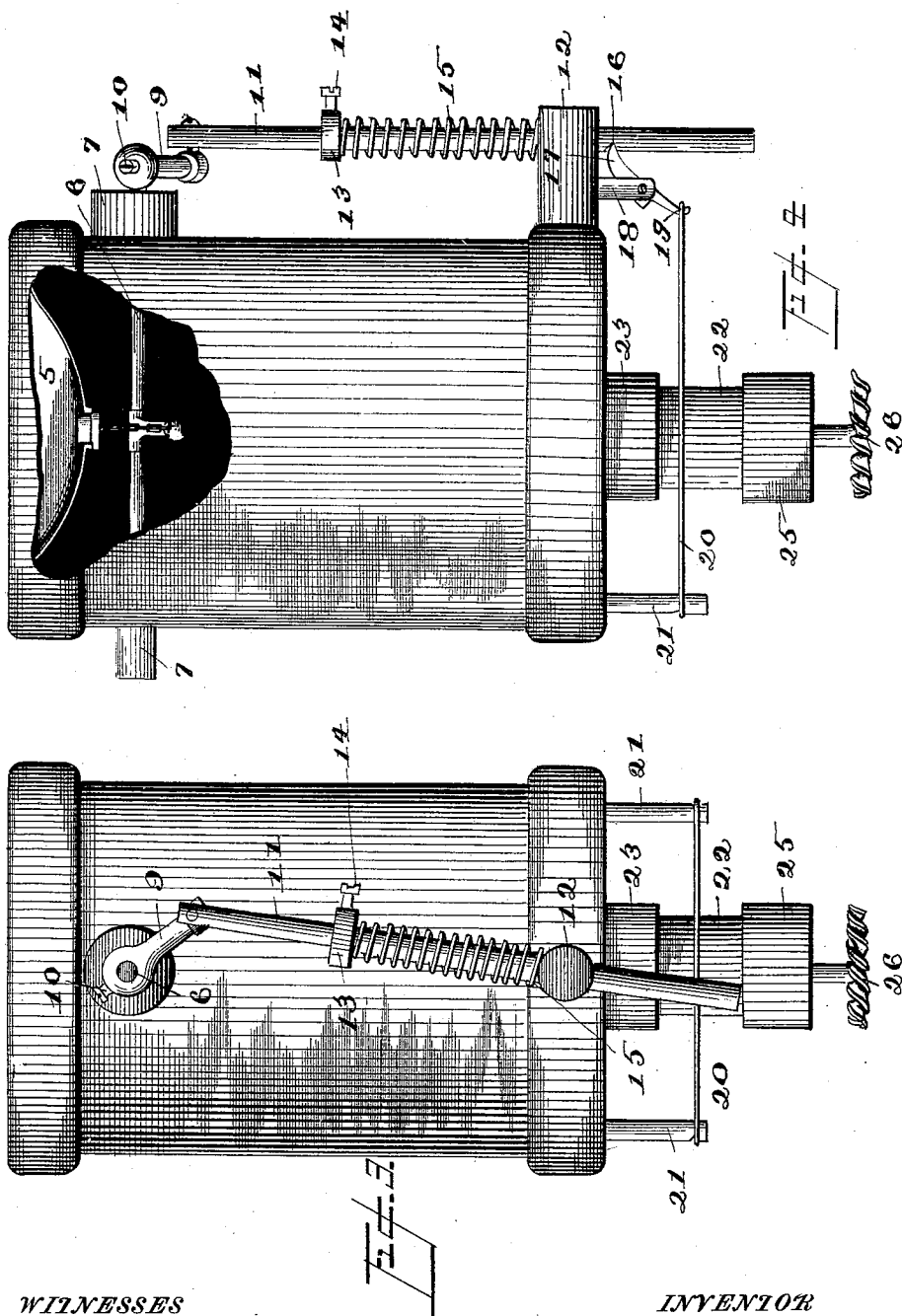


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AUTOMATIC CHEMICAL FIRE EXTINGUISHER.

