C. W. SIVER.

SPRINKLER HEAD.

APPLICATION FILED JULY 30, 1918.

1,298,109.

Patented Mar. 25, 1919.

Fig. 1.

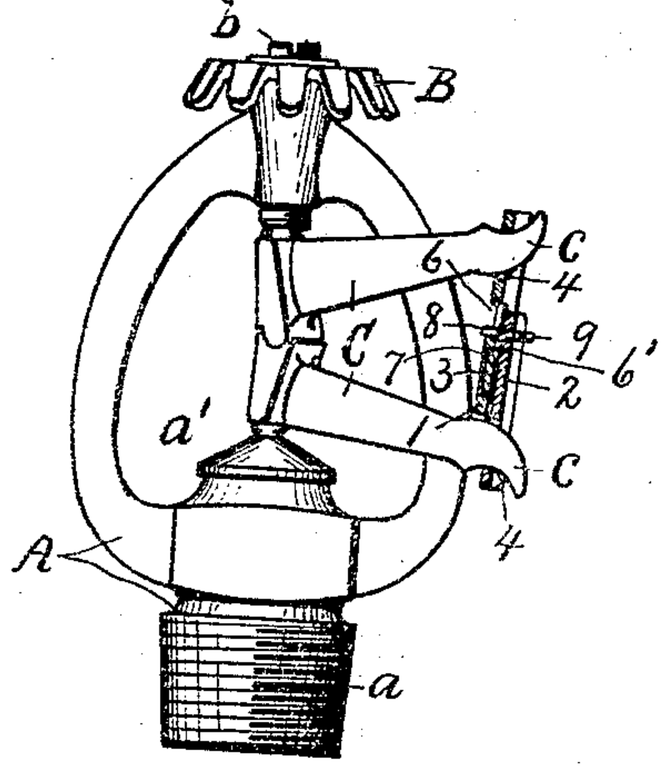


Fig. 2.

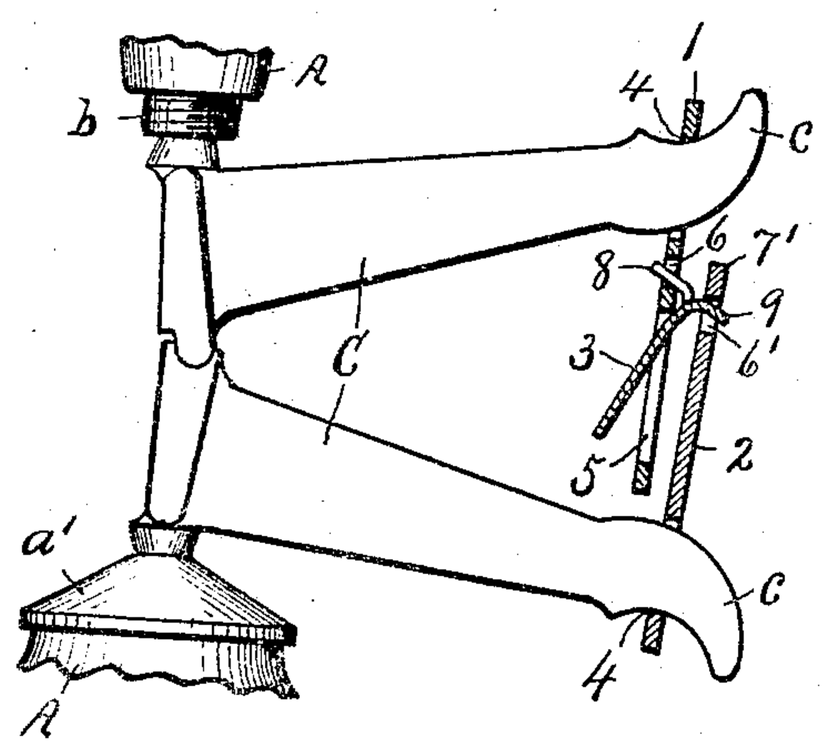


Fig. 3.

