

No. 654,853.

Patented July 31, 1900.

C. E. SMITH.
SPRINKLER HEAD.

(Application filed Jan. 8, 1900.)

(No Model.)

Fig. 1.

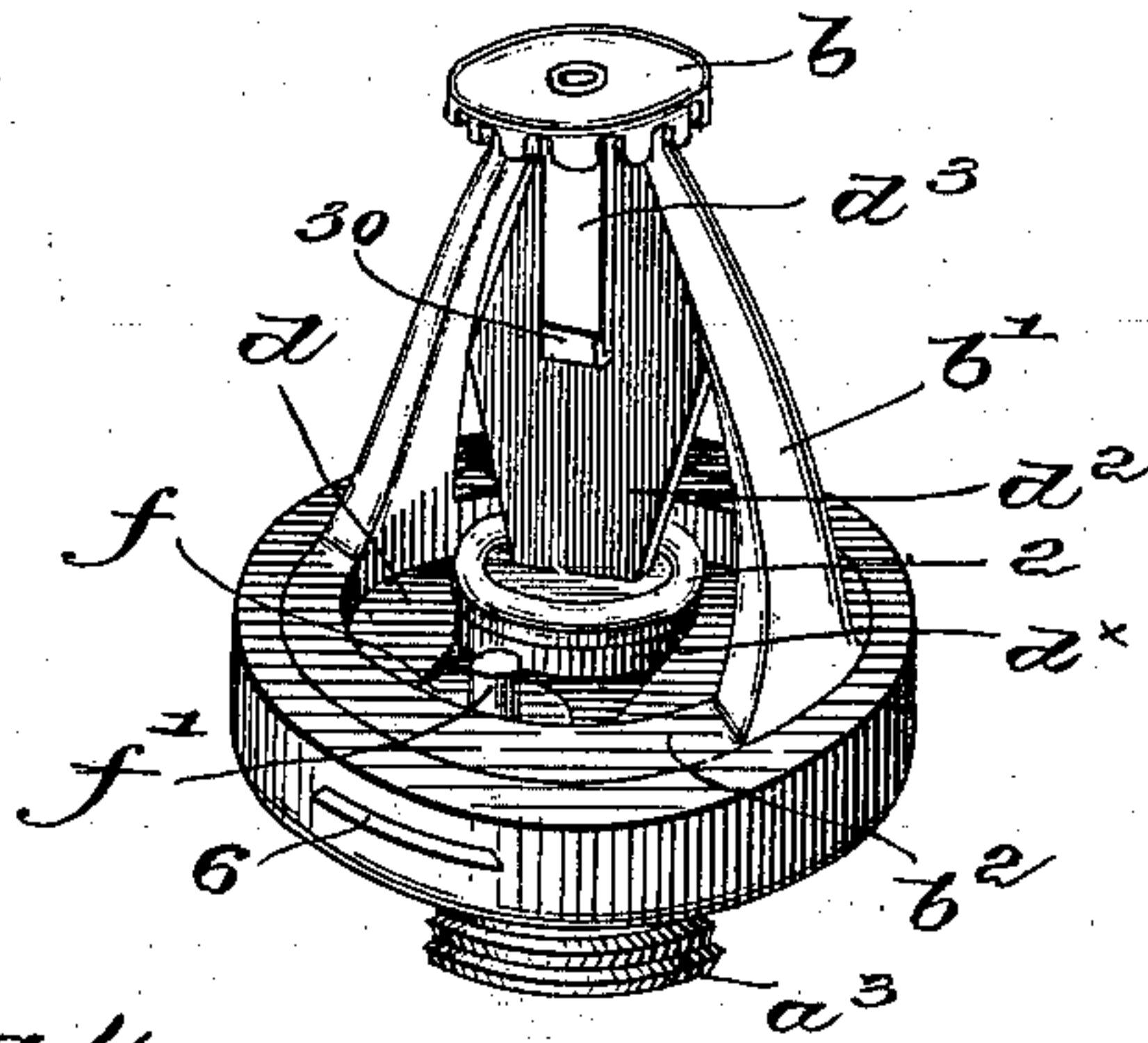


Fig. 3.