No. 512,428

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WITNESSES

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AUTOMATIC CHEMICAL FIRE-EXTINGUISHER.

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To all whom it may concern:

Be it known that I, WILLIAM WYAND, a citizen of the United States, residing at Atlantic City, in the county of Atlantic and State of New Jersey, have invented certain new and useful Improvements in Automatic Chemical 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.

This invention relates to certain improvements in chemical fire extinguishers; and it has for its objects to provide an apparatus of this class, which will be operated thermostatically when a predetermined temperature is developed in the neighborhood in which it is located, to set in operation suitable devices, whereby a fire extinguishing gas may be generated within a suitable vessel and caused to eject, under pressure, a fire extinguishing fluid, and distribute it for a distance around the apparatus, so as to effectually and automatically extinguish a fire within the reach of the discharged contents.

The above mentioned objects are attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal sectional view of my improved apparatus; Fig. 2, a plan view of the bottom thereof; Fig. 3, a side elevation, and Fig. 4, a similar view, partly in section, showing a modification of the apparatus.

Referring to the drawings, the numeral 1, indicates a strong receptacle, which is preferably of cylindrical shape, consisting of a cylindrical section of cast iron or wrought metal, of sufficient strength to resist the internal pressure to which it may be subjected. In practice, the cylinder is screw-threaded at its ends, and strong cylindrical screw-threaded caps or heads 2 are secured to said ends, said caps being detachable for convenience of construction and for charging. The caps are provided with suitable packing-rings 3 to render the joints fluid tight, and the upper cap is provided with internally depending lugs or projections 4 having seats for a flask or vessel 5, of glass or other fragile material, which is filled with an acid or an alkaline solution and is hermetically sealed; the said

flask being supported by the lugs, closely against the inner face of the upper cap, and being of proper dimensions to contain sufficient acid or alkaline solution to cause the thorough decomposition of the contents of the vessel 1, and entirely discharge said contents, under sufficient pressure to eject the same to as great a distance as possible, around the apparatus.

In the upper part of the cylinder, and extending diametrically across it, is located a rock-shaft, 6, which is journaled in packed stuffing-boxes 7, at opposite sides of the cylinder, and carries a hammer 8. One end of said shaft projects beyond its bearing, and said projecting end is provided with an adjustable crank-arm 9, which is held in a fixed position on the shaft by means of a set-screw 10. To the end of said arm is pivoted the upper end of a rod 11, the lower end of which passes loosely through an opening in a stationary lug, 12, secured to or projecting from the edge of the lower cap. The said rod is provided with a movable collar 13, the position of which may be adjusted by means of a set-screw, 14, and around the lower part of the rod, between the collar and lug 12 and bearing against each, is located a spiral spring, 15, which has a tendency to force the rod normally upward. The rod, near its lower extremity, is provided with a notch or recess 16, with which one end of a detent-lever, 17, which is fulcrumed to a stud 18, depending from the lug 12, engages. The other end of said detent-lever is provided with a notch 19, with which may be engaged a loop or ring 20, of fusible metallic wire or other material that will be quickly destroyed at an elevated temperature, so as to release the detent-lever and allow the rod to be forcibly projected upward by the spring, to operate the rock-shaft and hammer and break the glass flask or vessel, suspended from the upper head of the cylinder. The loop of fusible metal is supported, in connection with the detent-lever, by dependent lugs 21, which are similarly notched for the purpose.

The numeral 22 indicates a short tube, the upper end of which is adapted to screw into an internally threaded boss 23 at the center of the lower cap, and confine thereon a metallic disk, 24, of soft metal, such as lead,

which will readily give way to the pressure within the apparatus and permit the liquid to be forced downward through the tube, the lower end of which is fitted with an internally screw-threaded cap 24, which is perforated for the discharge of the liquid. To the said cap, at the center of its lower face, is swiveled a rotary spreader, 25, having oblique wings or blades, which spreader is rotated by the discharged fluid and distributes the same around the apparatus. Instead of the spreader, a rose-jet may be substituted to distribute the liquid.

