

(No Model.)

C. H. & F. WESTCOTT.

3 Sheets—Sheet 1.

FIRE EXTINGUISHER.

No. 347,216.

Patented Aug. 10, 1886.

Fig. 1.

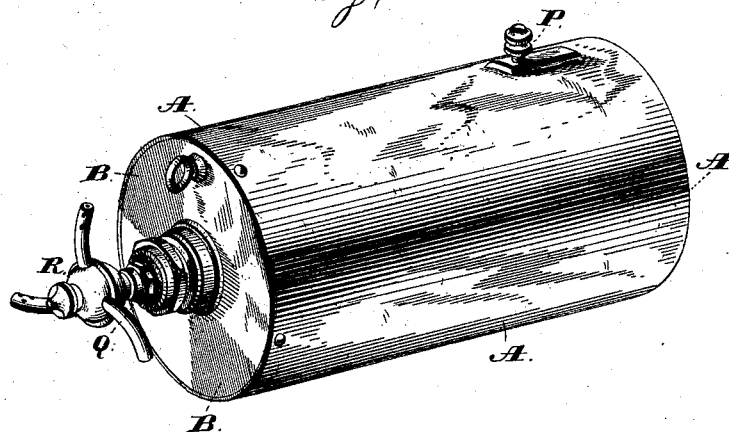
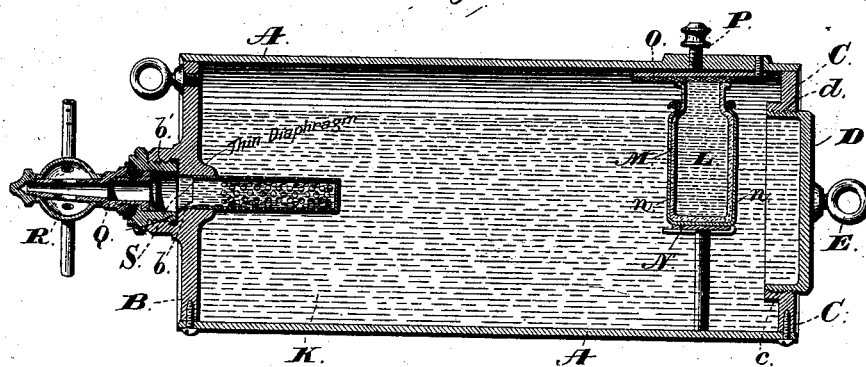


Fig. 2.



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(No Model.)