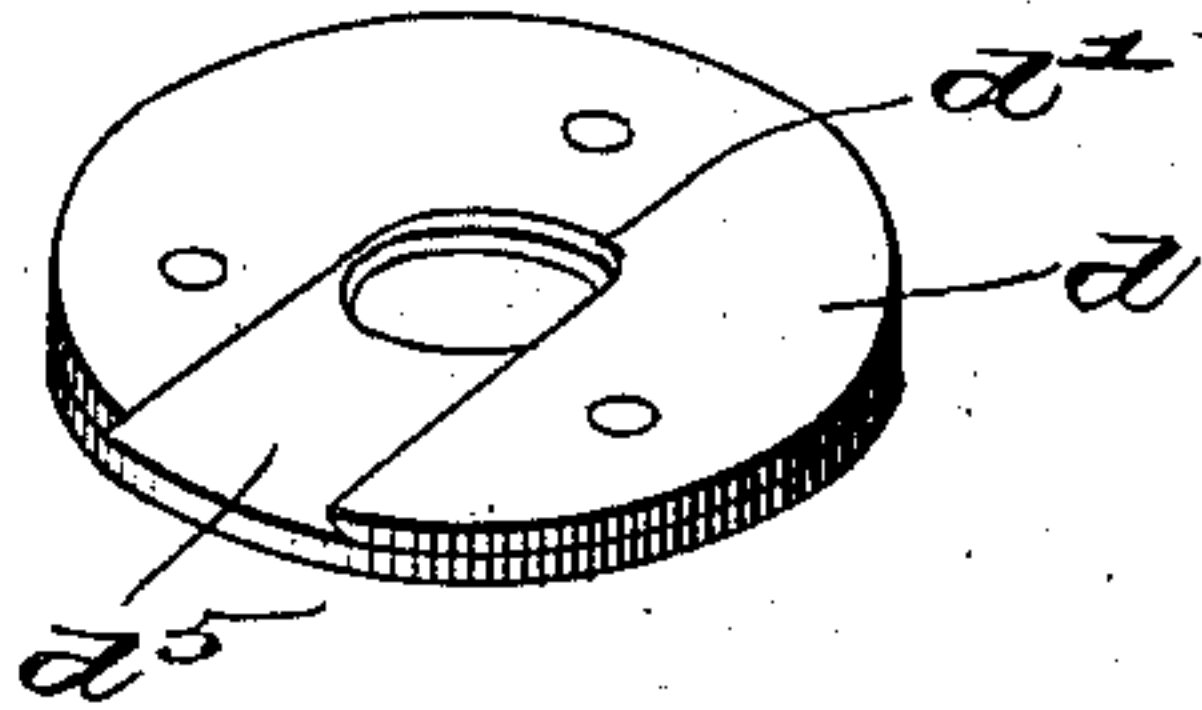


Fig. 4.

