

UNITED STATES PATENT OFFICE.

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AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 417,599, dated December 17, 1889.

Application filed October 19, 1889. Serial No. 327,508. (No model.)

To all whom it may concern:

Be it known that I, DANIEL C. STILLSON, a citizen of the United States, and a resident of Somerville, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Automatic Fire-Extinguishers, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in automatic fire-extinguishers of that kind in which a low air-pressure is normally contained in the pipes leading to the sprinklers provided with fusible-metal fastenings for normally holding a valve against its seat. In such a system the melting of a fusible fastening in case of a fire liberates the sprinkler-valve and reduces the air-pressure in the pipes, causing a valve leading from a water-supply under high pressure to be opened and the water forced out through one or more sprinklers. Such a system is fully illustrated in the patent granted February 15, 1887, No. 357,692, to Stillson and Prescott for fire-extinguishers, and to this class of fire-extinguishers my present invention is applicable.

This invention is an improvement on the patent granted to me July 23, 1889, No. 407,701, in which, in addition to the fusible metal that serves to hold the sprinkler-valve against its seat, is used a fusible soldered plug, covering a relief vent or perforation in the sprinkler or pipe, for the purpose of reducing the air-pressure in the pipe system as soon as such plug is melted off by the heat of the atmosphere in the room, and thus causing the high-pressure water-supply to open the sprinkler-valves and forcing the water through the pipes and out at the sprinklers as soon as the sprinkler valve or valves are liberated.

In my aforesaid patent the relief-vent was provided with a single central perforation covered by the plug soldered to it by fusible metal, which is objectionable, principally on account of the difficulty of draining such relief-vent after the water has been forced through the pipe system, and thus preventing the ready melting of the solder that united the plug to the relief-vent in case of a subsequent fire in the room or building. To obviate

this difficulty is the object of my invention, which is constructed as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents the invention as applied to a pipe provided with fusible-metal sprinkler-valve-releasing devices. Fig. 2 represents a cross-section on the line X X shown in Fig. 1. Fig. 3 represents a detail perspective view of the vent-tube and its soldered plug, and Fig. 4 represents an end view of said vent-tube.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In Fig. 1, *a* represents the water-supply pipe, normally containing a low pressure of air, as is common in devices of this kind.

b b b represent T's on said pipe, to which the automatic sprinklers C C C are connected, as usual. I desire to state that I do not wish to confine myself to any particular automatic sprinklers, as my invention is applicable to any of the well-known forms; but for the purpose of illustrating my invention I have shown each of said automatic sprinklers as composed of a valve *c*, normally held against its seat by means of a pivoted cam-lever *c'*, and a fusible-metal band *c''*, as is common in the art to which this invention relates.

My improved air-pressure relief-vent consists of a nipple *d*, preferably provided in its inner end with a screw-threaded shank *d'*, that is screwed into a screw-threaded perforation in the side of the T *b* or pipe *a*. Said nipple *d* is provided with two longitudinal perforations *d''* and *d'''*, one above the other, which perforations go from end to end of said nipple, as shown in Fig. 2. The nipple *d* is preferably provided with an annular front extension *d¹*, terminating as a conical seat *d²*, to which the correspondingly-shaped relief-plug *e* is soldered by means of fusible metal *f*, as shown in Fig. 2.

D is a cavity, preferably made in one or both of the parts *d* and *e*, which cavity is in open communication with the interior of the elbow *b* or pipe *a* by means of the longitudinal passages *d'' d'''*, as shown in Fig. 2.

In case of a fire it is only necessary that a single air-vent in the pipe system should be opened to relieve the air-pressure in the pipes.

All the other air-vents should preferably remain closed, so as to save unnecessary repairs after the fire is put out, and this is accomplished by my improved nipple, which permits
 5 the water-supply from the pipes to enter and circulate in the cavities *D D* of all nipples except the one melted off by the heat in the vicinity thereof, thus preventing unnecessary detachment and dropping off of more than
 10 one of the relief-plugs in the system. Such cooling and circulation is obtained by the liquid in passing through one of the longitudinal passages *d'' d^s* and out through the other.

In draining the pipe after a fire the water
 15 remaining in the cavity *D* will flow out through the lower passage *d^s* as the air enters the upper passage *d''*, thus leaving the nipples perfectly dry and in proper condition for action in case of a fire. To aid in throwing off the
 20 plug *e* when the metal *f* is melted, an expansive spring *g* may be arranged in the cavity *D*, as shown in Fig. 2.

Having thus fully described the nature, construction, and operation of my invention, I
 25 wish to secure by Letters Patent, and claim—

1. An automatic fire-extinguisher consisting of a valve normally held by fusible metal against its seat, and a supply-pipe leading to the extinguisher, combined with an automatic
 30 air-vent provided with two longitudinal passages and having a plug soldered to its open end by fusible metal, substantially as and for the purpose set forth.

2. In an automatic fire-extinguisher system, as described, the herein-described auto-
 35 matic air-vent, consisting of a nipple *d*, secured to the supply-pipe or its connections, said nipple having two longitudinal passages *d'' d^s*, and a detachable plug *e*, united to said nipple by fusible metal, substantially as
 40 and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 11th day of October, A. D. 1889.

DANIEL C. STILLSON.

Witnesses:

ALBAN ANDRÉN,
 MARTHA J. JACKSON.