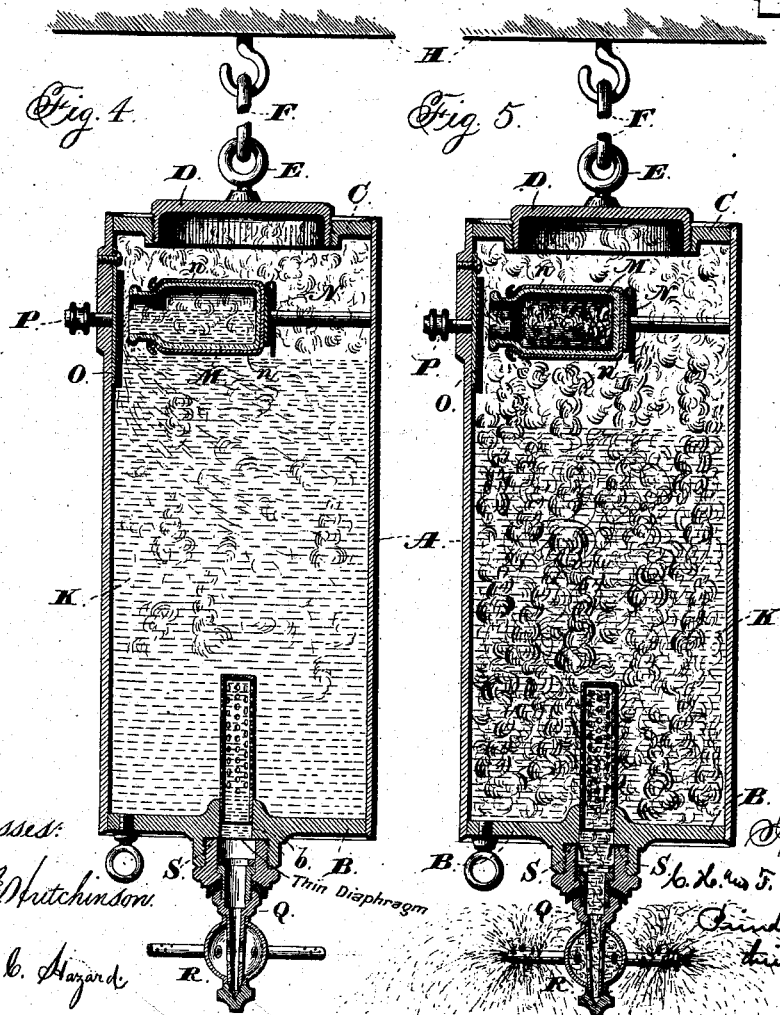
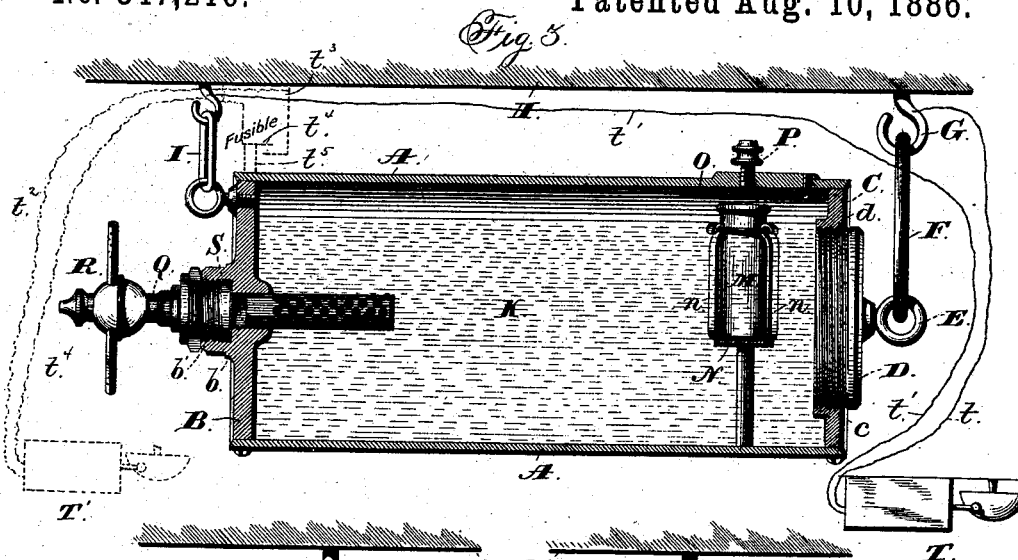
3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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Fig. 6.

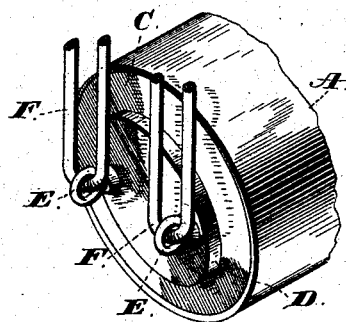
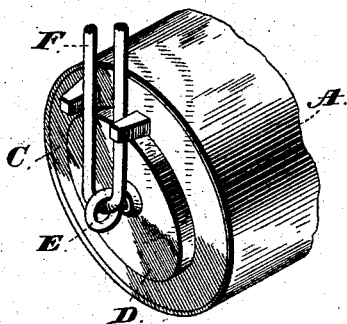


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES H. WESTCOTT AND FRANK WESTCOTT, OF SENECA FALLS, N. Y.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 347,216, dated August 10, 1886.

Application filed March 4, 1886. Serial No. 193,997. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. WESTCOTT and FRANK WESTCOTT, of Seneca Falls, in the county of Seneca, and in the State of New York, have invented certain new and useful Improvements in Fire-Extinguishers; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of our apparatus before being placed in position for use. Fig. 2 is a central longitudinal section of the same as arranged for transportation and storage. Fig. 3 is a like view of said apparatus suspended from a ceiling and arranged for operation. Fig. 4 is a central longitudinal section of the same when swung downward to position for action upon a fire, but before the gas and water have been liberated; Fig. 5 is a like view of said apparatus in full operation; and Figs. 6 and 7 are perspective views of the rear end of the reservoir, and show different arrangements of the suspensory mechanism.

Letters of like name and kind refer to like parts in each of the figures.

In the use of chemical fire-extinguishers much uncertainty exists with regard to the formation and liberation of the extinguishing gas, and such mechanisms have consequently fallen into disrepute as a sole reliance against loss from fire, although from the small expense required for their construction, and the fact that they can be placed in position within any room without the running of pipes or other expensive previous preparation, render them in such respect very desirable.

