Jan. 4, 1927. 1,613,453

W. GRIMSHAW

FUSIBLE LINK

Filed Nov. 15, 1920

Fig. 1.

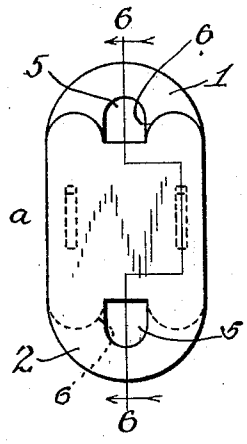


Fig. 2.

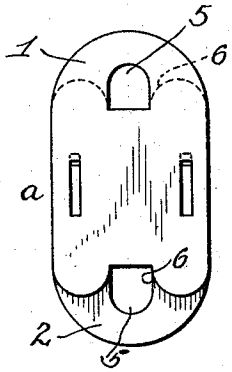


Fig. 3.

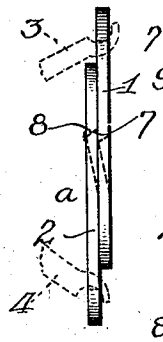


Fig 7

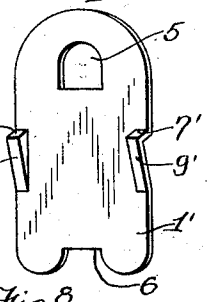


Fig 8

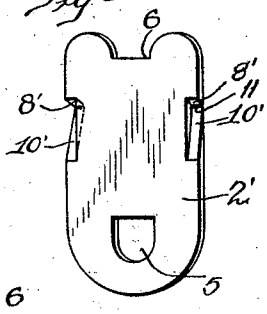


Fig. 6.

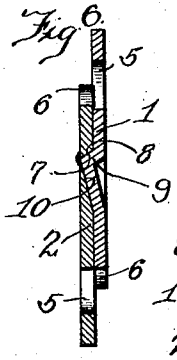


Fig. 4.

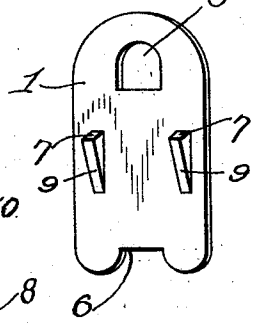


Fig. 5.

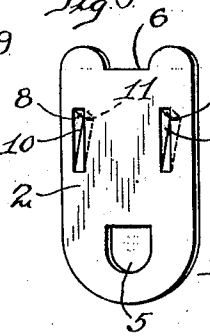


Fig. 9.

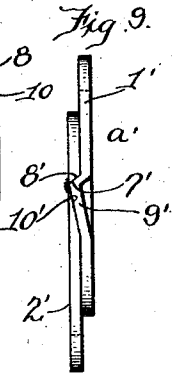
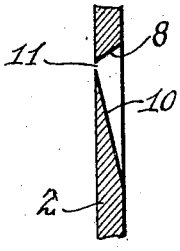


Fig 10



Witness:
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Patented Jan. 4, 1927. 1,613,453

UNITED STATES PATENT OFFICE.

WILLIAM GRIMSHAW, OF GLEN ELLYN, ILLINOIS.

FUSIBLE LINK.

Application filed November 15, 1920. Serial No. 424,016.

This invention relates to fire extinguishers and particularly to fusible links for automatic sprinklers and similar purposes.

Stated generally, the object of the invention is to provide a fusible link for the purpose specified, which shall be simple in construction, strong, durable and effective for its designed purpose.

A specific object of the invention is to provide a fusible link of this general type, the outer sides or surfaces of which, when assembled, will be substantially flat and obstructed throughout, so that said link will present a neat and attractive appearance and the lodgement of dust and dirt on which will be prevented.

To effect the foregoing objects, a fusible link of my invention comprises the various features and details of construction hereinafter described and claimed.

In the acompanying drawing in which my invention is fully illustrated—

Figures 1 and 2 are respectively, full views of opposite sides of a fusible link of my invention.

Figure 3 is an edgewise view thereof.

Figures 4 and 5 are respectively, detached views of the connected sides of the plates forming said fusible link.

Figure 6 is a sectional view on the lines 6—6 of Fig. 1.

Figures 7 and 8 are views, substantially similar to Figs. 4 and 5, respectively, showinga fusible link embodying my invention in slightly modified form.

Figure 9 is an edgewise view of a fusible link formed by plates shown in Figs. 7 and 8; and

Figure 10 is an enlarged, fragmentary sectional view of one of the plates forming my improved fusible link, illustrating a detail of construction.