The apparatus is intended to be suspended from the ceiling of a room, apartment or other place, and in operation the rod is drawn down against the force of the spring, and held by engaging the detent-lever with one of its notches. The fusible wire or loop is then secured around the supporting lugs and the detent-lever, in the notches thereof, so as to hold the said lever and the rod. When the temperature is raised to a sufficient degree to melt or destroy the fusible loop, the lever is released, the rod is projected upward, and the rock-shaft suddenly given a partial rotation which causes the hammer to forcibly strike the glass-flask or vessel and break it, allowing its contents to mix with the fluid in the cylinder. Gas will be quickly generated, creating a pressure to destroy or break down the lead disk, and the contents of the apparatus will be forcibly discharged in all directions.

A solution of sulphuric or other acid may be employed in the glass flask or vessel, and a solution of bicarbonate of soda in the main chamber, or vice versa, or other gas producing solutions may be employed.

In the modification shown in Fig. 4, of the drawings, a flask having a mouth closed by a cork is substituted for the fragile flask, and the cork is connected to the internal arm of the rock-shaft, so as to suddenly withdraw the cork when the operating mechanism is released. In this instance, the internal arm would have to be set diametrically opposite to the position shown in Fig. 1, so as to pull downward instead of being forced upward.

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

1. In a chemical fire-extinguisher, the combination, with a chamber having a suitable outlet and a detachable cap, of a fragile flask or vessel secured within the said cap, a rock-shaft journaled in the sides of the chamber and carrying a hammer, mechanism connected to said rock-shaft to operate the same, and means for automatically releasing the said mechanism to cause the hammer to break the flask or vessel, substantially as specified.

2. In a chemical fire-extinguisher, the combination, with the main chamber provided with detachable caps, as described, of the fragile flask or vessel secured within the upper cap, the rock-shaft provided with a hammer

and a projecting journal and crank-arm, the spring actuated rod and detent-lever, the fusible wire or cord, connected to said lever and to lugs on the outside of the main chamber, substantially as and for the purposes set forth.

3. In a chemical fire-extinguisher, the combination, with the main chamber as described, of the fragile vessel or flask secured within the same, the rock-shaft provided with a hammer and a projecting journal and crank-arm, the spring-actuated rod and detent-lever, the fusible wire or cord connecting said lever to lugs on the outside of the main chamber, and the disk of soft metal situated in the discharge passage, substantially as specified.

4. The combination, in a fire-extinguisher, of the main-chamber provided with a discharge tube normally closed by a soft metal disk, the fragile vessel or flask secured within a detachable cap, the rock-shaft journaled in the sides of the main-chamber and carrying a hammer, mechanism located outside of said main-chamber and connected to said rock-shaft to operate the hammer, the fusible wire for holding the said mechanism and automatically releasing the same when fused, and a rotary spreader swiveled to the lower end of the discharge tube, substantially as specified.

5. The combination, in a fire-extinguisher, of the main-chamber, the fragile flask within the same, the rock-shaft journaled in bearings in the chamber the hammer mounted on the rock-shaft, the operating-rod and spring surrounding said rod, adjustable collar, bearing against the spring and the thermostatically controlled detent-lever, substantially as and for the purpose set forth.

6. In a chemical fire-extinguisher, the combination, with a chamber having a suitable outlet and a detachable cap, a flask or vessel secured within said cap, a rock-shaft journaled in the sides of said chamber, mechanism connected to said rock-shaft to operate the same, and means for automatically releasing said mechanism to cause the shaft to revolve and liberate the contents of the flask, of a rupturable disk located in the discharge opening, as and for the purpose set forth.

7. In a chemical fire extinguisher, the combination, with a chamber having a suitable outlet and a detachable cap, of a flask or vessel secured within the said cap, a rock-shaft journaled in the sides of the chamber, mechanism connected to said rock-shaft to operate the same, and means for automatically releasing the said mechanism to cause the shaft to revolve and liberate the contents of the flask.

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

WILLIAM WYAND.

Witnesses:

CARLTON GODFREY,
WARREN SOMERS.