

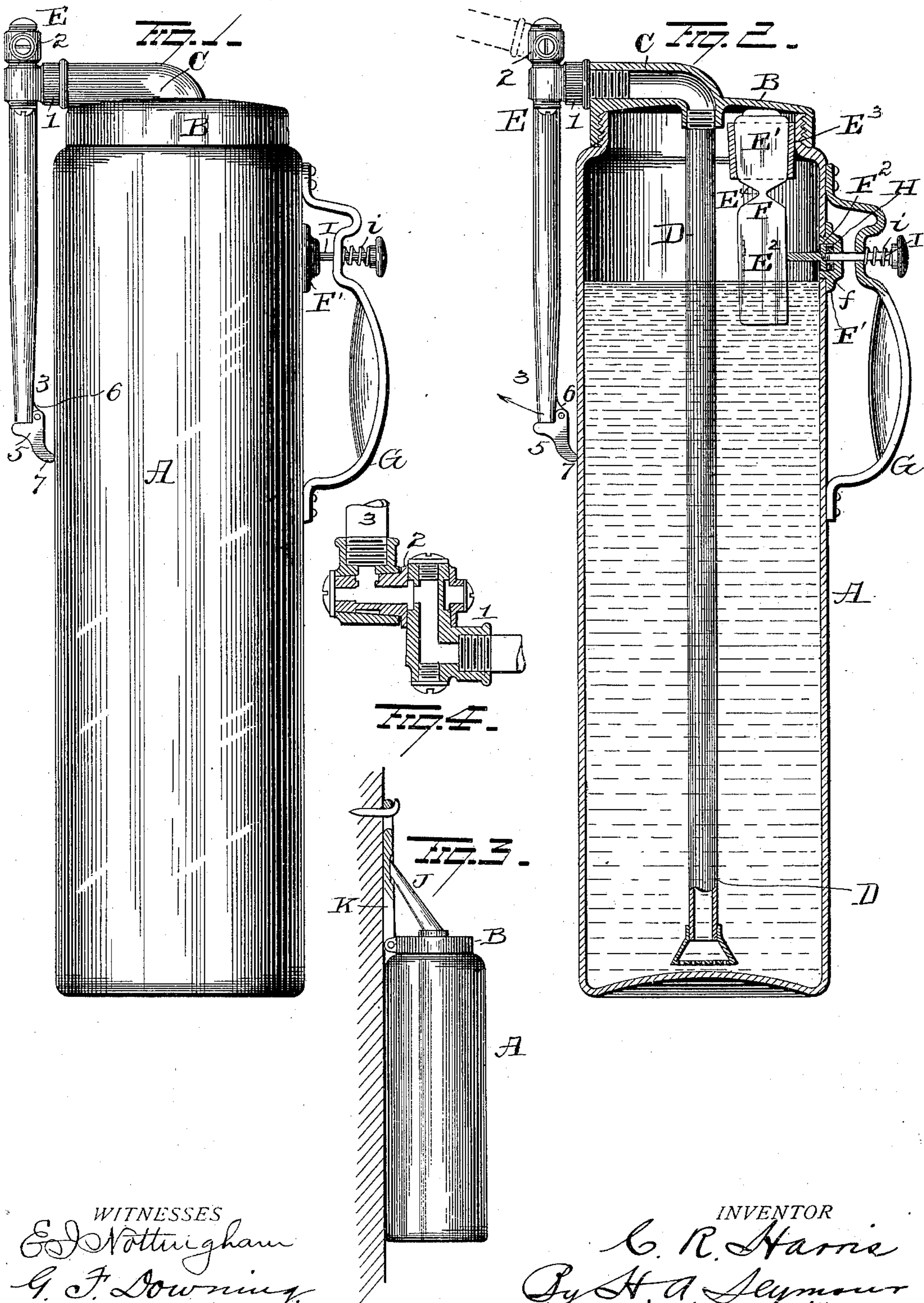
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Patented Nov. 27, 1900.

C. R. HARRIS.  
FIRE EXTINGUISHER.

(Application filed Oct. 12, 1899.)

