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2,700,423

SPRINKLER HEAD SHUTOFF

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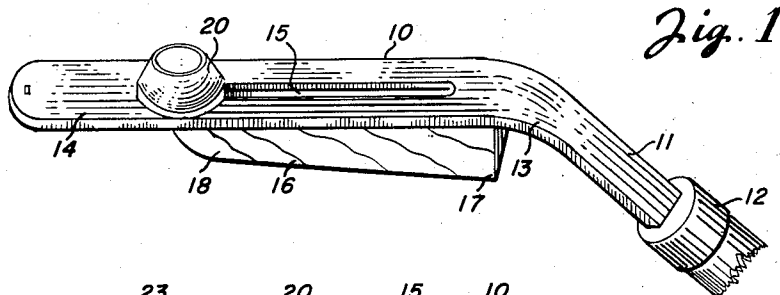


Fig. 1

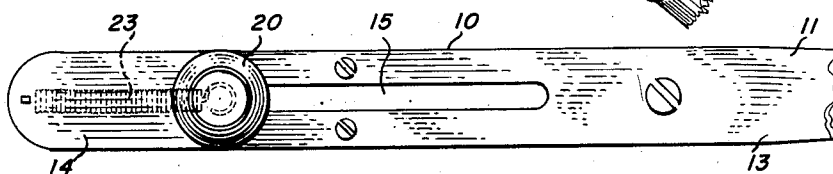


Fig. 2

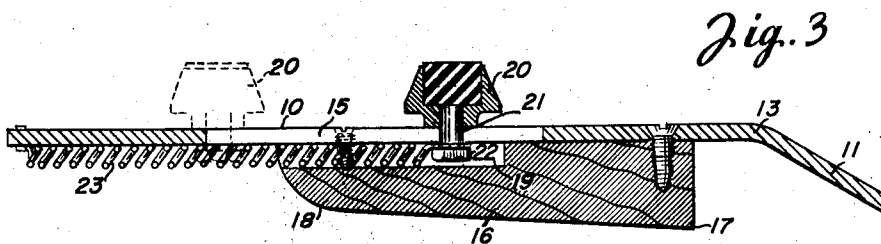


Fig. 3

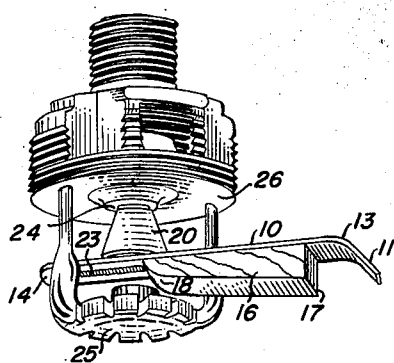


Fig. 4

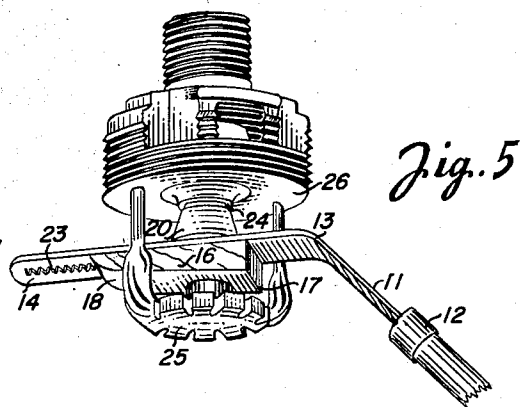


Fig. 5

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SPRINKLER HEAD SHUTOFF

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2 Claims. (Cl. 169—1)

This invention relates to a device to be used in conjunction with an automatic sprinkler system for fire protection purposes, and more particularly to a manually operated sprinkler head shut-off device to be used with automatically actuated sprinkler heads.

Various types of automatic sprinkler heads are used in fire protection sprinkler systems. One of these types, although very proficient in automatic actuation, has a base set flush with the ceiling and the outlet orifice depressed approximately $\frac{1}{2}$ " within the ceiling. The orifice is closed with a quartz tube containing a heat expandable liquid. This design prevents the use of any known type of sprinkler head shut-off, thereby presenting a demanding problem effected by the serious damage incurred through the discharge of surplus water. When a fire occurs in the adjacent locale of the head, the elevated temperature of the surrounding atmosphere causes the liquid to expand and the tube to break, consequently the sprinkler head orifice is unblocked and the water flows down upon a small dispersing disc which is positioned directly below the orifice. After the fire has been extinguished, it is necessary to turn off the entire sprinkling system and drain it before replacing the expended sprinkler head. During the time required for draining, a substantial amount of water is emitted from the valve head, causing considerable but unnecessary damage.

It is an object of this invention to provide a device which may be quickly and efficiently employed to stop the flow of water from the expended sprinkler head which may have been accidentally discharged, or after a fire is extinguished and before the system is shut off and drained, prior to the replacement of the expended sprinkler head.

