

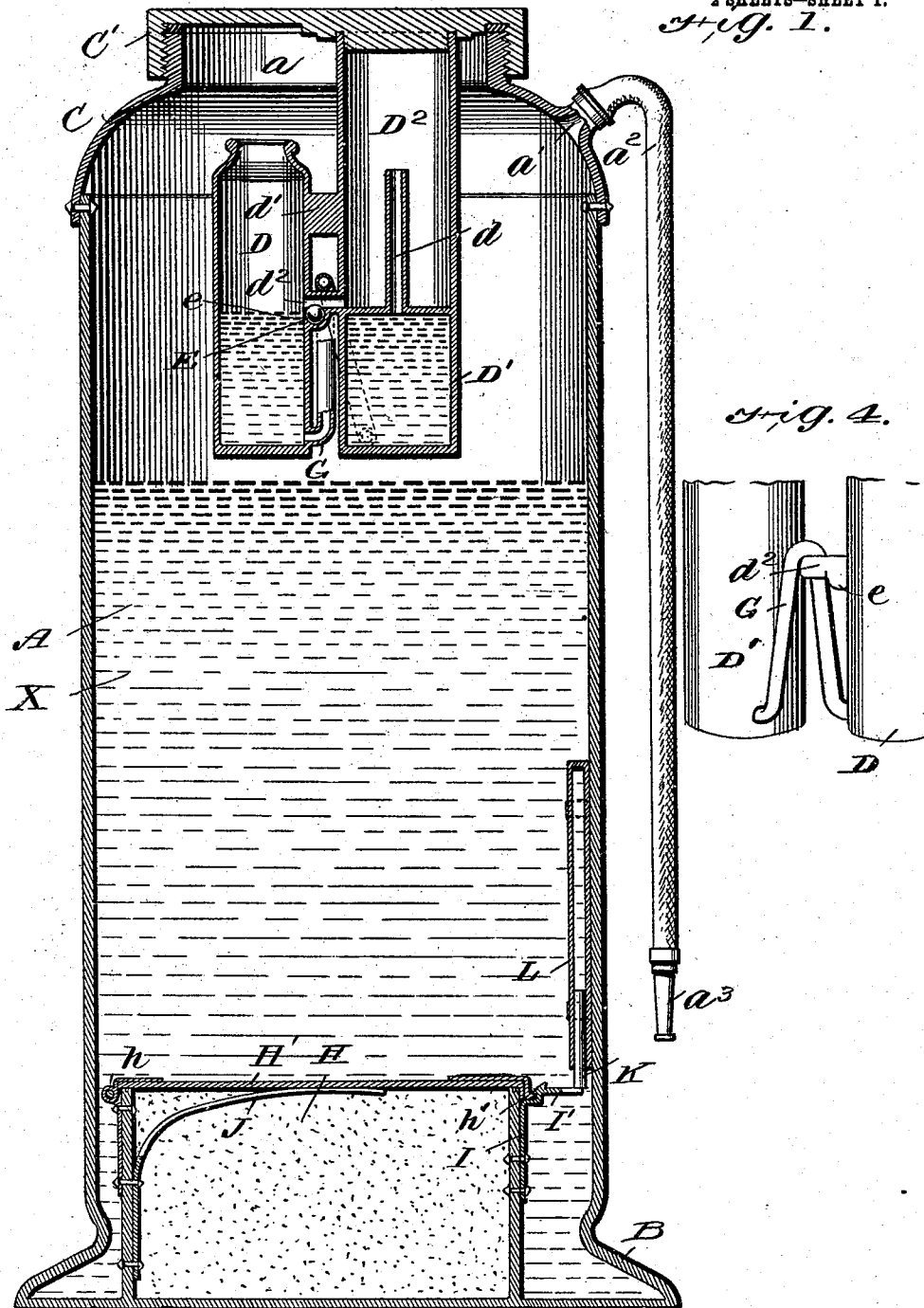
D. H. CONKLING.
FIRE EXTINGUISHER.
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936,985.

Patented Oct. 12, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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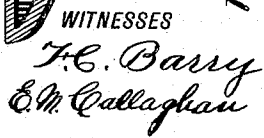
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

DONALD HERBERT CONKLING, OF FORT PIERCE, FLORIDA.

FIRE-EXTINGUISHER.

936,985.

Specification of Letters Patent.

Patented Oct. 12, 1909.

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To all whom it may concern:

Be it known that I, DONALD H. CONKLING, a citizen of the United States, residing at Fort Pierce, in the county of St. Lucie and State of Florida, have invented an Improvement in Fire-Extinguishers, of which the following is a specification.

My invention relates to improvements in that class of fire-extinguishers in which a mixture of sulfuric acid and bicarbonate of soda is combined to form carbonic acid gas which possesses powerful fire-extinguishing properties.

