

May 3, 1927.

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1,626,863

AUTOMATIC SPRINKLER HEAD FOR SPRINKLING SYSTEMS

Filed April 23, 1923

Fig. 1.

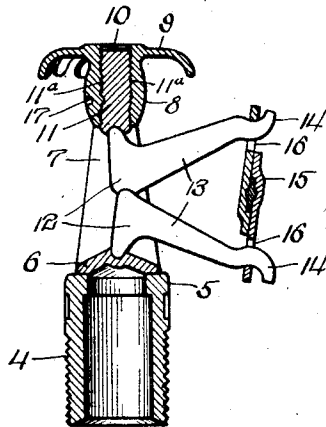


Fig. 2.

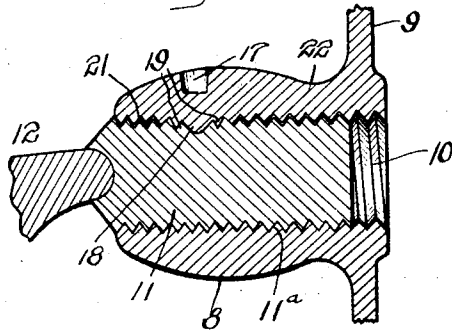
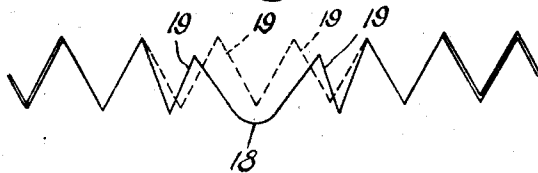


Fig. 3.



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AUTOMATIC SPRINKLER HEAD FOR SPRINKLING SYSTEMS.

Application filed April 23, 1923. Serial No. 633,839.

This invention relates to improvements in automatic sprinkler heads for sprinkling systems, and particularly to the means heretofore employed for securing their tension-screw in its adjusted position.

As a means for preventing attempted repairs in sprinkler heads and their further use after having been once operatively disassembled, the Board of Laboratory Underwriters of the City of Chicago and the Associated Factory of Mutual Laboratories, of Boston, have heretofore required as a condition precedent to the use of such sprinkler heads, that, following their assemblage and the final adjustment of their tension-screw, a perforation be bored through one wall, thence through the tension-screw and into the opposing wall of the support for the tension-screw, and a pin be driven therein for holding the screw in its tensioned position.

In practice, however, the use of a pin so located has not been satisfactory for the reason that the pin is accessible for being pulled, bored or else jolted out, as not infrequently happens.

The prime object of my invention broadly stated, is to provide an automatic sprinkler head with a simple and effective means permanently locking the tension-screw in its adjusted position.

More specifically stated, the object of my invention is an automatic sprinkler head, the adjusted tension-screw of which is permanently and inaccessibly locked in its operative position by means of metal displaced from the tension-screw support.

A further object of my invention is an assembled sprinkler head, the adjusted tension-screw of which is permanently and inaccessibly locked in its operative position by means of metal displaced from the sprinkler head support, projecting between and inwardly beyond the threads of the tension-screw.

With these ends in view, my invention finds embodiment in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects are attained, all as hereinafter fully described with reference to the accompanying drawings and more fully pointed out in the claims.

In said drawings,—

Fig. 1 illustrates, in vertical section, an automatic sprinkler head in which my invention finds its embodiment.

Fig. 2 is an enlarged longitudinal section of the tension-screw and its support; and

Fig. 3 illustrates diagrammatically the displacement of the screw-threads of the tension-screw and the position of the metal of the support forced between the threads of the tension-screw.

Similar characters of reference indicate the same parts in the several figures of the drawing.

In said drawing, 4 indicates a nozzle externally screw-threaded for connecting it to the water supply pipe of a sprinkling system, which nozzle is provided with a rim 5, forming a seat for a cap 6 of any commonly employed construction, normally closing and preventing leakage of the water.

Secured to the nozzle, integrally or otherwise, is the usual yoke 7, provided at its apex with a perforated support 8, upon the upper end of which is mounted a deflector 9, said support 8 being provided with a screw-threaded perforation 10, located in axial alinement with the discharge opening of the nozzle, in which perforation is a tension-screw 11 provided with screw-threads 11^a for adjusting the tension-screw to compress the toggles.

The top cap 6 and the end of the tension-screw are provided with recesses into which are projected toggle joints 12, 12, the upper member of the toggle joint being provided with a similar recess receiving the lower toggle joint, which toggle joints are each provided with outwardly projecting levers 13, 13, terminating at their ends in hooks 14, 14, for connecting therewith a fusible link by means of perforations 16, 16, through which the hooks 14, 14 are projected.

