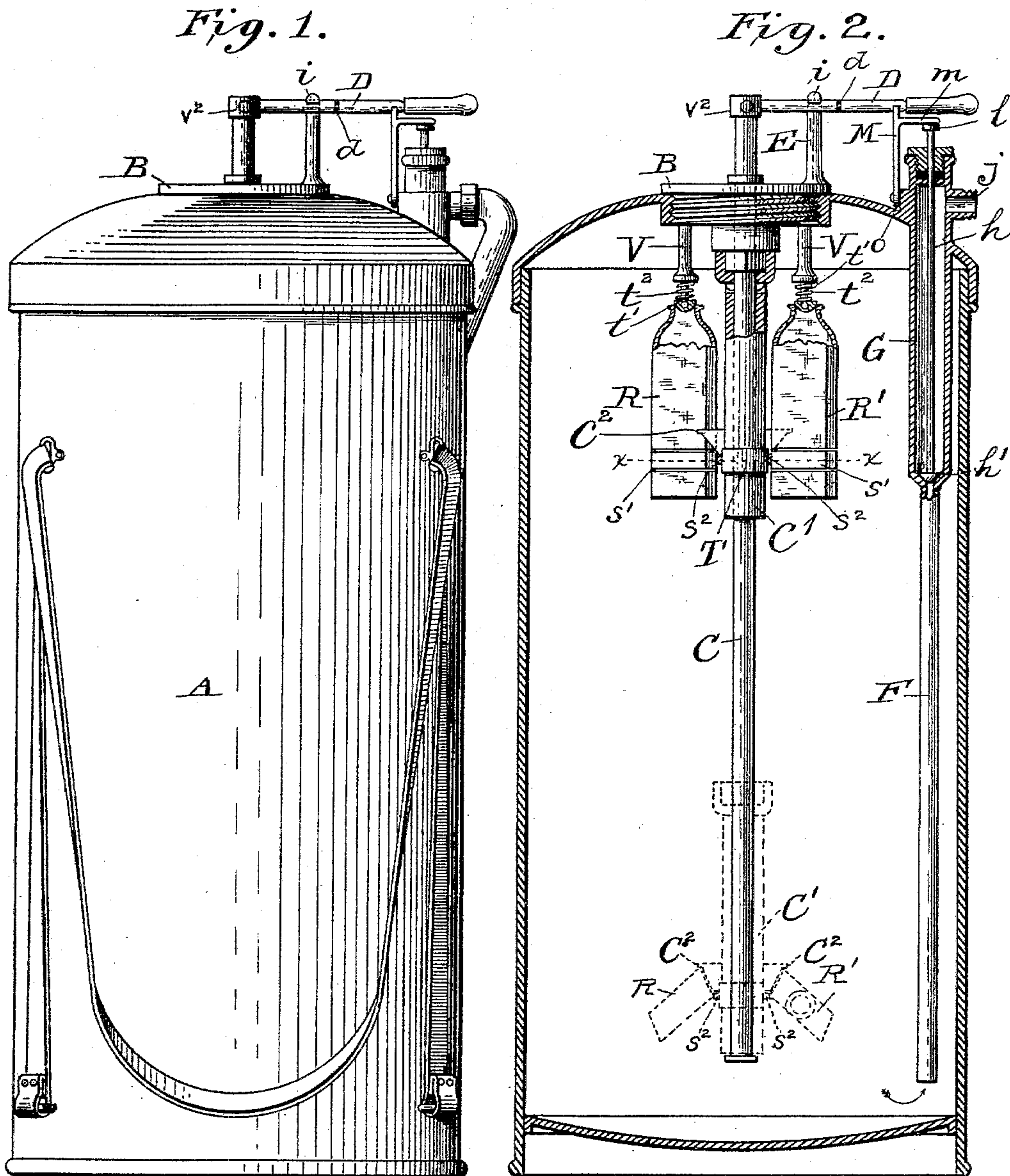
(No Model.)

2 Sheets—Sheet 1.

I. BRASHEARS.
FIRE EXTINGUISHER.

No. 596,844.

Patented Jan. 4, 1898.