While it is a fact that though the ordinary chemical fire-extinguishers may be quickly recharged if the necessary materials are at hand, yet it often happens that such materials are not always at hand, hence the extinguisher is practically useless to extinguish a second fire that might instantly spring up.

It is the object of my invention to provide means whereby the extinguisher may be instantly and automatically recharged by the returning of the extinguisher receptacle to its normal or upright position.

My invention therefore consists in providing the main receiver of a chemical mixing fire-extinguisher with a contained automatically recharging apparatus.

It consists further in certain novel features of construction, arrangement and combination of parts as will be hereinafter fully described and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a fire extinguisher embodying my improvements. Fig. 2 is a similar section showing the main receiver reversed or in the position for discharging the fire extinguishing mixture. Fig. 3 is a vertical section of the extinguisher returned to its normal position, showing the cover of the soda receptacle released to expose the secondary charge of alkali. Fig. 4 is a detail showing air passage from the primary to the secondary acid receptacles.

Referring to the drawings, in the particular embodiment of my invention selected and there shown to illustrate the same, A represents the main receiver of suitable shape and construction, shown as provided with a suitable base B upon which it may rest when not in use. The main receiver is

provided at its upper end C with a filling opening *a* surrounded by an outwardly extended flange exteriorly threaded to receive the screw threaded cap C'. The outlet of the main receiver is shown at *a'*, it having connected to it a flexible hose *a*² terminating in a discharge nozzle *a*³.

The acid receiver is secured to the cap C' and comprises the primary chamber D of glass or lead and the secondary receptacle 65 comprising a lower compartment D' and an upper compartment D² communicating with each other by the tubular passage *d*. The primary acid receptacle D and the secondary or recharging receptacle are rigidly connected by a bridge *d'* and have communication with each other through the passage *d*² which is controlled by a ball valve E which when the extinguisher is not in use rests in a seat *e*; when the extinguisher is inverted 75 and in use the ball valve rolls into the passage *d*² and closes communication between the primary acid receptacle D and the compartment D² of the secondary acid receptacle; the compartment D² is about twice the 80 capacity of the compartment D as shown, and will contain the same quantity of sulfuric acid that is put in the primary acid receptacle. Extending from near the lower end of the primary acid receptacle is an air 85 tube G which extends upwardly to a point above the level of opening or passage *d*² between the two acid receptacles and then extends downwardly to near the bottom of the lower compartment D' of the secondary or 90 recharging receptacle; the purpose of this air tube G will be more fully pointed out as this description of the operation of the device proceeds.

As is usual in this type of extinguishers a considerable portion of the main receiver A is filled with a mixture of bicarbonate of soda and water designated as X and known as the bicarbonate of soda charge, which reaches to near the acid charge containing 100 receptacles.

When it becomes necessary to use the extinguisher, the various parts being in the position shown in Fig. 1, the main receiver A is inverted whereupon the initial charge of 105 sulfuric acid in the primary acid chamber D will be discharged into the bicarbonate of soda X which has now dropped to the upper end of the main receiver and forms the carbonic acid gas which is discharged through 11

the hose nozzle a^3 ; at the same time that this action is taking place the secondary charge of acid in the compartment D' gravitates into the compartment D^2 and flows into it until the acid reaches the lower end of the tube d when the flow stops, the capacity of the compartment D' being, as hereinbefore stated, one half of that of the compartment D^2 ; at the same time the ball valve E rolls into the passage d^2 and closes the same so that no acid from primary acid chamber D can pass into compartment D^2 . As the acid in the primary chamber D has passed out of said chamber, air will pass from the lower (now upper) end of said chamber D to the lower (now upper) end of compartment D' and aid in forcing the secondary charge of acid through the constricted tubular passage d into the compartment D^2 . Now when the extinguisher is again righted the acid which has passed from compartment D' into compartment D^2 will pass through passage d^2 into primary acid chamber D , the ball valve rolling back to its seat e leaving said passage d^2 unobstructed, all as shown in Fig. 3 of the drawing. It will thus be seen that the primary acid chamber has been automatically recharged and that the extinguisher is again ready for use, providing the main receiver has the necessary bicarbonate of soda charge.