The fusible link 15, however, together with all other parts and their arrangement in the sprinkler head so far described, may be of any other form and construction adapted for the permanent locking of the tension-screw in its adjusted operative position against the possibility of detachment provided for by my invention now to be described.

With this understanding, my invention finds its embodiment in an automatic sprinkler head, the tension-screw of which is permanently locked in its adjusted position by a displaced portion of metal projected and compressed between the threads of the adjusting screw, which projected metal locks the adjusting screw in its sup-

port and, being inaccessible from without, prevents the possibility of tampering with or moving the screw from its adjusted position in the support.

To these ends, it is now to be noted that the hole 17 indicates the displacement inwardly of the metal of the support by means of a manually or machine-operated punch 18 and the projection of the displaced metal into the threads of the tension-screw with an impact the force of which is sufficient for the projected metal to destroy that portion of the thread of the support opposed thereto to spread the opposing threads 21 and 22 of the tension-screw opposed thereto and, as may be, to project the displaced metal of the support inwardly beyond the threads into the body of the tension-screw, and to compress the diametrically opposing threads of the tension-screw into the threads of the support, more than normally tight, and so tight that they appear to form an integral part thereof.

For carrying out my invention, following the assembling of a fusible link and the required adjustment of the tension-screw for imparting to the toggle joint the desired number of pounds pull against the fusible link, the support is placed upon an anvil or in a punch press, followed by forcibly driving the punch into the support for displacing a sufficient amount of metal, as indicated at 17, and forcing the displaced metal inwardly.

As indicated at 18, the punching force operates to accordingly mutilate the threads at this point in the support, drive the displaced metal between and spread the threads in the tension-screw directly opposed thereto and may be inwardly beyond the threads into the body of the tension-screw and distorting the support, separate the threads of the support from the threads of the tension-screw, as indicated at 21 and 22, and at the same time tightening the intermeshing threads of both of these devices, all as clearly shown in Fig. 2.

While Fig. 1 corresponds in size to the full-sized sprinkler head, the support and tension-screw of which are in section, as shown in said drawing, the enlargement in Fig. 2 of the tension-screw and its support more accurately and clearly shows in detail the results attributable to my invention, and furnishes the evidence that a displacement of the metal in the support and the screw-threads in the tension-screw not only permanently locks the tension-screw in its adjustment, but by devices wholly inaccessible at any time and by any means for unlocking them without destroying both the screw and its support, together with the sprinkler head.

It should be particularly noted in a consideration of my invention, that it proposes

the insetting of a portion of the material of the support for the purpose which has now been clearly brought out, by means applied to the external surface of the support and the operation of which means, for the stated purpose, results in the formation of an indentation so visible to the eye as to indicate upon the briefest inspection that the operation whereby the tension screw is locked in the manner and for the purpose set forth, has been accomplished. This greatly facilitates inspection by the Fire Underwriters, and also brings about another advantage in so far as inspection is concerned since the depth of the indentation and thus the extent to which the punch has entered the surface of the support may be readily gaged. Obviously, the material of the support can be inset to more or less temporarily lock the tension screw without the results sought by this invention, or in other words, without so securing the tension screw in connection with the support as to prevent their disassociation and reuse. It is an easy matter to establish how deeply the support must be punched or indented to bring the above about, and knowing this required depth, it is a very easy matter upon inspection to determine that the required depth of punching has been accomplished, by gaging the depth of the indentation.

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

1. A sprinkler head comprising an internal screw threaded support, a tension screw adjusted therein, said support having a visible external surface indentation resulting in an insetting of a portion of the material thereof, with a consequent mutilation of a portion of the threads of the tension screw sufficient for permanently locking the screw in its adjusted position, thereby preventing the removal of the tension screw without destroying it for future use.

2. The herein described method for inaccessibly permanently locking the tension screw in its adjusted position in the support of a sprinkler head and preventing their separation thereafter for subsequent use, the same consisting in first adjusting the tension screw and then in applying to the external surface of the support a punch with sufficient force to mutilate a portion of opposing threads thereof and project the mutilated threads in a body from the support inwardly beyond the screw threaded surface of the tension screw and at the same time form a depression in the external surface of the support by which the extent of the mutilation can be readily gaged.

In witness whereof, I have hereunto set my hand this 19th day of April, 1923.

HARRY M. NACEY.