(No Model.)



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## FIRE-EXTINGUISHER.

**SPECIFICATION** forming part of Letters Patent No. 662,786, dated November 27, 1900.

Application filed October 12, 1899. Serial No. 733,411. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES R. HARRIS, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain  
5 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  
10 others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in fire-extinguishers, and more particularly to the class known as "chemical" fire-extinguishers, wherein a frangible vessel contain-  
15 ing an acid or a chemical is carried by the tank and is fractured by mechanism actuated from the outside.

In the devices now in use the acid-holders are so constructed that when fractured the  
20 entire contents are instantly liberated, and the large volume of acid coming suddenly in contact with the soda mixture or liquid produces a sudden and excessive pressure within the tank, which pressure is gradually reduced  
25 as the liquid and gas escape from the tank.

The object of my invention is to provide the tank with an acid-holder composed of two communicating compartments, the neck connecting the two compartments being of fran-  
30 gible material or so weakened that a pressure against one compartment will cause the two compartments to separate, thus liberating the acid in both compartments; the restricted openings, however, so limiting the discharge  
35 of acid to the liquid that the generation of the gas is gradual and continuous, thus avoiding the excessive pressure at the start and maintaining a more uniform pressure throughout the operation.

40 With this object in view my invention consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of my improved apparatus. Fig. 2 is a view in longitudinal section of same. Fig. 3 is a view in elevation of a  
45 modification, and Fig. 4 is a sectional view of the nozzle-joints.

50 A represents a tank made of metal and of a strength sufficient to resist the internal

pressure to which it is subjected when the extinguisher is in operation. This tank is preferably provided with an integral bottom and with a slightly-restricted upper end or  
55 neck, screw-threaded externally for the attachment of the cover B. This cover B is provided on its upper side with an integral pipe-section C, to the open inner end of which is secured the discharge-pipe D, which latter  
60 terminates near the bottom of the tank.

The discharge-nozzle E is secured to the pipe-section C and comprises the elbow 1, rigidly secured to the outer end of the pipe C, the elbow 2, secured to section 1 and  
65 adapted to turn horizontally thereon, and the nozzle 3, secured to elbow 2 and adapted to turn vertically thereon, the several parts being connected together by screws similar to the method employed in coupling up the sec-  
70 tions of an ordinary hinged gas-bracket. With this construction it will be seen that the nozzle 3 can be manipulated to direct a stream in any direction. Hence the tank can be placed on the floor with its nozzle directed  
75 toward the fire, thus leaving the operator free to remove combustible articles or tear down curtains or other draperies in close proximity to the blaze.

Secured to the lower end of the nozzle 3 is  
80 the cap 5, hinged to the bracket 6, projecting rearwardly from the free end of the nozzle. This cap is provided with a depending projection 7, which latter when the nozzle is thrown down to its normal position abuts  
85 against the side of the tank and forces the cap into contact with the free end of the nozzle, thus closing the nozzle and preventing the evaporation of the liquid in the tank. As the nozzle is raised the cap falls away by grav-  
90 ity and does not obstruct or deflect the stream in the slightest.

Secured within the upper end of the tank is the ring or seat E<sup>3</sup>, slightly conical in shape, with its larger end uppermost. This ring E<sup>3</sup>  
95 receives the acid-holder F, which latter is made in two compartments E' E<sup>2</sup>, connected by a restricted neck E<sup>4</sup>. The upper section or compartment E' is shaped to fit snugly within the ring or seat E<sup>3</sup>, while the lower sec-  
100 tion or compartment, which depends below the ring or seat, is of slightly less diameter than

the upper section, so as to permit it to pass through the ring or seat  $E^3$  in assembling the parts. The lower section  $E^2$  of the acid-holder is preferably longer than the section  $E'$ , and  
 5 as it is wholly below the ring  $E^3$  it will be seen that a lateral pressure against same will fracture the vessel at the neck connecting the two compartments, thus liberating the acid and permitting it to flow out through the  
 10 small openings at the neck.