It is a further object of this invention to provide such a device which may be used with several or all the heads in a single sprinkler system.

Another object of the invention is to provide such a device which is very simple to operate and inexpensive to manufacture.

Other objects of the present invention will become apparent in the course of the following specification.

The invention is illustrated in the accompanying drawing, or wherein:

Figure 1 is a perspective view of the head shut-off.

Figure 2 is a top plan view of the head shut-off.

Figure 3 is a side view in section of the head shut-off showing the position of the plug when disengaged and position of the plug after engagement in a sprinkler head.

Figure 4 is a perspective view of the head shut-off, showing the initial insertion of the device in a head.

Figure 5 is a perspective view of the head shut-off, showing the completed insertion of the device in a head.

Similar numerals refer to similar parts throughout the several views.

Referring especially to Figure 1, it will be seen that the head shut-off 10 embodies a handle 11 which may be collapsible. The handle 11 is maintained in an operable position by sliding a ferrule 12 over the point of collapse. The handle 11 is obtusely bent at 13 and continued to form a flat, substantially rectangular plate 14, having fashioned along its longitudinal axis, a groove 15. Extending below the rectangular plate 14 is a beveled block 16 which, moving in the direction of the handle 11, becomes gradually dimensionally larger so that the distance between the plate 14 and the angle 17 is substantially greater than the distance between the plate 14 and the termination of the curved end 18. The rectangular plate, a substantially similar groove 19, is fashioned in the top side of the block 16.

As shown in Figure 3, the plug 20 rides on top of the groove 15. A stem 21 moves through the groove 15 and is affixed to a nut 22, thereby preventing removal

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of the plug. The nut 22 rides in groove 19. A small tension spring 23, attached to the end of the plate furthest from the handle, is connected to the plug 20.

In operation, referring especially to Figures 4 and 5, when a fire occurs the quartz tube (not shown) extending from the valve orifice 24 breaks, water flows from the orifice and is dispersed in the form of a spray upon contact with a disperser disc 25. When the fire is extinguished, the flowage of water from the expended head is immediately stopped by inserting the plug 20 in the orifice 24. As the device 10 is moved tightly between the ceiling plate 26 and the disperser disc 25, the plug rides in the groove 15. When the disperser disc 25 is in tight pressure contact with the block 16, the device may be left so positioned while the system is turned off and drained.

If the user, in attempting to initially insert the plug in the orifice, is unsuccessful, the spring 23 will cause the plug to return to its original position so that another attempt can be made immediately.

After the sprinkler system is drained and replacement of the expended head is desired, the device 10 may be withdrawn from the expended head conversely to the manner in which it was inserted.

Thus, in accordance with my invention, I have provided a most efficient and simple head shut-off for the type of head herein described.

I wish it understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

I claim:

1. A shut-off device adapted for use on an automatic sprinkler head of the type having an outlet recessed in the ceiling, said shut-off device comprising an elongated plate, a handle extending angularly downward from one end thereof, said plate having a slot extending longitudinally therethrough, a beveled block affixed to the lower face of said plate with its bevel rising obliquely toward the free end of said plate, an elongated groove in the upper face of said block in registry with the slot in said plate, means for plugging the outlet of said sprinkler head slideably mounted in said slot and extending for a substantial distance thereabove, a tension spring, one end of said spring being attached below said plate at its free end, the other end of said spring being attached to said plugging means.

2. A shut-off device for use on an automatic sprinkler head of the type having an outlet recessed in the ceiling and a dispersing disc disposed therebelow, said shut-off device comprising an elongated plate, a handle extending angularly downward from one end thereof, said plate having a slot extending longitudinally therethrough, plugging means slideably mounted in said slot and extending thereabove for a distance sufficient to engage the recessed outlet of said sprinkler head, a beveled block affixed to the lower face of said plate adjacent the handle end thereof with its bevel rising obliquely toward the free end of said plate, whereby said beveled block is adapted to gradually compress the plugging means against said outlet when said block is moved into engagement with the dispersing disc of said sprinkler head as said plugging means slides along the slot in said plate toward the handle end thereof, a groove in the upper face of said block in registry with the slot in said plate, a tension spring, one end of said spring being attached to said plate at its free end, the other end of said spring being attached to the plugging means whereby said plugging means is returned in said slot to the free end of said plate when the shut-off device is withdrawn from said automatic sprinkler head.

References Cited in the file of this patent

UNITED STATES PATENTS

478,181	Wright	July 5, 1892
843,556	Boden	Feb. 5, 1907
917,923	Casey	Apr. 13, 1909
1,167,860	Van Dillen et al.	Jan. 11, 1916
1,547,116	Green	July 21, 1925
2,466,126	Siegel	Apr. 5, 1949
2,491,835	Seifried	Dec. 20, 1949