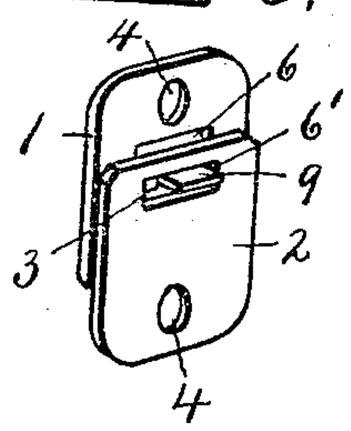


Fig. 4.

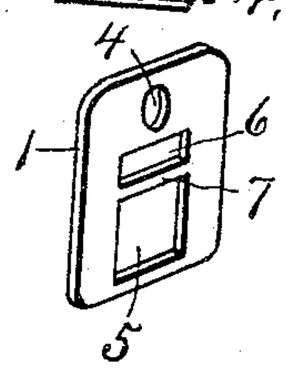


Fig. 5

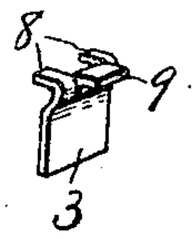
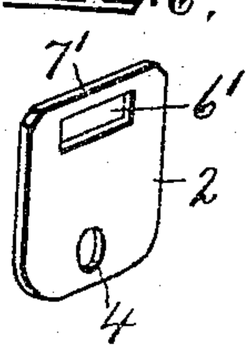


Fig. 6.



Inventors
C. W. Siver

By
Howard P. Denison
Attorney

UNITED STATES PATENT OFFICE.

CHARLES W. SIVER, OF SYRACUSE, NEW YORK, ASSIGNOR TO EDWARD P. BATES CO., INC., OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

SPRINKLER-HEAD.

1,298,109. Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed July 30, 1918. Serial No. 247,386.

To all whom it may concern:

Be it known that I, CHARLES W. SIVER, a citizen of the United States of America, and resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Sprinkler-Heads, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in sprinkler heads, in which the water-controlling valve is normally held closed by a pair of struts or toggle levers connected at their outer ends by a fusible link, to which latter the invention is more particularly directed.

These links are usually made in three parts, two of which overlap one upon the other, and are connected to the struts or toggle levers, while the third part serves as a connecting or locking medium usually soldered to the two first-named parts, and one of the objects of my present invention is to normally dispose the third part or locking member in approximately the same plane as one of the other parts by soldering the main body thereof in an opening therein so that it may be soldered at its edges to the walls of said opening, as well as to the adjacent face of the other part, thus permitting the overlapping portions of the main parts to be brought into close juxtaposition and soldered to each other face to face.

Another object is to provide the locking member with oppositely projecting ledges projecting through suitable slots in the main parts and engaged with the walls thereof close to the normal plane of the main body of the locking member so as to relieve as far as possible the solder connections from excessive strains.

A further object is to utilize one of the ledges as a hinge connection for the locking member to the plate having the opening for receiving the main body thereof so that when the solder connections are fused by heat, the main body of said locking member may swing through the opening as the main parts of the link are drawn apart by the pressure exerted upon the struts or toggle levers by the water pressure upon the valve.

In other words, I have sought to connect the main parts of the link by means of a double bell-crank locking member having a relatively long arm or main body soldered to the main members and the relatively short arms engaged by said main members close to the plane of the main body so as to afford a more secure and rigid resistance to the separation of the main members without overstraining the weaker soldered joints.

Other objects and uses will be brought out in the following description.

In the drawings—

Figure 1 is a side elevation of a sprinkler head embodying the features of my invention.

Fig. 2 is an enlarged face view of the toggle levers and adjacent portions of their supports, showing the fusible link members in section as partially released.

Fig. 3 is a perspective view of the detached link with its members assembled for use.

Figs. 4, 5 and 6 are perspective views of the detached members of the link.

In order that my invention may be clearly understood, I have shown a sprinkler head —A— having the usual tubular nipple —*a*— adapted to be secured to the water supply pipe in any well-known manner and provided with a valve —*a'*—, the upper end of the head being provided with an ordinary deflector plate —B— and an adjusting screw —*b*—.

The valve —*a'*— is normally held in its closed position by a pair of struts or toggle levers —C— having their bases seated one upon the other and engaged, respectively, with the valve —*a'*— and lower end of the screw —*b*—.

The free ends of the struts —C— are provided with oppositely disposed hooks —*c*— which are connected by a fusible three-part link consisting, in this instance, of a pair of flat sheet metal plates —1— and —2— and a sheet metal locking plate —3—.

