

(No Model.)

R. W. NEWTON.
AUTOMATIC SPRINKLER.

No. 506,929.

Patented Oct. 17, 1893.

Fig. 1.

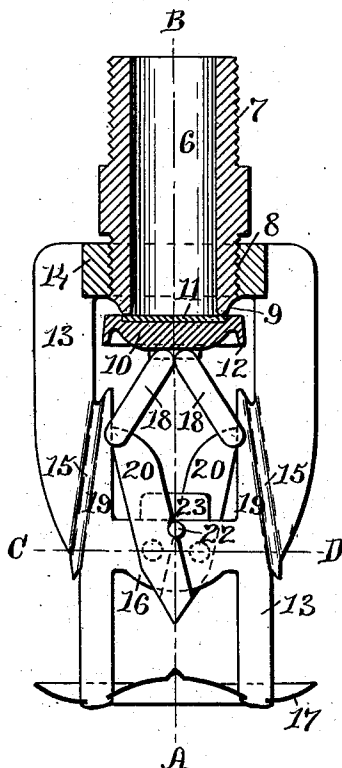


Fig. 2.

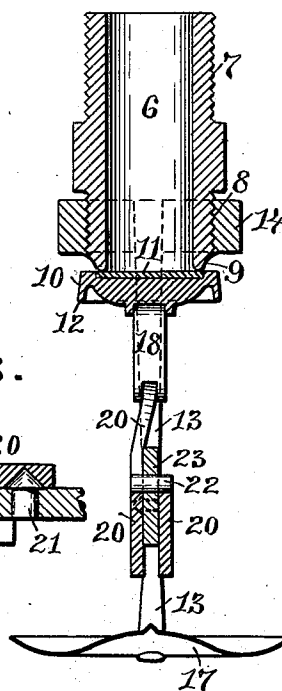


Fig. 3.

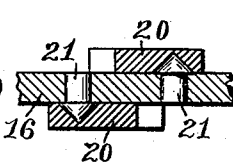


Fig. 4.

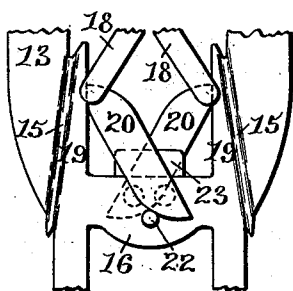
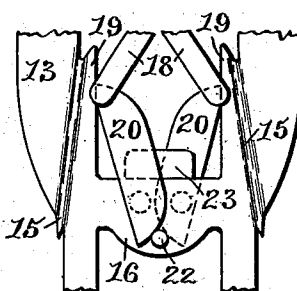


Fig. 5.



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UNITED STATES PATENT OFFICE.

ROBERT W. NEWTON, OF PROVIDENCE, RHODE ISLAND.

AUTOMATIC SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 506,929, dated October 17, 1893.

Application filed August 29 1891. Serial No. 404,092. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. NEWTON, of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Automatic Sprinklers; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the construction of automatic sprinklers, and consists in the peculiar construction of the sprinkler and the devices for holding the valve, as will be more fully set forth hereinafter.

The object of this invention is to construct an automatic-sprinkler in which the valve is held in place against all possible pressure and which will open instantly when the solder joints are weakened by a sufficient rise of temperature.

Figure 1 is a side view, partly in section, of my improved automatic-sprinkler. Fig. 2 is a vertical cross-section on the line A—B as indicated in Fig. 1. Fig. 3 is a horizontal cross-section, on the line C—D indicated in Fig. 1, showing the conical pins by which the soldered joints are strengthened. Figs. 4 and 5 are side views of parts of the frame of the sprinkler, showing the thrust pins by which the soldered joint is strengthened in different positions.

Similar numbers of reference indicate corresponding parts in all the figures.