The design of our invention is to increase the efficiency and to render certain the action of chemical fire-extinguishers; and to such end said invention consists in an apparatus for generating gas, in which the chemicals are combined by a change in the position of the reservoir, in combination with a diaphragm that incloses the discharge-opening, and is adapted to break and liberate the gases which are generated when the same have reached a predetermined pressure, substantially as and for the purpose hereinafter shown.

It consists, further, in a gas-generating apparatus in which are combined a reservoir that is adapted to be suspended horizontally be-

neath the ceiling of a room, and to automatically change to a vertical position when a predetermined degree of temperature exists in such room, means, substantially as shown, for causing separately-stored chemicals to combine when said reservoir thus changes position, and means, substantially as shown, whereby the discharge-opening of the latter will be closed until a predetermined pressure has been produced within the same, substantially as and for the purpose hereinafter set forth.

It consists, further, in a gas-generating apparatus, in which are combined a reservoir that is adapted to be suspended horizontally beneath the ceiling of a room, and to automatically change to a vertical position when a predetermined degree of temperature exists in such room, means, substantially as shown, for causing separately-stored chemicals to combine when said reservoir thus changes position, means, substantially as shown, whereby the discharge-opening of the latter will be closed until a predetermined pressure has been produced within the same, and means, substantially as described, whereby the gas and liquid, when liberated, will be thrown outward and downward in all directions from such discharge-opening, substantially as and for the purpose hereinafter shown and described.

It consists, further, in the means employed for holding the acid-containing vessel in position and preventing the escape of its contents while the reservoir is being handled or stored, substantially as and for the purpose hereinafter shown.

It consists, finally, in the special construction of parts, substantially as and for the purpose hereinafter set forth.

In the carrying of our invention into practice, we employ a reservoir, A, which, preferably, has the form of a plain cylinder with closed ends. The front end, B, of said reservoir is provided with a discharge-opening, *b*, while its rear end, C, is inclosed by means of a detachable plug, D, that is preferably held in place by means of a peripheral screw-thread, *d*, which engages with a correspondingly opposite screw-thread, *e*, that is formed within the interior of the opening in said end.

Secured to or formed upon the rear end, C, or the plug D, are two eyes, E, with each of which is engaged one end of a link, F, that has

its opposite end connected with a hook, G, or other like support that is placed within and projects downward from the ceiling H of a room, the arrangement being such as to enable the reservoir A to be placed in a horizontal or a vertical position with reference to said ceiling, such change of position being effected by swinging the front end of said reservoir upward, or permitting it to drop downward. The normal position of the reservoir A is horizontal, as seen in Fig. 3, and it is held in such position by means of a link or wire, I, which extends between its front end and the ceiling H. Said link or wire is made from an alloy that is fusible at any desired predetermined degree of temperature, so that when the temperature at the top of the room reaches such point, said supporting part I will break, and permit said reservoir to swing downward to a vertical position, as shown in Fig. 4.

The reservoir A is intended to contain water and an acid, or any equivalents usually employed for the production of a fire-extinguishing gas, which parts are to be kept separate until needed for extinguishing a fire. The water K is placed within the body of said reservoir, and may, if desired, nearly fill the same, while the acid L is placed within a vessel, M, that when said reservoir is horizontal, rests upon and is supported by a shelf, N, which extends horizontally across the latter near its rear end. The shelf N is placed at such a height as to bring the upper open end of the vessel M near the upper side of the reservoir A, and in order to insure the position of said vessel, two or more rods, n, are preferably extended from said shelf in position to loosely embrace said vessel upon all sides, except toward the front end of said reservoir. While the reservoir A is being handled or stored, the open upper end of the acid-vessel M is closed by means of a stopper or valve, O, which is faced with some flexible material and is swiveled upon or in contact with the end of a screw, P, that passes inward through a threaded opening in the upper side of said reservoir. After said vessel has been placed in position upon its shelf, by turning inward upon said screw said valve will be pressed into and caused to closely fill the open end of said vessel, so as to confine within its contents and render safe its inversion. The discharge-opening b is enlarged from its outer end nearly to its rear end, and within such enlarged portion b', which is threaded, is fitted a threaded plug, Q, that carries upon its outer end a rotatable sprinkler, R, of any desired form. Between the inner end of said plug and the rear end of the enlargement b' is placed a diaphragm, S, of some easily-ruptured material, preferably tin-foil, which is closely confined at its edges and operates to entirely close said discharge-opening. Said diaphragm has such strength as will cause it to resist any predetermined amount of pressure within the reservoir A, and any increase of pressure above such point will cause it to become ruptured, so as to af-

ford free escape for the liquid or gaseous contents of said reservoir.

