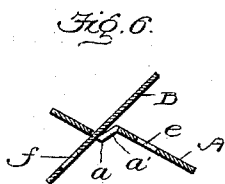
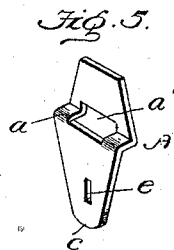
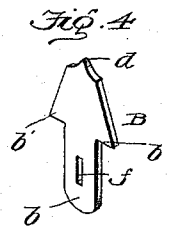
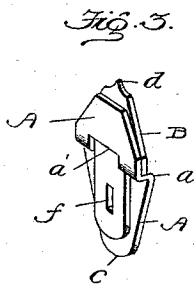
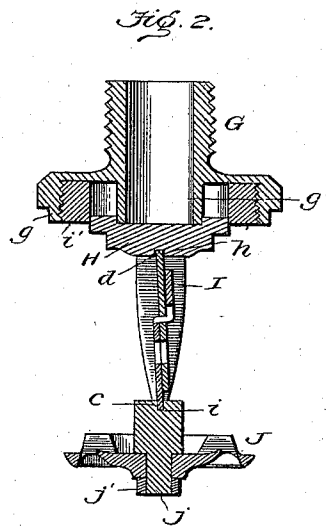
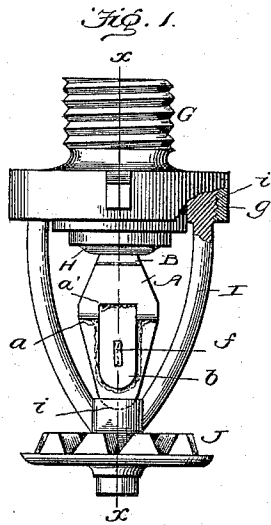


(No Model.)

E. M. COOK.
AUTOMATIC FIRE EXTINGUISHER.

No. 580,307.

Patented Apr. 6, 1897.



Witnesses:
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H. E. Benham

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— Inventor —

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— Atty's.

UNITED STATES PATENT OFFICE.

EMANUEL M. COOK, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO CHARLES W. KERSTETER, OF AKRON, OHIO.

AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 580,307, dated April 6, 1897.

Application filed October 23, 1895. Serial No. 566,605. (No model.)

To all whom it may concern:

Be it known that I, EMANUEL M. COOK, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Automatic Fire-Extinguishers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in automatic fire-extinguishers of that class in which a valve is held closed on its seat by a separable strut that is adapted to be thrown out of operative position when a soft-metal joint is fused by the heat of a fire in an apartment.

The object of the present invention is to provide a simple and cheap construction of the strut, which has its parts joined separately together in a manner to insure the quick separation thereof when the fusible joint is melted.

To the accomplishment of these ends I construct the strut in two pieces of metal, which may be stamped or struck up from sheet metal, one piece or member being bent or deflected at about its middle to form an offset or shoulder and provided with a slot through said offset, while the other piece or member is a flat plate reduced to form a tongue and two shoulders. The members are assembled by passing the tongue of the flat member through the slot in the offset member, so that the shoulders of said flat member bear against the offset in the slotted member, and said members are held rigidly together by a soft-metal alloy or solder.

The invention further consists in the novel construction of parts and in the combination of devices which will be hereinafter described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of an automatic fire-extinguisher constructed in accordance

with the present invention. Fig. 2 is a vertical sectional view through the same on the plane indicated by the dotted line xx of Fig. 1. Fig. 3 is a detail perspective view of the separable strut detached from the sprinkler proper. Figs. 4 and 5 are detailed detached views of the strut. Fig. 6 is a view illustrating the positions of the sections of the separable strut when the fusible joint is melted.

Like letters of reference denote corresponding parts in all the figures of the drawings.

The strut is made of two pieces of metal in the form shown at A B in Figs. 4 and 5, which are assembled together as shown in Fig. 3 and united by soft solder. The member A is struck up with an offset a at an intermediate point of its length, and through said member is produced the slot a' , which extends across the offset portion a , as shown. I prefer to make this member A with a rounded end c , while the opposite end may be straight, as shown, or have any desired form.

The member B is a flat plate stamped from sheet metal, and it is reduced in width from about its middle toward one end, thus forming the tongue b and the shoulders $b' b'$. The end of the member opposite to the tongue b is shaped to form the spur d .

In assembling the members together the tongue b of the member B is passed through the slot or opening a' in member A until the shoulders $b' b'$ thereof bear upon the offset a of said member A, and in this position of the parts the end of member B having the spur d projects beyond the corresponding end of the member A, while the opposite end of the member A has its rounded bearing end c projected or extended beyond the corresponding end or tongue b of the member B, as clearly shown by Figs. 2 and 3.

The members A B are normally held rigidly together to form a complete strut by a fusible alloy, which is applied over the same and across the joint at the offset a and shoulders $b' b'$ between the two members. To hold the parts together more securely, I provide an opening e in the member A and a similar opening f in the other member B, said openings being so placed that when the parts are properly assembled, as in Fig. 3, these open-

ings *ef* are brought into coincidence, whereby the alloy or shoulder is adapted to fill the openings *ef*, for the purposes described.

