(No Model.)

J. & W. KANE.

AUTOMATIC FIRE EXTINGUISHER.

No. 265,827. Patented Oct. 10, 1882.

Fig. 1.

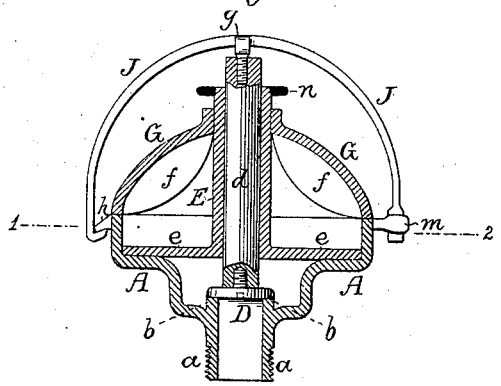


Fig. 2.

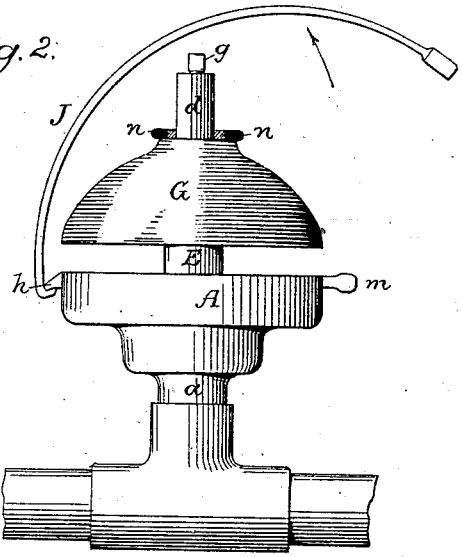
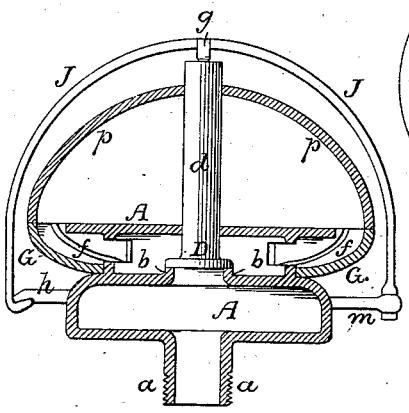


Fig. 4.

Fig. 5.



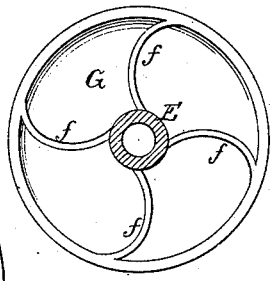


Fig. 3

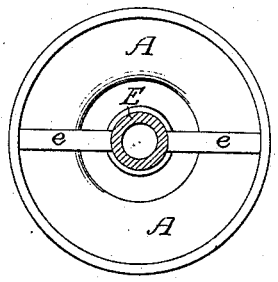
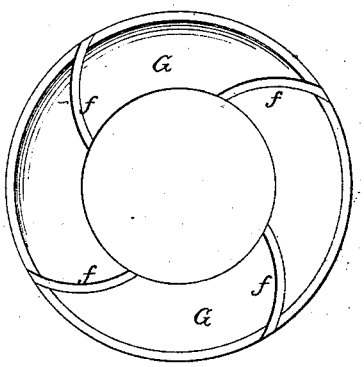


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN KANE AND WILLIAM KANE, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 265,827, dated October 10, 1882.

Application filed June 9, 1882. (No model.)

To all whom it may concern:

Be it known that we, JOHN KANE and WILLIAM KANE, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Automatic Fire-Extinguishers, of which the following is a specification.

Our invention relates to certain improvements, fully described hereinafter, in that class of automatic fire-extinguishers by which water from a supply under pressure is discharged when fusible alloy which confines a valve to its seat is melted by the heat of an accidental fire in the room in which the extinguisher is situated; and the main objects of our invention are, first, to so construct an instrument of this class that the water shall be distributed over an extended area and the avenue for the escape of water shall not be liable to be choked up; and, second, to insure the full opening of the valve as soon as the fusible alloy which serves to confine the same is sufficiently melted to permit any movement of the valve-stem.