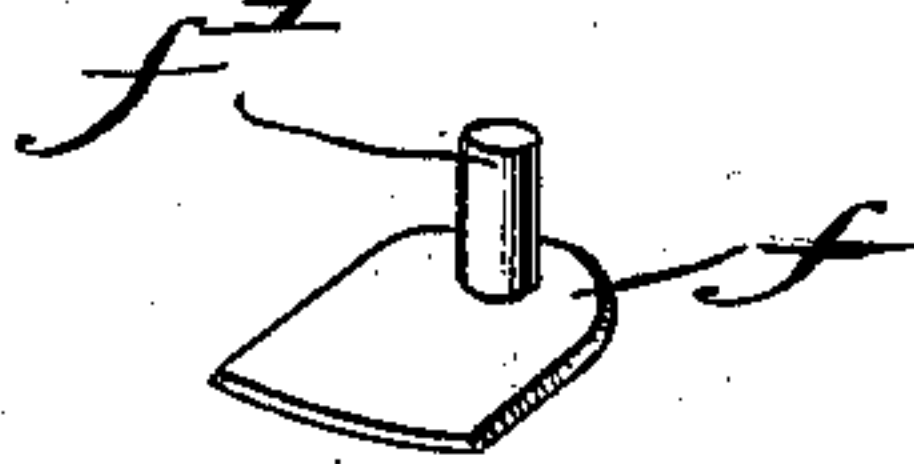
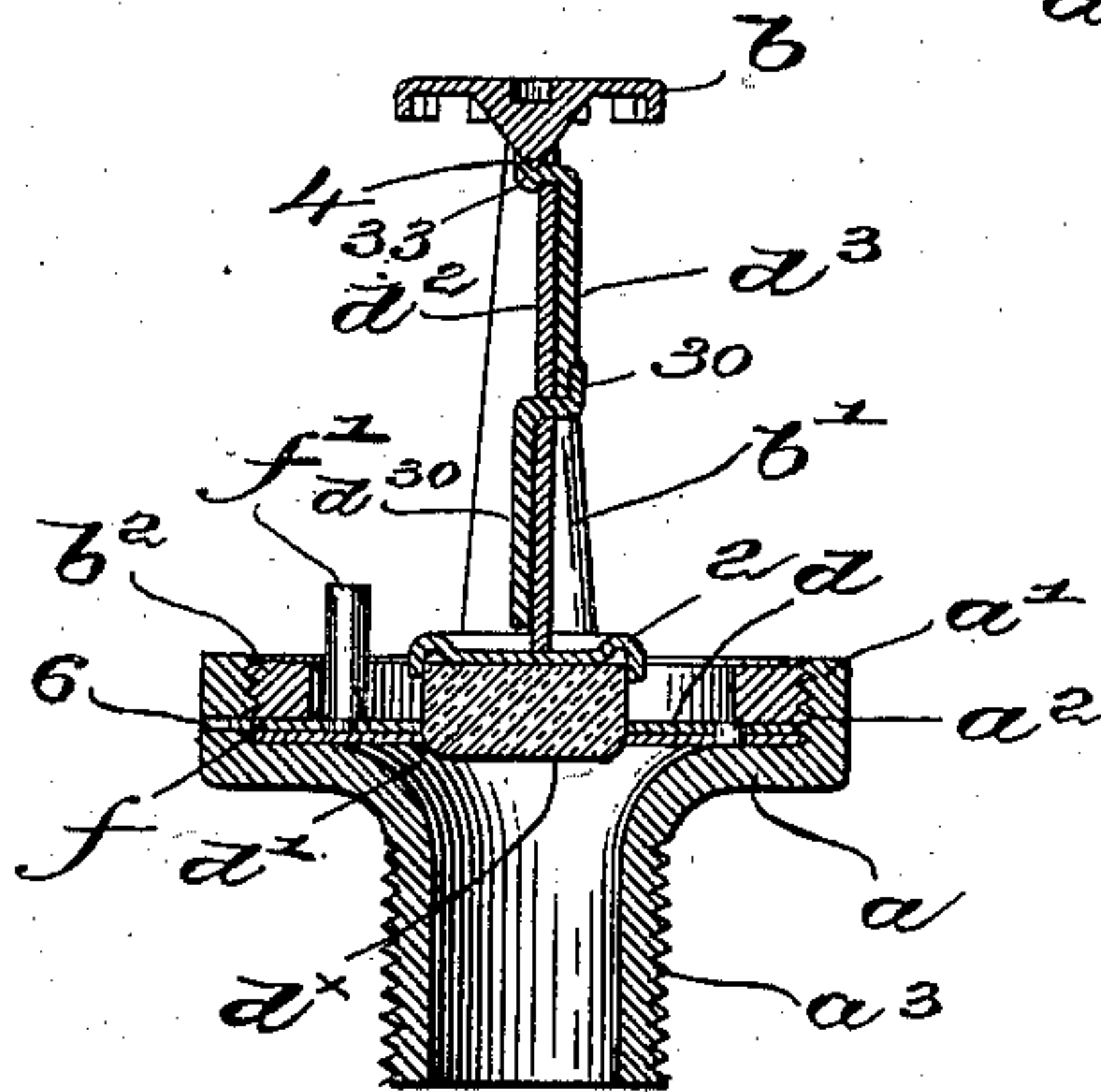


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

CYRUS E. SMITH, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO EDWARD O. ELY, OF BOSTON, MASSACHUSETTS.

SPRINKLER-HEAD.

SPECIFICATION forming part of Letters Patent No. 654,853, dated July 31, 1900.

Application filed January 8, 1900. Serial No. 661. (No model.)

To all whom it may concern:

Be it known that I, CYRUS E. SMITH, a citizen of the United States, residing at Fall River, county of Bristol, State of Massachusetts, have
5 invented an Improvement in Sprinkler-Heads, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention relates to automatic sprinkler-heads employed in safety-sprinkler systems for mills, stores, &c.; and it has for its object the production of means for preventing destructive flooding when a sprinkler-
15 head is accidentally opened and for also insuring the replacement of the parts thereof in proper position thereafter.

It is well known that sometimes the valve-controller of a sprinkler-head will accidentally
20 break down, and the water will immediately flow out and flood the vicinity, doing much damage before the water can be shut off from the system. To prevent this, I have devised manually-operated means carried by or
25 forming part of each sprinkler-head to shut off promptly this flow without affecting any other part of the sprinkler system. Manifestly if such means operated as a complete closure for the discharge-opening of the head
30 the latter might be carelessly left in such condition, so that thereafter in the event of a fire that particular head would be absolutely worthless. To prevent such results and to make the manually-operated closure operate
35 as a telltale, I so construct it that it only partly closes the discharge-opening, thus permitting slight leakage, and so long as this leakage is apparent it is known that the main valve or closure has not been restored to its
40 proper normal position, it being impossible to seat the main valve until the auxiliary or anti-flooding device has been manually withdrawn into normal inoperative position.