Witnesses
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Albert B. Blackwood

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

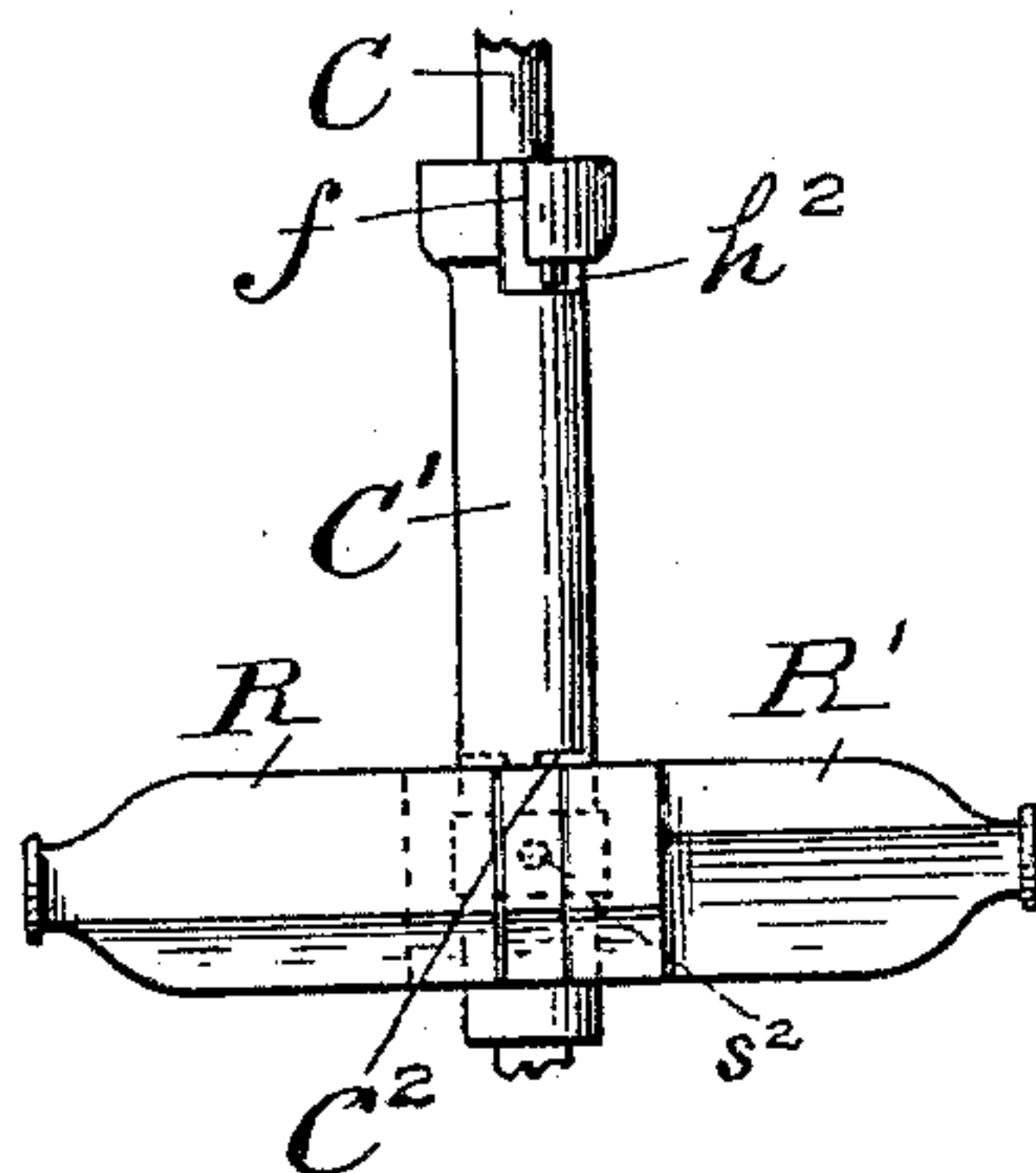


Fig. 7.

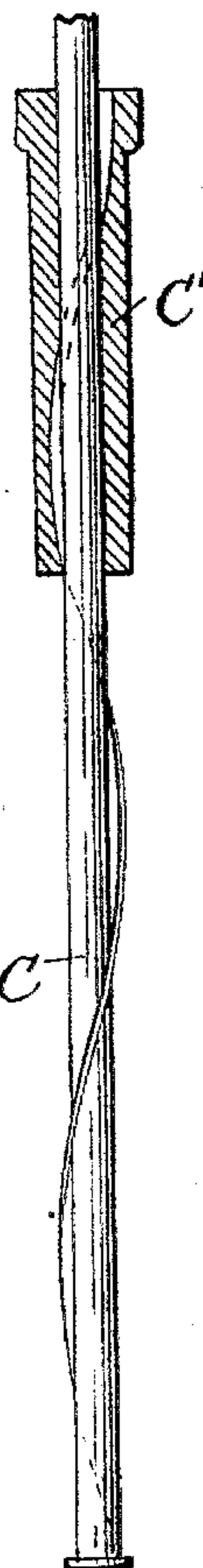


Fig. 5.