Located in a position to engage the body of the acid-holder is the plunger  $F^2$ . This plunger is in the present instance provided with an enlarged head which rests and slides  
 15 within the recess  $f$ , formed in the bearing  $F'$ . This bearing is screw-threaded externally and closes a threaded opening formed in the body of the tank immediately below the handle  $G$ . Located within the recess in the rear of the  
 20 head of the plunger is a felt packing  $H$ , which tends to normally hold the end of the plunger in contact with the body of the compartment  $E^2$  and which when the acid is liberated and the gas generated operates through the  
 25 pressure of the head of the plunger there-against to pack the opening through which the push-rod projects and prevents the escape of gas at that point. The push-rod  $I$  is mounted in the handle  $G$ , with its inner end bearing  
 30 against or secured to the plunger  $F^2$ , and is normally restrained against inward movement by the spring  $i$ , which bears at one end against the handle and at its opposite end against the under side of the head or push-  
 35 button. With this construction it will be seen that by simply grasping the handle and pressing on the push-button the plunger is moved inwardly and bearing against the frangible acid-holder fractures the latter at its  
 40 neck and liberates the acid therein, and as the openings at the neck are comparatively small it will be seen that the generation of gas is gradual and continuous, thus maintaining a more even pressure than can be obtained  
 45 with the extinguishers wherein the entire volume of acid is suddenly and instantaneously precipitated into the soda-water. With this apparatus all operative parts are at the top. Hence it can be placed in position in prox-  
 50 imity to the fire, the nozzle adjusted to its proper position, and the acid vessel broken, after which the operator can retire to a safe distance from the flames or can devote his time in removing combustible material from prox-  
 55 imity to the flames.

The construction shown in Fig. 3 represents a small extinguisher adapted to be held by the operator and is identical in all respects with the larger apparatus shown in Figs. 1  
 60 and 2, except that it does not employ an adjustable nozzle and carries the nozzle-sealing cap on its top. In this device the nozzle  $J$  is a rigid pipe, with its free end terminating in a plane adjacent to the outer end of the  
 65 cover. This cover carries the lever  $K$ , which

latter serves as a lever for removing and replacing the cover, as a hanger for suspending the apparatus from a wall-hook, and as a cap for closing the free end of the nozzle.

It is evident that many slight changes might  
 70 be resorted to in the relative arrangement of parts herein shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the  
 75 exact construction herein shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters  
 80 Patent, is--

1. In a chemical fire-extinguisher, the combination with a tank, an acid-holder therein and means for liberating the acid, of a jointed nozzle, and a cap for automatically closing  
 85 the nozzle when the latter is not in use.

2. In a chemical fire-extinguisher, the combination with a tank and an acid-holder therein, of a discharge-nozzle and a hinged cap adapted to normally press against the free  
 90 end of the discharge-nozzle when the apparatus is not in use and to automatically swing away therefrom when the apparatus is put into operation.

3. The combination with a tank, of a holder therein, an acid vessel supported by and sus-  
 95 pended from said holder and comprising two communicating parts connected by a small neck of frangible material, the lower part of the vessel depending from the holder and means for applying lateral pressure to said  
 100 lower part of the vessel to separate it from the part mounted in the holder by breaking the frangible neck.

4. The combination with a tank, of a fixed holder therein, an acid vessel suspended from  
 105 said holder, said vessel made in two compartments connected by a restricted neck and means for applying pressure laterally against one part of the vessel for separating or de-  
 110 taching the compartments so as to form a restricted outlet for each compartment to liberate their contents gradually.

5. The combination with a tank having a conical ring or seat therein, of a glass vessel having a conical upper part supported by  
 115 said ring or seat, said vessel comprising two parts connected by a restricted neck, the lower part of the vessel projecting below the ring or seat, a plunger bearing against the lower part of the vessel and means for actu-  
 120 ating the plunger to sever the lower from the upper part of the vessel at the restricted neck.

In testimony whereof I have signed this specification in the presence of two subscrib-  
 125 ing witnesses.

CHAS. R. HARRIS.

Witnesses:

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 E. G. WILHELM.