Figure 1 is a perspective view of a sprinkler-head of well-known construction with one
45 form of my invention embodied therein. Fig. 2 is a central longitudinal sectional view thereof. Fig. 3 is a perspective view of the diaphragm detached, showing the discharge-
50 opening or valve-seat therein; and Fig. 4 is a

similar view of a convenient form of auxiliary closure for said opening.

Referring to Figs. 1 and 2, the sprinkler-head herein illustrated comprises a body portion a , having an annular wall a' , internally
55 threaded at a^2 , and a hollow nipple or shank a^3 for attachment to the piping of the system, the spreader or distributor b being shown as supported on arms b' , secured to or forming
60 part of a ring b^2 , threaded to engage the wall or flange a' and be held in place thereby. A preferably-metallic diaphragm d is held securely in place between the head a and the
65 ring b^2 , said diaphragm having a central discharge-opening or valve-seat d' between the nipple a^3 and distributor b .

A suitable vitreous or other button d^x forms the main valve, normally held in place on the valve-seat d' by a collapsible strut d^2 , interposed between a cap 2 on the valve and a pro-
70 jection 4 on the inner side of the distributor, all in usual manner, the lower end of a part d^3 being supported in the hooked upper end 30 of the part d^{30} on the opposite side of the strut at the lower end thereof, while the up-
75 per end of the part d^3 is offset, as at 33, and crosses the top of the strut, said offset portion receiving the projection 4, the parts d^3 d^{30} being normally held in place relatively to the strut and to each other by readily-fusible sol-
80 der and operating to release the valve when a rise in temperature to a predetermined point fuses or disintegrates the solder securing the parts d^{30} d^3 to the strut and to each other. Should the valve be accidentally released, the
85 water would rush out and flood the vicinity, doing considerable damage before the supply could be shut off. To prevent this in very large measure, I have herein shown an auxiliary closure f for the seat d' , adapted to slide
90 in an undercut guideway d^5 in the diaphragm d , the wall a' being slotted, if necessary, as at 6, to receive the outer end of the closure or auxiliary valve f when in normal position. A
95 lug or projection f' on the part f , inside of the wall a' , provides means for conveniently moving the valve into or out of position, and when the main valve is unseated the auxiliary valve can be manually moved into position to substantially close the discharge-opening. Such
100

closure is intended to be only temporary, and to insure the replacement of the main valve after accidental removal the auxiliary valve does not fit tightly, but permits slight leakage, which serves as a telltale, the continu-
 5 age, which serves as a telltale, the continu-
 ance of the leakage indicating that the sprinkler-head has not been restored to proper normal condition ready for operation by thermal action should occasion arise. Thus it
 10 not only requires direct manual effort to counteract the effect of accidental operation of the main-valve-controlling means, but the latter must be positively returned to proper operative condition thereafter in order to stop
 15 the leakage, and it is impossible to seat the main valve unless the auxiliary valve is inoperative, and vice versa.

My invention is not restricted to the precise construction and arrangement herein
 20 shown nor to the particular type of sprinkler-head illustrated, for various changes or modifications may be made without departing from the spirit and scope of my invention.

Having described my invention, what I
 25 claim, and desire to secure by Letters Patent, is—

1. In a sprinkler-head, a body portion provided with a valve-seat, a main valve, means to retain it seated and rendered operative to
 30 release the valve upon a predetermined rise in temperature, and a manually-movable auxiliary valve permanently mounted on the body portion and adapted to nearly close the seat when the valve has been unseated.

35 2. In a sprinkler-head, a body portion pro-

vided with a diaphragm having a discharge-opening therein, a closure for said opening, means to normally maintain the closure tightly in said opening, to prevent the escape
 40 of fluid therethrough, and a manually-movable auxiliary closure permanently mounted to slide on the body portion and adapted to partially close the opening in the diaphragm when the main closure is withdrawn.

3. In a sprinkler-head, a body portion having a discharge-opening and an annular wall, a valve for said opening, a strut to normally maintain said valve in position to tightly
 45 close the opening, and an auxiliary valve permanently mounted on the body portion and accessible from within the annular wall of the body and manually movable into position
 50 to nearly close the discharge-opening when the main valve is removed.

4. In a sprinkler-head, a valve, means to
 55 normally maintain it in position and to release it upon a predetermined rise in temperature, and manually-actuated antiflooding means permanently connected with the
 60 sprinkler, operative only when the valve is unseated, to partially close the valve-opening and serve as a telltale until the valve has been properly replaced.

In testimony whereof I have signed my name to this specification in the presence of
 65 two subscribing witnesses.

CYRUS E. SMITH.

Witnesses:

MILTON DRUCE,
 OSCAR BOUSQUET.