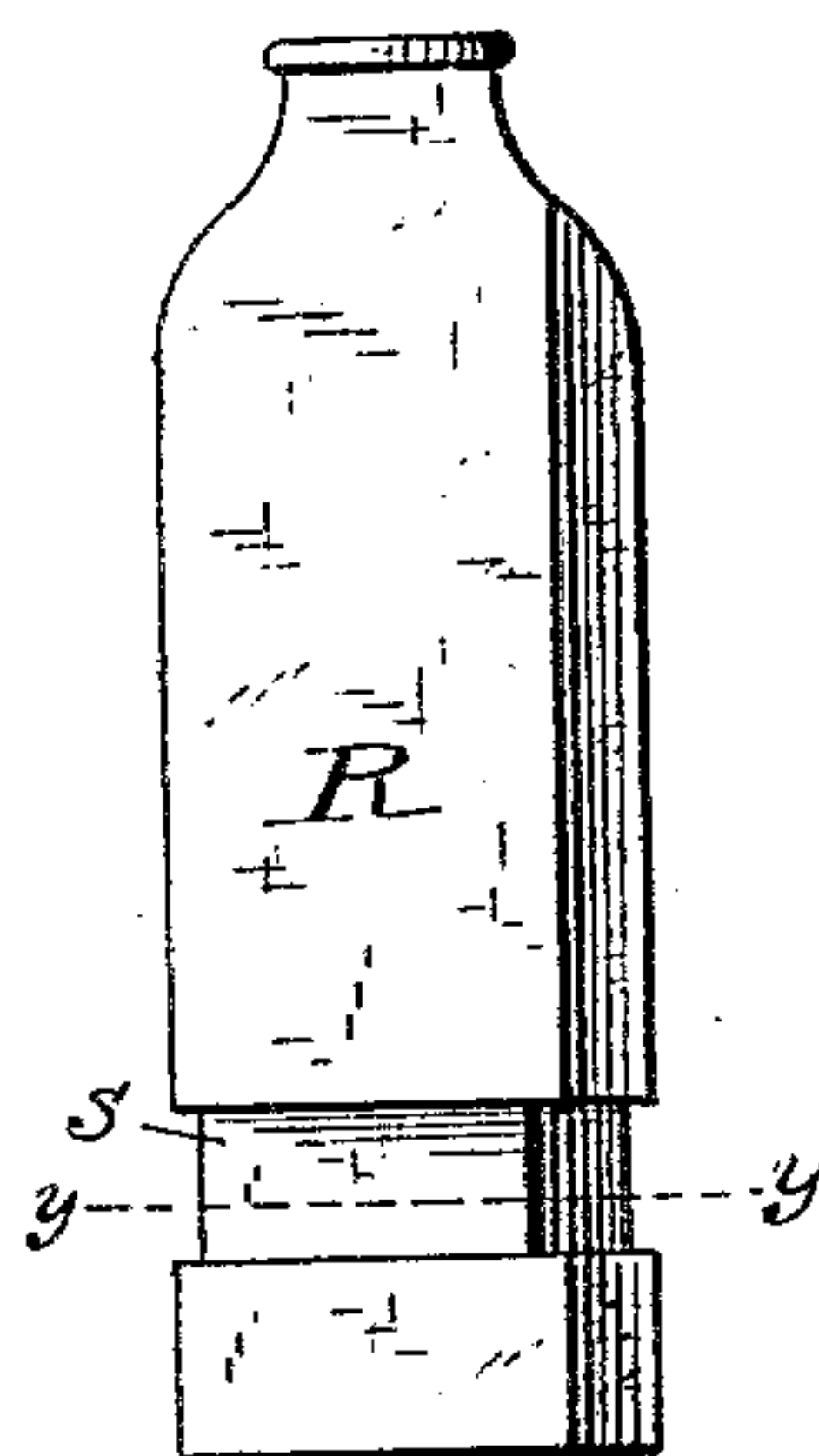


Fig. 4.