To provide for the renewal of the bicarbonate of soda charge I have devised the means shown in the base of the main receiver. These means consist of a receptacle H of suitable size and shape having a cover H' which is hinged at h to the upper edge of the soda receptacle; at the free edge of the cover H' a hook h' is provided which engages a spring trigger latch which holds the lid or cover closed against the force of a spring J which bears against the lower face of the lid or cover; the latch I has an extension I' which projects horizontally from said latch; on this extension normally rests a weighted rod K which is slidably mounted in a tubular guide L secured within the main receiver and preferably to the inner wall thereof, the upper end of the tube L being of course closed. Just before the extinguisher is used the first time the parts of the soda recharging means occupy the position shown in Fig. 1. Now, when the main receiver is inverted for use at a fire, the weighted rod K slides to the closed end of the tube L and remains there until the extinguisher is righted again; as soon as this is done the weighted rod K begins to slide downwardly toward the open end of tube L gaining momentum as it goes until it strikes the extension I' of the trigger latch I ; the rod K strikes the extension I' to trip latch I and releases the hook h' on the lid or cover H ; the spring J now throws the lid open and exposes the soda charge in the receptacle H ; all that is now necessary is to pour into the

main receiver the requisite amount of water and the secondary auxiliary charge bicarbonate of soda is ready for use.

From the foregoing it will be apparent that I provide means wholly within the ordinary chemical fire extinguisher for automatically recharging the same so that it may be used a second time immediately after it has been once used thus adding to the efficiency of the extinguisher at a small cost and without any inconvenience whatever. It should also be noted that chamber D' of the secondary or recharging sulfuric acid receptacle may be enlarged to contain as many reserve charges as desired.

I claim:

1. In a fire extinguisher constructed to operate as described, the combination with a main receiver or reservoir and an acid receptacle held therein, of means within the main receiver for automatically recharging said acid receptacle.

2. In a fire extinguisher constructed to operate as described, the combination with a main receiver, of a primary acid containing chamber and means for automatically recharging said acid chamber by inversion and subsequent righting of the main receiver.

3. In a fire extinguisher constructed to operate as described, the combination with a main receiver of a primary acid containing chamber, an auxiliary or secondary acid chamber, and means for automatically recharging the primary acid chamber from the secondary acid chamber by inversion and subsequent righting of the main receiver.

4. In a fire extinguisher constructed to operate as described, the combination with a main receiver, of a primary acid containing chamber, a secondary acid chamber, a conduit connecting said chambers, and means for automatically controlling communication between said acid chambers upon inversion and subsequent righting of said main receiver.

5. In a fire extinguisher constructed to operate as described, the combination with a main receiver or reservoir, of a primary acid containing chamber, an auxiliary or secondary chamber comprising a plurality of connected compartments, said auxiliary acid receptacle connected with the primary acid chamber by a passageway, and means for controlling said passageway during inversion and subsequent righting of the main receiver.

6. In a fire extinguisher constructed to operate as described, the combination with a main receiver or reservoir, of a primary acid chamber, an auxiliary or secondary acid receptacle connected thereto by a passageway, said auxiliary acid receptacle comprising a plurality of communicating compartments connected by a restricted passage, and a valve located in the passageway connecting

the primary and auxiliary receptacles, said valve adapted to control the passageway between said acid receptacles.

7. In a fire extinguisher constructed to
5 operate as described, the combination with a main receiver or reservoir, of a primary acid chamber, a secondary or auxiliary acid receptacle comprising an upper and lower compartment connected by a restricted pas-
10 sage, the upper compartment of the secondary receptacle having a passageway connecting with the primary acid receptacle, and an air tube extending from the lower end of the primary acid receptacle upwardly above
15 the level of the passage connecting the primary acid chamber and the upper compartment of the secondary acid receptacle and then downwardly to the lower end of the lower compartment of the secondary acid
20 receptacle.

8. In a fire extinguisher constructed to operate as described, the combination with a main receiver or reservoir, of an auxiliary alkali recharging receptacle contained with-
25 in said receiver, and means for recharging the main receiver with alkali by automatically discharging the alkali into the main receiver by the inversion and subsequent righting of the said main receiver.

30 9. In a fire extinguisher constructed to operate as described, the combination with a main receiver, of an auxiliary alkali re-

charging receptacle contained therein, said auxiliary alkali receptacle consisting of a container and a latch controlled cover, and
35 means for releasing said cover upon the inversion and subsequent righting of the main receiver.

10. In a fire extinguisher constructed to operate as described the combination with a
40 main receiver or reservoir, of an auxiliary alkali recharging receptacle consisting of a container and a spring-actuated cover, a trigger latch for holding the cover closed, and means for tripping said trigger latch
45 upon the inversion and subsequent righting of the main receiver.

11. In a fire extinguisher of the class described, the combination with a main receiver or reservoir, of automatically recharg-
50 ing acid and an automatically discharging alkali receptacles contained within the main receiver.

12. In a fire extinguisher of the class described the combination with a main receiver
55 or reservoir, of acid and alkali receptacles within the receiver adapted to automatically recharge the extinguisher upon inversion and subsequent righting of the main receiver.

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Witnesses:

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J. E. FULTZ.