Referring now to the drawings, my improved fusible link designated as a whole *a*, consists of two plates 1 and 2 soldered together. Said plates are preferably stamped from sheet phosphor bronze or other suitable sheet metal, and are of proper width and thickness to afford requisite strength. When operating in tension, said plates 1 and 2 are preferably stamped from metal of about 16 gauge.

As shown, said fusible link is adapted to be applied through the medium of toggle arms indicated in dotted lines at 3 and 4, Figure 3, the relation being such that said fusible link will act in tension.

To provide for engaging the toggle arms 3 and 4 with said fusible link *a* and to permit said toggle arms to separate when said link fuses, each of the plates 1 and 2 is provided with a hole 5 in one end and a slot or notch 6 in its opposite end, and said plates are soldered together with a slot 6 in one thereof in register with the hole 5 in the other, thus providing for pulling said plates apart endwise, as contemplated.

The connection between the plates 1 and 2 to resist tension applied to said fusible link is strengthened—thus correspondingly relieving the stress on the solder joints connecting said plates—by interlocking shoulders 7 and 8 formed on the overlapping, connected ends of said plates 1 and 2. The shoulders 7 are formed at the ends of lugs or projections 9 formed on the inner side of the plate 1 and the shoulders 8 are formed at the ends of recesses 10 formed in the inner side of the plate 2. Both the lugs 9 and recesses 10 may be conveniently formed by stamping, in a familiar manner, the dies used for forming the recesses 10 being so constructed that said recesses will be formed by consolidating or compressing the metal without forming projections on either side of the plate 2, both sides of which, outside of said recesses, will thus be perfectly flat. Preferably, also, the recesses 10 extend entirely through the plate 2, forming slots 11 in the outer sides of said plate 2.

The struck up shoulders 7 are made of a length substantially equal to the thickness of the metal from which the plates 1 and 2 are stamped, so that the outer ends thereof will not project beyond the outer side of the plate 2, when said plates are assembled.

Said shoulders 7 and 8 will be inclined to the planes of the connected sides of the plates 1 and 2, the angle of inclination being such that tension applied to said plates will produce a desired component of force tending to effect disengagement of said shoulders and to force said plates apart. For general use a desirable angle of inclination of said shoulders to the planes of the connected faces of said plates is about 60 degrees. This angle may, however, be varied within a considerable range to meet varying conditions.

As shown, there are two sets of projec-

tions 9 and recesses 10, forming duplicate sets of shoulders 7 and 8.

As shown, said projections 9 and recesses 10 are formed entirely within the marginal edges of the plates 1 and 2, are relatively narrow, and are arranged symmetrically on opposite sides of the longitudinal centres of the plates 1 and 2. I do not, however, desire to limit myself to the particular relation and arrangement shown, as my invention contemplates the use of any desired number of projections and recesses, of any desired width and arranged in any desired relation.

For example, instead of positioning said projection 9 and recesses 10 entirely within the margined edges of the plates 1 and 2, my invention contemplates forming them directly at the edges of said plates.

This modification is shown in Figs. 7 to 9 of the drawings, in which a' designates the fusible link as a whole, 1′, 2′ the plates forming same, and 9′ and 10′ the projections and recesses on which the interlocking shoulders, designated 7′ and 8′, are formed, said projections and recesses being formed at the marginal edges of the plates 1′ and 2′.

Obviously, by facing the interlocking shoulders on the plates 1 and 2 in opposite directions to those shown in the drawings, said fusible link can readily be adapted for use in compression instead of tension.

I claim:

A fusible link comprising plates soldered together in overlapped position, struck-up spaced lugs, on the contacting side of one only of said plates which project above the side of said plate, and correspondingly stamped spaced recesses formed in the contacting side of the other of said plates, interlocking shoulders formed at the ends of said lugs and recesses, respectively, said shoulders being inclined to the plane of the contacting sides of said plates at an angle slightly less than a right angle, the relation being such that when said fusible link is subjected to endwise stress in opposition to said shoulders, said shoulders will produce components of force tending to disengage them and to separate said plates, the height of said lugs being substantially equal to the thickness of the plate in which the recessed shoulders are formed, and said recessed shoulders extending substantially entirely through said plate but without producing distortion of the exposed side thereof.

In testimony, that I claim the foregoing as my invention, I affix my signature this 12th day of November A. D. 1920.

WM. GRIMSHAW.