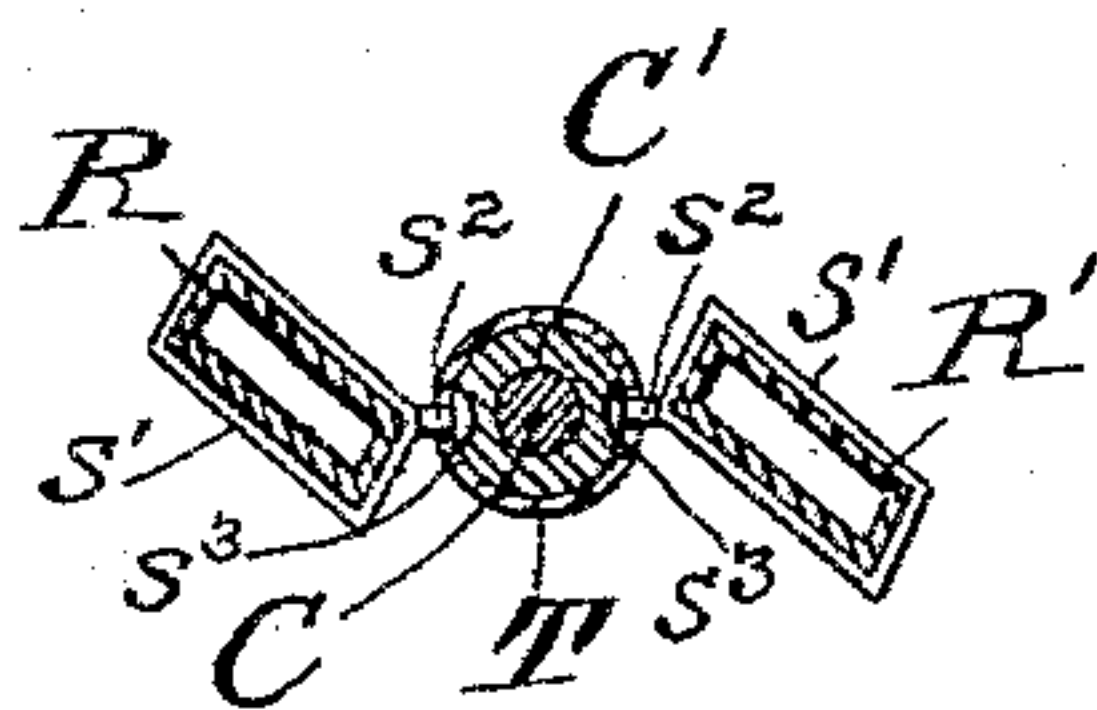
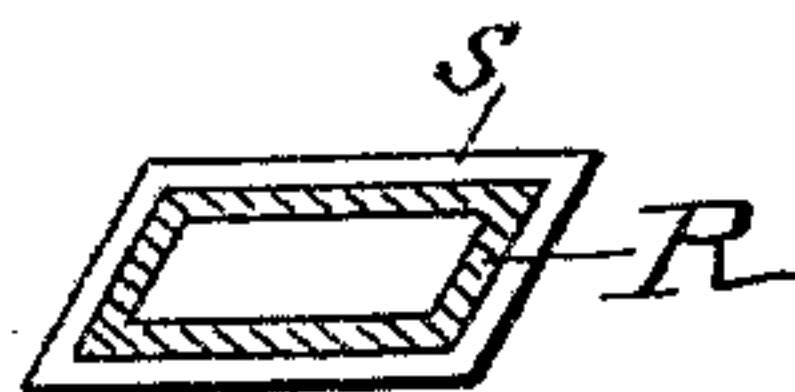


Fig. 6.



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UNITED STATES PATENT OFFICE.

IRA BRASHEARS, OF WASHINGTON, DISTRICT OF COLUMBIA.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 596,844, dated January 4, 1898.

Application filed June 5, 1895. Serial No. 551,759. (No model.)

To all whom it may concern:

Be it known that I, IRA BRASHEARS, 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.

My invention relates to certain improvements in that character of portable fire-extinguishers in which a tank is employed containing an alkaline or other solution and in which tank is suspended a vessel containing a chemical, which on liberation and mixture with the alkaline or other solution in the tank will cause a reaction and generate a gas, the pressure of which will forcibly eject the mixed contents of the tank therefrom through a suitable pipe-nozzle and hose upon the fire to be extinguished.

