

(No Model.)

W. ESTY.

AUTOMATIC SPRINKLER OR FIRE EXTINGUISHER.

No. 532,270.

Patented Jan. 8, 1895.

FIG. 1.

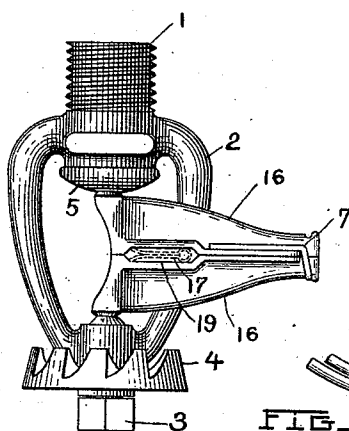


FIG. 2.

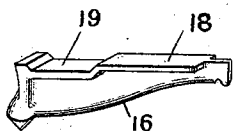


FIG. 5.

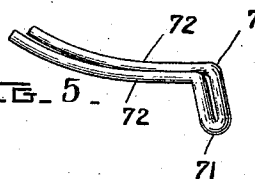


FIG. 3.

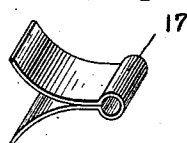
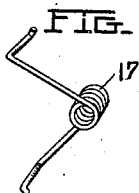


FIG. 4.



Witnesses.

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Inventor.

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UNITED STATES PATENT OFFICE.

WILLIAM ESTY, OF LACONIA, NEW HAMPSHIRE.

AUTOMATIC SPRINKLER OR FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 532,270, dated January 8, 1895.

Application filed October 12, 1894. Serial No. 525,657. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ESTY, a citizen of the United States, residing at Laconia, in the county of Belknap and State of New Hampshire, have invented certain new and useful Improvements in Automatic Sprinklers or Fire-Extinguishers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to automatic sprinklers or fire extinguishers, and more particularly to devices of the same general class as those which are presented in my applications for Letters Patent of the United States, filed January 25, 1893, Serial No. 459,676, and July 21, 1894, Serial No. 518,255.

In the accompanying drawings I have represented my present invention as applied to a sprinkler or automatic fire extinguisher of the particular construction which is represented in the said applications but as will be evident the invention is capable of being applied also, without essential change or departure in principle, to automatic sprinklers or fire extinguishers of a variety of other constructions.

In an automatic sprinkler or fire extinguisher, it is desirable that the valve which controls the discharge of water should be kept closed so as to wholly prevent the escape of water while the sprinkler is in an atmosphere of normal temperature. To this end, the struts or equivalent devices which are employed to keep the valve closed should be so secured that they will not change in position when subjected to normal temperature, and with this aim in view the invention set forth in my later application above referred to was contrived. It is also desirable that, so soon as the temperature has been raised abnormally by the presence of fire, the struts shall be immediately released, allowing the valve to open and permitting the discharge of water.

My present invention has for its object means whereby immediate and prompt releasing of the struts or equivalent devices will be insured whenever the temperature has risen sufficiently to effect the fusing of the solder by means of which the struts are wholly or partly secured and it consists in the improved construction and combination of

parts of the device which is hereinafter more fully set forth in the following description and accompanying drawings and afterward particularly pointed out and clearly defined in the claims at the close of this specification.

In the accompanying drawings, to which reference is made in the following description, Figure 1 shows a sprinkler or fire extinguisher having my present invention applied thereto, the said sprinkler or fire extinguisher being of the construction which is presented in my said application for Letters Patent above referred to. Fig. 2 is a view in perspective of one part or member of a valve support detached. Fig. 3 is an enlarged view of the separating spring detached, said spring being employed to separate the members of the valve support when the solder has been fused sufficiently to release them. Fig. 4 shows a modified form of the spring. Fig. 5 shows the safety device detached.

At 1 in the drawings is a threaded nozzle, which preferably is formed in one piece with a yoke-shaped frame 2 in the lower end of which frame is placed the stem of the supporting and adjusting screw 3, said stem fitting a threaded hole in the lower end of the said frame 2 and having a pointed end which projects slightly into the opening between the side arms of the said frame. The revoluble distributor or deflector disk 4 is mounted loosely on the stem of the screw 3, between the head of the said screw and the lower end of the frame 2, and is free to turn on the said stem under the action of the stream of water issuing from the nozzle when the latter is open.

The nozzle 1 is preferably projected slightly into the space inclosed by the frame 2, as shown, and to the end thereof is applied the valve 5, which consists usually of a simple disk resting against the valve-seat formed on the said end. Said valve when securely held in place serves to close the nozzle and prevent the escape of water therefrom. As will be obvious, the nozzle is intended to be fitted to a suitable water supply pipe. The valve is held in place by a valve support which in device shown consists of two parts or members 16, 16. Various forms of valve-supports have been contrived and used heretofore and my present invention is capable of being em-

ployed with many of them without essential change, and without departing from the spirit of the invention.