In applying my strut to a sprinkler or extinguisher it is arranged in a vertical position to have the end of one member bear against the yoke or frame, while the opposite end of the other member bears against a valve in a manner to hold the latter pressed close to its seat, said valve serving to close the outlet-nozzle from a pipe or other source of water-supply. When the fusible alloy is melted by the heat from a fire in an apartment, the members A B are separated and the valve is opened to permit escape of water to extinguish the fire.

It will be noted that, in the normal condition of the strut, the tongue *b* of the member B lies or bears against one face of the offset member A, while the other broad part of said member B bears against the other side or face of the member A. Now by having the end *c* of member A bear against a yoke and the spur *d* of member B seated against a valve these two members are adapted, when the fusible joint is melted, to spread or turn laterally away from each, as upon a hinge or joint, which is furnished by the shoulders *b'* *b'*, bearing on the offset *a*, in the manner clearly indicated by Fig. 6 of the drawings.

When the fusible joint gives way, the pressure of the water on the valve or the weight of the valve against the member B causes the latter to turn within the slot or opening *a'*, thereby spreading the members A B relative to each other and allowing the valve to be forced away from its seat by the water-pressure, the water being thus free to escape.

In order to facilitate the turning movement of the shouldered member B upon the offset *a* of the member A and to insure quick spreading of the members laterally with respect to each other, I make the shoulder *a* take an inclined position relatively to the planes of the two parts or ends of the offset member A, and as the shouldered member B is pressed against and rocks on this offset the inclination of the offset tends to facilitate the turning of the member B.

In Figs. 1 and 2 of the drawings I have illustrated a construction of sprinkler suitable for use in connection with my improved separable strut A B. An externally-threaded nozzle G has a flanged coupling or collar *g* cast thereon, and the lower end of the nozzle itself is made to form a seat *g'* for the reception of the valve H, the outer exposed face of which has an indentation forming a seat *h* for the spur *d* on one member of the separable strut. The yoke I has a transverse recess *i* formed in one end to receive the bearing *c* at one end of said strut, and the other end of this yoke I is furnished with a ring *i'*, which is externally screw-threaded to enable it to be screwed into the internally-threaded flange on the collar *g*, whereby the yoke may be de-

tachably coupled to the nozzle G. From the outer end of the yoke I projects a pintle *j*, having a head *j'*, and on this pintle is rotatably mounted a distributor J, which is confined between the pintle-head *j'* and the end of the yoke, said distributor having inclined ribs against which the water is adapted to strike in order to impel and rotate the distributor. It is evident that a fixed distributor may be used.

In applying my improved strut to a sprinkler of the type shown in Figs. 1 and 2, the yoke I is adjusted to permit the strut to be placed in position with the end *c* of member A resting in the recess *i* and the spur *d* of member B fitting in the seat *h* in the valve, after which the yoke is screwed tightly in place to cause the strut to press the valve home against its seat on the nozzle.

It is thought that the operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings.

Although I have described the members A B as being stamped or struck up from sheet metal in the preferred embodiment of the invention, because such forms of the members enable the strut to be economically and quickly manufactured, yet I would have it understood that I do not strictly confine myself to the manufacture of the strut from sheet metal, because the strut members may be cast or otherwise produced.

It should be understood that the medium used to rigidly unite the separable sections A B is an alloy or solder which will fuse at a much lower temperature than the metal of which the sections A B is composed.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a nozzle provided with an enlarged and internally-threaded flange and with a valve-seat or nipple which projects into said flange concentric therewith, a yoke having at one end an externally-threaded ring screwed into said flange of the nozzle and a notch at its opposite end, a flanged valve fitted laterally to the seat or nipple of the nozzle and within the ring of the yoke and having a seat in the exposed face thereof, a strut member bearing at one end on the notch of the yoke, with its other end free from the valve, and provided at an intermediate point of its length with a slot and a transverse offset or bend across the slotted portion, and a plate-like strut member bearing at one end against the seat in said valve and having its other shouldered end passing through the slot in, and bearing on the offset or bent portion of, the first-named strut member, said strut members being united by a fusible alloy, as and for the purposes described.

2. The strut herein shown and described for fire-extinguishers, comprising two members only, one member being a plate bent trans-

versely at an intermediate point of its length
and provided with a slot which extends across
the offset and terminates within the ends of
said member, leaving said ends of the mem-
5 ber closed and solid, and the other member
provided with a tongue and with lateral shoul-
ders at the base of the tongue; said strut
having its members assembled by fitting the
tongued plate in the slot of the offset member
10 to have the shoulders bear upon the offset or

bend, and the two members united laterally
by a fusible alloy, as and for the purposes
described.

In testimony whereof I affix my signature
in presence of two witnesses.

EMANUEL M. COOK.

Witnesses:

EDWD. ABE,

J. B. WALTERS.