The objects of my improvements are to produce greater simplicity of structure, whereby the parts are less liable to get out of order, greater ease and celerity of operation, and greater extinguishing power due to a more complete and immediate intermixture of the ingredients which produce the chemical reaction. These objects are accomplished by the means constituting my invention, which are illustrated in their preferable form in the accompanying drawings.

In the drawings, Figure 1 is a side exterior elevation of an extinguishing apparatus, showing my improved lever-operating attachment and a strap secured to the tank for transporting the same; Fig. 2, a vertical section of the tank and discharge-pipe and showing other interior parts in position before and at the time of operation; Fig. 3, a detail in elevation of the sleeve supporting the acid chambers or vessels and the position of those vessels when released and swung horizontally on their pivotal supports; Fig. 4, a detail sectional plan view on line $x x$ of Fig. 2, showing the form of the acid-containing vessels and the manner in which they are pivoted to their supports; Fig. 5, an exterior view in elevation of one of the acid-containing chambers, showing an especial form of the same which I have devised; Fig. 6, a detail plan in

cross-section on line $y y$ of Fig. 5, and Fig. 7 a view of a modification.

Referring now to the drawings, A denotes the main tank, in which the ingredients are mixed. It is provided with the usual screw-cap B.

C is a rotatable central rod extending through the screw-cap and suitable packing into the tank and reaching to near the bottom of the same.

D is a handle-lever, one end of which is secured to the top of rod C.

E is a standard provided near its top with a catch i , and in which catch the lever D rests and is held until released on operating the apparatus.

On one side of the tank is located a discharge-pipe F, provided at its upper portion with a valve-chamber G. In this valve-chamber are located a valve-rod h and a valve h' , said valve being seated at and controlling the entrance of pipe F into valve-chamber G. The discharge-pipe F is provided with a nozzle j outside of the tank. The valve-rod h extends up through a suitable packing and at its top is provided with a flat knob or nut l . This knob l rests against the under side of a horizontal arm m of a vertical lever M, pivoted on a lug o near the top of valve-chamber G. The upper end of lever M is nearly but not quite in contact with the side of handle-lever D.

R R' are two bottles to contain the acid mixture, each of the form of a rhomboid, as shown particularly in Figs. 4, 5, and 6. They are given this form in order that when they fall, as hereinafter described, they will strike the surrounding medium at an angle and be given a spiral or whirling movement around the rod C. They are each provided near the bottom with a recess s to receive a band s' . The bands s' are each provided with a pin s^2 , which is secured in a socket s^3 , formed in a collar T. The collar T is in turn a part of a sliding sleeve C' on central rod C.

C² are lugs cast on sleeve C', and their function is to hold the vessels R R' in a horizontal position, as shown in Fig. 3, when the latter fall. As also shown in Fig. 3, the sleeve C' is provided at its upper end with a bayonet-slot f . Into this slot extends a lug h^2 from the rod C. By this means the sleeve C'

is held in its upper position on the rod C. Either the slot or the lug may be cam-shaped, if desired. Each of the acid vessels R R' is provided with a spring-stopper W. The stop-
 5 per part is preferably composed of glass, although it may be of any other suitable material. Each of the pins t' , to which the stopper and the spiral spring t^2 are secured, is connected by a ball-and-socket joint to a rigid
 10 hanger V, secured to the screw-cap.

In filling the main tank it is desirable that the valve h' should be held to its seat in pipe F and that the valve-chamber G should be kept empty and dry. The pressure of lever
 15 M on the valve-rod, as before described, will accomplish this. In order that the screw-cap having the handle D secured thereto may be tightened in place without disturbing the valve M, the handle D is secured to the pin
 20 v^2 at its inner end on the head of rod C, so that the handle can be raised above the lever M when it is turned around with the screw-cap, or a knuckle-joint at the point d may be employed for the same purpose. The sleeve
 25 carrying the acid vessels may be provided with a slot on each side and the central rod with two lugs.