In the accompanying drawings, Figure 1 is a vertical section of our improved fire-extinguisher; Fig. 2, an exterior view; Fig. 3, a sectional plan on the line 1 2, Fig. 1; Fig. 4, an inverted plan view of the distributer; Fig. 5, a sectional view illustrating a modification of our invention, and Fig. 6 a plan view of the distributer shown in Fig. 5.

The valve-chest A is constructed for attachment to a pipe communicating with a supply of water under pressure, the chest having in the present instance a central threaded branch, *a*, for this purpose. Within the valve-chest is a seat, *b*, for the valve D, the spindle *d* of which is guided by a tube, E, having wings *e e*, by which it is attached to the interior of the chest; or the guiding-tube may be otherwise connected thereto.

The distributer G is loose on the guiding-tube, and is of the same, or nearly the same, diameter as the upper edge of the chest, on which it rests when the device is not in action. The distributer is by preference of concavo-convex form, and has on its under side curved or inclined vanes *f*, as shown in Fig. 4.

To the upper end of the valve-stem is adapted a plug, *g*, forked at the top for the reception of a spring, J, one end of which is hooked to a lug, *h*, on the valve-casing A. The opposite end of the spring is connected to an arm, *m*, on the chest through the medium of metal or alloy or other material fusible at a given temperature, so that in case of a fire in the room containing one or more of the fire-extinguishers the melting of the alloy by the heat will release the valve, the latter being instantly moved from its seat by the pressure of water. The escaping water strikes the distributer, which moves away from the chest as far as a collar, *n*, on the tube E will permit, and becomes the medium by which an extended distribution of the water is effected.

The shank of the valve D or the plug *g*, or both, should be threaded and adapted to threaded openings in the stem *d*, so that by turning said valve or stem after the spring J has been secured to the arm *m* a further tightening of the valve to its seat may be effected. The first effect of the water when the valve is moved away from its seat is to effectually cleanse the interior of the distributer, which has no contracted passages for the lodgment of obstructions.

It is not essential that the distributer should be of the precise shape shown in Fig. 1. It may, for instance, be cone-shaped, or even flat, instead of rounded; but it should be provided with vanes on which the water can act in the same manner as on the blades of a flutter-wheel, or should be furnished with inclined slots through which the water can escape, so as to insure the effective distribution of the water and the rapid rotation of the distributer. We consider the slots to be the equivalent of the vanes, as they effect the same result in substantially the same way.

In Figs. 5 and 6 we have shown a modified form of the device, in which such inclined slots take the place of the vanes shown in Figs. 1 and 4. In this modification the valve-chest and distributer occupy positions the reverse of those shown in Figs. 1 and 2, and a loose cap, *p*, is employed to prevent the access of dust or other foreign matter to the distributer. This cap is guided on the valve-stem, and is thrown off by the escaping water as soon as the valve D is opened. The valve does not begin to move until the end of the spring J has been released by the melting of the alloy, and the valve then

opens instantly to its full extent, there being no retardation on account of the spring, the tendency of which is to fly off in the direction of the arrow as soon as its end is released from the arm *m*.

It should be understood that although we have referred to "fusible alloy" in the foregoing specification we include in this term any material which will suffice to retain the valve in its place and melt under a given temperature, so as to release the valve.

We claim as our invention—

1. The combination, in an automatic fire-extinguisher, of the following elements, namely: a valve-chest, A, having an inlet for receiving water under pressure; a valve having a seat in the chest; a device by which the valve may be maintained in a closed condition through the medium of fusible material, and a vaned distributer, G, adapted to be rotated by the action of the water when the valve is released, all substantially as set forth.

2. The combination of the valve-chest, the valve and its stem, the spring J, connected to the casing by a fusible joint, and the distributer G, adapted to be acted upon and rotated by the escaping water, as set forth.

3. The combination of the valve-casing, the valve D, the stem *d*, the spring J, and a screw-connection, substantially as described, whereby the valve can be adjusted after the spring has been secured in place, as set forth.

4. The combination of the valve-chest A, the valve D, the valve-stem *d*, a retaining device therefor having a fusible joint, the tubular guide E, having a nut, *n*, and the distributer G, adapted to slide on said guide, as set forth.

5. The combination of the valve-chest having a lug, *h*, and arm *m*, the valve D and its stem *d*, the distributer G, and the spring J, hooked to the lug *h*, and connected to the arm *m* by a fusible joint, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN KANE.
WILLIAM KANE.

Witnesses:
HARRY DRURY,
HARRY SMITH.