In the drawings the number 6 indicates a cylinder provided with the screw-thread 7, extending on the outer surface of the cylinder at one end, adapted to screw into a pipe-fitting to secure the sprinkler to a system of pipes. The screw-threaded portion 8 near the other end is adapted to receive the frame of the sprinkler. This screw-thread may be a much finer screw-thread than the screw-thread 7. The end 9 of the cylinder 6 forms a valve-seat against which the valve 10 is held to close the outlet. The valve 10 is provided with the valve-disk 11, preferably made of soft copper. This disk may be made of any other suitable material. It may be removed and renewed from time to time. The valve 10 is provided with the rim 12 which forms a drip

and prevents any escaping liquid from running down on the under side of the valve when the sprinkler is used in the pendent position shown in the drawings. The frame 13 is provided with the screw-threaded collar 14 adapted to screw onto the screw-threaded portion 8 of the cylinder 6 on which it can be adjusted and the valve forced against the valve-seat 9. The frame 13 is usually stamped from sheet-metal. It has two arms extending from the collar 14. These arms are provided with the channels or gutters 15 and are connected by the yoke 16 below which the arms extend to form the support for the deflector 17. The deflector differs from deflectors as heretofore constructed. It consists of a sheet-metal disk stamped into the form shown in the drawings. The central portion of the deflector forms a convex disk and is surrounded by a concave annular rim. The central convex-portion extends above the outer edge of the annular concave-rim. As the angle of deflection of water forced from an aperture against a deflector is equal to the angle at which it strikes the face of the deflector, the form of deflector shown deflects the central portion of the stream of water laterally while the outer portion of the stream of water is deflected upward. The stream of water is thus broken into spray and distributed over a large area.

The device for holding the valve 10 to the valve-seat 9 consists of the two arms 18 one end of each of which bears against the under side of the valve 10 and the other ends which are slotted bear against the sides 19 of the frame 13 and rest on the arms 20 which arms are secured by solder to the opposite sides of the yoke 16. Two devices are used to strengthen this solder-joint and hold the arms 20 against any possible pressure so long as the solder holds the arms in the desired position. The pins 21, shown in Fig. 3 and indicated in broken lines in the other figures, have a cylindrical portion which enters a hole in the yoke 16 and a conical head which enters into a hole or opening in the arm 20. Two pins 21 are used so that one projects from each side of the yoke 16 and enters the arms 20 on the opposite sides of the yoke. The solder by which the arms 20 are secured to the yoke 16 covers and protects the pins 21 and, when

heated to or nearly to the fusing point, acts as a lubricant and, thereby, the outward movement of the arms 20 is facilitated and the entire rupture of the solder-joint assured as soon as the solder is heated. As long as the solder-joint is securely held the pins 21 assist in holding the device in place against the strain or pressure exerted on the valve. The other device is the thrust-pin 22. This pin is inserted into a hole in the yoke 16 and may be permanently secured so as to project from the opposite sides of the yoke. This pin is designed to resist nearly the whole strain exerted on the arms 20 on curved or inclined surfaces on these arms, so that when the solder-joints, by which the arms 20 are secured to the yoke 16, are weakened by heat, the arms 20 will slide by the thrust pins. As shown in Fig. 1, the pin 22 partly enters a concavity made into the inner sides of the arms and, as shown in Figs. 4 and 5, the lower curved ends of the arms 20 bear against the pin 22. In all the figures the arms 20 exert a shearing strain on the pin 22 as long as the same are held in position by the soldered joint by which they are secured to the yoke 16. The block 23, resting on the upper edge of the yoke 16, is secured by solder to the two opposite arms 20 and, by increasing the solder surface, materially adds to the strength of the solder joint.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. In an automatic-sprinkler, the combination with the outlet from which the water is discharged and a valve for closing the outlet, of the frame 13 provided with the vertical sides 19 and the yoke 16, the arms 18 and 20 the latter secured to the yoke 16 by solder, and the block 23 supported on the yoke 16 and secured by solder to the opposite arms 20, as described.

2. In an automatic-sprinkler, the combination with the screw-threaded tube or cylinder 6, the frame 13 provided with the collar 14 and yoke 16, and the valve 10, of the arms 18 and 20 the latter secured to the yoke by solder, and the pin 22 adapted to partly resist the strain, as described.

3. An automatic-sprinkler, consisting of the screw-threaded cylinder 6 one end forming a valve-seat, the frame 13, secured to the collar 14, having the yoke 16, the inner vertical sides 19 and channels 15, the valve 10 for closing the outlet provided with the lip 12, the arms 18, the arms 20 secured to the yoke by solder, the pins 21 and 22, and the deflector 17 secured to the end of the frame 13, as described.

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