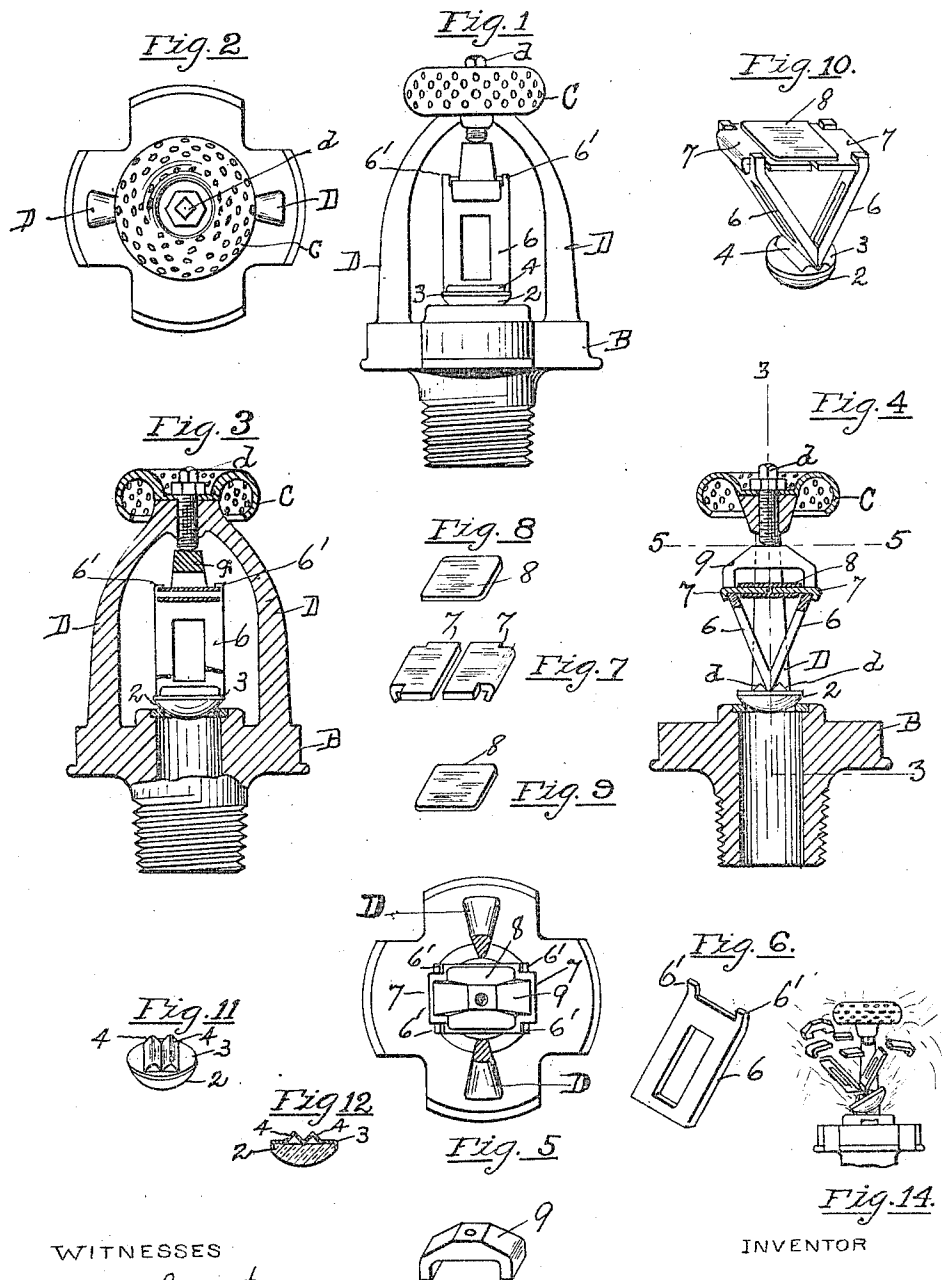


F. J. QUICK.
 AUTOMATIC FIRE EXTINGUISHER.
 APPLICATION FILED JULY 31, 1911.

1,038,958.

Patented Sept. 17, 1912.



WITNESSES
 Fred A. Sweet.
 Arthur A. Rhodes

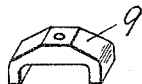


Fig. 13

Frank J. Quick
 BY Henry Marsh Jr.
 ATTY.

INVENTOR

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AUTOMATIC FIRE-EXTINGUISHER.

1,038,958.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed July 31, 1911. Serial No. 641,652.

To all whom it may concern:

Be it known that I, FRANK J. QUICK, a citizen of the Republic of Switzerland, (who have declared my intention of becoming a citizen of the United States,) and a resident of the city of Cranston, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Automatic Fire-Extinguishers, of which the following is a specification.

My invention relates to that class of fire-extinguishers or "sprinklers" in which the discharge-outlet is closed by a valve releasable by the increase of temperature of the surrounding atmosphere to allow the water to discharge and extinguish the fire.

The objects of my invention are to produce an automatic fire-extinguisher in which the valve releasing device will be extremely sensitive to increase of temperature of the surrounding atmosphere and with the valve be quickly removed from the path of the discharged column of water, and in which more perfect distribution of the water over a large area will be insured.