The plates —1— and —2— constitute the main sections of the link and are provided near one end with apertures —4— for interlocking engagement with the head —*c*— of the struts —C—, and when so engaged are reversely arranged so that the major portions thereof overlap flatwise one upon the other.

The upper plate —1— is provided with a relatively large rectangular opening —5— and a transverse slot —6—, the latter being located between the opening —5— and cor-

responding aperture —4—, thus forming a cross bar —7— between the slot —6— and opening —5—.

The lower plate —2— is also provided with a transverse slot —6′— near the end thereof opposite that in which the aperture —4— is located, thus forming a cross bar —7′—.

The main body of the locking plate —3— is of substantially the same size as the opening —5— in the plate —1— so as to readily pass therethrough and permit it to lie in the same flat plane thereof, so that its lower and upright side edges may be soldered to the corresponding walls of the opening —5— which permits the plates —1— and —2— to be brought into close juxtaposition face to face and their adjacent faces soldered together while the adjacent faces of the main body of the locking plate —3— and plate —2— may also be soldered.

The upper end of the locking member —3— is provided with oppositely projecting ledges or flanges —8— and —9— for entering, respectively, the slots —6— and —6′—, the ledges —8— being swingingly mounted upon the upper edge of the cross bar —7— to permit the main body of the locking plate to swing in the opening —5— when the soldered joints are fused by heat, while the opposite ledge —9— serves to receive and support the plate —2— by engaging the lower edge of the cross bar —7′—.

The junctions of the ledges —8— and —9— with the main body of the plate —3— are slightly deflected to one side of the plane of the main body so as to allow the latter to enter the opening —5— and to normally lie in substantially the same plane as the plate —1— when assembled for use, so that the upper edge of the plate —2— stands out a slight distance from the main body of the plate —1— corresponding to the thickness of the stock of the locking plate —3—, by reason of the fact that the cross bar —7′— of the plate —2— abuts against the laterally deflected portions of the locking plate at the junction of the flanges —8— and —9— with the main body thereof, thus permitting the interposition of a substantial layer of solder between the overlapping portions of the plates —1— and —2— and also between the contiguous faces of the plates —2— and —3—.

The main feature of the invention, however, lies in the provision of the oppositely projecting flanges or ledges on the upper end of the locking member —3—, whereby the locking member through the medium of the ledges —8— may be swingingly mounted upon the cross bar —7— of the plate —1—, while the ledge —9— forms a support for the plate —2— close to, but at one side of the pintle or cross bar —7— which supports the locking plate, thereby throwing the strains more directly upon the metal plates and correspondingly relieving the soldered joints from excessive strains and assuring a more reliable link connection between the struts or levers —C—.

It will be observed that by constructing the link in the manner described, practically the entire areas of the plates are exposed to heat in case of fire, under which conditions the fusing of the soft solder under a relatively low temperature will release the locking member, whereupon the pressure of the water upon the valve, tending to separate the free ends of the levers —C—, will cause a corresponding pull upon the link members —1— and —2— in opposite directions, thus causing the plate —1— to exert an upward pull upon the ledges —8—, while the plate —2— will exert a downward pull upon the opposite ledge —9—, thereby rocking the main body of the plate —3— about the pintle —7— until the plate —2— is released from engagement with the ledge —9— to allow the complete opening of the valve and consequent discharge of water in the vicinity of the fire.

What I claim is:

1. A three-part fusible link for sprinkler heads, one of the parts having bearing ledges projecting from opposite faces thereof and engaged, respectively, with the other parts for resisting their relative endwise movement, the first-named part being soldered to said other parts.

2. A three-part fusible link for sprinkler heads having a valve and controlling levers therefor, said links comprising a pair of plates having means for engaging the valve-controlling levers of the head, and a lock-plate having a ledge projecting from one side and swingingly supported by one of the first-named plates, said lock-plate having an additional ledge projecting from its opposite side and supporting the other plate, the lock-plate being soldered to both of the first-named plates.

In witness whereof I have hereunto set my hand this 13th day of July, 1918.

CHARLES W. SIVER.

Witnesses:

H. E. CHASE,

ALICE M. CANNON.