In practice, I prefer to employ the form of valve-support which is shown in the drawings, and accordingly I have shown my present invention as embodied in a sprinkler employing said form of valve support. The said valve support consisting of the parts 16 is interposed between the under surface of the valve 5 and the upper end of the screw 3, the short conical projections 63—64 which are formed on the said valve support, and are preferably in line with each other when the parts are viewed in the position in which they are shown in Fig. 1, fitting corresponding seats or recesses in the lower surface of the valve, and the upper end of the screw respectively.

As above stated, the form of valve support shown in the drawings comprises two parts or members 16, 16, which are preferably made exactly alike in order that they may be cast from the same pattern and also in order to render the valve support perfectly symmetrical in shape. These parts or members 16, 16 are each preferably of nearly triangular shape, as viewed in side elevation, and are T-shaped in vertical cross section, each member having a horizontal web extending nearly from end to end thereof. The flat surfaces 18 of the horizontal webs constitute the proximate or meeting faces of the members 16, 16, so as thereby to insure a sufficient surface for the action of the fusible solder, which is employed to hold the parts 16, 16 together and which is applied to the said faces and to the edge portions of the webs, all as set forth in my said applications above referred to. A safety device shown at 7 is also employed to insure the holding of the valve-support parts 16, 16 securely together. The safety device is made with a bend or loop shown at 71, which receives within it a portion of one part or member 16 of the valve-support adjacent to the free extremity of such part or member, and with an arm or arms 72 which are laid along the flanges of the other part or member 16 and are secured in this position by means of a fusible solder. So long as the safety device is itself bound in place it relieves the said soldered joint from practically all strain tending to open the same. As soon, however, as the solder is sufficiently fused by the presence of heat, the arm of the safety device, which is composed of springy or resilient material, springs away from the part 16, to which it is secured thus suddenly placing the entire strain on the solder which is used to secure the two parts or members 16, 16 together. This sudden strain tends to free the parts from each other and thus to permit the valve to drop out of position and the water to escape.

It will be observed, that the means above described, namely the fusible solder and the safety device, act solely to hold the members of the valve support together, the force of

the water being relied upon to separate the said members when the securing means are released. In order to more positively insure the separation of the members of the valve support at the earliest possible moment, I use a separator spring 17. This spring may consist of a flat piece of spring metal, formed to the shape shown more clearly in Fig. 3. The width of the piece of metal employed is preferably somewhat less than the width of the flange face 18 of the member 16 of the valve support. Said flange face is formed with a recess as shown at 19, Fig. 2, there being a corresponding recess in each of the said members 16 of the valve support. When the members 16 are placed together, in position to support the valve, as shown in Fig. 1, an opening is formed by the said recesses 19, as will be clear from said Fig. 1, and the separator-spring is inserted in said opening, the free ends of the spring being compressed to permit its insertion. As will be clear, the said spring bears upon each of the members 16, 16 of the valve support and tends to force said members apart. By varying the quality of the spring, its power and consequently the force it exerts may be increased or diminished.

For the purpose of protecting the spring and preventing it from becoming clogged or the like, I fill the recess or cavity between the members of the valve support, in which it is placed with a substance such as paraffin or the like, which is sufficiently solid at normal temperature to fully protect the spring and which in the presence of a slight degree of heat, will melt and thus present no obstacle to the free operation thereof. By the employment of such a separating device, the complete and prompt separation of the parts or members of the valve support is insured.

As will be obvious, the form of separating device and the material used in its construction, as also its location relatively to the valve support are not material, and I do not desire to limit myself in these particulars. Fig. 4 shows a separator spring made of wire, the same being formed into a coil at the opposite ends of which are diverging arms for action against the two members of the valve support. The ends of the arms are bent at right angles to take good bearing against the proximate surfaces of the said members and the ends of the bent portions are turned up to engage with the edges of the members and prevent lateral movement of the spring.

What I claim is—

1. The combination with the valve-support made in separable portions having faces meeting along a line on which they are united by fusible material, of a spring between said portions, operating to spread them apart on the fusing of the said material, substantially as described.

2. The automatic sprinkler provided with a valve, a valve-support made in separable portions having faces meeting along a line on which they are united by fusible material,

and a separating spring between said portions operating to spread said portions apart on the fusing of the said material, substantially as described.

5 3. The automatic sprinkler provided with a valve, a valve-support made in separable portions having faces meeting along a line on which they are united by fusible material; a spring between said portions operating to
10 spread them apart on the fusing of the said material, and a safety-device in engagement

with one portion of said support at one side of the joint and secured by readily fusible material to the other portion at the other side of the joint, substantially as described.

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

WILLIAM ESTY.

Witnesses:

O. W. TIBBETTS,
A. W. DINSMOER.