To these ends my invention consists in the novel construction, combination and arrangement of the parts hereinafter described, and shown in the accompanying drawings, in which,

Figure 1 is a front elevation of my sprinkler in the closed position. Fig. 2 is a top plan of same. Fig. 3 is a longitudinal section of the same with parts in elevation. Fig. 4 is a similar section taken at right angle to Fig. 3 with parts in elevation. Fig. 5 is a sectional plan view taken on line 5-5 of Fig. 4. Figs. 6, 7, 8 and 9 are details of the valve releasing device. Fig. 10 is a perspective view of the valve and valve releasing device, showing a slight modification. Figs. 11 and 12 are respectively a perspective view and a transverse section of the valve and its cap. Fig. 13 is a perspective view of the binding yoke. Fig. 14 is a diagrammatic view illustrating the operation of the invention under an increase of temperature of the surrounding atmosphere.

Similar reference letters and numerals indicate like parts throughout the drawings.

B represents the base of the sprinkler, provided with a centrally located outlet and

adapted to be screwed into a pipe-fitting, in the well known manner.

C represents the sprinkler-head, which, preferably circular in its general outline, is concavo-convex and is provided with a plurality of perforations as shown, and is positioned with its concave side toward the outlet opening of the sprinkler, and is held in alinement with the same by the supports D, D, preferably formed integrally with said head. Said head is centrally pierced and internally threaded to receive the adjusting-screw *d*, arranged and adapted to secure the valve and releasing device in their normal positions.

2 represents the valve composed of any rust resisting material, and 3 the strut supporting cap fitted upon the top of said valve, and provided with two centrally located parallel ridges or corrugations 4, 4, positioned adjacent each other to form a groove extending across the top of said cap and adapted to receive and retain one end of the struts 6, 6, which constitute parts of the valve releasing device.

Each strut is constructed of thin metal and has its central portion cut out to form a slot (as shown) to minimize the obstruction to the free circulation of air currents, and is furthermore provided at one end with an open notch and projecting lugs 6¹, 6¹. The opposite end of each strut is preferably beveled or mitered so that the two struts may be assembled with said beveled ends abutting and seated in the groove between the ridges 4, 4, in such manner that the struts will assume a V-form, and be retained in that form by bridge-plates 7, 7, fitted to engage the notch in the end of the strut, with their free ends a distance apart, and held in alinement with each other by binding-plates 8, 8, secured respectively to the upper and under surface of the bridge-plates, as shown in Fig. 4, or by a single binding-plate secured to the upper surface of the bridge-plates, as in Fig. 10, by solder fusible at a low temperature. These bridge-plates and binding-plates may, if desired, be composed of some material or alloy easily fusible at a low temperature.

Interposed between the bridge-plates and the adjusting screw, *d*, is a yoke 9, arranged and adapted to distribute the thrust of the

adjusting-screw to retain the struts in their normal V-shaped position (Fig. 4), until the bridge-plates are released and the struts allowed to fall away, when rise in the temperature of the surrounding air fuses the solder securing the bridge and binding-plates together, or fuses the struts when the latter are composed of easily fusible material allowing the bridge to break apart, the struts to fall away, and the valve 2 to be forced from its seat by the pressure of the water, as shown in the diagrammatic view Fig. 14.

It will be noted that I construct my sprinkler head with a circular body having a flat central portion surrounded by a peripheral concavo-convex rim extending above and below said central portion and constituting an annular arched hood or deflector disposed above and overhanging the outlet opening of the sprinkler, and that I provide said head and rim with a great number of perforations, so placed that the water can flow in all directions therethrough so that obstruction to its free flow is reduced to a minimum, and I am enabled to insure a thorough and uniform distribution of water over the entire surface within a considerable radius. This is a novel, useful and very important feature.

I claim:

1. In a fire extinguisher a valve releasing device consisting of two struts arranged in V-form, the apex of said V arranged to be seated in a similar shaped groove located on the valve cap, and the opposite ends of said struts connected by a bridge composed of plurality of bridge members positioned with their adjacent edges a distance apart, and said members held in position by one or more binding-plates secured thereto by solder fusible at a lower temperature and arranged to separate and fall apart and there-

by release the valve upon the fusing of the solder by calefaction of the surrounding atmosphere.

2. In a fire extinguisher having a base provided with a centrally located outlet adapted to serve as a seat for the valve, a sprinkler head provided with a plurality of perforations arranged and adapted to distribute and spray the water over the entire surface within a considerable radius, and head supporting arms integrally connected with said base and head, and a valve releasably seated in said outlet, the combination with said parts of a cap fitted upon said valve top and provided with a V-shaped groove extending across the same, two struts arranged in V-form with the apex of the V seated in said groove and the opposite ends of said struts connected by a bridge composed of a plurality of bridge members disposed with their adjacent edges a distance apart, and held in position by one or more binding plates secured thereto by solder fusible at a lower temperature, a thrust yoke arranged to engage said bridge members and an adjusting-screw operating through said head to hold the parts in position until the bridge members are allowed to separate upon the fusing of the solder connecting them.

3. In a fire extinguisher the combination with a base having an outlet opening, of a circular sprinkler-head having a flat central portion and an annular peripheral concavo-convex perforated rim surrounding and extending above and below said central portion and constituting an arched hood disposed above and overhanging said outlet opening.

FRANK J. QUICK.

Witnesses:

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