In arranging the apparatus for use the hooks or other suspending devices are placed within the ceiling, and a reservoir (containing water and having an acid-holding vessel locked in place and closed) is suspended from the same, after which the valve is withdrawn from engagement with the mouth of the acid-vessel. If, now, the temperature within the room rises above the predetermined safety-point, the fusible support for the front end of said reservoir gives way and the latter swings downward to a vertical position. The change of position of the reservoir causes the acid-vessel to be upset and its contents to mingle with the water, upon which the generation of gas commences, and as soon as a sufficient pressure is produced the diaphragm within the discharge-opening is ruptured and the gas and water are then discharged in spray through the interior of the room, such discharge being sudden and effective, in consequence of the previous confinement of the contents of said reservoir.

For the purpose of giving notice to those in other parts of a building or at any point distant from the room in which a fire occurs, we employ any of the usual forms of mechanical or electric alarms, and connect the same with the front end of the reservoir or with any other portion of the apparatus which by a change of position is capable of releasing a stop or of making or breaking an electric circuit.

In Fig. 3 I have shown two forms of electric alarms, T and T', the bell or alarm mechanism of either of which can be placed wherever desired. In the form T, shown at the right of Fig. 3 and in full lines, one wire, t, is connected with the suspending-hook G, and the other wire, t', with the hook upon which the fusible link I is supported. The current will then, as long as the link is unbroken, pass from the alarm mechanism to hook G, through link F, through the walls of the reservoir, through the fusible link and its supporting-hook, and back to the alarm device again. When the link I is broken, as when the reservoir is dropped to set the extinguisher into operation, the circuit will be broken and the alarm be so caused to sound.

At the left of Fig. 3 is shown in dotted lines another form, T', of alarm device. In this form the alarm only sounds when the circuit is closed. One wire, t'', from the alarm mechanism proper extends to a bent contact-arm, t'', and the other is connected with another contact-wire, t'', normally held out of contact with the arm t'', as shown, by the reservoir as long as it remains held up by the fusible link. To enable this to be done best the contact-arm t'' is provided with a lug or block, t'', preferably of insulating material, which rests upon the reservoir as long as the latter is held up by the fusible link. When the link melts and the reservoir falls or swings down, the contact-

arm t^4 falls into contact with arm t^2 and so closes the circuit, causing the alarm to sound by the passage of the current.

The cylindrical form of reservoir is preferably employed; but it is obvious that any other form will operate in substantially the same manner. While we prefer to suspend the rear end of said reservoir by means of two links, as seen in Fig. 6, in order to hold the same steady and prevent it from turning, the same result may be secured by means of one link, having its upper portion contained between two lugs that project from the end of said reservoir, as shown in Fig. 7.

We do not claim as our invention, or desire to cover by our claims, a plug or plate of fusible material placed in a pipe and adapted to resist and not be broken by pressure in the pipe. Our breakable diaphragm is not one to be broken by fusing, but by the pressure in the pipe.

Having thus described our invention, what we claim is—

1. An apparatus for generating gas, in which the chemicals are combined by a change in the position of the reservoir, in combination with a diaphragm that incloses the discharge-opening, and is adapted to break and liberate the gases which are generated when the same have reached a predetermined pressure, substantially as and for the purpose shown.

2. In a fire-extinguishing apparatus, in combination with a reservoir supported beyond its center of gravity by a swinging support, a second support, adapted to be broken or ruptured by heat, supporting the reservoir in a horizontal position, the chemicals stored separately within the reservoir, so as to be mixed

when the reservoir swings downward on its swinging support, and a breakable obstruction in the discharge-pipe, substantially as and for the purpose set forth.

3. In a fire-extinguishing apparatus, in combination with the chemical-containing reservoir, the rotary sprinkler connected with the interior of the reservoir by a suitable passage, and the breakable diaphragm closing such passage between the interior of the reservoir, and the sprinkler adapted to be broken by pressure from within the reservoir, substantially as and for the purpose shown.

4. The cylindrical reservoir, provided with a transverse shelf for sustaining an acid-vessel, in combination with said vessel and with a screw-moved valve for engagement with the mouth of the same, substantially as and for the purpose shown.

5. The hereinbefore-described apparatus, consisting of the reservoir A, suspended horizontally by means of the links F and fusible link or wire I, and provided with the threaded discharge-opening b , removable head D, and shelf N, in combination with the threaded plug Q, rotatable sprinkler R, breakable diaphragm S, acid-vessel M, valve O, and operating screw P, substantially as and for the purpose set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 26th day of January, A. D. 1886.

CHAS. H. WESTCOTT.
FRANK WESTCOTT.

Witnesses:

CHARLES T. HALL,
RICHARD G. MILLER.