Let the tank and the acid-bottles be filled and all the parts in proper place, the operation is as follows: The lever D is released
 30 from the catch i and given a quarter-revolution or a revolution sufficient as it turns the rod C to move the lug h^2 on that rod into the vertical slot f of the sleeve C'. The sleeve is
 35 thus at once relieved from support and slides down the rod. At the same the acid vessels or bottles are freed from their stoppers, and as they are thus freed they, being supported
 40 only below the center of gravity, fall outward from their supports and in opposite directions. Being rhomboidal in shape and having their acute angles faced outwardly as they fall they strike the solution at an angle. The striking outer edge of the bottle
 45 being sharp and the broad part of the bottle being held at an angle to the surface of the fluid in the tank, the bottles will when their pivoted support is released fall outwardly in the direction of such angle, assume a hori-
 50 zontal position, and at the same time be carried downward and around the central rod C in the same angular direction in which they start, one bottle following the other around the central rod and continuing to thus rotate
 55 and descend until their supporting-sleeve has reached the end of the rod, as indicated in dotted lines in Fig. 2. This movement of the acid vessels serves to thoroughly scatter and mix the acid elements into and through the
 60 whole body of the surrounding solution within the tank.

One purpose I have in employing more than one acid-containing vessel or bottle is to permit the use of different chemicals in the same
 65 either in a dry or fluid state.

In Fig. 7 I have shown a modification of the central rod C, which consists of applying to

that rod a screw-thread for the purpose of aiding to give, if necessary, the descending acid vessels a more complete rotary movement and
 70 which also may be available in retarding the speed of the fall of said vessels. With such an arrangement the sleeve C' is of course interiorly screw-threaded to correspond with the rod. The pitch of the screw may be varied, but a preferable pitch would be about
 75 one in six inches.

Having thus described my invention, what I claim is—

1. In a fire-extinguisher, the combination
 80 with a tank of a pivotally-supported acid-chamber, a detent for keeping the same in a vertical position when not in use, and means for rotating the acid-chamber when released from the detent, in a downward movement on
 85 a track or way, substantially as described.

2. In a fire-extinguishing apparatus in combination with a fluid-containing main tank, acid vessels having a rhomboidal form, a sliding rotatable support for said vessels within
 90 said tank on which support the said vessels are secured below their centers of gravity, and a stationary support on which said sliding rotatable support is mounted, substantially as described.
 95

3. The combination with the main tank and screw-cap, of a central rod extending through said cap, a sliding rotatable support on said
 100 rod, and acid vessels of a rhomboidal form on said support, said vessels secured to said support below the center of gravity, substantially as described.

4. The combination with the main tank of the central rod, of the sliding rotatable sleeve thereon, the acid vessels secured below their
 105 centers of gravity to said sleeve, and the lugs on said sleeve to hold the said vessels in a horizontal position after falling, substantially as described.

5. The combination with the main tank and
 110 screw-cap of the rotatable central rod secured to said cap, the handle-lever connected with said rod, the sliding rotatable sleeve on said rod within the tank, the said sleeve provided with a slot, and said rod provided with means
 115 to engage said slot, and acid vessels carried by said sleeve, whereby on giving the said lever a partial turn said rod will also be turned, and said sleeve released and permitted to fall, substantially as described.
 120

6. The combination with the main tank and screw-cap of the central rod, the supporting, sliding and rotatable sleeve, the acid vessels carried by said sleeve, spring-stoppers for said
 125 vessels, and hangers secured to said screw-cap to which hangers said stoppers are secured, substantially as described.

7. The combination with the main tank and screw-cap, of the rotatable central rod, the sliding rotatable sleeve on said rod, the acid vessels carried by said sleeve, stoppers for said
 130 vessels connected to the screw-cap, the escape-pipe extending down into the tank provided with a valve, valve-chamber and valve-rod,

the lever pivoted to the outside of the tank for holding said valve to its seat, and the lever for rotating the central rod and adapted to come in contact with said valve-lever, whereby the said rod when moved to release the acid vessels will at the same time move said valve-lever to permit the escape of the mixture from the said pipe, substantially as described.

8. In combination with the tank and screw-cap, a rotatable central rod provided with screw-threads, a rotatable, interiorly-screw-threaded and sliding sleeve on said rod, means for holding said sleeve on said rod at the upper end of said rod, and a handle-lever connected to the said rod to turn the rod and disengage the sleeve from its upper connection with the rod, whereby when the said sleeve is thus disengaged and falls, it is rotated around

said rod by said screw-threads, substantially as described.

9. In combination with the main tank and screw-cap of a detaching-lever, a rotating support within said tank, acid vessels pivoted below their center of gravity on said support, and means for rotating said support, whereby when the said acid vessels are detached by said lever from said cap they will fall and be given a rotary movement around said support, substantially as described.

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

IRA BRASHEARS.

Witnesses:

JAS. H. BLACKWOOD,
H. P. DOOLITTLE.